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Information technology — Message Handling Systems (MHS) —

Part 9:

Electronic Data Interchange Messaging System

Technologies de l'information — Systèmes de messagerie (MHS) —

Partie 9: Système de messagerie avec échange de données informatisé

Contents

Foreword	vii
Introduction.....	viii
Section 1 - Introduction.....	1
1 Scope.....	1
2 Normative references.....	1
3 Definitions.....	3
3.1 Common definitions for MHS.....	3
3.2 Common definitions for abstract syntax notation one.....	3
3.3 Terms imported from EDI service	4
3.4 Other EDI definitions	4
3.4.1 Terms imported from EDI for administration, commerce and transport	4
3.4.2 Terms imported from United Nations trade data interchange	5
3.4.3 Terms imported from ANSI X12.5	5
3.5 EDI messaging system definitions	5
3.5.1 EDI message store	5
3.5.2 EDI messaging system.....	5
3.5.3 EDI user agent.....	5
4 Abbreviations	5
5 Conventions.....	6
5.1 Terms	6
5.2 ASN.1	6
5.3 Conventions for Attribute Types in Table 1	7
5.4 Conventions for Attribute Types in Table 2.....	7
6 Information objects.....	7
7 Common data types	8
7.1 EDIM identifier	8
7.2 Extensions	8
8 EDI message.....	9
8.1 Heading field component types.....	10
8.1.1 Interchange recipient/sender	10
8.1.1.1 Identification code	10
8.1.1.2 Identification code qualifier	10
8.1.1.3 Routing address.....	10
8.2 Heading fields	10
8.2.1 This EDIM	11
8.2.2 Originator.....	11
8.2.3 Recipients.....	11
8.2.3.1 Recipient.....	12
8.2.3.2 Action request.....	12
8.2.3.3 EDI notification requests.....	12
8.2.3.4 Responsibility passing allowed.....	13
8.2.3.5 Interchange recipient.....	14
8.2.3.6 Recipient reference	14
8.2.3.7 Interchange control reference	14

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8.2.3.8	Processing priority code.....	14
8.2.3.9	Acknowledgement request.....	14
8.2.3.10	Communications agreement id.....	14
8.2.3.11	Test indicator.....	14
8.2.3.12	Authorization information	15
8.2.3.13	Recipient extensions	15
8.2.4	EDIN receiver	15
8.2.5	Responsibility forwarded	15
8.2.6	EDI body part type	16
8.2.7	Incomplete copy	17
8.2.8	Expiry time.....	17
8.2.9	Related messages.....	17
8.2.10	Obsoleted EDIMs	17
8.2.11	EDI application security elements.....	17
8.2.12	Cross referencing information.....	17
8.2.13	EDI message type	18
8.2.14	Service string advice.....	18
8.2.15	Syntax identifier	18
8.2.16	Interchange sender.....	19
8.2.17	Date and time of preparation.....	19
8.2.18	Application reference	19
8.2.19	Heading extensions	19
8.3	Body part types.....	19
8.3.1	EDI body part.....	19
8.3.2	EDIM body part.....	19
8.3.3	Externally defined body parts	20
9	EDI notifications	21
9.1	Common fields	21
9.1.1	Subject EDIM.....	22
9.1.2	EDI notification originator.....	22
9.1.3	First recipient	22
9.1.4	Notification time	23
9.1.5	Security elements	23
9.1.6	EDIN initiator.....	23
9.1.7	Notification extensions	23
9.2	Positive notifications	24
9.2.1	PN supplementary information	24
9.2.2	Positive notification extensions.....	24
9.3	Negative notifications.....	24
9.3.1	Negative notification reason	24
9.3.2	NN supplementary information.....	27
9.3.3	Negative notification extensions	27
9.4	Forwarded notifications	27
9.4.1	Forwarded to	27
9.4.2	Forwarded notification reason.....	27
9.4.3	FN supplementary information	29
9.4.4	Forwarded notification extensions	29
Section 2	EDI environment and abstract service definition.....	29
10	Primary object types	29
10.1	EDI messaging user	30
10.2	EDI messaging system	30
11	Primary port types	31
11.1	Origination port	31
11.2	Reception port	31
12	Abstract operations.....	31
12.1	Origination abstract operations	32

12.1.1	Originate probe	32
12.1.2	Originate EDIM	32
12.1.3	Originate EDIN	33
12.2	Reception abstract operations	33
12.2.1	Receive report	34
12.2.2	Receive EDIM	34
12.2.3	Receive EDIN	34
13	Abstract errors	35
13.1	Recipient improperly specified	35
14	Other capabilities	35
15	Secondary object types	36
15.1	EDI user agent	37
15.2	EDI message store	37
15.3	Telematic agent	37
15.4	Physical delivery access unit	37
15.5	Message transfer system	38
16	Secondary port types	38
16.1	Submission port	38
16.2	Delivery port	38
16.3	Retrieval port	38
16.4	Administration port	38
16.5	Import port	39
16.6	Export port	39
Section 3	- Procedures	39
17	User agent operation	39
17.1	Performance of origination operations	39
17.1.1	Originate probe	39
17.1.2	Originate EDIM	40
17.1.3	Originate EDIN	41
17.2	Invocation of reception operations	42
17.2.1	Receive report	42
17.2.2	Receive EDIM	42
17.2.3	Receive EDIN	42
17.3	Internal procedures	43
17.3.1	Acceptance of responsibility	43
17.3.1.1	Construction of PN	43
17.3.1.2	Submission of PN	44
17.3.2	Refusal of responsibility	44
17.3.2.1	Construction of NN	44
17.3.2.2	Submission of NN	44
17.3.2.3	Handling of received EDIM	44
17.3.3	EDI Forwarding	45
17.3.3.1	Forwarding of message and responsibility forwarded	46
17.3.3.2	Forwarding of message and responsibility accepted	46
17.3.3.3	Prevention of loops	47
17.3.3.4	Construction of forwarding EDIM	47
17.3.3.5	Submission of forwarded EDIM	48
17.3.3.6	Construction of FN	48
17.3.3.7	Submission of FN	48
Section 4	- Message store	48
18	Message store operation	48
18.1	Binding to the MS	49
18.1.1	Abstract-bind argument	49
18.2	Abstract-bind result	49
18.3	Creation of information objects	49
18.3.1	Mapping of an MHS message in MS	50

18.3.2	Mapping of forwarding messages in MS.....	51
18.4	Maintenance of attributes	51
18.5	Negative notification.....	52
18.6	Auto action types	52
18.6.1	Forwarding with responsibility not accepted	53
18.6.2	Forwarding with responsibility accepted	54
18.7	Message store attributes	55
18.7.1	Summary attributes	61
18.7.1.1	EDIMS entry type	61
18.7.1.2	EDIM synopsis.....	61
18.7.2	EDI notification indicator.....	62
18.7.3	Heading attributes	63
18.7.3.1	Heading	63
18.7.3.2	Heading fields	63
18.7.3.3	Recipient sub-field	65
18.7.4	Body attributes.....	66
18.7.4.1	Body	66
18.7.4.2	Body analyses	67
18.7.4.3	Primary body parts	67
18.7.4.4	Externally defined body part types	67
18.7.4.5	Externally defined body parts	68
18.7.5	Notification attributes	68
18.7.5.1	Common fields.....	68
18.7.5.2	Positive notification fields.....	69
18.7.5.3	Negative notification fields	69
18.7.5.4	Forwarded notification fields.....	70
18.8	Procedures for an EDI MS.....	70
18.8.1	Additional procedures for message delivery	70
18.8.2	Manual forwarding.....	71
19	Message contents	71
19.1	Content	71
19.2	Content type.....	71
19.3	Content length.....	71
19.4	Encoded information types.....	72
20	Port realization.....	72
21	Conformance.....	72
21.1	Origination versus reception.....	72
21.2	Statement requirements	73
21.3	Static requirements.....	73
21.4	Dynamic requirements	73

ANNEXES

A	- Reference definition of object identifiers	74
B	- Reference definition of abstract information objects	77
C	- Reference definition of Message Store attributes	90
D	- Reference definition of Message Store Auto-Action types	99
E	- Reference definition of EDIMS functional objects	101
F	- Reference definition of EDIMS abstract service	104
G	- Reference definition of EDIMS Upper Bounds parameters	106
H	- Reference definition of Directory object classes and attributes	107
I	- Enhanced security model	110
J	- Directory object classes and attributes	113
K	- Comparison of terms of EDI syntaxes.....	115
L	- Comparison of terms in this part of ISO/IEC 10021 and ISO/IEC 10021-8 CCITT Recommendation F.435	117
M	- Realization of an EDIMG User in the Directory	118

TABLES

1 - Summary of EDI specific MS attribute types..... 57

2 - Generation of the EDI specific MS attribute types..... 58

I-1 - Supplements to table 7 of ISO/IEC 10021-2 | CCITT Recommendation X.402.. 111

K-1 - Comparison of terms for EDI Interchange header fields 116

K-2 - Comparison for terms to EDI Interchange header segments..... 116

L-1 - Comparison of terms in this part of ISO/IEC 10021 with those of
ISO/IEC 10021-8 | CCITT Recommendation F.435 117

FIGURES

1 - EDI message structure..... 10

2 - EDIM body part structure..... 20

3 - EDI notification structure..... 22

4 - The EDI messaging environment 30

5 - The EDI messaging system 36

6 - Forwarding..... 45

7 - MHS message with EDIM - Mapping in MS 50

8 - Forwarding message in MS 51

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 10021-9 was prepared by ITU-T (as CCITT Recommendation X.435) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

ISO/IEC 10021 consists of the following parts, under the general title *Information technology — Message Handling Systems (MHS)*:

- *Part 1: System and Service Overview*
- *Part 2: Overall Architecture*
- *Part 3: Abstract Service Definition Conventions*
- *Part 4: Message Transfer System: Abstract Service Definition and Procedures*
- *Part 5: Message Store: Abstract Service Definition*
- *Part 6: Protocol Specification*
- *Part 7: Interpersonal Messaging System*
- *Part 8: Electronic Data Interchange Messaging Service*
- *Part 9: Electronic Data Interchange Messaging System*

Annexes A to J form an integral part of this part of ISO/IEC 10021. Annexes K, L and M are for information only.

Introduction

This part of ISO/IEC 10021 is one of a number of parts of ISO/IEC 10021 (the International Standard for Message Handling Systems (MHS)).

MHS provides for the exchange of messages between users on a store-and-forward basis. A message submitted by one user (the *originator*) is transferred through the Message Transfer System (MTS), and delivered to one or more other users (the *recipients*). A user may interact directly with the MTS, or indirectly via a message store (MS).

The MTS comprises a number of message-transfer-agents (MTAs), which transfer messages and deliver them to their intended recipients.

This part of ISO/IEC 10021 was developed and published by the ITU-T in 1991. The equivalent ITU-T document is CCITT Recommendation X.435 (1991) as amended by the MHS Implementor's Guide (version 12).

Information technology - Message Handling Systems (MHS) -

Part 9 : Electronic Data Interchange Messaging System

Section 1 - Introduction

1 Scope

This part of ISO/IEC 10021 is one of a set of standards for message handling. The entire set provides a comprehensive blueprint for a message handling system (MHS) realized by any number of cooperating open systems.

NOTE - The Message-Oriented Text Interchange System (MOTIS) was formerly the title of 10021:1990 parts and has been superseded by amendment to become Message Handling Systems (MHS). MHS is also published by the ITU-T as part of the X.400 series of Recommendations.

