

Modelling Preservation Options for Paper Collections: Best Practice

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Amsterdam City Archives



ORIGINAL RESEARCH OR TREATMENT PAPER

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A Comparison of Preservation Management Strategies for Paper Collections

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ABSTRACT

This paper proposes the use of simulation modelling to explore the effect of conservation strategies on the preservation of paper collections. Agent-based simulation was chosen as the simulation approach in order to capture the individual characteristics of the collections, their size, and the value of all and degree of polymerisation (DP) for individual items. This

KEYWORDS

Preservation management; preventive conservation; deacidification; simulation modelling; agent-based



RESEARCH ARTICLE

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The end of the reading room? Simulating the impact of digitisation on the physical access of archival collections

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ABSTRACT

Digitisation has become an essential part of archival and library strategies to enhance access to collections. As the digital content is increasing due to large-scale digitisation projects, it is expected that providing digital access to the analogue collections will eventually reduce the number of archival records accessed in the reading room. In this paper, we investigate this issue using two approaches: system dynamics and agent-based modelling. We first analyse real

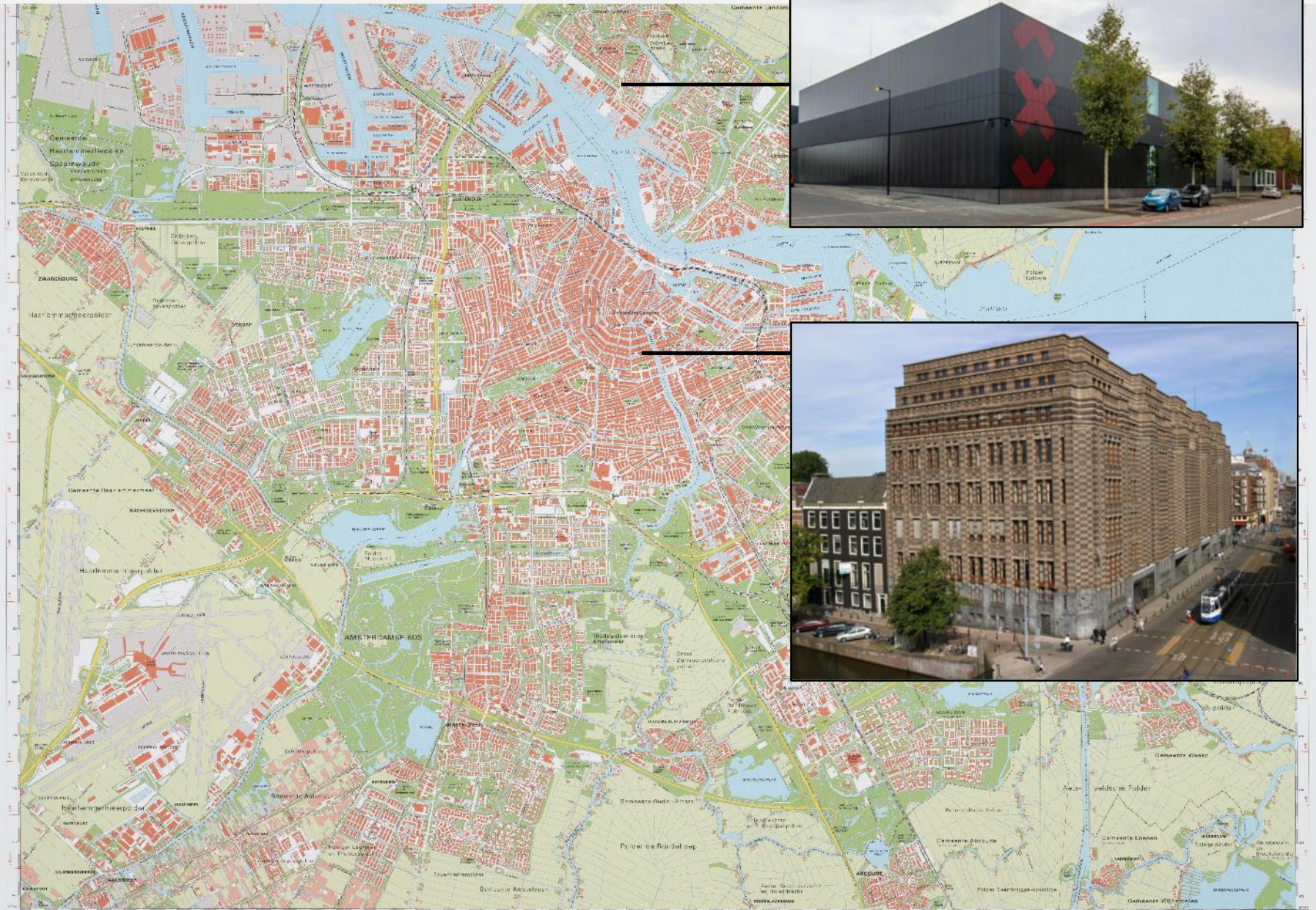
ARTICLE HISTORY

Received 30 May 2021
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KEYWORDS

Digitisation; archives; system

Amsterdam City Archives



XXX Amsterdam City Archives



XXX Amsterdam City Archives

333: Archief van de Holland Land Company

> Inleiding
Inventaris
PDF printversie

| | | |
|---------|--|-----------------|
| 1 | ARCHIVES OF DE BOARDS OF DIRECTORS IN AMSTERDAM | 2.698 BESTANDEN |
| 1.1 | ARCHIVES OF THE CLUB OF FOUR, INCLUDING THE CAZENOVIA NEGOTIATION. 1791-1841 | 1.181 bestanden |
| 1.1.1 | RECORDS OF A GENERAL NATURE | 1.090 bestanden |
| 1 | Minutes of the meetings of the directors. 1798-1801. <i>Forminutes after 1801 see no. 50. 1 volume</i> | 25 bestanden |
| 2 | Correspondence received from Th. Cazenove. 1791-1797. 1 folder. | 145 bestanden |
| 3 | Copybooks of outgoing correspondence of the Club of Four and the Club of Five. 1804-1841. 1 volume. | 151 bestanden |
| 4 | Correspondence received, with annexes, from the general agent with Stadnitski and Van Heukelom as directors of the Club of Four and the Club of Five. Originals and duplicates. 1824-1841. 1 folder. <i>The items are numbered 1-200.</i> | 769 bestanden |
| 1.1.2 | RECORDS OF A SPECIAL NATURE | 91 bestanden |
| 1.1.2.1 | RELATIONS WITH THE AGENT | 24 bestanden |
| 5 | Letter from J. Lincklaen in Cazenovia to P. an C. van Eeghen and Stadnitski and Van Heukelom in Amsterdam concerning the former's salary. 1798. 1 item. | 6 bestanden |

