



EXHIBITION OBJECT DATA EXCHANGE MODEL

EODEM - MODEL WYMIANY DANYCH EKSPONATÓW

Marcin Mondzelewski

National Museum in Warsaw 2023



This speech was given by M. Mondzelewski, Chief registrar in The National Museum in Warsaw, on 23 November 2023 at the Polish History Museum as part of the 2nd conference from the series 'Digitization in museums - a discussion forum'. You can listen to it at 32:10 till 52:05 and the whole conference on Youtube (in Polish).

[Digitalizacja w muzeach](#)

EODEM 1.0 – current version

**Jette Klein-Berning, Jonathan Whitson Cloud, Maija Ekosaari, Norbert Kanter, Richard Light, Rob Tice,
Rupert Shepherd, Sascha Curzon**

(concept, coordination and supervision of project development)

LIDO Working Group and EODEM team, led by Regine Stein

(Consultancy, LIDO changes to version 1.1 for EODEM, technical and terminology work for implementation)

**Antonio Beecroft, Eric Hagan, Gordon McKenna, Jonathan Ward, Kevin Gosling, Lynne Harrison,
Simon Lambert**

(development of terminology and its implementation in the model)

Modes Users Association, museum-digital, Zetcom

(lead partners on the developers' side)

EODEM – what is it?





Exhibition **O**bject **D**ata **E**xchange **M**odel = **EODEM**

Model Wymiany Danych Eksponatów (translation suggested by Marcin Kłos).

Built on assumed possibility of automated exchange (import/export) exhibition object data, lent to or borrowed from museum, between different digital Museum Documentation Systems (MDS), based on a uniform data exchange model.

Operational basis: **LIDO v.1.0**, **Spectrum XML v. 4.0.4**.

Example of data in MDS

NB 315 MNW     Zbiory Muzeum w Nieborowie i Arkadii	
nieznany	
Krzeseł	
W typie Ludwika VI	
Datowanie	XVIII/XIX w.
Technika	stolarka; snycerka; tapicerowanie
Tworzywo	drewno; tkanina
Rodzaj	krzesło
Wymiary	wys. 83,0 cm, szer. 50,0 cm
Lokalizacja	MUZEUM W NIEBOROWIE I ARKADII / Pałac / Pałac I p. / Sypialnia Wojewody
Wyceny	zł [Wartość] [Inwentarzowa, do podliczeń] [2016-08-08] zł [Wartość] [Inwentarzowa, do podliczeń] [2012-10-16]
Udział w wydarzeniach	Hereditas. Digitalizacja i udostępnianie zbiorów Muzeum Narodowego w Warszawie
Właściciel	Muzeum w Nieborowie i Arkadii, Oddział MNW



.. and other

EODEM – why it was created?

For example: staff at the National Gallery in London entered data into the MDS over a ten-year period from 2009 to 2019 for objects borrowed. There were between **180** and **607** objects in a year (an average of **405** objects).

Assuming that this work took full **six** hours a day, it was calculated that employees spent between **16** and **22** days doing this. On a 10-year basis, this is almost one year of work (a maximum of **220** working days).

These figures do not take into account the work of preparing and exporting data of objects lent by the National Gallery to other institutions.

EODEM – how it was created?

- In 2016, the idea of automated data exchange was born at the CIDOC conference in Milan.
- In 2017 DSWG organised a workshop with people responsible for the process of acquisition, inputting and managing object data used in the loan procedure. Main goal was to establish desired data units to be included in EODEM.



EODEM – how it was created?

- In 2018 in Heraklion, at a working meeting with MDS software developers, it came to agreement that the project had a chance to succeed and the model was feasible to build and implement. An outline of the first EODEM model was produced.
- From 2020 work took place almost exclusively in online subgroups as a result of the COVID pandemic. Lectures were organised on the concept of data exchange and the EODEM model (CIDOC GENEVA, CIDOC TALLIN).