The purpose of an MHS is to enable users to exchange messages on a store-and-forward basis. A message submitted on behalf of one user, the originator, is conveyed by the message transfer system (MTS) and subsequently delivered to the agents of one or more additional users, the recipients. Access units (AU) link the MTS to communication systems of other kinds (e.g., postal systems). A user is assisted in the preparation, storage, and display of messages by a user agent (UA). Optionally, it is assisted in the storage of messages by a message store (MS). The MTS comprises a number of message transfer agents (MTA) which collectively perform the store-and-forward message transfer function.

This part of ISO/IEC 10021 defines the message handling application called EDI messaging (EDIMG), a form of message handling tailored for exchange of electronic data interchange (EDI) information, a new message content type and associated procedures known as P_{edi} . It is designed to meet the requirements of users of ISO 9735 (EDIFACT), and other commonly used EDI systems.

This part of ISO/IEC 10021 is one of a series on message handling. ISO/IEC 10021-2 | CCITT Recommendation X.402 constitutes the introduction to the series and identifies the other documents in it.

The architectural basis and foundation for message handling are defined in still other parts. ISO/IEC 10021-2 | CCITT Recommendation X.402 identifies those documents as well.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10021. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10021 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.

(See also CCITT Recommendation X.208 (1988))

ISO/IEC 8825:1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.

(See also CCITT Recommendation X.209 (1988))

ISO/IEC 8859, *Information processing - 8-bit single-byte coded graphic character sets.*

ISO/IEC 9594-1:1990, *Information technology – Open Systems Interconnection – The Directory - Part 1: Overview of concepts, models, and service.*

(See also CCITT Recommendation X.500 (1988))

ISO/IEC 9594-2:1990, *Information technology – Open Systems Interconnection – The Directory – Part 2: Models.*

(See also CCITT Recommendation X.501 (1988))

ISO/IEC 9594-3:1990, *Information technology – Open Systems Interconnection – The Directory – Part 3: Abstract service definition.*

(See also CCITT Recommendation X.511 (1988))

ISO/IEC 9594-4:1990, *Information technology – Open Systems Interconnection – The Directory – Part 4: Procedures for distributed operation.*

(See also CCITT Recommendation X.518 (1988))

ISO/IEC 9594-5:1990, *Information technology – Open Systems Interconnection – The Directory – Part 5: Protocol specifications.*

(See also CCITT Recommendation X.519 (1988))

ISO/IEC 9594-6:1990, *Information technology – Open Systems Interconnection – The Directory – Part 6: Selected attribute types.*

(See also CCITT Recommendation X.520 (1988))

ISO/IEC 9594-7:1990, *Information technology – Open Systems Interconnection – The Directory – Part 7: Selected object classes.*

(See also CCITT Recommendation X.521 (1988))

ISO/IEC 9594-8:1990, *Information technology – Open Systems Interconnection – The Directory – Part 8: Authentication framework.*

(See also CCITT Recommendation X.509 (1988))

ISO 9735:1988, *Electronic data interchange for administration, commerce and transport (EDIFACT) - Application level syntax rules.*

ISO 9735:1988/Amd.1:1990, *Electronic data interchange for administration, commerce and transport (EDIFACT) - Application level syntax rules – Amendment 1.*

ISO/IEC 10021-1:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 1: System and Service Overview.*

(See also CCITT Recommendation F.400 (1992) | X.400 (1993))

ISO/IEC 10021-2:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 2: Overall Architecture.*

(See also CCITT Recommendation X.402 (1992))

ISO/IEC 10021-3:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 3: Abstract Service Definition.*

(See also CCITT Recommendation X.407 (1988))

ISO/IEC 10021-4:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 4: Message Transfer System: Abstract Service Definition and Procedures.*

(See also CCITT Recommendation X.411 (1992))

ISO/IEC 10021-5:1994, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 5: Message Store: Abstract Service Definition.*

(See also CCITT Recommendation X.413 (1992))

ISO/IEC 10021-6:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 6: Protocol Specifications.*

(See also CCITT Recommendation X.419 (1992))

ISO/IEC 10021-7:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 7: Interpersonal Messaging System*.
(See also CCITT Recommendation X.420 (1992))

ISO/IEC 10021-8:1995, *Information technology – Message Handling Systems (MHS) - Part 8: Electronic Data Interchange Messaging Service*.
(See also CCITT Recommendation F.435 (1991))

CCITT Recommendation X.408 (1988), *Message handling systems: Encoded information type conversion rules*.

ANSI X12.5-1987: *American National Standard for electronic business data interchange - interchange control structure*.

NOTES

- 1 - ITU-T Recommendations are published subsequent to March 1993 and CCITT Recommendations were published prior to March 1993. The term *CCITT Recommendation* is used because all of the editions referred to in this part of ISO/IEC 10021 were published before March 1993.
- 2 - ISO/IEC 8859 is a multi-part standard.

3 Definitions

3.1 Common definitions for MHS

This part of ISO/IEC 10021 uses the following terms defined in ISO/IEC 10021-1 | CCITT Recommendation X.400, ISO/IEC 10021-2 | CCITT Recommendation X.402 and ISO/IEC 10021-5 | CCITT Recommendation X.413:

- a) Access unit
- b) Body
- c) Content
- d) Distribution list
- e) Encoded information type
- f) Envelope
- g) Message handling system
- h) Message-oriented text interchange system (defined and used prior to 1993)
- i) Message store
- j) Message transfer agent
- k) Message transfer system
- l) Physical delivery access unit
- m) Recipient
- n) Submission identifier
- o) Submission time
- p) Synopsis
- q) Telematic agent
- r) Telex access unit
- s) User
- t) User agent

Common definitions for abstract syntax notation one

This part of ISO/IEC 10021 uses the full extent of the abstract syntax notation one (ASN.1) as defined in ISO/IEC 8824 | CCITT Recommendation X.208.

3.3 Terms imported from EDI service

This part of ISO/IEC 10021 uses the following terms defined in ISO/IEC 10021-8 | CCITT Recommendation F.435:

- a) EDI forwarding
- b) EDI message
- c) EDI notification
- d) EDI user
- e) EDIM responsibility

3.4 Other EDI definitions

The terms listed below may assume different meanings in the standards referenced.

3.4.1 Terms imported from EDI for administration, commerce and transport

This part of ISO/IEC 10021 uses the following terms defined in ISO 9735 (EDIFACT - Application level syntax rules):

- Acknowledgement request
- Address for reverse routing
- Application reference
- Communications agreement
- Component data element separator
- Data element separator
- Date/time of preparation
- Decimal notation
- Functional group header
- Identification code
- Identification code qualifier
- Interchange control reference
- Interchange control header
- Interchange recipient
- Interchange sender
- Message header
- Processing priority code
- Recipient identification code
- Recipients reference qualifier
- Recipients reference, password
- Release indicator
- Routing address
- Segment terminator
- Sender identification
- Service string advice
- Syntax identifier
- Syntax version
- Test indicator
- UNA segment
- UNB segment

- UNH segment

3.4.2 Terms imported from United Nations trade data interchange

This part of ISO/IEC 10021 uses the following terms defined in the United Nations trade data interchange (UNTDI) syntax rules (developed from the earlier syntax Recommendation UNGTDI), unanimously accepted by the United Nations Economic Commission for Europe, Working Party 4, in September 1985:

- Application reference
- Date and time of transmission
- Message header
- MHD segment
- Recipients reference/password
- Start of transmission
- Transmission priority code
- Transmission recipient
- Transmission sender

3.4.3 Terms imported from ANSI X12.5

- Authorization information qualifier
- Authorization information
- Functional group header
- Interchange date
- Interchange header
- Interchange receiver id
- Interchange sender id
- Interchange time
- ISA segment
- Test indicator
- Transactional set header, ST segment

3.5 EDI messaging system definitions

For the purposes of this part of ISO/IEC 10021, the following definitions apply.

3.5.1 EDI message store: A specialized message store for the purposes of EDI messaging.

3.5.2 EDI messaging system: The functional object by means of which all users communicate with one another in EDI messaging.

3.5.3 EDI user agent: A specialized user agent for the purposes of EDI messaging.

4 Abbreviations

ANSIX12	American National Standards Institute, Accredited Committee X12
AU	Access unit
DL	Distribution list
EDI	Electronic data interchange
EDI-MS	EDI message store
EDI-UA	EDI user agent

EDIFACT	Electronic data interchange for administration, commerce and transport
EDIM	EDI message
EDIME	EDI messaging environment
EDIMG	EDI messaging
EDIMG user	EDI messaging user
EDIMS	EDI messaging system
EDIN	EDI notification
EIT	Encoded information type
FN	Forwarded notification
MD	Management domain
MHS	Message handling system
MS	Message store
MTA	Message transfer agent
MTS	Message transfer system
NN	Negative notification
PDAU	Physical delivery access unit
PDS	Physical delivery system
PN	Positive notification
TLMA	Telematic agent
UA	EDI user agent
UNTDI	United Nations/trade data interchange

5 Conventions

5.1 Terms

Throughout the rest of this part of ISO/IEC 10021, terms that refer to ASN.1 types are written with initial upper-case letters for all words in the ASN.1 type (for example, ORName or OR Name).

5.2 ASN.1

ASN.1 definitions appear both in the main text and in the annexes. In case of inconsistency between a definition presented in the text, and a definition presented in a normative annex, the definition in the annex shall be used. ASN.1 notation is defined in ISO/IEC 8824 | CCITT Recommendation X.208.

This part of ISO/IEC 10021 uses for the indicated purposes the following ASN.1-based descriptive conventions:

- to define the information objects of EDI Messaging, and other data types and values of all kinds, ASN.1 itself;
- to define the functional objects of EDI Messaging, the OBJECT and REFINE macros of ISO/IEC 10021-3 | CCITT Recommendation X.407;
- to define the abstract service of EDI Messaging, the PORT and ABSTRACT-operation and ERROR macros of ISO/IEC 10021-3 | CCITT Recommendation X.407;
- to define the protocol extensions, the EDIM-EXTENSION macro of this part of ISO/IEC 10021;

- e) to define extended body part types, the EXTENDED-BODY-PART-TYPE macro of ISO/IEC 10021-7 | CCITT Recommendation X.420;
- f) to define MS Auto-actions, the AUTO-ACTION macro of ISO/IEC 10021-5 | CCITT Recommendation X.413;
- g) to define MS attributes, the ATTRIBUTE macro of ISO/IEC 9594-2 | CCITT Recommendation X.501.

ASN.1 tags are IMPLICIT throughout the ASN.1 modules defined in any annex; the module is definitive in that respect.

NOTE – The use of ASN.1 to describe a class or piece of information does not in itself imply that information is transported between open systems. The fact that the information, by virtue of its description in ASN.1 and of ASN.1's basic encoding rules, has a concrete transfer syntax may be immaterial. Information actually conveyed between systems is designated as such by its inclusion in an application protocol.

5.3 Conventions for Attribute Types in Table 1

This part of ISO/IEC 10021 uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed "Single/Multi-valued" the following values can occur:

- S: single-valued,
- M: multi-valued.

For the columns headed "Support level by MS and UA" (where UA refers only to a UA that accesses an MS) the following values can occur:

- M: mandatory,
- O: optional.

For the columns headed "Presence in delivered EDIM", "Presence in delivered PN", "Presence in delivered NN" and "Presence in delivered FN", the presence of each attribute type is described by one of the following values:

- P: "always present" in the entry because it is mandatory for generation by the MS or it is a mandatory or defaulted parameter in the relevant abstract operation.
- C: "conditionally present" in the entry. It will be present because it is supported by the MS and subscribed to by the user and it was present in an optional parameter in the relevant abstract operation.
- - a hyphen (-) indicates "always absent", otherwise.