2022:

22.671.505 scans

XXX Enviromental storage conditions



XXX Enviromental storage conditions



Statement of requirements (2007)

- Temperature: 15-20°C
- Relative humidity: 49-55%

Performance (annual average)

- Temperature: 18°C
- Relative humidity: 55%

Overheid.nl

Wettenbank

Overheid.nl

Eenvoudig zoeken

Uitgebreid zoeken

Zoeken in EU-richtlijnen

U bent hier: Zoeken / Regeling

« Zoek opnieuw

Archiefregeling

Geraadpleegd op 22-05-2023.
Geldend van 01-01-2014 t/m heden

Archiefregeling

Geraadpleegd op 22-05-2023.
Geldend van 01-01-2014 t/m heden

Alles openklappen



Alles dichtklappen



Inhoudsopgave

Hoofdstuk 1

Algemeen
(Artikelen 1-2a)

Hoofdstuk 2

Duurzaamheid van archiefbescheiden
(Artikelen 3-15)

Hoofdstuk 3

Geordende en toegankelijke staat van archiefbescheiden
(Artikelen 16-26)

Hoofdstuk 3a

Vervanging
(Artikelen 26a-26b)

Hoofdstuk 4

Algemene voorschriften voor de bouw

Archiefregeling

Geraadpleegd op 22-05-2023.

Geldend van 01-01-2014 t/m heden

§ 2a

Artikel 54a. Relatieve luchtvochtigheid en temperatuur van archiefbewaarplaatsen

1 de relatieve luchtvochtigheid en temperatuur voor archiefbewaarplaatsen bedragen:

a. 50% R.V. +/- 5% onderscheidenlijk 18°C +/- 2°C voor bewaring van:

1°. papier;

2°. perkament;

3°. was;

4°. leer;

5°. textiel;

6°. hout;

7°. fotomateriaal op papier; of

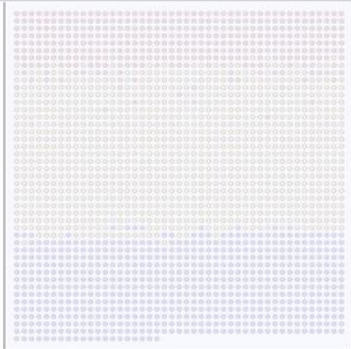
8°. optische schijven;

b. 35% R.V. +/- 5% onderscheidenlijk 13°C +/- 2°C voor de bewaring van zwart-wit neg

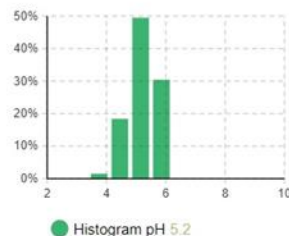
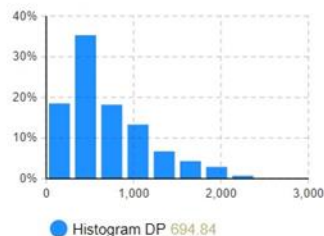
c. 38% R.V. +/- 5% R.V. onderscheidenlijk -20°C +/- 2°C voor de bewaring van zwart-wit en nitraatfilm en kleurnegatiefmaterialen;

Simulation model

ChemicalPreservationModel01 : Simulation - AnyLogic University Researcher



Collection



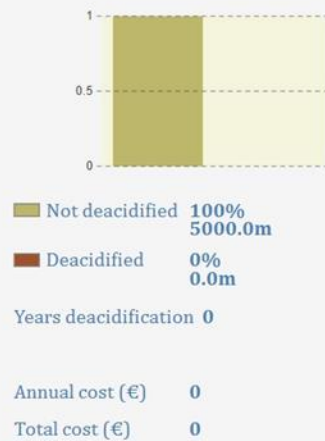
Inputs & Results

Archive size (m)
Storage T (oC)
Storage RH (%)
Deacidification (m/year)
Budget (€/year)
Max. pH deacidification
Min. DP deacidification
Weigth (kg/m)
Price deac. (€/kg)

Chemical condition



Deacidification



149.85 years 07/16/2169 17:59

Run until:
Run for: 1 years
83%
Console Events

0 years/sec EPS: 0 FPS: 11 Step: 2,785

Running: 76.57 sec 17% of 512M



XXX Models



Archival records (before 1810), drawing/print collection



Reviewed statement of requirements:

- Temperature: 13-22 °C, annual average 18 °C
- Relative humidity: 35-60%, annual average 50%
- Seasonal fluctuations / Set points

XXX Enviromental storage conditions

Statement of requirements (2019)

- Temperature: 13-18°C
- Relative humidity: 40-50%
- Seasonal fluctuations
- Zero net energy building (ZNEB)

Performance (annual average)

