Minutes ETC meeting, January 25<sup>th</sup> and 26<sup>th</sup>, 2017



European forum for energy Business Information eXchange

February 17<sup>th</sup>, 2017

ETC – ebIX<sup>®</sup> Technical Committee

# Minutes ETC meeting, January 25th and 26th, 2017

Date: Time: Place: Present:	Tuesday and Wednesday January 25th and 26th, 2017 09:00 – 18:00 and 09:00 –15:00 Energinet.dk's offices in Erritsø, Denmark Fedder, DK Jan (Convenor), SE Kees, NL Ove (Secretary), NO Thibaut, BE
Appendixes:	Appendix A, ebIX <sup>®</sup> Rules for addressing (routing) Appendix B, Verifying the HRM in our Magic Draw model Appendix C, Agreed additions to the ebIX <sup>®</sup> Business Information Model 2016.A
Attachment:	eblX_technical_pres entation_October_2 See item 13, Creation of an eblX® technical presentation (homework from Jan)
	Namespace issue in TTool.pptx See item 12.1, ebIX <sup>®</sup> TTool issue in namespace (From BE)
	UMIG - IM - XD - 05 - Versioning UMIG <sup>X</sup> See item 12.1, ebIX <sup>®</sup> TTool issue in namespace (From BE)

(Double click on the icon above to see the presentation or right click to edit)

# 1 Approval of agenda

The agenda was approved with the following additions:

- What does ebIX<sup>®</sup> expect from the HG in the coming years? See item 4.3;
- ID Scheme Type, see item 7.11;
- Communication Channel Type, see 7.12;
- Address Type, see 7.13;
- "Time of Use" vs "Meter Time Frame", see 7.14;
- Document Type and Business Reason codes for "Request change grid responsibility", see 8.1;
- Document Type and Business Reason codes for "Request Customer characteristics", see 8.2;
- ebIX<sup>®</sup> TTool issue in namespace (From BE), see 12.1;
- Namespaces for code lists and assembled major version maintenance, see 18.1 under AOB.

# 2 Minutes from previous meeting

The minutes from previous meeting were approved.

# 3 Resolve matters after ebIX<sup>®</sup> Forum meeting November 24<sup>th</sup> 2016

#### Action Item 2016b-01:

ETC is asked to do a presentation of the ebIX<sup>®</sup> model at the next ebIX<sup>®</sup> Forum meeting, including: BRSs, BIMs, the UML model and a live demonstration of the TT.

# Action Item 2016b-02:

> ETC is asked to evaluate the cooperation with IEC before the ebIX<sup>®</sup> autumn forum meeting 2017.

# Decision:

- We will do a live presentation using MagicDraw and the TT, at the coming ebIX<sup>®</sup> Forum meeting:
   Jan will make an introduction, explaining the UMM structure, such as:
  - The Requirements View is top->down, while the Information view is bottom->up (starting with the Business Transaction View);
  - A process' requirements can be as detailed as the business wants them to be, while the information model is limited to the exchange itself.
  - Ove will show the Requirements View, using Change of Supplier as an example;
  - Kees will show the Collaboration View and the Information View, and generate a xml schema using the TT.
- ebIX<sup>®</sup> Forum action item 2016b-02 will be put on the coming agendas as a "to remember item"

# Actions:

- Jan will make a short introduction, two to three slides;
- Ove will prepare a walkthrough the Requirements View for Request Change of Supplier;
- Kees will prepare a walkthrough the Collaboration View and the Information View for Request Change of Supplier.

# 4 Resolve matters from latest ebIX<sup>®</sup>, EFET and ENTSO-E Harmonised Role Model (HRM)

#### 4.1 HRM MR from CuS for addition of Gateway Operator and Communication Gateway

The review of the MR for Gateway Operator and Communication Gateway was postponed, since CuS not has had time to review it.

# 4.2 Actions from precious HG meeting

Action items relevant for ETC:

- Questionnaire:
  - KS will use the questions drafted at the previous meeting as a basis for a more complete questionnaire which will be circulated for comments by the HG members for two weeks
  - o All will thereafter distribute the questionnaire to relevant parties
  - At the next HG meeting all will present the result and how to improve the HRM will be agreed

Status:

• ebIX<sup>®</sup> propose to end this task, since other items should have a higher priority.