For the columns headed "Available for list, alert" and "Available for summarize", the following values can occur:

- N: No
- Y: Yes

5.4 Conventions for Attribute Types in Table 2

This part of ISO/IEC 10021 uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed "Source generated by", the following values can occur:

- MD: Message Delivery abstract-operation
- MS: Message Store
- RD: Report Delivery abstract-operation

Information objects

The information objects that users exchange in EDI messaging are of two kinds: EDI messages (EDIM), and EDI notifications (EDIN).

NOTE – The EDI messaging user (*EDIMG user*) is normally an EDI application or computer process, not a person. For brevity, the term *user* is used throughout the rest of this part of ISO/IEC 10021 with the meaning of *EDIMG user*.

```
InformationObject ::= CHOICE {
    edim          [0] EDIM,
    edin          [1] EDIN }
```

7 Common data types

Information items of several kinds appears both in EDI messages and EDI notifications. These common items are defined below.

7.1 EDIM identifier

An EDIM Identifier is an information item that unambiguously, globally and forever uniquely identifies an EDIM.

It comprises an OR-name and a string which may for example contain a time or sequence number or other sufficient information to make this EDIM unique.

```
EDIMIdentifier ::= SET {
    user                      [0] ORName,
    user-relative-identifier  [1] LocalReference }
```

NOTE – OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411 and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

The EDIM Identifier shares the same value set with the IPM Identifier defined in ISO/IEC 10021-7 | CCITT Recommendation X.420. Therefore, an EDI user agent or EDI message store that is capable of handling both IPM and EDIM shall make sure that the Local Reference is unique both for IPMs and EDIMs.

An EDIM Identifier has the following components:

- User*: Identifies the user who originates the EDIM. One of the user's OR-names.
- User-relative-identifier*: Unambiguously identifies the EDIM, distinguishing it from all other EDIMs that the user who is identified by the User component originates. Its syntax is that of Local Reference, a Printable String of from zero to a prescribed number of characters (see annex G). A length of zero is discouraged.

```
LocalReference ::= PrintableString (SIZE (0..ub-local-reference))
```

7.2 Extensions

A mechanism is provided which allows for future extensions to this part of ISO/IEC 10021.

```
ExtensionField ::= SEQUENCE {
    type          [0] EDIM-EXTENSION,
    criticality    [1] Criticality DEFAULT FALSE,
    value         [2] ANY DEFINED BY type DEFAULT NULL NULL }
```

An Extension Field can be marked critical (Criticality set to TRUE) or non-critical (Criticality set to FALSE) for acceptance of Responsibility. An extension marked as non-critical for Responsibility may be ignored or discarded, while an extension marked as critical must be known and performed for acceptance of Responsibility of an EDIM.

NOTE – The term *EDIM Responsibility* is defined in 3.5 of ISO/IEC 10021-8 | CCITT Recommendation F.435. Throughout this document, the term "Responsibility" refers to the term defined in ISO/IEC 10021-8 | CCITT Recommendation F.435, and not to the everyday use of the word.

```
Criticality ::= BOOLEAN
```

As a notation support for future definitions of extensions, a MACRO is defined.

```
EDIM-EXTENSION MACRO ::=
BEGIN
    TYPE NOTATION      ::= DataType Critical | empty
    VALUE NOTATION     ::= value(VALUE OBJECT IDENTIFIER)
```

```

DataType      ::= type (X) Default
Default       ::= "DEFAULT" value (X) | empty
Critical      ::= "CRITICAL" | empty
END -- of extension

```

8 EDI message

An EDI Message (EDIM) is a member of the primary class of information objects conveyed between users in EDI messaging.

NOTE 1 – The term message when used throughout the rest of this part of ISO/IEC 10021 is a synonym for EDI Message where the context admits.

```

EDIM ::= SEQUENCE {
    heading      Heading,
    body         Body }

```

An EDI Message consists of the following components:

- a) *Heading*: A set of Heading Fields (or Fields), each an information item that gives a characteristic of the EDI Message.
- b) *Body*: A sequence of one or more body parts.

```

Body ::= SEQUENCE {
    primary-body-part      PrimaryBodyPart,
    additional-body-parts OtherBodyParts OPTIONAL }

```

```

PrimaryBodyPart ::= CHOICE {
    edi-body-part      [0] EDIBodyPart,
    forwarded-EDIM    [1] EDIMBodyPart }

```

```

OtherBodyParts ::= SEQUENCE OF EDIM-ExternallyDefinedBodyPart

```

NOTE 2 – EDIM-Externally Defined Body Part is defined in 8.3.3. EDI Body Part is defined in 8.3.1. EDIM Body Part is defined in 8.3.2.

The Body has one Primary Body Part that contains an EDI information object. This body part is either an EDI interchange itself or a forwarded EDIM. Examples of types of EDI information objects are EDI Interchanges defined by ISO 9735, Electronic data interchange for administration, commerce and transport (EDIFACT), by United Nations trade data interchange (UNTDI) and by American National Standards Institute Committee X12 (ANSIX12).

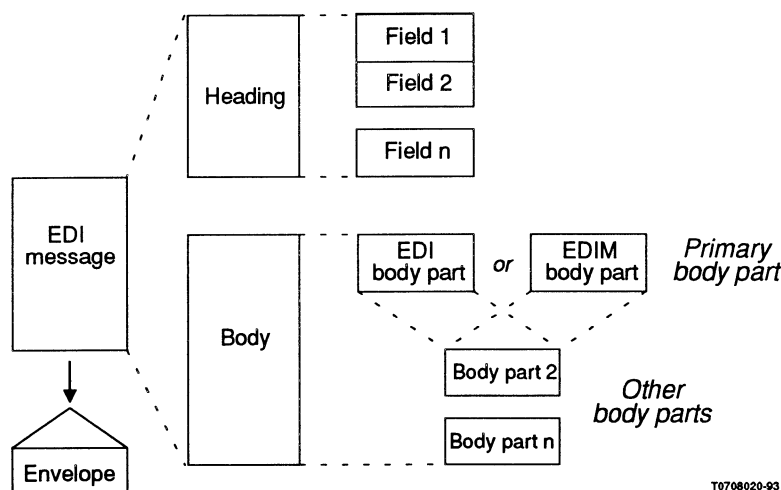
NOTE 3 – The scope of an EDI information object type is rather large and includes for example Privately Defined types. For brevity, the term interchange is used throughout the rest of this part of ISO/IEC 10021 with the meaning of EDI Interchange.

The following rules comply with the requirements stated in 7.4 of ISO/IEC 10021-8 | CCITT Recommendation F.435:

- c) When an EDIM is first created, the Primary Body Part shall contain one EDI Body Part.
- d) When an EDIM is forwarded, its structure shall comply with the rules given in 17.3.3.2.

Other body parts may be present in a message related to the Primary Body Part but of a different type. Examples of related body parts might be textual information, voice annotation or graphics to be used in conjunction with the interchange.

The structure of an EDI Message is depicted in figure 1.



T0708020-93

Figure 1 - EDI message structure

8.1 Heading field component types

Information items of several kinds appear throughout the Heading. These common items are defined below.

In the text that follows, reference is made to EDIFACT segments and data elements. Annex K explains this in relation to UNTDI and ANSI X12. Values copied from EDI data elements and represented as T.61 Strings are semantically equivalent to the characters used to form the EDI data elements in EDIFACT, UNTDI and ANSI X12.

8.1.1 Interchange recipient/sender

The Interchange Recipient and Interchange Sender fields have some data types in common. They are defined below.

8.1.1.1 Identification code

The Identification Code identifies a sender/recipient of an interchange. This is semantically identical to the "Sender identification / recipient identification" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
IdentificationCode ::= TeletexString (SIZE (1..ub-identification-code))
```

8.1.1.2 Identification code qualifier

The Identification Code Qualifier, if present, is a qualifier to the Identification Code of a sender/recipient. This is semantically identical to the "Identification code qualifier" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
IdentificationCodeQualifier ::=
    TeletexString (SIZE (1..ub-identification-code-qualifier))
```

8.1.1.3 Routing address

The Routing Address, if present, is an address for routing to the sender/recipient specified in the Identification Code. This is semantically identical to the "Address for reverse routing / Routing address" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
RoutingAddress ::= TeletexString (SIZE (1..ub-routing-address))
```

8.2 Heading fields

The fields that may appear in the Heading of an EDIM are defined and described below.

```

Heading ::= SEQUENCE {
    this-EDIM                      [1] ThisEDIMField,
    originator                     [2] OriginatorField OPTIONAL,
    recipients                      [3] RecipientsField OPTIONAL,
    edin-receiver                  [4] EDINReceiverField OPTIONAL,
    responsibility-forwarded       [5] ResponsibilityForwarded DEFAULT FALSE,
    edi-bodypart-type              [6] EDIBodyPartType DEFAULT {id-bp-edifact-ISO646},
    incomplete-copy                 [7] IncompleteCopyField DEFAULT FALSE,
    expiry-time                    [8] ExpiryTimeField OPTIONAL,
    related-messages               [9] RelatedMessagesField OPTIONAL,
    obsoleted-EDIMs               [10] ObsoletedEDIMsField OPTIONAL,
    edi-application-security-elements [11] EDIApplicationSecurityElementsField OPTIONAL,
    cross-referencing-information [12] CrossReferencingInformationField OPTIONAL,
    -- Begin Fields from EDIFACT Interchange
    edi-message-type              [13] EDIMessageTypeField OPTIONAL,
    service-string-advice         [14] ServiceStringAdviceField OPTIONAL,
    syntax-identifier              [15] SyntaxIdentifierField OPTIONAL,
    interchange-sender            [16] InterchangeSenderField OPTIONAL,
    date-and-time-of-preparation [17] DateAndTimeOfPreparationField OPTIONAL,
    application-reference          [18] ApplicationReferenceField OPTIONAL,
    -- End Fields from EDIFACT
    heading-extensions            [19] HeadingExtensionsField OPTIONAL }

```

NOTE – The names of the Heading fields derived from EDI standards are taken directly from the relevant standards. See also annex K.

8.2.1 This EDIM

The **This EDIM Field** identifies the EDIM. It comprises an EDIM Identifier which provides a globally and forever unique identification for the EDIM.

ThisEDIMField ::= EDIMIdentifier

NOTE – EDIM Identifier is defined in 7.1.

8.2.2 Originator

Identifies the EDIM's originator. It comprises an OR-name. If the Originator field is not present in the EDIM Heading on reception, then the *originator-name* of the delivery envelope shall be used to determine the originator of the EDIM (see 8.2.1.1.1.1 of ISO/IEC 10021-4 | CCITT Recommendation X.411).

OriginatorField ::= ORName

NOTE – OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411 and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

8.2.3 Recipients

The **Recipients Field** identifies the user(s) and distribution lists (DLs) who are the (preferred) recipient(s) of the EDIM. It comprises a set of Recipients subfields, one for each recipient. If the Recipients field is not present in the EDIM Heading on reception, then the *This-recipient-name* of the delivery envelope shall be used to determine the recipient of the EDIM (see 8.3.1.1.1.3 of ISO/IEC 10021-4 | CCITT Recommendation X.411).

NOTE – The fact that a message can be redirected or forwarded is reflected in the word "preferred" above.

RecipientsField ::= SET OF RecipientsSubField

The **Recipients Sub Field** is an information item that identifies a recipient of an EDIM and that may make certain requests of him.