- Temperature: 17°C
- Relative humidity: 45%



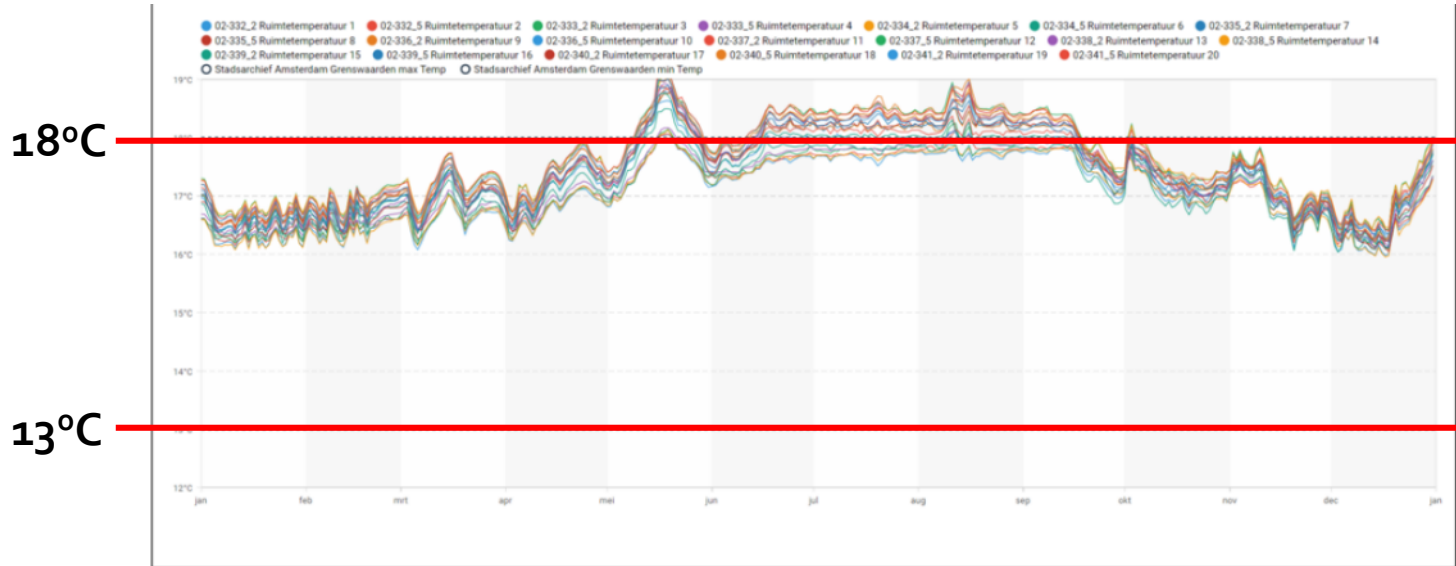
XXX Model

Archival records (before 1810), drawing/print collection

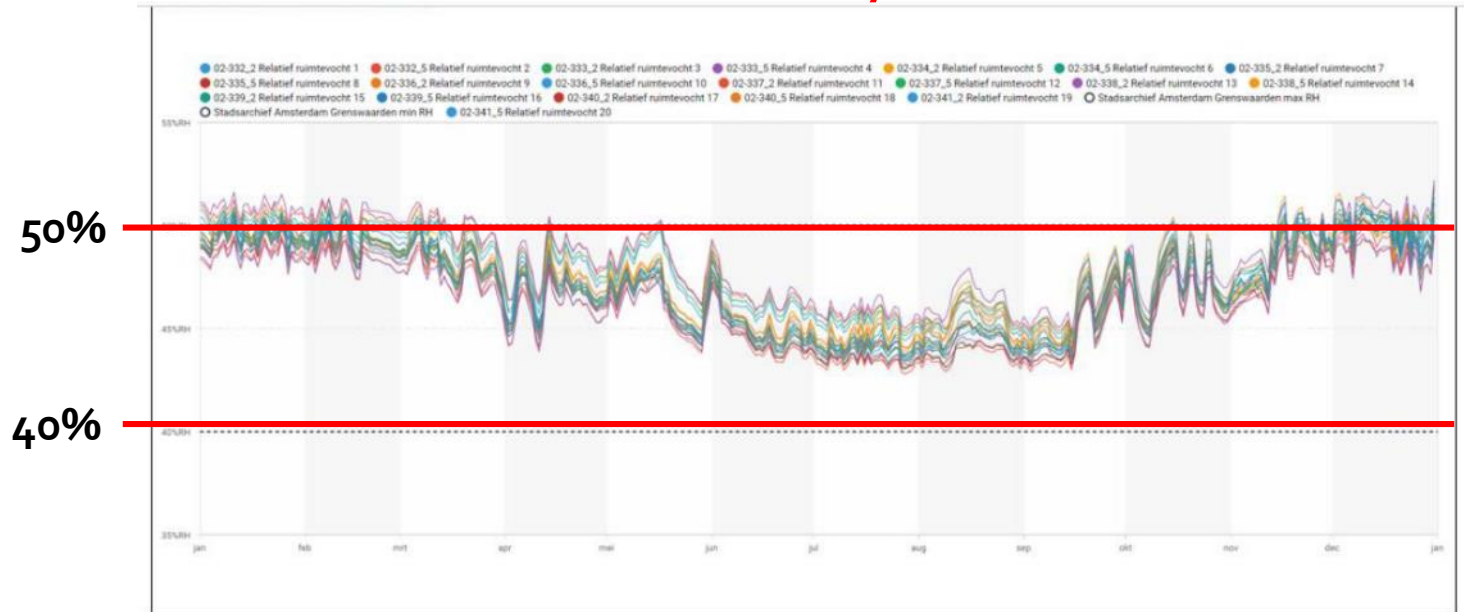
| | | | |
|--|---------------------|---------------------|---------------------|
| Acidic collections | T: 18 °C RH: 55% | T: 17 °C RH: 45% | T: 16 °C RH: 45% |
| % Collection < 300 DP Time horizon: 500 years | 70% | 46% | 39% |
| Modern collections | T: 18 °C RH: 55% | T: 17 °C RH: 45% | T: 16 °C RH: 45% |
| % Collection < 300 DP Time horizon: 500 years | 47% | 22% | 17% |



Temperature (Jan-Dec 2022)



Relative humidity (Jan-Dec 2022)