• ebIX<sup>®</sup> will prepare a proposal for addition of new elements because of smart processes before next HG meeting

#### Status:

- For some core elements, ebIX<sup>®</sup> will try to come up with a description of the context and business process, including the relations to other roles and domains in the current HRM, before summer 2017.
- ebIX<sup>®</sup> asks WG-EDI to come up with a planning for discussing role model consequences because of the new network codes.
- Can we prepare any of the items on the HG work plan?
  - Make sure that the definitions in the EMR (ENTSO-E Metadata Repository) are up to date

# Status:

- ENTSO-E responsibility
- o Redefining the relations between the roles in terms of contracts, where possible

#### Status:

- ebIX<sup>®</sup> propose to postpone this task until the HG starts on "HRM version 2".
- Making the role model available for relevant bodies, such as:
  - Supporting materials
  - Clarification of ambiguous text in the definitions

#### Status:

- The item is dependent on the outcome of discussions with ENTSOG.
- Work on views of the role model

#### Status:

- Currently OK
- Sharing of the responsibilities of the roles and domains between ENTSO-E and ebIX®

# Status:

Proposal for corrections:



#### Current usage:

	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
	Domains:	Green dual responsibility
		Black mixed ebIX <sup>®</sup> and/or ENTSO-E responsibility
	Roles:	Blue ebIX <sup>®</sup> responsibility
		Red ENTSO-E responsibility
		Black with green fill dual responsibility
Proposal:		
	Domains:	Blue ebIX <sup>®</sup> responsibility
		Red ENTSO-E responsibility

Black dual responsibility Roles: Blue ebIX<sup>®</sup> responsibility Red ENTSO-E responsibility Black with green fill dual responsibility

- The domains Metering Grid Area, Meter and Register should probably be ebIX<sup>®</sup> responsibility.
- Prepare proposals for remaining issues:

#	Issue	Should	Should not	Comment	Decision
		be	be		
1.	Association System		Reports	To be removed or	Open
	Operator – Imbalance		planned and	redefined	
	Settlement Responsible		regulation		
			data to		
2.	Association Market			To be removed or to be	Open
	Information Aggregator -			defined	
	System Operator				
				Compare with Billing agent	
3.	Association		Sends	To be removed or	Open
	Interconnection Trade		nominations	redefined	
	Responsible – Nomination		to		
	Validator				
4.	Could we introduce			Reason: various customers	ebIX <sup>®</sup> will
	specializations for the			having each a contract	come up
	Consumer (which is			with either the Balance	with a
	already a specialization of			Supplier or the Grid Access	proposal
	the Party Connected to			Provider.	
	the Grid?)				Open

#### Status:

- The first 3 items are ENTSO-E responsibility;
- $\circ$  The fourth item is currently not used, hence ebIX  $^{\circledast}$  prose to remove the item until a need turns up.

# Actions:

• Jan will go through the HRM and propose ebIX<sup>®</sup>, ENTSO-E and dual responsibilities.

# 4.3 What does ebIX<sup>®</sup> expect from the HG in the coming years?

ebIX<sup>®</sup> expects:

- To be able to use the HRM as basic input to models representing the business processes, in the energy markets;
- The HRM to contain both downstream and upstream energy markets;
- That the HRM shall be continuously updated and always be in line with the latest regulations.

#### 5 ebIX<sup>®</sup> web site

Latest BRSs and BIMs from CuS are uploaded at the Documents page. Kees had prepared the same for EMD, however not yet published.

# Action:

- Kees will upload the latest EMD BRSs and BIMs to the Documents page;
- Kees will upload the latest xml schemas to the Documents page;
- Kees will add a date to the latest 2014.A version of the MD model.

# 6 Status for AS4 discussions

There is an internal Dutch report, concluding that it is possible to make an AS4 interface to MADES.