LIDO and SPECTRUM - cooperation

Data units standard draft - LIDO

- Object Identifier
- URI
- Object Type
- Materials
- Measurements *group*
- Title/Name *group*
- Brief Description
- Date *group*
- Maker
- Image
- Credit Line
- Lender Details
- Export Date

LIDO and SPECTRUM - cooperation

Data units standard draft – SPECTRUM XML

- | | | |
|-----------------------------|----------------------------------|-------------|
| • Object Identifier | • Credit Line | • Transport |
| | • Value | |
| • Materials | • Condition | • Display |
| • Measurements <i>group</i> | • Temperature <i>group</i> | • Security |
| • Title/Name <i>group</i> | • Relative Humidity <i>group</i> | |
| • Brief Description | • Lux Level <i>group</i> | • Hazard |
| • Date <i>group</i> | • UV Exposure <i>group</i> | |
| • Maker | • Handling | |

LIDO and SPECTRUM – final effect

Data units standard draft - LIDO

- | | | |
|-----------------------------|----------------------------------|---------------------------|
| • Object Identifier | • Credit Line | • Transport |
| • URI | • Insurance/Indemnity | • Installation |
| • Object Type | • Value | • Condition Checking |
| • Materials | • Condition | • Display |
| • Measurements <i>group</i> | • Temperature <i>group</i> | • Security |
| • Title/Name <i>group</i> | • Relative Humidity <i>group</i> | • Photography and Filming |
| • Brief Description | • Lux Level <i>group</i> | • Hazard |
| • Date <i>group</i> | • UV Exposure <i>group</i> | • Lender Details |
| • Maker | • Handling | • Export Date |
| • Image | | |

EODEM – data units

1.	EODEM Exchange*	37.	Maker Type	73.	Relative Humidity Requirements Group*
2.	EODEM Object*	38.	Maker Identifier	74.	Relative Humidity Requirements Text
3.	LIDO Record ID§¶	39.	Maker Display Name	75.	Relative Humidity Requirements Measurements Group*
4.	URI	40.	Maker Sort Name	76.	Target Minimum Relative Humidity
5.	LIDO Application Profile§¶	41.	Maker Earliest Date	77.	Target Maximum Relative Humidity
6.	Object Metadata*	42.	Maker Latest Date	78.	Maximum Relative Humidity Variation
7.	Record Language§¶	43.	Maker Role Group*	79.	Minimum Relative Humidity Variation Period
8.	Object Type Group*	44.	Maker Role Identifier†	80.	Visible Light Exposure Requirements Group*
9.	Object Type Identifier†	45.	Maker Role Keyword†	81.	Visible Light Exposure Requirements Text
10.	Object Type Keyword†¶	46.	Attribution Qualifier	82.	Visible Light Exposure Requirements Measurements Group*
11.	Title/Name Group*	47.	Production Date Group*	83.	Maximum Visible Light Exposure
12.	Title Type¶	48.	Display Production Date	84.	Maximum Cumulative Visible Light Exposure
13.	Title/Name¶	49.	Earliest Production Date	85.	Maximum Cumulative Visible Light Exposure Duration
14.	Title Language¶	50.	Latest Production Date	86.	Ultraviolet Light Exposure Requirements Group*
15.	Lender Group [1: repository]**‡	51.	Production Period Group*	87.	Ultraviolet Light Exposure Requirements Text
16.	Lender Identifier [1: repository]†‡§¶	52.	Production Period Identifier†	88.	Ultraviolet Light Exposure Requirements Measurements Group*
17.	Lender Name [1: repository]†‡§¶	53.	Production Period Keyword†	89.	Maximum Ultraviolet Light Exposure
18.	Object Identifier¶	54.	Loan Assessment Group*	90.	Target Ultraviolet Light Exposure
19.	Brief Description	55.	Value Group*	91.	Upper Ultraviolet Light Wavelength Boundary
20.	Measurement Group*	56.	Value Currency	92.	Installation Method
21.	Measurement Text	57.	Value	93.	Display Method
22.	Dimension Aspect Group*	58.	Insurance/Indemnity	94.	Security
23.	Dimension Group*	59.	Condition Of Object	95.	Photography And Filming
24.	Dimension	60.	Object Move Requirements Group*	96.	Administrative Metadata*
25.	Unit	61.	Handling	97.	Credit line
26.	Measurement	62.	Transport	98.	Local Record ID§¶
27.	Dimension Aspect	63.	Condition Checking	99.	LIDO Record Type Group**‡
28.	Dimension Qualifier	64.	Hazards	100.	LIDO Record Type Identifier†¶
29.	Materials Group*	65.	Object Display Requirements Group*	101.	LIDO Record Type Keyword†¶
30.	Material Description	66.	Temperature Requirements Group*	102.	Lender Group [2: record source]*
31.	Material Group*	67.	Temperature Requirements Text	103.	Lender Identifier [2: record source]†‡§¶
32.	Material Identifier†	68.	Temperature Requirements Measurements Group*	104.	Lender Name [2: record source]†‡§¶
33.	Material Keyword†	69.	Target Minimum Temperature	105.	Export Date/Timestamp§¶
34.	Object Production Group*	70.	Target Maximum Temperature	106.	Image Group*
35.	Maker Group*	71.	Maximum Temperature Variation	107.	Image
36.	Maker Identification Group*	72.	Minimum Temperature Variation Period	108.	Image Type§
				109.	Identifier Type