```

RecipientsSubField ::= SEQUENCE {
    recipient                      [1] RecipientField,
    action-request                 [2] ActionRequestField DEFAULT {id-for-action},
    edi-notification-requests-field [3] EDINotificationRequestsField OPTIONAL,
    responsibility-passing-allowed [4] ResponsibilityPassingAllowedField DEFAULT FALSE,
    -- Begin Fields from EDIFACT UNB
    interchange-recipient          [5] InterchangeRecipientField OPTIONAL,
    recipient-reference            [6] RecipientReferenceField OPTIONAL,
    interchange-control-reference [7] InterchangeControlReferenceField OPTIONAL,
    processing-priority-code       [8] ProcessingPriorityCodeField OPTIONAL,

```

```

acknowledgement-request      [9] AcknowledgementRequestField DEFAULT FALSE,
communications-agreement-id  [10] CommunicationsAgreementIdField OPTIONAL,
test-indicator                [11] TestIndicatorField DEFAULT FALSE,
-- End Fields from EDIFACT UNB
-- Begin Fields from ANSI X12 ISA
authorization-information     [12] AuthorizationInformationField OPTIONAL,
-- End Fields from ANSI X12 ISA
recipient-extensions          [13] RecipientExtensionsField OPTIONAL }

```

The Recipients subfield has the following components:

8.2.3.1 Recipient

A Recipient identifies the preferred recipient in question. It comprises an OR-name.

```
RecipientField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411 and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

8.2.3.2 Action request

An Action Request indicates what action the originator requests from the recipient. Its value is an object identifier.

```
ActionRequestField ::= OBJECT IDENTIFIER
```

The following standard values have object identifiers defined in this part of ISO/IEC 10021:

- For Action,
- Copy.

The absence of this field shall be interpreted as having the default value set to *For Action*.

NOTE – Additional values for this field can be defined by any interested parties.

8.2.3.3 EDI notification requests

The EDI Notification Requests component (Default: no notifications, no notification security and no reception security) may make certain requests of the preferred recipient denoted by the Recipient field.

NOTE 1 – The fact that a message can be redirected or forwarded is reflected in the word "preferred" above.

```

EDINotificationRequestsField ::= SEQUENCE {
    edi-notification-requests      [0] EDINotificationRequests DEFAULT {},
    edi-notification-security      [1] EDINotificationSecurity DEFAULT {},
    edi-reception-security         [2] EDIReceptionSecurity DEFAULT {} }

```

```

EDINotificationRequests ::= BIT STRING {
    pn(0),
    nn(1),
    fn(2) } (SIZE (0..ub-bit-options))

```

```

    EDINotificationSecurity ::= BIT STRING {
        proof (0),
        non-repudiation (1) } (SIZE (0..ub-bit-options))

```

```

EDIReceptionSecurity ::= BIT STRING {
    proof (0),
    non-repudiation (1) } (SIZE (0..ub-bit-options))

```

NOTE 2 – Only the following combinations of EDI Notification Security and EDI Reception Security bits have a defined behaviour:

EDI Notification Security {proof(0)}	and	EDI Reception Security {proof(0)};
EDI Notification Security {non-repudiation(1)}	and	EDI Reception Security {non-repudiation(1)};
EDI Notification Security {proof(0)}	and	EDI Reception Security {};
EDI Notification Security {non-repudiation(1)}	and	EDI Reception Security {};
EDI Notification Security {}	and	EDI Reception Security {}.

The EDI Notification Requests field consists of a sequence of three optional bit strings of which the first selects the type of notification, the second selects what security function should be applied to that notification, and the third may

make certain security requests for proof or non-repudiation of reception of this EDIM by the recipient. EDI Notification Security and EDI Reception Security shall not be requested if EDI Notifications are not requested.

The EDI Notification Requests bit string may assume any of the following values simultaneously.

- a) *PN*: A notification of acceptance of Responsibility is requested in the circumstances prescribed in clause 9.
- b) *NN*: A notification of refusal of Responsibility for a message is requested in the circumstances prescribed in clause 9.
- c) *FN*: A forwarded notification is requested in the circumstances prescribed in clause 9.

The absence of the EDI Notification Requests bit string implies that no EDI Notification requests are made.

The EDI Notification Security bit string may assume any of the following values simultaneously. Each of these values places requirements as indicated below on an EDI-UA submitting a subsequent EDIN in response to the EDI Notification Requests.

- d) *Proof*: When submitting the EDIN to the MTS, content-integrity-check shall be requested in the Message-submission-argument as defined in 8.2.1.1.1.28 in ISO/IEC 10021-4 | CCITT Recommendation X.411.
- e) *Non-repudiation*: When submitting the EDIN to the MTS, content-integrity-check shall be requested in the Message-submission-argument as defined in 8.2.1.1.1.28 in ISO/IEC 10021-4 | CCITT Recommendation X.411 with a non-repudiable certificate.

The absence of the EDI Notification Security bit string implies that no EDI Notification Security requests are made.

The EDI Reception Security bit string may assume any of the following values simultaneously. Each of these values places requirements as indicated below on an EDI-UA submitting a subsequent EDIN in response to the EDI Notification Requests.

- f) *Proof*: When submitting the EDIN to the MTS, content-integrity-check (possibly in the message token), or the message-origin-authentication-check (depending on the security policy in force) shall be requested. A notification shall contain the security elements and shall be signed on submission to the MTS, using content-integrity-check (possibly in the message token) or message-origin-authentication-check (depending on the security policy in force) in the Message-submission-argument as defined in 8.2.1.1.1.26, 8.2.1.1.1.28 and 8.2.1.1.1.29 of ISO/IEC 10021-4 | CCITT Recommendation X.411.
- g) *Non-repudiation*: When submitting the EDIN to the MTS, a non-repudiable content-integrity-check (possibly in the message token) or a message-origin-authentication-check (depending on the security policy in force) shall be requested. A notification shall contain the security elements and shall be signed on submission to the MTS, using non-repudiable content-integrity-check (possibly in the message token) or message-origin-authentication-check (depending on the security policy in force) in the Message-submission-argument as defined in 8.2.1.1.1.26, 8.2.1.1.1.28 and 8.2.1.1.1.29 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

The absence of the EDI Reception Security field implies that no EDI Reception Security requests are made.

NOTE 3 – Security services are available only if the MTS supports secure messaging.

8.2.3.4 Responsibility passing allowed

The Responsibility Passing Allowed Field indicates that forwarding Responsibility is allowed if this field is set to TRUE. Absence of the field shall be interpreted as the value FALSE.

A recipient of a message with the Responsibility Passing Allowed Field set to FALSE shall originate EDIN's as requested, and shall not forward Responsibility.

ResponsibilityPassingAllowedField ::= BOOLEAN -- Default FALSE

If allowed, Responsibility may be forwarded to at most one recipient.

8.2.3.5 Interchange recipient

The Interchange Recipient identifies the EDI Interchange recipient. This is semantically identical to the "Interchange recipient" of the EDIFACT UNB segment.

```
InterchangeRecipientField ::= SEQUENCE {
    recipient-identification      [0] IdentificationCode,
    identification-code-qualifier [1] IdentificationCodeQualifier OPTIONAL,
    routing-address               [2] RoutingAddress OPTIONAL }
```

NOTE – The above fields are defined in 8.1.1.

8.2.3.6 Recipient reference

The Recipient Reference identifies a reference meaningful to the recipient's EDI application. This is semantically identical to the "Recipient's Reference, Password" of the EDIFACT UNB segment. It consists of two strings.

```
RecipientReferenceField ::= SEQUENCE {
    recipient-reference          [0] RecipientReference,
    recipient-reference-qualifier [1] RecipientReferenceQualifier OPTIONAL }

RecipientReference ::= TeletexString (SIZE (1..ub-recipient-reference))

RecipientReferenceQualifier ::=
    TeletexString (SIZE (1..ub-recipient-reference-qualifier))
```

8.2.3.7 Interchange control reference

Indicates the Interchange Control Reference as assigned by the Interchange sender. This is semantically identical to the "Interchange control reference" of the EDIFACT UNB segment.

```
InterchangeControlReferenceField ::=
    TeletexString (SIZE (1..ub-interchange-control-reference))
```

8.2.3.8 Processing priority code

Indicates the EDI application Processing Priority Code. This is semantically identical to the "Processing priority code" in the EDIFACT UNB segment. It consists of a string.

```
ProcessingPriorityCodeField ::=
    TeletexString (SIZE (1..ub-processing-priority-code))
```

8.2.3.9 Acknowledgement request

The Acknowledgement Request indicates the request for EDI acknowledgement as indicated by the interchange sender. This is semantically identical to the "Acknowledgement request" in the EDIFACT UNB segment. Its value is a Boolean, where the value TRUE indicates a request for acknowledgement. Absence of this field shall be interpreted as the value FALSE.

```
AcknowledgementRequestField ::= BOOLEAN -- default FALSE
```

8.2.3.10 Communications agreement id

The Communications Agreement Id indicates the type of communications agreement controlling the interchange, e.g. Customs or other agreement. This is semantically identical to the "Communications agreement id" in the EDIFACT UNB segment.

```
CommunicationsAgreementIdField ::=
    TeletexString (SIZE (1..ub-communications-agreement-id))
```

8.2.3.11 Test indicator

Indicates that the EDI Interchange is a test. This is semantically identical to the "test indicator" in the EDIFACT UNB segment. It is a Boolean where the value TRUE indicates that the EDI Interchange is a test. Absence of this field shall be interpreted as the value FALSE.

```
TestIndicatorField ::= BOOLEAN -- default FALSE
```

8.2.3.12 Authorization information

The Authorization Information indicates who authorized the interchange. This is semantically identical to the "Authorization information" in the ANSI X12 Interchange.

```
AuthorizationInformationField ::= SEQUENCE {
    authorization-information          [0] AuthorizationInformation,
    authorization-information-qualifier [1] AuthorizationInformationQualifier OPTIONAL
}
```

```
AuthorizationInformation ::= TeletexString (SIZE (1..ub-authorization-information))
```

```
AuthorizationInformationQualifier ::=
    TeletexString (SIZE (1..ub-authorization-information-qualifier))
```

NOTE – In the above text reference is made to ANSI X12 segments and data elements. Annex K explains this in relation to UNTDI and EDIFACT (ISO 9735), being the other two widely used syntaxes.

8.2.3.13 Recipient extensions

The Recipient Extensions contains extensions to the Recipients subfield.

```
RecipientExtensionsField ::= SET OF RecipientExtensionsSubField
```

```
RecipientExtensionsSubField ::= ExtensionField
```

There are no extensions defined in this part of ISO/IEC 10021.

8.2.4 EDIN receiver

Identifies the recipient to whom EDINs are to be sent. This is created by the originator of the EDIM when the Recipient of a requested notification is different from the Originator of the message. It consists of a sequence of OR-name, EDIM Identifier and First Recipient.

This field shall not be present if EDI Notification Requests are not made.

This field shall be present in a forwarded message when the forwarding EDI user agent (EDI-UA) or EDI message store (EDI-MS) forwards Responsibility. This field may be present when the forwarding EDI-UA accepts Responsibility. Rules related to the construction of this field are given in 17.3.3.4.