# 7 ebIX<sup>®</sup> Business Information Model 2016.A

7.1 Continue review and update of version 2016.A Proposed updates are found in Appendix C.

# 7.2 To be discussed and agreed, for ebIX<sup>®</sup> model 2016.A:

CuS had reviewed the proposal from ETC for a new enumeration "Contact function code" based on "3139 Contact function code", with the following comments:

CuS	3139 0	Contact function			
requirements	code	name	definition	CuS comments	<b>ETC</b> comments
Main contact	A¥	Electricity supply contact	Department/person to contact for matters regarding electricity supply	CuS want a	
	AZ	Gas supply contact	Department/person to contact for matters regarding gas supply	combined code	
	<del>BF</del>	<del>Service</del> <del>contact</del>	Department/person to be contacted in service matters.		possible alternatives for
	÷	Information contact	Department/person to contact for questions regarding transactions.		"Main contact"
	Z01	Customer contact	The main department/person to contact at the customer		UN/CEFACT will be asked for a new code
Neighbour	wı	Alternate contact	Alternate department or person to contact		
House keeper	AV	Maintenance contact	Department/person to contact for matters regarding maintenance		
Invoice contact	PE	Payee contact	Department/employee to be contacted at the payee		
Technical	AT	Technical contact	Department/person to contact for matters regarding technical issues.		
<del>Meter</del> <del>reading</del>	AQ	<del>Quantity</del> <del>surveyor</del> <del>contact</del>	Department/person to contact for matters regarding quantity surveying	CuS wants a new UN/ CEFACT code (see below)	
Meter reading	Z02	Meter reading contact	Department/person to contact for matters regarding meter reading		UN/CEFACT will be asked for a new code
Contract contact	AE	Contract contact	Department/person to contact for matters regarding contracts	NEW	

# Action:

- Kees/Ove will verify the table above with CuS and if agreed;
  - Kees will make a DMR for a new code for "3139 Contact function code":

Meter reading contact (Department/person to contact for matters regarding meter reading)

Customer contact (The main department/person to contact at the customer)

 Kees will add the codes in bold above to a new code list "Contact Function Code" in the ebIX<sup>®</sup> model (new BDT, assembled code list, ebIX<sup>®</sup> subset)

# 7.3 How to represent the exchange of calorific value in ABIEs

Continued action from previous meeting:

• Kees to come up with a proposal for how to represent the exchange of calorific value in ABIEs.

# 7.4 How to extend the possibilities for national customisation?

Continued action from previous meeting:

- Kees will make a first draft template for national customisation of the ebIX<sup>®</sup> model, including:
  - One national chorography
  - One national document

# 7.5 QA of the ebIX<sup>®</sup> model

Continued action from previous meeting:

• Jan will find topics to be discussed related to how to organise, maintain and develop the ebIX<sup>®</sup> model in a better way. The item will be put on the next ETC agenda.

# 7.6 Code lists

Kees had as action from previous meeting added the ConversionFactorTypeCode to the ebIX<sup>®</sup> model:

ConversionFactorTypeCode
E01{codeName = "Current"}
E02{codeName = "Voltage"}
E03{codeName = "Pressure"}
E04{codeName = "Temperature"}
E05{codeName = "Altitude"}
E06{codeName = "Measurement"}

The latest draft 2016.A, where the latest Structure and Measure modules had been merged, was distributed to the ETC members at the meeting.

#### Action:

- Kees will replace the ACCs, BCCs etc. in the current CEFACT Profile with the "CEFACT Profile\_Recast.mdzip" from Belgium.
- Kees will add generalisation from the "ebIX<sup>®</sup> assembled code list" to the related Belgian code list, received from Thibaut during the meeting

#### 7.7 Aligning the Requirements View of Measure and Structure

The Measure and Structure modules were aligned during the meeting.

# 7.8 Alignment of external content in the ebIX<sup>®</sup> model

Jan had as action from previous meeting verified if the Harmonised Role model in the ebIX<sup>®</sup> Magic Draw model is in line with the latest Harmonised Role Model from the HG. The result is shown in Appendix B.

# Action:

• Kees will add the updated HRM MD file from Jan to the ebIX<sup>®</sup> model.

# 7.9 Use of XOR in combination with cardinalities

Continued action from previous meeting:

- Kees will make a proposal for update the "ebIX<sup>®</sup> introduction to Business Requirements and Information Models" with a chapter explaining the relationship between cardinalities and OR/XOR, including:
  - XOR and cardinality of [1] lead to a required choice in the XML schema
  - XOR and cardinality of [0..1] lead to an optional choice in the XML schema

7.10 Magic Draw version 18.2, ebIX<sup>®</sup> model 2016.A, ebIX<sup>®</sup> "standard messages", etc. Due to lack of time the item was postponed.