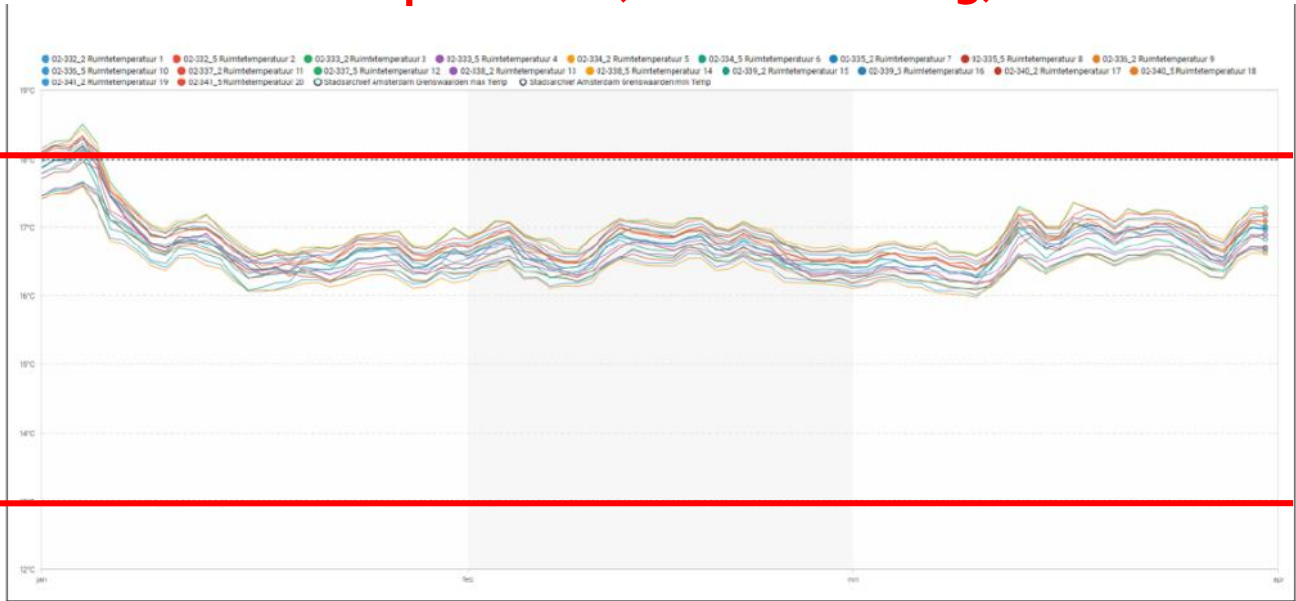




Temperature (Jan-March 2023)

18°C

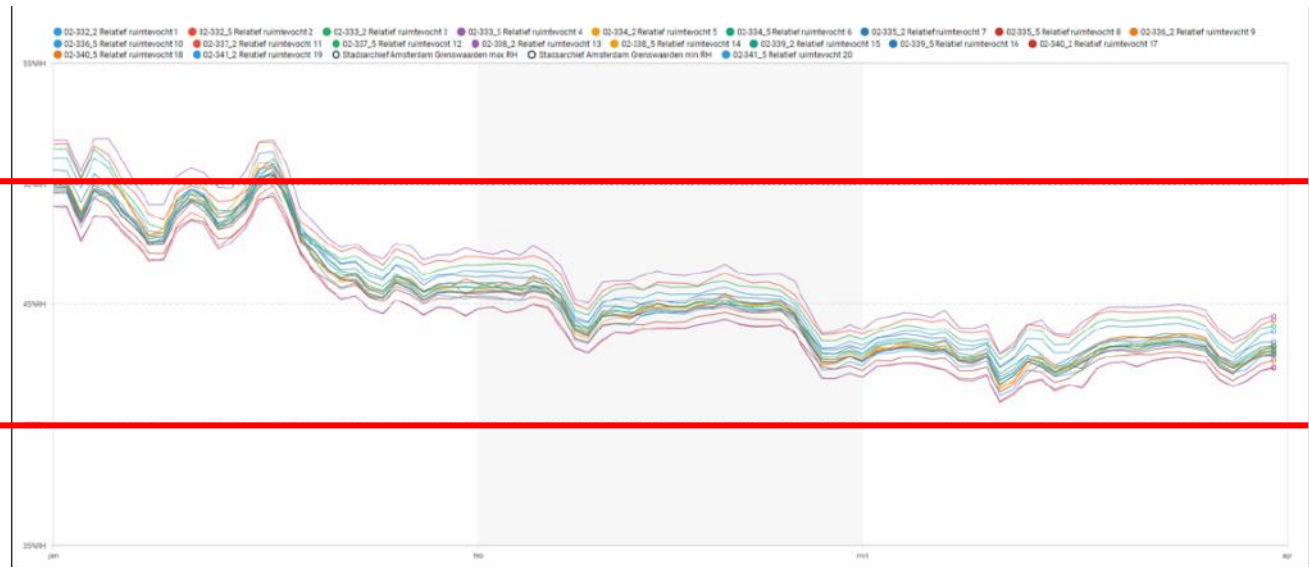
13°C



Relative humidity (Jan-March 2023)