NOTE 1 – For brevity, the term user agent (UA) is used throughout the rest of this part of ISO/IEC 10021 with the meaning of EDI-UA, and the term message store (MS) is used throughout the rest of this part of ISO/IEC 10021 with the meaning of EDI-MS.

```
EDINReceiverField ::= SEQUENCE {
    edin-receiver-name          [0] ORName,
    original-edim-identifier    [1] EDIMIdentifier OPTIONAL,
    first-recipient             [2] FirstRecipientField OPTIONAL }

```

The "first-recipient" field shall not be present if more than one Recipients Subfield contains EDI Notification Requests.

The "original-edim-identifier" and the "first-recipient" fields shall not be present when the Primary Body Part is an EDI Body Part (that is, when the original originator first creates the EDIM).

NOTE 2 – The Original EDIM Identifier and First Recipient fields are included in order to allow the recipient to construct the EDIN for a forwarded EDIM. See subclauses 9.1 (more specifically 9.1.3) and 17.3.1.1 for rules related to the construction of an EDIN; see 17.3.3.4 for rules related to the First Recipient field when constructing a forwarded EDIM. OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411 and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411. First Recipient Field is defined in 9.1.3.

8.2.5 Responsibility forwarded

The Responsibility Forwarded field is used to indicate whether Responsibility was forwarded. Absence of this field shall be interpreted as the value FALSE.

```
ResponsibilityForwarded ::= BOOLEAN -- Default FALSE
```

If this field has the value TRUE it indicates to a receiving UA that Responsibility was forwarded. If this field has the value FALSE (or is absent) it indicates to a receiving UA that the security elements of the inner envelope have been checked.

Subject to the security policy in force, the security elements may have been checked when the message was forwarded. However, when Responsibility is accepted, the security elements shall be checked.

NOTE – Rules regarding the use of this field are contained in 17.3.3.1 and 17.3.3.2.

8.2.6 EDI body part type

Indicates the EDI standard and EDI character sets used in the Primary Body Part. It is represented by a single object identifier.

EDIBodyPartType ::= OBJECT IDENTIFIER -- default EDIFACT-ISO646

The following standard values have object identifiers defined in annex A of this part of ISO/IEC 10021:

- EDIFACT: ISO646|CCITT Recommendation T61|ISO8859|UNDEFINED OCTETS
- ANSIX12: ISO646|CCITT Recommendation T61|EBCDIC|UNDEFINED OCTETS
- UNTDI: ISO646|CCITT Recommendation T61|UNDEFINED OCTETS
- PRIVATE: UNDEFINED OCTETS
- UNDEFINED: UNDEFINED OCTETS

The absence of this field shall be interpreted as having the default value set to EDIFACT, ISO/IEC 646.

NOTES

1 – The character set referred to by the object identifier is that in which both the EDI Body Part, and those Heading fields that are OCTET STRINGS and are derived from the EDI Interchange are encoded, notwithstanding the fact that these types are defined as OCTET STRING.

2 – The PRIVATE and UNDEFINED object identifiers are provided as an interim measure and rely on the existence of bilateral agreements. The PRIVATE object identifier should be used in preference to the UNDEFINED, as it conveys a semantic of being understood according to private arrangements between the communicating parties, i.e., the originator and the intended recipient.

3 – Instead of using one of the object identifiers listed above, a privately defined object identifier may be used indicating a privately defined EDI syntax and character set. Such an object identifier should be acquired from a local registration authority and used in accordance with the practices and policies of that registration authority.

The object identifier root is defined in annex A of this part of ISO/IEC 10021 for EDIFACT body types whose character repertoire is encoded as defined in ISO/IEC 8859. ISO/IEC 8859 is composed of several parts, where each part specifies a specific character repertoire. The specific part number shall form the leaf value of the object identifier used in the EDIMG protocol.

This is the same technique used for indicating character repertoires used in IPM's General Text bodypart. For example, an EDIFACT message encoded per ISO/IEC 8859-6 would be represented with the object identifier:

{joint-iso-ccitt mhs-motis(6) edims(7) id-bp(11) id-bp-edifact-8859(12) iso-8859-6(6)}, or
alternatively, { 2 6 7 11 12 6 }.

The value of the EDI Body Part Type field shall be used in the Encoded Information Types in the MTS abstract operations (in accordance with 19.4). This enables a UA to signal to the MTS what type of EDI standard the EDIM's Primary Body Part complies with. The MTS makes use of this information, if the recipient UA has registered delivery restrictions on Encoded Information Types, to decide if it can deliver the EDIM.

NOTE 4 – The term Encoded Information Type is defined in 8.1 of ISO/IEC 10021-2 | CCITT Recommendation X.402. See also 8.2.1.1.1.23 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

8.2.7 Incomplete copy

The **Incomplete Copy** field indicates that the forwarded EDIM is an incomplete copy of an EDIM. Its value is a Boolean. This field shall have the value TRUE if body parts are removed when an EDIM is forwarded. The absence of this field shall be interpreted as having the value FALSE.

IncompleteCopyField ::= BOOLEAN -- Default FALSE

NOTE – The term "forwarded EDIM" is defined in 17.3.3.

8.2.8 Expiry time

Indicates when the originator considers this EDIM loses its validity. It comprises a date and time (UTC).

ExpiryTimeField ::= UTCTime

8.2.9 Related messages

Identifies messages, EDIMs or other (for example IPMs), that the originator of this EDIM considers related to it. It comprises a sequence of one or more message references, one for each related message.

RelatedMessagesField ::= SEQUENCE OF RelatedMessageReference

RelatedMessageReference ::= CHOICE {
 edi-message-reference [0] EDIMIdentifier,
 external-message-reference [1] ExternalMessageReference }

ExternalMessageReference ::= EXTERNAL

NOTES

- 1 – If the related message identifies messages from other services the user component of the message identifier (EDIM Identifier) must be present.
- 2 – Message identifier values of the referenced message of other service types than EDIMG are carried in the EDIM Identifier field.

8.2.10 Obsolete EDIMs

The **Obsolete EDIMs Field** identifies one or more EDIMs that the present EDIM obsoletes. It is a sequence of subfields, each an EDIM Identifier.

ObsoleteEDIMsField ::= SEQUENCE OF ObsoleteEDIMsSubfield

ObsoleteEDIMsSubfield ::= EDIMIdentifier

8.2.11 EDI application security elements

The **EDI Application Security Elements** field allows an EDI application to exchange security elements having an end-to-end significance.

EDIApplicationSecurityElementsField ::= SEQUENCE {
 edi-application-security-element [0] EDIApplicationSecurityElement OPTIONAL,
 edi-encrypted-primary-bodypart [1] BOOLEAN OPTIONAL,
 edi-application-security-extensions [2] EDIApplicationSecurityExtensions OPTIONAL }

EDIApplicationSecurityElement ::= BIT STRING (SIZE (0..ub-edi-application-security-elements))

EDIApplicationSecurityExtensions ::= SET OF EDIApplicationSecurityExtension

EDIApplicationSecurityExtension ::= ExtensionField

8.2.12 Cross referencing information

The **Cross Referencing Information** allows an EDI application to reference individual body parts within the same EDIM and within other EDIMs. It contains a set of cross reference data. Its usage is outside the scope of this part of ISO/IEC 10021.

CrossReferencingInformationField ::= SET OF CrossReferencingInformationSubField

```

CrossReferencingInformationSubField ::= SEQUENCE {
    application-cross-reference [0] ApplicationCrossReference,
    message-reference           [1] MessageReference OPTIONAL,
    body-part-reference         [2] BodyPartReference }

```

```

ApplicationCrossReference ::= OCTET STRING

```

```

MessageReference ::= EDIMIdentifier

```

If the Message Reference is absent, the message referred to is the current one.

NOTES

- 1 – Body Part Reference is defined in 8.3.3.
- 2 – The character set used in the Application Cross Reference field is indicated by the value of the field EDI Body Part Type.

8.2.13 EDI message type

Indicates the Message type(s) present in the EDI Interchange. It consists of a set of distinct strings.

NOTE – "Message" is to be understood as message types that are defined in EDI standards and shall not be confused with "message" used elsewhere in this part of ISO/IEC 10021.

```

EDIMessageTypeField ::= SET OF EDIMessageTypeFieldSubField

```

```

EDIMessageTypeFieldSubField ::= TeletexString (SIZE (1..ub-edl-message-type))

```

The values for this field shall be:

- EDIFACT: Message Type from the UNH segment;
- ANSI12: Transaction Set ID from the ST segment;
- UNTDI: Message Type from the MHD segment.

8.2.14 Service string advice

Indicates the Service String Advice of the EDI Interchange. This is semantically identical to the "UNA, Service string advice" of the EDIFACT Interchange.

```

ServiceStringAdviceField ::= SEQUENCE {
    component-data-element-separator [0] ComponentDataElementSeparator,
    data-element-separator           [1] DataElementSeparator,
    decimal-notation                  [2] DecimalNotation,
    release-indicator                 [3] ReleaseIndicator OPTIONAL,
    reserved                          [4] Reserved OPTIONAL,
    segment-terminator                [5] SegmentTerminator }

```

```

ComponentDataElementSeparator ::= OCTET STRING (SIZE (1))

```

```

DataElementSeparator ::= OCTET STRING (SIZE (1))

```

```

DecimalNotation ::= OCTET STRING (SIZE (1))

```

```

ReleaseIndicator ::= OCTET STRING (SIZE (1))

```

```

Reserved ::= OCTET STRING (SIZE (1))

```

```

SegmentTerminator ::= OCTET STRING (SIZE (1))

```

8.2.15 Syntax identifier

Indicates the syntax used. This is semantically identical to the "Syntax identifier" of the EDIFACT UNB segment.

It consists of a sequence of the Syntax Identifier and the Syntax Version.

```

SyntaxIdentifierField ::= SEQUENCE {
    syntax-identifier SyntaxIdentifier,
    syntax-version     SyntaxVersion }

```

```

SyntaxIdentifier ::= TeletexString (SIZE (1..ub-syntax-identifier))

```

```
SyntaxVersion ::= PrintableString (SIZE (1..ub-syntax-version))
```

8.2.16 Interchange sender

Indicates the sender of the EDI Interchange. This is semantically identical to the "Interchange sender" of the EDIFACT UNB segment.

```
InterchangeSenderField ::= SEQUENCE {
    sender-identification           [0] IdentificationCode,
    identification-code-qualifier [1] IdentificationCodeQualifier OPTIONAL,
    address-for-reverse-routing    [2] RoutingAddress OPTIONAL } -- EDIFACT Routing
Information
```

NOTE – The above fields are defined in 8.1.1.

8.2.17 Date and time of preparation

Indicates the Date/Time of preparation of the EDI Interchange. This is in UTC Time and is derived from the "Date and time of preparation" of the EDIFACT UNB segment. It comprises a UTC Time.

```
DateAndTimeOfPreparationField ::= UTCTime
```

8.2.18 Application reference

Provides a general reference to an application or function. This is semantically identical to the "Application reference" segment of the EDIFACT UNB segment. It consists of a string.

```
ApplicationReferenceField ::= TeletexString (SIZE (1..ub-application-reference))
```

8.2.19 Heading extensions

The Heading Extensions allows for future extensions to the Heading.

```
HeadingExtensionsField ::= SET OF HeadingExtensionsSubField
```

```
HeadingExtensionsSubField ::= ExtensionField
```

There is no extensions to the Heading defined in this part of ISO/IEC 10021.

NOTE – The Heading Extensions may be used to implement the element of service "Services Indication" defined in ISO/IEC 10021-8 | CCITT Recommendation F.435.