7.11 ID Scheme Type Due to lack of time the item was postponed.

7.12 Communication Channel Type Due to lack of time the item was postponed.

7.13 Address Type Due to lack of time the item was postponed.

7.14 "Time of Use" vs "Meter Time Frame"

Due to lack of time the item was postponed.

8 Document type codes and Business reason for CuS change of MP Characteristics

Due to lack of time the item was postponed.

8.1 Document Type and Business Reason codes for "Request change grid responsibility" Due to lack of time the item was postponed.

8.2 Document Type and Business Reason codes for "Request Customer characteristics" Due to lack of time the item was postponed.

8.3 New enumeration; "Incrementation Type"

Information from after the meeting: CuS will use Indicator Type (Boolean) instead of an enumeration (Incrementation Type). The item is closed

9 Update of ebIX<sup>®</sup> position related to addressing in business documents

Due to lack of time the item was postponed.

#### 10 Code lists from Magic Draw model in Word format

Due to lack of time the item was postponed.

# 11 Making a plan for support for new countries that want to use the ebIX<sup>®</sup> model

Due to lack of time the item was postponed.

# **12** Status for update of the TT (Transformation Tool)

#### 12.1 ebIX<sup>®</sup> TTool issue in namespace (From BE)

Thibaut presented the problem, which is described in the attached PowerPoint file, with among others the following comments:

- To solve the Belgian problem as described in the attached PowerPoint presentation will require changes to the TT;
- Kees stressed that the TT works with the current way ebIX<sup>®</sup> is versioning the schemas, however this does not support the Belgian proposal using UN/CEFACT NDR (xml naming and design rules) requirements with minor and major versions;
- The current principle used for common Nordic schemas is not to use versioning in the namespace for codes, hence version is only used on a document level;
- It should be possible to use different versioning principles for the ebIX<sup>®</sup> model itself and in national implementations.

#### Action:

- All will find national requirements for versioning of xml schemas, and see if the requirements are in line with the Belgian rules (see attached pdf);
- Ove will make a reminder for this action item in the mail, when distributing the next ETC agenda and ask ebIX<sup>®</sup> members to respond even if they don't participate in the ETC meeting;
- At the next ETC meeting we will discuss a possible need for update of the TT.

#### 13 Creation of an ebIX<sup>®</sup> technical presentation

Due to lack of time the item was postponed.

# 14 Status for UN/CEFACT project for Alignment of Master Data for Metering Point and of Measured Data

Due to lack of time the item was postponed.

# 15 Status for ebIX<sup>®</sup> project for new roles related to smart processes, with a special focus on flexibility markets

Due to lack of time the item was postponed.

#### 16 Status and continuation of ebIX<sup>®</sup>/IEC TR project ("to remember item" for January 2017)

Due to lack of time the item was postponed.

#### 17 Next meeting(s), including start and end time.

• April 25<sup>th</sup> and 26<sup>th</sup>, the Netherlands

# **18 AOB**

18.1 Namespaces for code lists and assembled - major version maintenance

Thibaut had informed that they have a small methodology question about Namespaces. Following UN/CEFACT Naming and Design Rules, every namespace should follow the structure here under



# Figure 5-5: UN/CEFACT Namespace Scheme

It means that we should have the Major version in every Namespace... also for code list and assembled.

But the namespace for these kinds of elements (code list, assembled) is defined at package level (tag base URN). It means that we can't assign a new version to only one code list as all the codes within the same package will automatically also have this new namespace (even if these code lists/assembled didn't change).

To solve this problem, we see 2 solutions:

- A package by major version of the code lists where we put all the code list concerned by this major (example "ebIX Subset 01" and "ebIX Subset 02")
- Put each code list in a distinct package where we will be able to define independently from the others each namespace

The first solution is the quickest implemented solution but could on long term be difficult to maintain.

An example adapted it to the first solution. We would have a package "ebIX Original 2016A" where we would find all the code lists that are in this Major version and a package "ebIX Original 2016B" where we will find all the code lists that are in this new Major version. We could never find a code list in both



The item will be handled together with the discussion from item 12.1.