50%

40%



XXX Reading room vs Digitisation

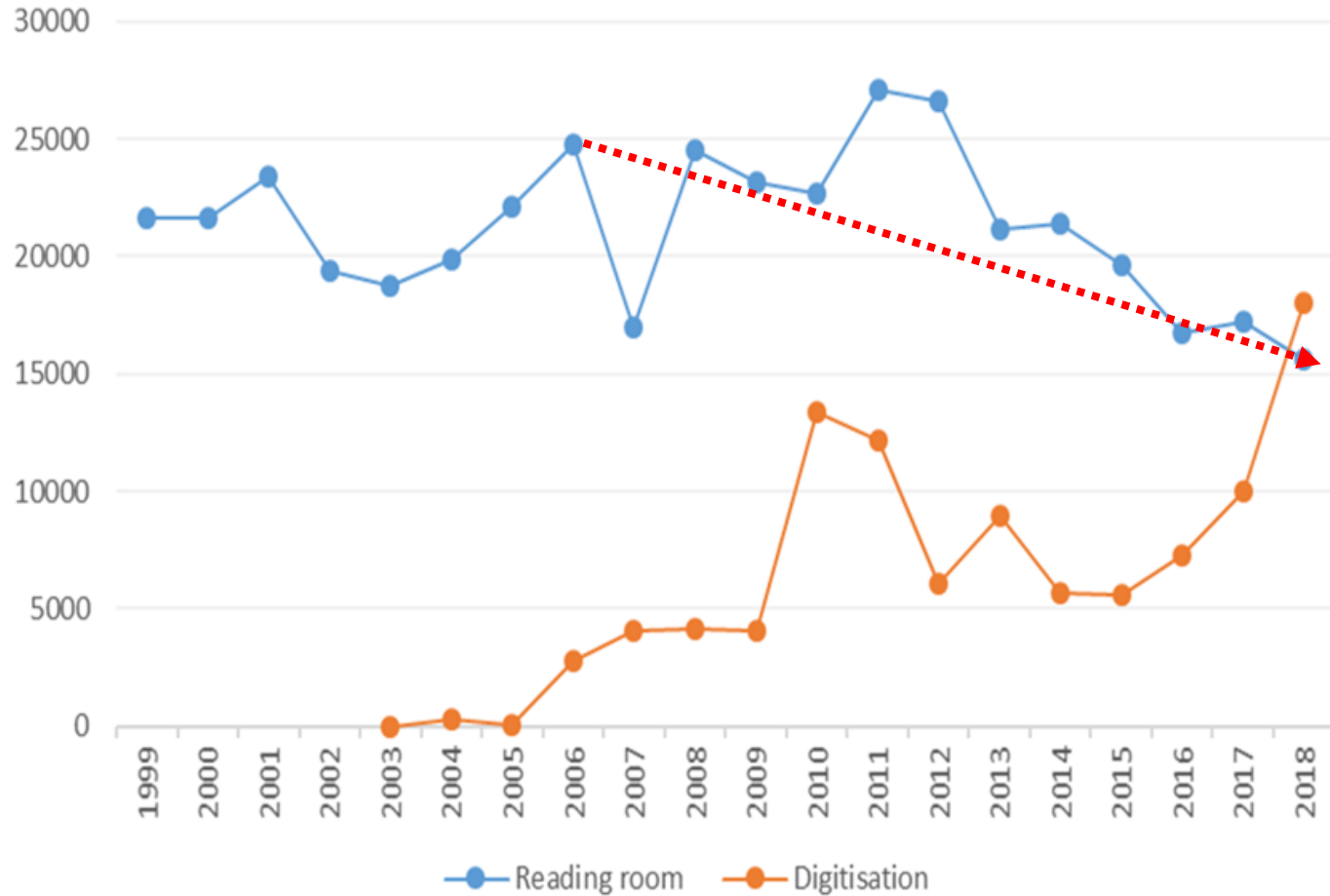


✘✘✘ Reading room vs Digitisation