8.3 Body part types

The types of body parts that may appear in the Body of an EDIM are defined and described below.

8.3.1 EDI body part

An EDI Body Part carries a single EDI Interchange.

```
EDIBodyPart ::= OCTET STRING
```

The reference definition of EDI Interchange used is that used by EDIFACT (ISO 9735). Annex K describes equivalent terms in other EDI standards.

8.3.2 EDIM body part

An EDIM Body Part contains an EDIM, and optionally, its delivery envelope. It is used for forwarding of EDIMs. When an EDIM is forwarded, its structure shall comply with the rules given in 17.3.3.2.

```
EDIMBodyPart ::= SEQUENCE {
    parameters [0] MessageParameters OPTIONAL,
    data       [1] MessageData }
```

```
MessageParameters ::= SET {
    delivery-time [0] MessageDeliveryTime OPTIONAL,
    delivery-envelope [1] OtherMessageDeliveryFields OPTIONAL,
    other-parameters [2] EDISupplementaryInformation OPTIONAL }
```

-- MessageDeliveryTime and OtherMessageDeliveryFields shall both be present or both

-- be absent. EDISupplementaryInformation is used in the case of ms-auto-actions,
 -- see subclause 18.6.

```
MessageData ::= SEQUENCE {
    heading      Heading,
    body         BodyOrRemoved }
```

```
BodyOrRemoved ::= SEQUENCE {
    primary-or-removed PrimaryOrRemoved,
    additional-body-parts AdditionalBodyParts OPTIONAL }
```

```
PrimaryOrRemoved ::= CHOICE {
    removed-edi-body      [0] NULL,
    primary-body-part     [1] EXPLICIT PrimaryBodyPart }
```

```
AdditionalBodyParts ::= SEQUENCE OF CHOICE {
    external-body-part [0] EDIM-ExternallyDefinedBodyPart,
    place-holder      [1] BodyPartPlaceHolder } -- This type is for Body Part Removal
```

BodyPartPlaceHolder ::= EDIM-ExternallyDefinedBodyPart -- Only the data
 -- portion of the Externally Defined Body shall be removed.
 -- See text in 8.3.2.

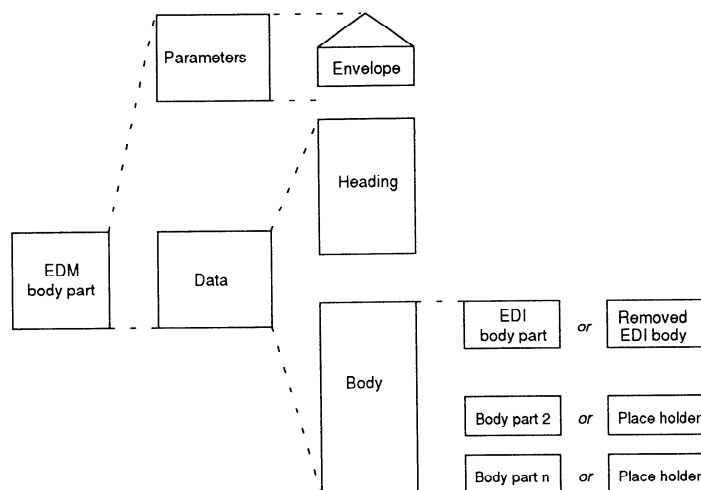
```
EDISupplementaryInformation ::=
    TeletexString (SIZE (1..ub-supplementary-info-length))
```

NOTE— Primary Body Part is defined in clause 8. Body Part Reference is defined in 8.3.3. The data types Message Delivery Time and Other Message Delivery Fields are defined in 8.3.1.1 (and figure 2) of ISO/IEC 10021-4 | CCITT Recommendation X.411.

The Body Part Place Holder shall only be used for removal of body parts, i.e., it indicates a "removed-EDI-body". It may consist of only the Body Part Reference, or a modified Externally Defined Body Part. In the latter case, the Object Identifier and Body Part Reference of the removed body part are preserved; from the parameter (if present) and data portions of the removed body part, only the Object Identifier and the identifier octets of the "encoding" field of the EXTERNAL type are preserved. That is, the EXTERNAL type shall have an encoding field of zero length and hence no content.

The delivery envelope shall be present if security services are invoked.

The structure of an EDIM Body Part is depicted in figure 2.



T0708030-99

Figure 2 - EDIM body part structure

8.3.3 Externally defined body parts

Additional body parts, that relate to the Primary Body Part, may be carried together with an EDI Body Part. These body parts shall not be or include EDI Interchanges.

Additional body parts are externally defined and represent information objects whose semantics and abstract syntax are denoted by an object identifier which the body part carries. They have Parameters and Data components and optionally a Body Part Reference that may be used for cross-referencing to a body part.

```
EDIM-ExternallyDefinedBodyPart ::= SEQUENCE {
    body-part-reference    [0] BodyPartReference OPTIONAL,
    external-body-part    [1] ExternallyDefinedBodyPart -- from IPMS --}
```

```
BodyPartReference ::= INTEGER -- is unique within a EDIM
```

Body-part-reference is assigned when the body part is created, and is not modified subsequently. Its value shall be unique within an EDIM. It shall be present if the originator wishes to cross-reference the body part at creation or in the future.

NOTE – Some Externally Defined body part types are defined in 7.3.12 of ISO/IEC 10021-7 | CCITT Recommendation X.420.

9 EDI notifications

An EDI Notification (EDIN) is a member of a secondary class of Information Object conveyed between users in EDI Messaging.

NOTE – The term *notification* is used throughout the rest of this part of ISO/IEC 10021 as a synonym for EDI Notification.

```
EDIN ::= CHOICE {
    positive-notification    [0] PositiveNotificationFields,
    negative-notification    [1] NegativeNotificationFields,
    forwarded-notification    [2] ForwardedNotificationFields }
```

- a) *Positive notification*: An EDIN that reports its originator's acceptance of Responsibility of an EDIM.
- b) *Negative notification*: An EDIN that reports its originator's refusal to accept Responsibility of an EDIM.
- c) *Forwarded notification*: An EDIN that reports that Responsibility of an EDIM has been forwarded together with the subject EDIM.

The EDIM to which an EDIN refers is called the subject EDIM (see also 17.3.3).

The recipient of the EDIN is the Originator of the subject EDIM, or, if present, the OR-name indicated in the EDIN Receiver field. There shall be at most one recipient specified for an EDIN. There shall be at most one PN, NN or FN originated for each subject EDIM by each recipient of whom notifications are requested (except that an NN may be originated by the same UA subsequent to an FN, in accordance with c) of 17.3.3.1). One FN is originated, if and only if requested, by each recipient that forwards an EDIM. In accordance with the provisions of 17.3.3, the original originator shall receive at most one PN or NN for each recipient of whom notifications were requested, regardless of how many times the EDIM is forwarded, and may receive multiple FNs.

An EDIN consists of Positive, Negative or Forwarded Notification fields. Each of these contains the Common Fields which are described below.

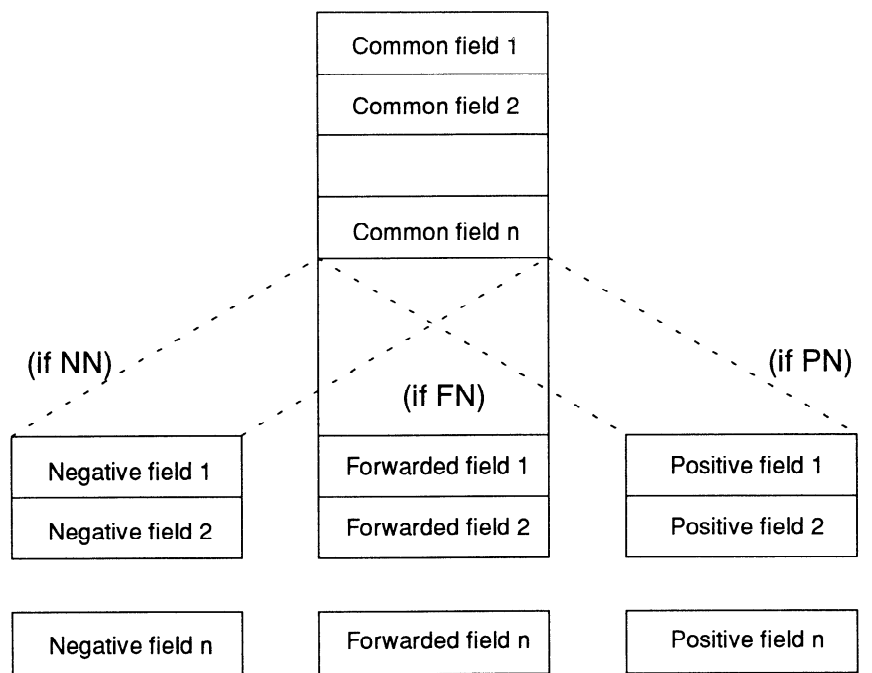
The structure of an EDIN is depicted in figure 3.

9.1 Common fields

The Common Fields are defined and described below.

```
CommonFields ::= SEQUENCE {
  subject-edim           [1] SubjectEDIMField,
  edin-originator        [2] EDINOriginatorField,
  first-recipient        [3] FirstRecipientField OPTIONAL,
  notification-time      [4] NotificationTimeField,
  notification-security-elements [5] SecurityElementsField OPTIONAL,
  edin-initiator         [6] EDINInitiatorField,
  notifications-extensions [7] NotificationExtensionsField OPTIONAL }
```

NOTE – The Common Fields appear in the Positive Notification, Negative Notification and Forwarded Notification fields defined below.



T0708040-93

Figure 3 - EDI notification structure

9.1.1 Subject EDIM

The Subject EDIM Identifier is the EDIM Identifier either passed in the EDIN Receiver field, if Responsibility has been forwarded, or the This EDIM field, if not.

```
SubjectEDIMField ::= EDIMIdentifier
```

NOTE – EDIM Identifier is defined in 7.1. Subject EDIM is defined in clause 9.

9.1.2 EDI notification originator

The EDI Notification Originator contains the OR-name of the UA constructing the notification.

```
EDINOriginatorField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411, and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

9.1.3 First recipient

The First Recipient field contains the OR-name of the first recipient in a forwarding chain. This field, together with other fields, is used by the recipient of the notification to correlate the notification and the original message.

FirstRecipientField ::= ORName

NOTE— OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411, and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

If the originator of the EDIN is not the recipient specified by the original originator, then the First Recipient Field shall be present in the EDIN (see 17.3 and more specifically 17.3.1.1).

9.1.4 Notification time

Notification Time contains the date and time, in UTC format, at which the notification for the subject EDIM was generated.

NotificationTimeField ::= UTCTime

9.1.5 Security elements

The Security Elements field is used to provide "proof/non repudiation of content received", "EDI application security" services.

```
SecurityElementsField ::= SEQUENCE {
  original-content           [0] Content OPTIONAL,
  original-content-integrity-check [1] ContentIntegrityCheck OPTIONAL,
  edi-application-security-elements [2] EDIApplicationSecurityElementsField OPTIONAL,
  security-extensions        [3] SecurityExtensionsField OPTIONAL }
```

SecurityExtensionsField ::= SET OF SecurityExtensionsSubField

SecurityExtensionsSubField ::= ExtensionField

NOTE— The EDI Application Security Elements Field is defined in 8.2.11. Content and Content Integrity Check are defined in, respectively, subclauses 8.2.1.1.1.37 and 8.2.1.1.1.28 (and figure 2) of ISO/IEC 10021-4 | CCITT Recommendation X.411. Security services are available only if the MTS supports secure messaging.

Subclause 17.1.3 specifies how these fields are filled in.

9.1.6 EDIN initiator

The EDIN Initiator field can take one of the following values:

- "internal-UA" means that the UA generated the EDIN either for local reasons or because the generation had been delegated to it by the user;
- "internal-MS" means that the MS generated the EDIN either for local reasons or because the generation had been delegated to it by the user;
- "external-UA" means that the generation of the EDIN was requested by the user via the abstract operation Originate EDIN (see 17.1.3).