EOD-EM – data required

- Object Type Keyword
- Title/Name
- Object Identifier
- Record type [single object, multi-part object, set of objects, part of a set, etc.)

However, the authors assume that museums will want to send more data than the minimum required.

Data from the register used in movement control (and loan) procedure

- Object register number
- Object type (object type name)
- Title/Name
- Author/Manufacturer
- Place of creation
- Date of creation
- Material
- Technique
- Dimensions/weight
- Owner name
- Current value
- Condition



Muzeum Narodowe w Warszawie
Al. Jerozolimskie 3

WYKAZ OBIEKTÓW

1

Rz.W.756 MNW

Biernacki, Jan Antoni (1879-1930), Polska [malarz]

Matka Boska Niepokalanego Poczęcia

stary nr 131977; KONWENT OO.PIJARÓW W ŁOWICZU

datowanie: ok. 1929

wymiary: wys. 290 cm, szer. 145 cm, gł. 68 cm

technika: rzeźbienie

tworzywo: drewno

stan zachowania: brak danych [Janczak Bogusław, 2013-02-25]

właściciel: **Muzeum Rzeźby im. Xawerego Dunikowskiego, Oddział MNW**
dział: **MUZEUM RZEŻBY IM. X. DUNIKOWSKIEGO W KRÓLIKARNI / KOLEKCJA RZEŻBY WSPÓŁCZESNEJ**



Data from the register used in movement control (and loan) procedure



Muzeum Narodowe w Warszawie
Al. Jerozolimskie 3

WYKAZ OBIEKTÓW

1

Rz.W.756 MNW

Biernacki, Jan Antoni (1879-1930), Polska [malarz]

Matka Boska Niepokalanego Poczęcia

stary nr 131977; KONWENT OO.PIJARÓW W ŁOWICZU

datowanie: ok. 1929

wymiary: wys. 290 cm, szer. 145 cm, gł. 68 cm

technika: rzeźbienie

tworzywo: drewno

stan zachowania: brak danych [Janczak Bogusław, 2013-02-25]

właściciel: **Muzeum Rzeźby im. Xawerego Dunikowskiego, Oddział MNW**

dział: **MUZEUM RZEŻBY IM. X. DUNIKOWSKIEGO W KRÓLIKARNI / KOLEKCJA
RZEŻBY WSPÓŁCZESNEJ**



EODEM – units of information

EODEM information units can be divided into groups:

- ID of EODEM record
- Object type
- Name/Title
- Lender/borrower and owner
- ID of the object (inventory)
- Dimensions and waight
- Material and technique

EODEM – units of information

EODEM information units can be divided into groups:

- Creator and/or manufacturer
- Date
- Insurance value and insurance conditions
- Indemnities and guarantees
- Condition of the object and condition checking
- Conditions of packing, transport, installation, display
- Description of packing type, material etc.

EODEM – units of information

EODEM information units can be divided into groups:

- Conditions of display, filming, reproduction etc.
- Management data (copyright, property rights, data of the lender/owner, other)
- Credit line for the object
- EODEM record administrative data (date of creation/export, validity and versions, record identifier in the source system)
- Visual documentation of the object including source
- Language of the record also translation cover to other languages