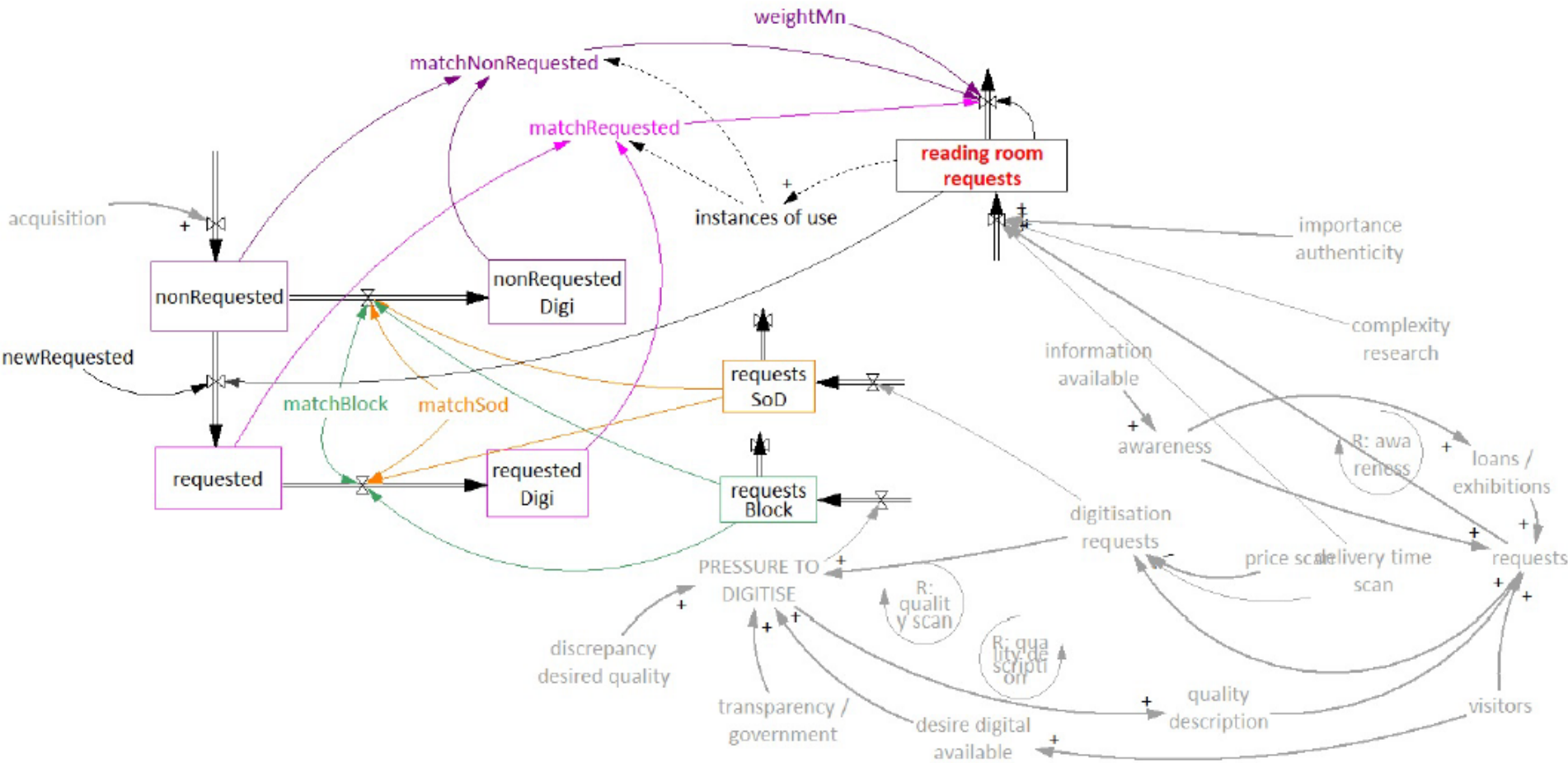


XXX Reading room vs Digitisation

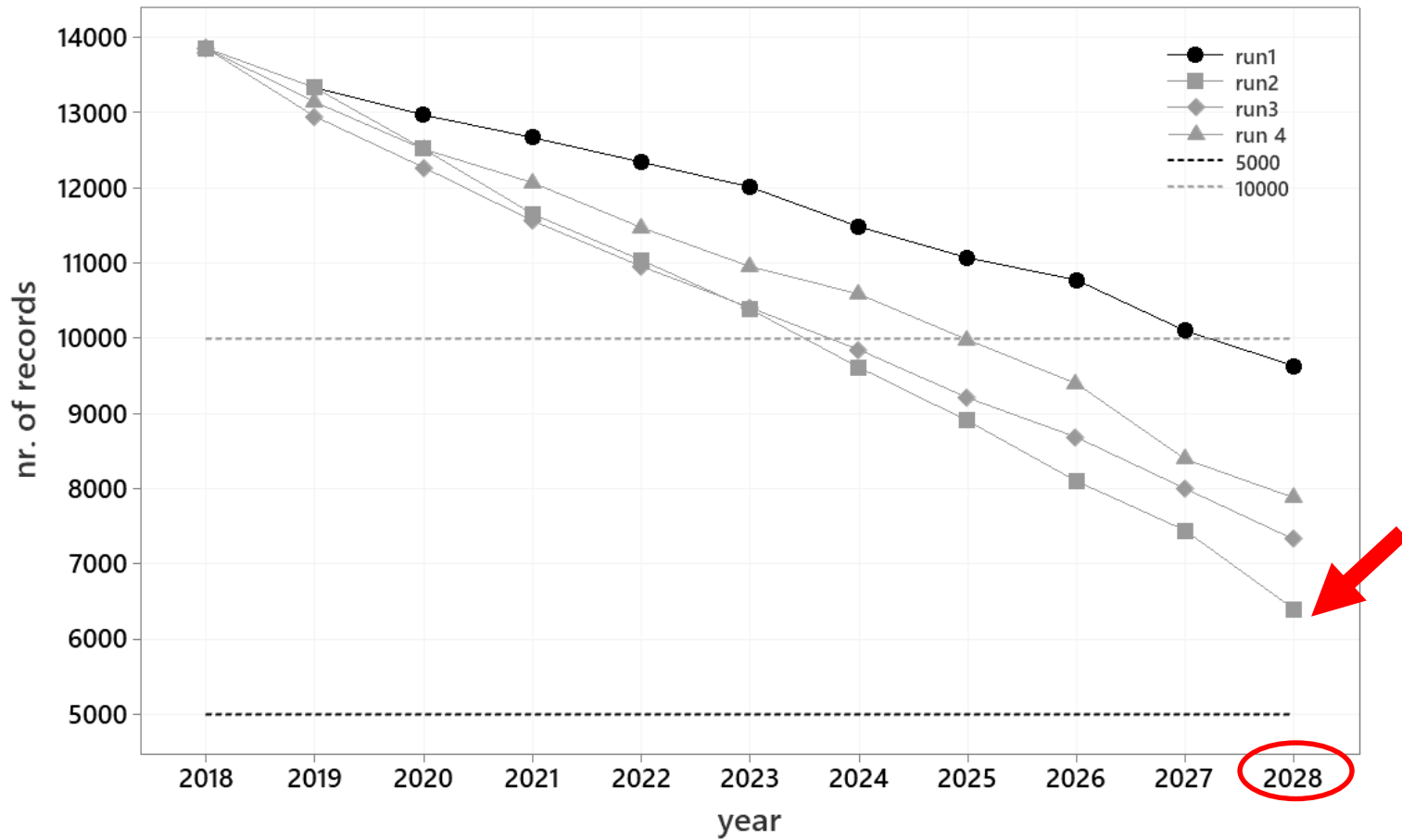
Number of requests
(1999-2018)