# Appendix A ebIX<sup>®</sup> Rules for addressing (routing)

# A.1 Definitions

Juridical party:	A juridical party is the party juridical responsible for sending or receiving
	information.
Party id:	The identification of a party, i.e. the party's GS1 location number or the party's EIC
	(Energy Identification Code).
Third party:	A party acting on behalf of the juridical party (as an intermediate) in a message exchange scenario. In between the juridical parties there may be several third
	parties. These intermediates can have different responsibilities, such as routing of documents, conversions and/or handling of the document content on behalf of
	the juridical party. Intermediates only doing routing of messages will not be a part
	of the addressing principles discussed below. The third parties may be split into
	the following two subtypes:
Application convic	provider (ASD): A third party that takes care of the database (application) for a

Application service provider (ASP): A third party that takes care of the database (application) for a juridical party. The ASP is responsible for returning application acknowledgements.

**EDI Service Provider (ESP):** A third party that is responsible for the document exchange on behalf of the juridical party, including conversion of documents. The ESP is responsible for returning syntax related acknowledgements.



Relationship between roles in document exchange

A juridical party can choose whether or not to use one or more third parties in his document exchange. It is also possible to combine usage of third parties for one or more business areas and handle the document exchange himself for other business areas.

# A.2 Principles for addresses and identifications

- 1. The juridical party may choose whether to use one or more third parties as intermediates in a document exchange scenario.
- 2. Routing of documents, including acknowledgements, shall use the same principles even if third parties are used.
- 3. The information in the "Header and Context Information" class may be used for routing purposes:

# Header and Context Information +Document Type : DocumentNameCode [1] c +Business Reason : BusinessReasonCode [1] c +Ancillary Business Process Role : BusinessRoleCode [1]c

- 4. It shall always be the juridical party, the party legally responsible for sending or receiving the information, that is identified in the document header level.
- 5. Acknowledgements of acceptance, such as EDIFACT/APERAK, shall be treated as any other document regarding the addresses. I.e. the sender address, including BPI (sub address) in the original document, shall be sent as receiver address in the application acknowledgement. And the receiver address, including BPI (sub address) in the original document, shall be sent as sender address in the application acknowledgement.<sup>1</sup>
- 6. Acknowledgements of receipt, such as EDIFACT/CONTRL documents, shall be returned with opposite addresses. I.e. the sender address, including BPI (sub address) in the original document, shall be sent as receiver address in the syntax acknowledgement. And the receiver address, including BPI (sub address) in the original document, shall be sent as sender address in the syntax acknowledgement.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> Point 5 and 6 must be verified with ebIX<sup>®</sup> BRS for Acknowledgement

 $<sup>^2</sup>$  Point 5 and 6 must be verified with ebIX  $^{\circledast}$  BRS for Acknowledgement

# Appendix B Verifying the HRM in our Magic Draw model

This is the result of Jan's homework, verifying the HRM in our Magic Draw model.

#### Data Provider

- added in the Magic Draw file

Description [including the spelling error]: A party that is has a mandate to provide information to other parties in the energy market.

#### Note:

For example, due to Article 2 of the European Commission Regulation 543/2013 of the 14th of June 2013, a data provider may be a Transmission System Operator or a third party agreed by a TSO.

#### Grid operator

> Grid Operator

#### **Resource Provider**

A role that manages a resource object and provides the schedules for it > A role that manages a resource and provides the schedules for it, if required.

#### **System Operator**

Note: additional > Note: Additional

#### **Balance Group**

A collection of metering points > A collection of Metering Points

Equivalent to "balance group" > Equivalent to "Balance Group"

Removed "Additional information".

#### **Functional Group**

Added "Deprecated" to the description.

#### National area

A area > An area

# **Reserve Object**

Changed name to: Reserve Resource to a System Operator associated with one or more Metering Points and tele-measuring devices. > to a System Operator and is associated with one or more tele-measuring devices.

This is a type of Resource Object > This is a type of Resource.

# **Resource Object**

Changed name to: Resource

A resource that can either produce or consume energy and that is reported in a schedule.

> An object that represents a grid asset, a consumption resource or a production resource related to the energy industry.

Additional information:

This is a type of Functional Group

> Additional information:

A Resource can represent for example a generating unit, a consumption unit or a virtual power plant defined in a contract.

Added Billing Agent and Metered Data Aggregator to the diagram.