```
EDINInitiatorField ::= ENUMERATED {
  internal-ua (0),
  external-ua (1),
  internal-ms (2)}
```

Origination of a Positive Notification implies that Responsibility has been accepted, regardless of the value of this field.

The value of this field shall be consistent with the choice (UA/MS, user, PDAU) of the Reason Code field for NNs and FNs.

NOTE— Physical delivery access unit (PDAU) is defined in 15.4.

9.1.7 Notification extensions

The Notification Extensions allows for future extensions to the EDIN.

```
NotificationExtensionsField ::= SET OF NotificationExtensionsSubField
```

```
NotificationExtensionsSubField ::= ExtensionField
```

There are no extensions to the EDIN defined in this part of ISO/IEC 10021.

Extensions shall not be critical in EDINs.

9.2 Positive notifications

A Positive Notification (PN) is sent by the recipient UA, if and only if the originator has requested one, when Responsibility for the EDIM has been accepted by the UA.

The exact procedures which constitute acceptance of Responsibility are a local matter; for example, the UA may construct the PN as soon as it passes the message to the user, or the UA may wait for an external stimulus from the user that the message has been accepted and therefore the requested PN can be sent.

Positive Notification Fields are defined and described below.

```
PositiveNotificationFields ::= SEQUENCE {
  pn-common-fields          [0] CommonFields,
  pn-supplementary-information [1] EDISupplementaryInformation OPTIONAL,
  pn-extensions             [2] PNExtensionsField OPTIONAL }
```

9.2.1 PN supplementary information

The PN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Positive Notification.

NOTE – EDI Supplementary Information field is defined in 8.3.2.

9.2.2 Positive notification extensions

The Positive Notification Extensions allows for future extensions to the PN.

```
PNExtensionsField ::= SET OF PNExtensionsSubField
```

```
PNExtensionsSubField ::= ExtensionField
```

There are no extensions to the PN defined in this part of ISO/IEC 10021.

Extensions shall not be critical in PNs.

9.3 Negative notifications

A Negative Notification (NN) is sent by a UA, if and only if the originator has requested one, when it determines that it can neither accept Responsibility, nor forward the EDIM and the EDI Notification Request contained in the EDIM to another UA.

Negative Notification Fields are defined and described below.

```
NegativeNotificationFields ::= SEQUENCE {
  nn-common-fields          [0] CommonFields,
  nn-reason-code            [1] NNReasonCodeField,
  nn-supplementary-information [2] EDISupplementaryInformation OPTIONAL,
  nn-extensions             [3] NNExtensionsField OPTIONAL }
```

9.3.1 Negative notification reason

The Negative Notification Reason indicates why the subject EDIM could not be passed to the user by the UA originating the EDIN. Additional information may be carried in any combination of a diagnostic field or the NN Supplementary Information field. Depending on the security policy in force, the security error diagnostic code may or may not be present.

NOTE - The value "unspecified(0)" is provided for use in any basic code field when other code values do not apply.

```

NNReasonCodeField ::= CHOICE {
  nn-ua-ms-reason-code [0] NNUAMSReasonCodeField,
  nn-user-reason-code  [1] NNUserReasonCodeField,
  nn-pdau-reason-code  [2] NNPDAUReasonCodeField }

```

-- Negative Notification Reason Codes from an EDI-UA or EDI-MS

```

NNUAMSReasonCodeField ::= SEQUENCE {
  nn-ua-ms-basic-code [0] NNUAMSBasicCodeField,
  nn-ua-ms-diagnostic [1] NNUAMSDiagnosticField OPTIONAL }

```

-- Negative Notification Basic Reason Codes from an EDI-UA or EDI-MS. These codes are
 -- those specified in annex B of ISO/IEC 10021-8 | CCITT Recommendation F.435
 -- for the element of service "EDI Notification Request".

```

NNUAMSBasicCodeField ::= INTEGER {
  unspecified (0),
  cannot-deliver-to-user (1),
  -- the EDI Interchange can not be passed on to the user
  delivery-timeout (2),
  -- the EDI Interchange could not be passed on to the user within
  -- a specified time limit
  message-discarded (3),
  -- the UA/MS discarded the message before handoff to user
  subscription-terminated (4),
  -- recipient's subscription terminated after delivery but before
  -- handoff to user
  forwarding-error (5),
  -- EDI Forwarding was attempted, but failed
  security-error (6),
  -- security error
  -- physical delivery errors indicated by "cannot-deliver-to-user"
} (0..ub-reason-code)

```

-- Negative Notification Diagnostic Codes from an EDI-UA or EDI-MS

```

NNUAMSDiagnosticField ::= INTEGER {
  -- This field may be used to further specify the error signalled in nn-ua-ms basic-
  -- code. Additional information may be indicated in nn-supplementary information
  -- general diagnostic codes
  protocol-violation (1),          -- used if the UA detects a protocol error
  edim-originator-unknown (2),
  edim-recipient-unknown (3),
  edim-recipient-ambiguous (4), -- used if the EDIM recipients or
  -- originator are not valid
  action-request-not-supported (5),
  -- used when the action requested by the recipient is not performed
  edim-expired (6),
  -- used when the expiry date of the received EDIM occurred before the subject EDIM
  -- was successfully passed to the user or forwarded by the EDI-UA
  edim-obsolete (7),
  -- used when the EDIM Identifier of the received EDIM was contained in the
  -- Obsolete EDIM field of a previously received EDIM
  duplicate-edim (8),
  -- used when the same EDIM is received more than once from the same originator.
  unsupported-extension (9),
  -- used if the EDIM contains an extension which is not supported by the UA.
  incomplete-copy-rejected (10), -- used if the EDI-UA does not accept
  -- EDIMs with the Incomplete Copy Indication true.
  edim-too-large-for-application (11),
  -- used if the EDIM cannot be delivered to the user due to length constraints.

  -- forwarding error diagnostic codes.
  forwarded-edim-not-delivered (12),
  -- used when an Non-Delivery Report is received for forwarded EDIM.
  forwarded-edim-delivery-time-out (13),
  -- used when no Delivery Report is received within a given period.

```

```

forwarding-loop-detected (14),
-- used if the UA receives an EDIM which contains a previously forwarded EDIM.
unable-to-accept-responsibility (15),
-- used if the EDI-UA cannot accept or forward responsibility.
-- INTERCHANGE HEADER DIAGNOSTIC CODES
interchange-sender-unknown (16), -- used when the UA does not
-- recognize the interchange-sender of the EDI interchange.
interchange-recipient-unknown (17), -- used when the UA cannot find
-- a valid interchange recipient in the Recipient Specifier.
invalid-heading-field (18),
invalid-bodypart-type (19),
invalid-message-type (20),
invalid-syntax-id (21),

-- SECURITY ERROR DIAGNOSTIC CODES
message-integrity-failure (22),
forwarded-message-integrity-failure (23),
unsupported-algorithm (24),
decryption-failed (25),
token-error (26),
unable-to-sign-notification (27),
unable-to-sign-message-receipt (28),
authentication-failure (29),
security-context-failure (30),
message-sequence-failure (31),
message-security-labelling-failure (32),
repudiation-failure (33),
proof-service-failure (34)
} (1..ub-reason-code)

-- Negative Notification Reason Codes from a user

NNUserReasonCodeField ::= SEQUENCE {
    nn-user-basic-code    [0] NNUserBasicCodeField,
    nn-user-diagnostic    [1] NNUserDiagnosticField OPTIONAL }

-- Negative Notification Basic Reason Codes from a user

NNUserBasicCodeField ::= INTEGER {
    unspecified (0),
    syntax-error (1),      -- used when the user discovers a syntax error
                           -- within the EDI interchange
    interchange-sender-unknown (2),
    interchange-recipient-unknown (3), -- used when the UA cannot find a valid
                                       -- interchange recipient in the Recipient Specifier
    invalid-heading-field (4),
    invalid-bodypart-type (5),
    invalid-message-type (6),
    functional-group-not-supported (7),
    subscription-terminated (8),    -- unknown to EDIMS-User service
    no-bilateral-agreement (9),
    user-defined-reason (10)
} (0..ub-reason-code)

-- Negative Notification Diagnostic Codes from a user

NNUserDiagnosticField ::= INTEGER (1..ub-reason-code)
-- Contains reason passed by user when the value of nn-user-basic-code is
-- user-defined-reason. Additional information may be indicated in
-- nn-supplementary-information

-- Negative Notification Reason Codes from a PDAU

NNPDAUReasonCodeField ::= SEQUENCE {
    nn-pdau-basic-code    [0] NNPDAUBasicCodeField,
    nn-pdau-diagnostic    [1] NNPDAUDiagnosticField OPTIONAL }

```

-- Negative Notification Basic Reason Codes from a PDAU

```

NNPDABasicCodeField ::= INTEGER {
  unspecified (0),
  undeliverable-mail (1),          -- used if the PDAU determines that it cannot
                                     -- perform physical delivery of the EDIM
  physical-rendition-not-performed (2) -- used if the PDAU cannot perform
                                     -- the physical rendition of the EDIM
} (0..ub-reason-code)

```

-- Negative Notification Diagnostic Codes from a PDAU

```

NNPDAUDiagnosticField ::= INTEGER {
  -- This field may be used to further specify the error signalled in
  -- nn-pdau-basic-code. Additional information may be indicated in the
  -- nn-supplementary-information.
  undeliverable-mail-physical-delivery-address-incorrect (32),
  undeliverable-mail-physical-delivery-office-incorrect-or-invalid (33),
  undeliverable-mail-physical-delivery-address-incomplete (34),
  undeliverable-mail-recipient-unknown (35),
  undeliverable-mail-recipient-deceased (36),
  undeliverable-mail-organization-expired (37),
  undeliverable-mail-recipient-refused-to-accept (38),
  undeliverable-mail-recipient-did-not-claim (39),
  undeliverable-mail-recipient-changed-address-permanently (40),
  undeliverable-mail-recipient-changed-address-temporarily (41),
  undeliverable-mail-recipient-changed-temporary-address (42),
  undeliverable-mail-new-address-unknown (43),
  undeliverable-mail-recipient-did-not-want-forwarding (44),
  undeliverable-mail-originator-prohibited-forwarding (45),
  physical-rendition-attributes-not-supported (31)
} (1..ub-reason-code)

```

9.3.2 NN supplementary information

The NN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Negative Notification.

NOTE – EDI Supplementary Information is defined in 8.3.2.

9.3.3 Negative notification extensions

The Negative Notification Extensions allows for future extensions to the NN.

```

NNExtensionsField ::= SET OF NNExtensionsSubField

NNExtensionsSubField ::= ExtensionField

```

There are no extensions to the NN defined in this part of ISO/IEC 10021.

Extensions shall not be critical in NNs.

9.4 Forwarded notifications

A Forwarded Notification (FN) is sent by a UA, if and only if the originator has requested one, when it determines that it cannot accept Responsibility and decides to forward the EDIM, and the EDI Notification Requests contained in the EDIM, to another UA.

Forwarded Notification Fields are defined and described below.