Model



Model

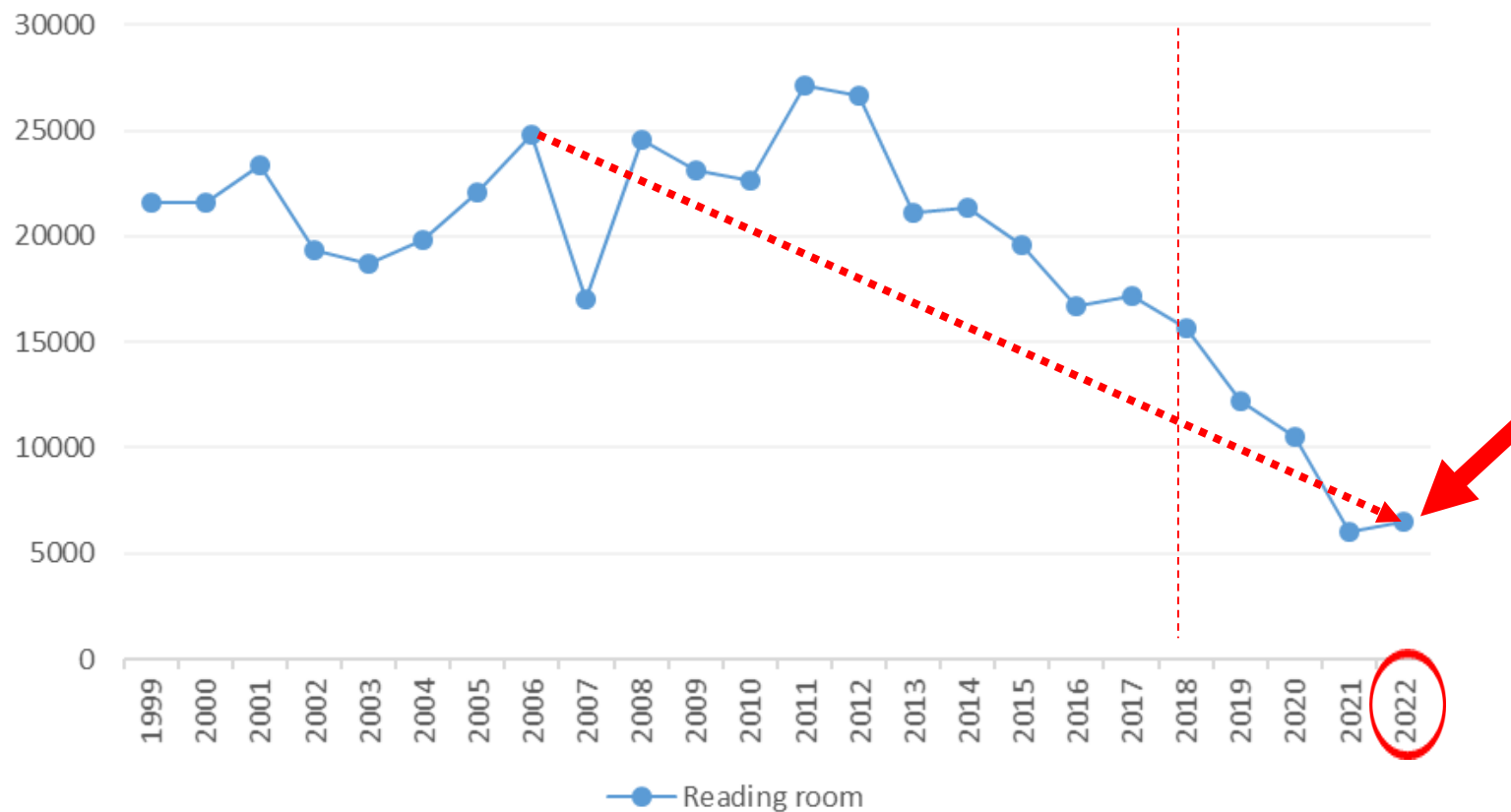


Duran et al. (2022) The end of the reading room? Simulating the impact of digitisation on the physical access of archival collections, *Journal of Simulation*, DOI: [10.1080/17477778.2022.2128911](https://doi.org/10.1080/17477778.2022.2128911)



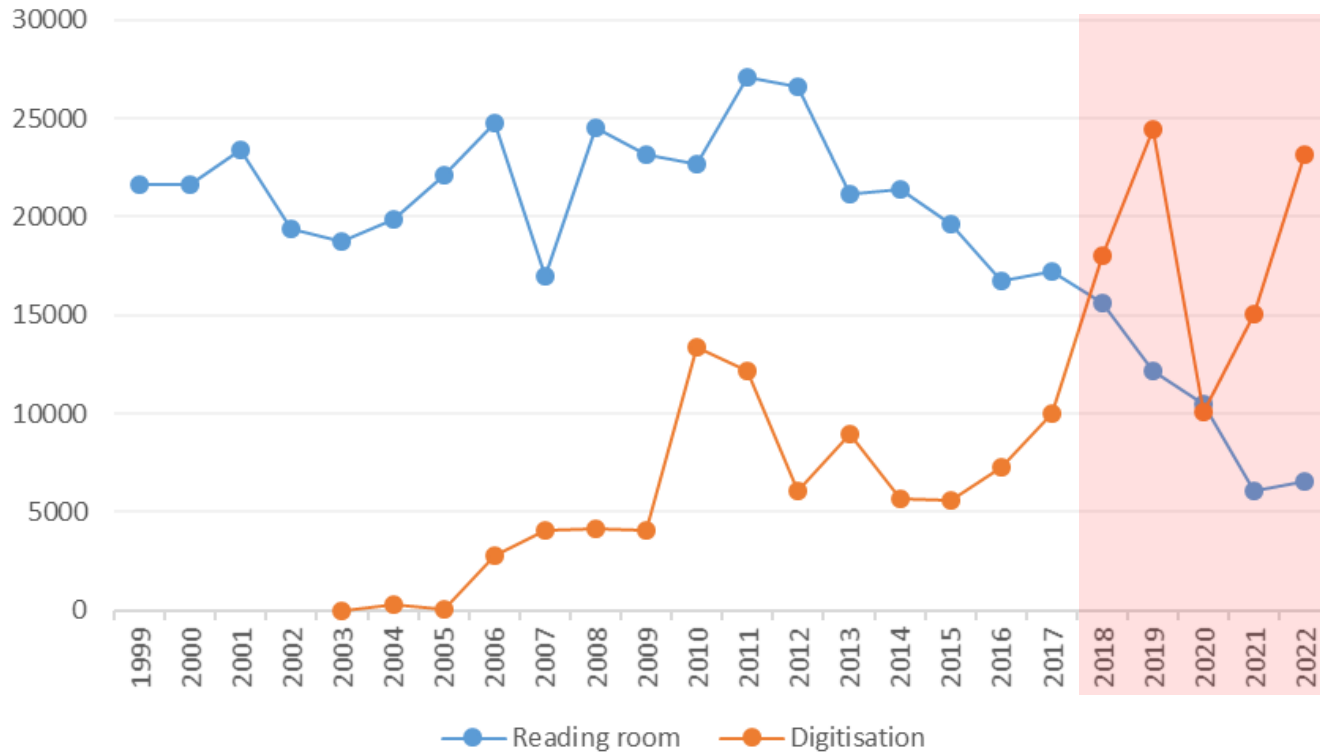
XXX Reading room vs Digitisation

Number of requests
(1999-2022)



XXX Reading room vs Digitisation

Number of requests
(1999-2022)