# While updating the Diagram *Harmonized Role Model* section *Master Data*:

Removed the association between Functional Group and Metering point. Removed Functional Group from the diagram. Added the association between Accounting Point and Balance Group. For the association between Metered Data Responsible and Metering Point: changed "Processes metered data for" to "Processes metered data of"

# While updating the Diagram Harmonized Role Model section Measure:

Removed Functional Group from the diagram. Added the association between Accounting Point and Balance Group.

#### While updating the Diagram Harmonized Role Model section Reconciliation:

Removed Functional Group from the diagram. Added the association between Accounting Point and Balance Group.

The Diagram *Harmonized Role Model section UCTE* has not been updated – will be recasted/removed in next version of the HRM.

#### Other updates:

Multiplicities have been added (or updated), when shown in the HRM subsets – and I did observe it. And some directions have been reversed. However, that can probably be further updated.

Removed Resource as a type of Functional Group.

Added an association ("Linked to") between Resource and Metering Point.

Moved Functional Group to the package "for deprecation"

Added an association ("Has") between Reserve Resource and Accounting Point.

Removed the association between Resource Provider and Reserve Resource.

Added a general comment element to Data Provider with the text "The Data Provider can carry out the task of providing information for multiple actors".

# Appendix C Agreed additions to the ebIX® Business Information Model 2016.A

# C.1 BIE changes, e.g. cardinalities

- 1) Change the cardinality of the association from "MP Event" to "MP Address" to [0..\*]
- 2) Add a language attribute to "MP Address"
- 3) Add Aggregated Reception Station (ARS), as an ASBIE, with XOR between the ARS and Calorific Value Area (CVA)
- 4) Add CVA, as an ASBIE, with XOR between the ARS and CVA
- 5) Rename MP Characteristics class to MP Administrative Characteristics
- 6) Add MP Physical Characteristics, containing:
  - a. Connection Status (Moved from MP Administrative Characteristics)
  - b. Disconnection Method
  - c. Capacity of Metering point (Moved from MP Administrative Characteristics)
  - d. Voltage Level (Moved from MP Administrative Characteristics)
  - e. Pressure Level (Moved from MP Administrative Characteristics)
- 7) Add Capacity of Metering point
  - a. Definition:

Capacity of a Metering point is the maximum physical capacity of the Metering Point.

For electricity the maximum capacity for the Metering Point is given in kW or MW and calculated from the nominal voltage level, number of phases and current limitations.

For gas the maximum capacity for the Metering Point is given in m3/hour, usually determined by the physical constraints of the (nozzles in the) Meter.

- 8) Add a new ABIE Energy Label, with two BBIEs; Technology Type and Fuel Type
- 9) Add an attribute "Disconnection Contract" (Boolean) in MP Administrative Characteristics
- 10) Change the Country Name (text) in the MP Address class to Country (coded)
- 11) Add BDT for Energy Label Fuel
- 12) Rename BDT Energy Generation technology Type to Energy Label Technology Type
- 13) Add an BBIE "number of phases" to MP Physical Characteristics
- 14) Add a new ABIE; Communication:

«ABIE»	
Communication	
«BBIE»+URI : IdentifierType [01] «BBIE»+Channel : CodeType [01] «BBIE»+CompleteNumber : TextType [	01]

15) Rename the BBIE Unit Type in the ABIE Product Characteristics to Quantity Unit Type and add a BBIE Price Unit Type to the ABIE Product Characteristics

# C.2 New enumerations and/or DT

- 1) Add an enumeration for ISO Language codes, based on ISO 639-1988
- 2) Add an enumeration for Energy Label Fuel type, based on CENELEC standard, imported from Atrias implementation
- 3) Add an enumeration for Energy Label Technology type, based on CENELEC standard, imported from Atrias implementation
- 4) Add enumeration "Communication channel", ebIX<sup>®</sup> subset with the following literals, based on 3155:
  - AL Cellular phone
  - EM Electronic mail
  - FX Telefax
  - TE Telephone
- 5) Add an enumeration "Communication channel", ebIX<sup>®</sup> subset, based on 3131 Address type, code with the following literals:
  - 1 Postal address: The address is representing a postal address
  - 3 Physical address; The address represents an actual physical location.
- 6) Remove all predefined facets, such as maxLength
- 7) All code lists should be checked for codes without a code name. These should be given a name or deleted.