EODEM – translation and data mapping

EODEM unit of information	Kolumna Jednostka informacji EODEM	Przykład
LIDO Record ID	Identyfikator rekordu LIDO	GUID: 1111:736483
URI	URI	https://kolekcje.muzeumwarszawy.pl/pl/obiekty/3695/
LIDO Application Profile	Profil aplikacji LIDO	EODEM version 1
Object Type Identifier	Identyfikator typu obiektu	http://vocab.getty.edu/page/nat/300046065
Object Type Keyword	Słowo kluczowe typu obiektu	obuwie/buty
Title/Name Group	Grupa tytuł / nazwa	
Title Type	Typ tytułu	tytuł opisowy
Title/Name	Tytuł / nazwa	Trzewiki damskie
Title Language	Język tytułu	pl
Lender Identifier [1: repository]	Identyfikator użyczającego [1: repozytorium]	MHW
Lender Name [1: repository]	Nazwa użyczającego [1: repozytorium]	Muzeum Warszawy
Object Identifier	Identyfikator obiektu	MHW 23950/a-b
Brief Description		Buciki damskie z cienkiej białej skórki glacee, sznurowane, powyżej kostki. Noski wydłużone, obcasiki w formie szpulki, górna krawędź cholewki z białego płócienka; w górnej części cholewki wzmocniona białym atłasem w motywy kwiatowe. Dziurki do sznurowania metalowe, białe lakierowane.
	Krótki opis	
Measurement Group	Grupa opisowa wymiarów	
Measurement Text	Opis wymiarów	wys. 23 cm, szer. 6 cm, dł. 24 cm
Dimension Aspect Group	Grupa aspektów wymiaru	
Dimension Group	Grupa wymiarów	
Dimension	Wymiar	wysokość
Unit	Jednostka	cm
Measurement	Pomiar	23
Dimension Aspect	Rodzaj wymiaru	całość
Dimension Qualifier	Kwalifikator wymiaru	± 2 mm
Material Group	Grupa opisowa materiał	
Material Description	Opis materiału	skóra atlasowa, szyta, nacinana
Material Identifier	Identyfikator materiału	http://vocab.getty.edu/page/nat/300011845
Material Keyword	Słowo kluczowe dotyczące materiału	skóra, atlas, płótno, metal

EODEM – translation and data mapping

Przykład	Firma Paweł Zagrodziński
GUID: 1111-736483	Zagrodziński, Paweł
https://kolekcje.muzeumwarszawy.pl/pl/obiekty/3695/	1850
EODEM version 1	1910
http://vocab.getty.edu/page/aat/300046065	http://vocab.getty.edu/page/aat/300025294
obuwie/buty	pracownia szewska
tytuł opisowy	na podstawie metki wszytej w buty
Trzewiki damskie	
pl	
MHW	
Muzeum Warszawy	http://terminology.lido-schema.org/eventType/creation
MHW 23950/a-b	wykonano
Buciki damskie z cienkiej białej skóry gładce, sznurowane, powyżej kostki. Noski wydłużone, obcasiki w formie szpulki, górna krawędź cholewki z białego płócienka; w górnej części cholewki wzmocniona białym atłasem w motywy kwiatowe. Dziurki do sznurowania metalowe, białe lakierowane.	ok. 1900
	1855-1905
	http://vocab.getty.edu/page/aat/300111580
wys. 23 cm, szer. 6 cm, dł. 24 cm	secesja
	ubezpieczenie nie wymagane w ruchu krajowym
wysokość	10000
cm	PLN
23	krótkie określenie stanu obiektu, może być określone w skali
całość	instrukcja obchodzenia się z obiektem
± 2 mm	instrukcje dotyczące sposobu transportu, w tym zabezpieczenia
skóra atłasowa, szyta, nacinana	instrukcja przeprowadzania kontroli stanu zachowania
http://vocab.getty.edu/page/aat/300011845	informacje dotyczące zagrożeń ze strony obiektu, np.. Ostre krawędzie, trujący, radioaktywny
skóra, atłas, płótno, metal	
http://terminology.lido-schema.org/actor_type/organization	

EODEM – translation and data mapping

np. 18°C-22°C	%	lx-h	np. należy użyć systemu montażowego używającego, należy umieścić na solidnej podstawie, użyć bocznych zawiesi obrazu
	40	650000	np. eksponować w zamkniętej gablocie z kontrolą klimatu, eksponowany wyłącznie na ścianie, eksponowany na płasko
		światło widzialne	pod ciągłym nadzorem, zabezpieczony w gablocie z kluczami
°C	%	ekspozycji na światło widzialne	zdeponowanymi w depozytorze elektronicznym
18	65	3 dni	np. zakaz filmowania, fotografowanie bez użycia fleszu, fotografowanie "z ręki" dozwolone
		360	np. © Muzeum Warszawy, Depozyt Muzeum Warszawy, Muzeum Warszawy, dar Jana Buchaka
		złote	MHW 17563
°C	± %	> 10 µW/lm poniżej 380 nm	(do ustalenia, rodzaj obiektu w ewidencji: pojedynczy, złożony, element kompletu)
22		światło ultrafioletowe	MHW
	24	re	Muzeum Warszawy
	nej	µW/lm	2021-10-17T20:25:01+03:00
± °C	godziny	10	file:./EODEM_images/IMG12345.jpg; https://prd-mw-cdn.10clouds.io/exhibits/images/3ec0048e-97fe-4107-b19b-0fbdd6c1a498.jpg
5	5		image/jpeg
	np. <50lux, 150lux	µW/lm	
	widzialne	10	
godziny		ego	
24		3 nm	
	lx	< 380	
40%-65%	150		