```

ForwardedNotificationFields ::= SEQUENCE {
  fn-common-fields          [0] CommonFields,
  forwarded-to              [1] ForwardedTo,
  fn-reason-code            [2] FNReasonCodeField,
  fn-supplementary-information [3] EDISupplementaryInformation OPTIONAL,
  fn-extensions             [4] FNExtensionsField OPTIONAL }

```

9.4.1 Forwarded to

The Forwarded To field indicates the new recipient of the (forwarded) subject EDIM. Its value is an OR-name.

ForwardedTo ::= ORName

NOTE – OR-name is defined in 8.5.5 of ISO/IEC 10021-4 | CCITT Recommendation X.411, and ORName is defined in figure 2 of ISO/IEC 10021-4 | CCITT Recommendation X.411.

9.4.2 Forwarded notification reason

The Forwarded Reason Code indicates the reason why the Responsibility of the subject EDIM was forwarded. It also indicates the appropriate source of forwarding, e.g., the UA or MS, the user, or the PDAU. Additional information may be carried in any combination of a diagnostic field and the FN Supplementary Info field.

```
FNReasonCodeField ::= CHOICE {
  fn-ua-ms-reason-code [0] FNUAMSReasonCodeField,
  fn-user-reason-code [1] FNUserReasonCodeField,
  fn-pdau-reason-code [2] FNPDAUReasonCodeField }
```

-- Forwarding Notification Reason Codes from an EDI-UA or EDI-MS

```
FNUAMSReasonCodeField ::= SEQUENCE {
  fn-ua-ms-basic-code [0] FNUAMSBasicCodeField,
  fn-ua-ms-diagnostic [1] FNUAMSDiagnosticField OPTIONAL,
  fn-security-check [2] FNUAMSSecurityCheckField DEFAULT FALSE }
```

-- Forwarding Notification Basic Reason Codes from an EDI-UA or EDI-MS

```
FNUAMSBasicCodeField ::= INTEGER {
  unspecified (0),
  onward-routing (1), -- used whenever the UA decides to re-route the
  -- subject EDIM for local reasons
  EDIM-recipient-unknown (2),
  EDIM-originator-unknown (3),
  forwarded-by-edi-ms (4)
 } (0..ub-reason-code)
```

-- Forwarding Notification Diagnostic Reason Codes from an EDI-UA or EDI-MS

```
FNUAMSDiagnosticField ::= INTEGER {
  -- This field may be used to further specify the error signalled in fn-ua-ms-basic-
  -- code. Additional information may be indicated in fn-supplementary-information
  recipient-name-changed (1),
  recipient-name-deleted (2)
 } (1..ub-reason-code)
```

-- Forwarding Notification Security Check Codes from an EDI-UA or EDI-MS.

```
-- This field may be used, with a value of TRUE, to indicate that all security
-- features present have been validated, or a value of FALSE to indicate that
-- the security features have not been validated.
```

FNUAMSSecurityCheckField ::= BOOLEAN

-- Forwarding Notification Reason Codes from a user

```
FNUserReasonCodeField ::= SEQUENCE {
  fn-user-basic-code [0] FNUserBasicCodeField,
  fn-user-diagnostic [1] FNUserDiagnosticField OPTIONAL }
```

-- Forwarding Notification Basic Reason Codes from a user

```
FNUserBasicCodeField ::= INTEGER {
  unspecified (0),
  forwarded-for-archiving (1),
  forwarded-for-information (2),
  forwarded-for-additional-action (3),
  subscription-changed (4),
  heading-field-not-supported (5),
  bodypart-type-not-supported (6),
  message-type-not-supported (7),
  syntax-identifier-not-supported (8),
  interchange-sender-unknown (9),
```

```

user-defined-reason (10)
} (0..ub-reason-code)

```

-- Forwarding Notification Diagnostic Reason Codes from a user

```

FNUserDiagnosticField ::= INTEGER (1..ub-reason-code)
-- Contains reason passed by user when value of fn-user-basic-code is
-- user-defined-reason. Additional information may be indicated in
-- fn-supplementary-information.

```

-- Forwarding Notification Reason Codes from a PDAU

```

FNPDAUReasonCodeField ::= SEQUENCE {
  fn-pdau-basic-code      [0] FNPDAUBasicCodeField,
  fn-pdau-diagnostic      [1] FNPDAUDiagnosticField OPTIONAL }

```

-- Forwarding Notification Basic Reason Codes from a PDAU

```

FNPDAUBasicCodeField ::= INTEGER {
  unspecified (0),
  forwarded-for-physical-rendition-and-delivery (1)
} (0..ub-reason-code)

```

-- Forwarding Notification Diagnostic Codes from a PDAU

```

FNPDAUDiagnosticField ::= INTEGER (1..ub-reason-code)

```

A physical delivery access unit (PDAU) (see 15.4) is only able to generate NNs and FNs. PNs shall not be generated even if requested. If any notification (PN, FN, NN or any combinations of them) is requested and passing of Responsibility is allowed by the originator, the PDAU shall generate an FN with appropriate Forwarded Reason Code ("forwarded-for-physical-rendition-and-delivery") when it has determined that it can render the EDIM for physical delivery. If any notification (PN, FN, NN or any combinations of them) is requested and passing of responsibility is not allowed by the originator, the PDAU shall not render the EDIM for physical delivery and shall generate an NN if so requested. If no notifications are requested, the PDAU shall attempt to render the EDIM for physical delivery, regardless of whether passing Responsibility is allowed or not.

9.4.3 FN supplementary information

The FN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Forwarded Notification.

NOTE – The EDI Supplementary Information Field is defined in 8.3.2.

9.4.4 Forwarded notification extensions

The Forwarded Notifications Extensions allows for future extensions to the FN.

```

FNExtensionsField ::= SET OF FNExtensionsSubField

```

```

FNExtensionsSubField ::= ExtensionField

```

There are no extensions to the FN defined in this part of ISO/IEC 10021.

Extensions shall not be critical in FNs.

Section 2 - EDI environment and abstract service definition

10 Primary object types

The environment in which EDI Messaging takes place can be modeled as an abstract object which is hereafter referred to as the EDI Messaging Environment (EDIME).

```

edime OBJECT ::= id-ot-edime

```

When refined (i.e., functionally decomposed), the EDIME can be seen to comprise lesser objects which interact by means of ports.

```
edime-refinement REFINED edime AS
  edims
    origination      [S] PAIRED WITH edimg-user
    reception        [S] PAIRED WITH edimg-user
  edimg-user RECURRING
  ::= id-ref-primary
```

The lesser objects are referred to as the primary objects of EDI Messaging. They include a single, central object, the EDI Messaging System, EDIMS, and numerous peripheral objects called EDI Messaging System users (users).

The structure of the EDIME is depicted in figure 4.

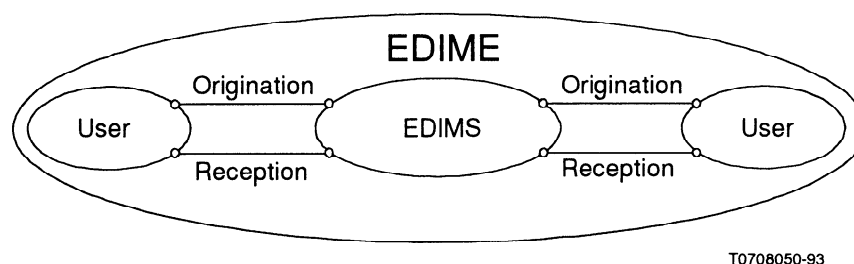


Figure 4 - The EDI messaging environment

The primary object types are defined and described below. The types of ports by means of which they interact are discussed in clause 11.

10.1 EDI messaging user

An EDI Messaging user (EDIMG user) is typically a computer process or application that engages in EDI Messaging. Such processes or applications are referred to by the term "user" in this part of ISO/IEC 10021. A user originates, receives, or both originates and receives Information Objects of the types defined in clause 6.

```
edimg-user OBJECT
  PORTS {
    origination      [C],
    reception        [C] }
  ::= id-ot-edimg-user
```

The EDIME comprises any number of Users.

NOTE – EDI messaging is typically an activity between information processing systems. These are referred to as EDI applications. This does not preclude the possibility of human interaction with the information processing systems which are performing EDI, or more direct interaction of a human user with the EDIMS. The terms "user" and "EDIMG user" may be regarded as synonyms for EDI applications within this part of ISO/IEC 10021. For brevity, the term "user" is used throughout the rest of this part of ISO/IEC 10021 with the meaning of "EDIMG user".

10.2 EDI messaging system

The EDI Messaging System (EDIMS) is the object by means of which all users communicate with one another in EDI Messaging.

```
edims OBJECT
  PORTS {
    origination      [S],
    reception        [S] }
  ::= id-ot-edims
```

The EDIME comprises exactly one EDIMS.

11 Primary port types

The primary objects of EDI Messaging are joined to and interact with one another by means of ports. These ports, which the EDIMS supplies, are referred to as the primary ports of EDI Messaging. They are of the types defined below.

Standard of a management port may be the subject of future standardization.

NOTE – In clause 15 to follow, the EDIMS is decomposed into still lesser objects, among which is the MTS. This fact is anticipated here by the inclusion of certain MTS capabilities in the EDIMS Abstract Service.

11.1 Origination port

An Origination Port is the means by which a single user conveys to the EDIMS messages containing Information Objects of the types defined in clause 6. Through such a port the user originates EDI Messages and EDI Notifications. In addition, the user may originate probes through such a port.

```

origination PORT
  CONSUMER INVOKES {
    OriginateProbe,
    OriginateEDIM,
    OriginateEDIN }
  ::= id-pt-origination

```

The EDIMS supplies one Origination Port to each user [with the exception of indirect users served by PDAUs (see 15.4)].

11.2 Reception port

A Reception Port is the means by which the EDIMS conveys to a single user messages containing Information Objects of the types defined in clause 6. Through such a port the user receives EDI Messages and EDI Notifications. In addition, the user may receive reports through such a port.

```

reception PORT
  SUPPLIER INVOKES {
    ReceiveReport,
    ReceiveEDIM,
    ReceiveEDIN }
  ::= id-pt-reception

```

The EDIMS supplies one Reception Port to each user.

12 Abstract operations

What follows defines the abstract service that characterizes EDI Messaging, and describes the environment in which that service is supplied and consumed. It does both using the abstract service definition conventions of ISO/IEC 10021-3 | CCITT Recommendation X.407.

The EDIMS Abstract Service is the set of capabilities that the EDIMS provides to each user by means of one Origination Port and one Reception Port. Those capabilities are modeled as abstract operations, which may encounter abstract errors when invoked.

The purpose of the EDIMS Abstract Service Definition is not to prescribe the interface between the EDI user and the EDI-UA, but rather to clarify the meaning and intended use of the Information Objects of clause 6. A user interface need not provide commands in one-to-one correspondence to the service's abstract operations, nor indeed even divide the labour between the user and the EDIMS as the service does.

The abstract operations available at the Origination Port and Reception Port are defined and described below. The abstract errors they may provoke are the subject of clause 13.

The EDIMS Abstract Service involves neither abstract bind nor abstract unbind operations.

The EDIMS authenticates (i.e., establishes the identity of) the typical user before offering the EDIMS Abstract Service to him. By this means it can verify, e.g., that the user is an EDIMS subscriber. Authentication, where required, is implicit (rather than explicit) in the definition of the EDIMS Abstract Service.