EODEM – how it should work



The method of sending files depends on the procedures and agreements between the lender and the borrower. It is recommended to send the file package in encrypted form and the access password separately.

EODEM – general principles

- „I send what I have, I download what I can.”
- The exporter and importer plug-ins are customized by the company providing MDS for each institution separately (the exception being institutions using the same app and/or similar versions).
- EODEM data is transferred to fields on a 1 - 1 basis, or combined from several fields into one descriptive field (e.g. data from the information units: climate requirements, packaging and handling, transport, exposure conditions) can be migrated into one field if our MDS does not have stand-alone fields to record the above data.
- The model presumes that the scope of catalogued units of information can be expanded and divided into separate fields.

EODEM – why is it worth it

- Automated cataloguing and sharing of object data = saves time and resources
- Improved data security
- Improvement of collections management standards (e.g. SPECTRUM compliant procedures)
- Expanding the forms of sharing museum objects (online catalogues and printed materials, multimedia applications, educational activities, promotional activities, others)
- Saved paper
- Maintains a common technological level in global cultural sector
- 19 SPECTRUM Partners are already working on the implementation, 83 developers providing MDS want to implement

EODEM – possible applications

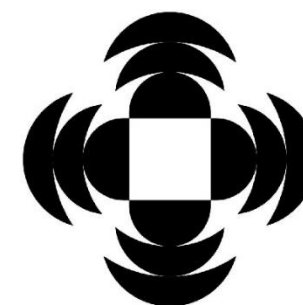
- Design and construction of display spaces, displays and showcases (data for designers and contractors)
- Production of crates and materials for storage and transport
- Data for art shipping companies
- Data for insurance companies
- Shared warehouse space management (central storages)
- Data usefull for creating audioguides and other apps
- other

Exhibition objects data recording in Poland

- There is a widespread belief that Polish museums (with exceptions) do not catalogue and electronically manage borrowed objects.
- Museums exchange lists of objects in Word files, Excel files, scans of documents, lists included in the texts of emails.
- Lists of objects are printed and photocopied for: loan in procedure, exhibition planning and mounting, gallery tour lists, lists for education purposes, lists of key objects for promotion.
- Mentioned data is transmitted on internal network between the staff of the institution. Much of the data is manually processed (e.g. value and other confidential data is deleted).
- As one can imagine, data protection in this situation can be illusory.

Exhibition loan statistics – Polish museums

	2019	2020	2021	total
Loan out	22636	16821	23759	63216
Loan in	37914	19369	31045	88328



**National
Institute
for Museums**

	2017-2020
Long term deposit loan out	9126
Long term deposit (indefinite) loan out	2297

STATYSTYKA



Statistical data incomplete (they do not cover all Polish public museums)

Exhibition loan statistics

(example data from the National Museum in Warsaw)

Collections movement control statistics	
Loans out (exhibitions mainly)	Number of objects loaned to other entities in 2019-2023
Museum type objects recorded in Inventory (Nr. of elements)	12415
Library type objects recorded in library inventory	14
Objects recorded in Supplementary register (Nr. of elements)	587
Objects recorded in Deposit books register (Nr. of elements)	31
Total	13047
Short-term loans in (exhibitions mainly)	Number of objects borrowed from other entities in 2019-2023
Objects registered in movement control register (Object entry procedure)	2907
Long-term loans in (deposit)	Number of objects borrowed from other entities in 2019-2023
Objects entered into Deposit records	2122
Total	5029
The number of loans in 2020-2022 was statistically lower than in previous years due to the COVID-19 pandemic.	

Contact

Marcin Mondzelewski
gorgione@gmail.com

Rupert Shepherd - EODEM coordinator
<https://rupertshepherd.info/contact>

CIDOC DSWG

<http://cidoc.mini.icom.museum/working-groups/documentation-standards/eodem-home/>