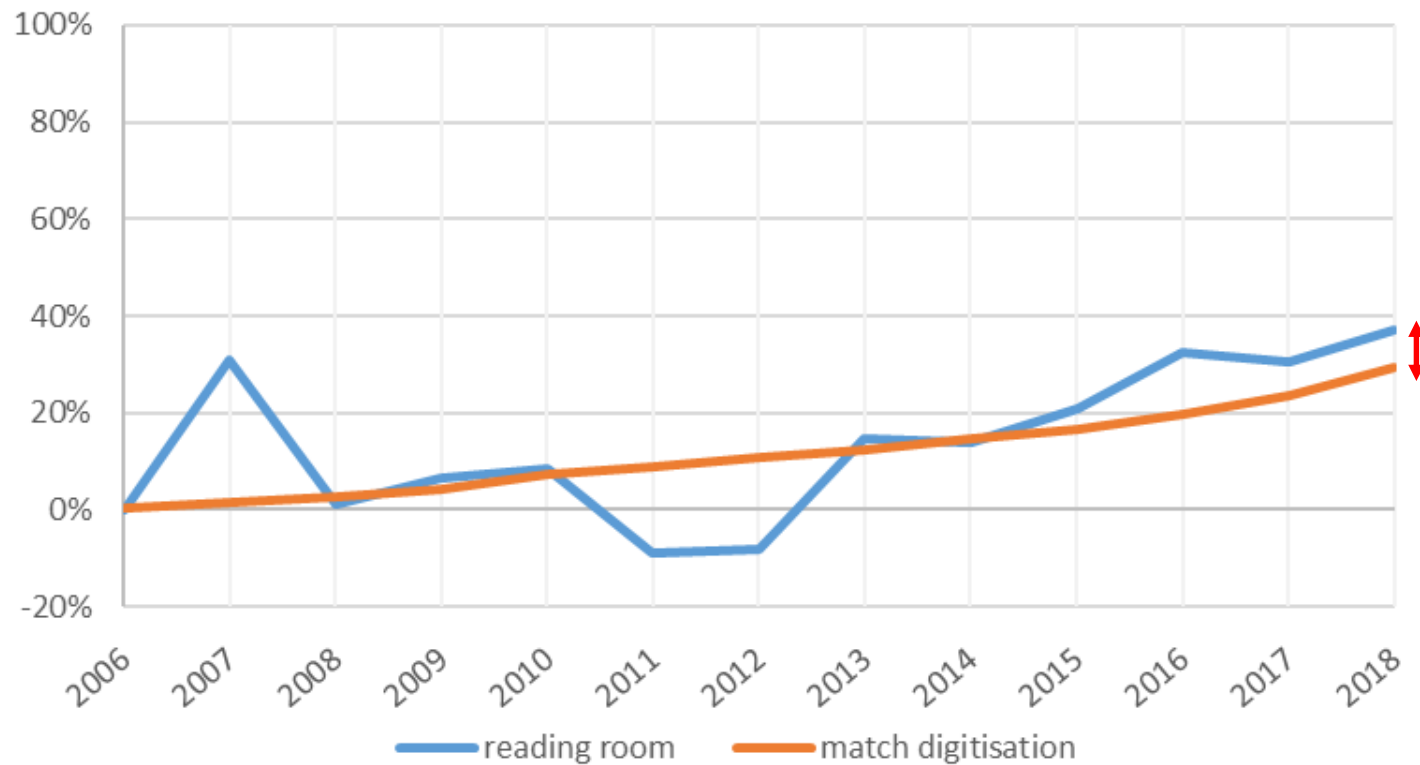


Covid 19 – Opening

2020: 73%
2021: 56%
2022: 94%

XXX Reading room vs Digitisation

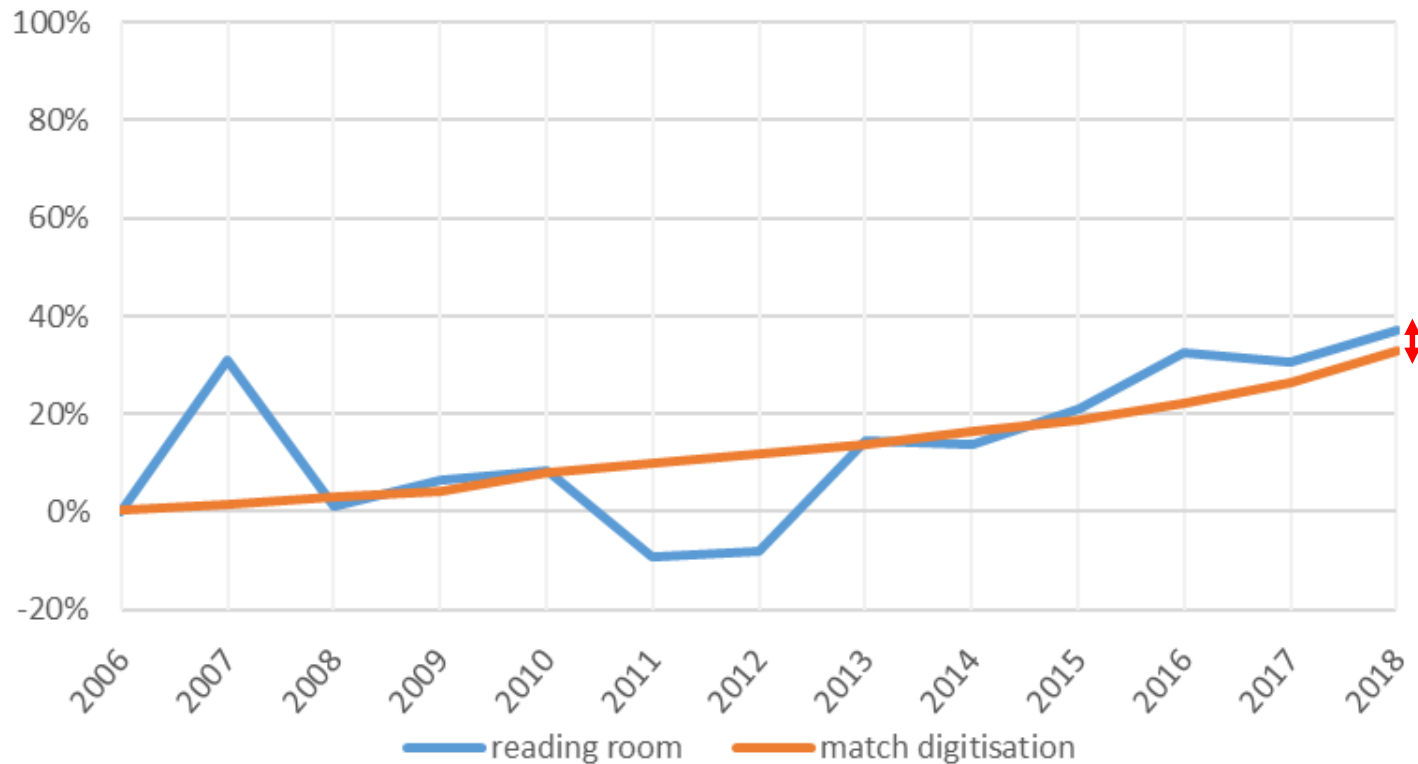
Decrease requests in reading room
Cummulative % digitised total requests
(2006-2018)





Reading room vs Digitisation

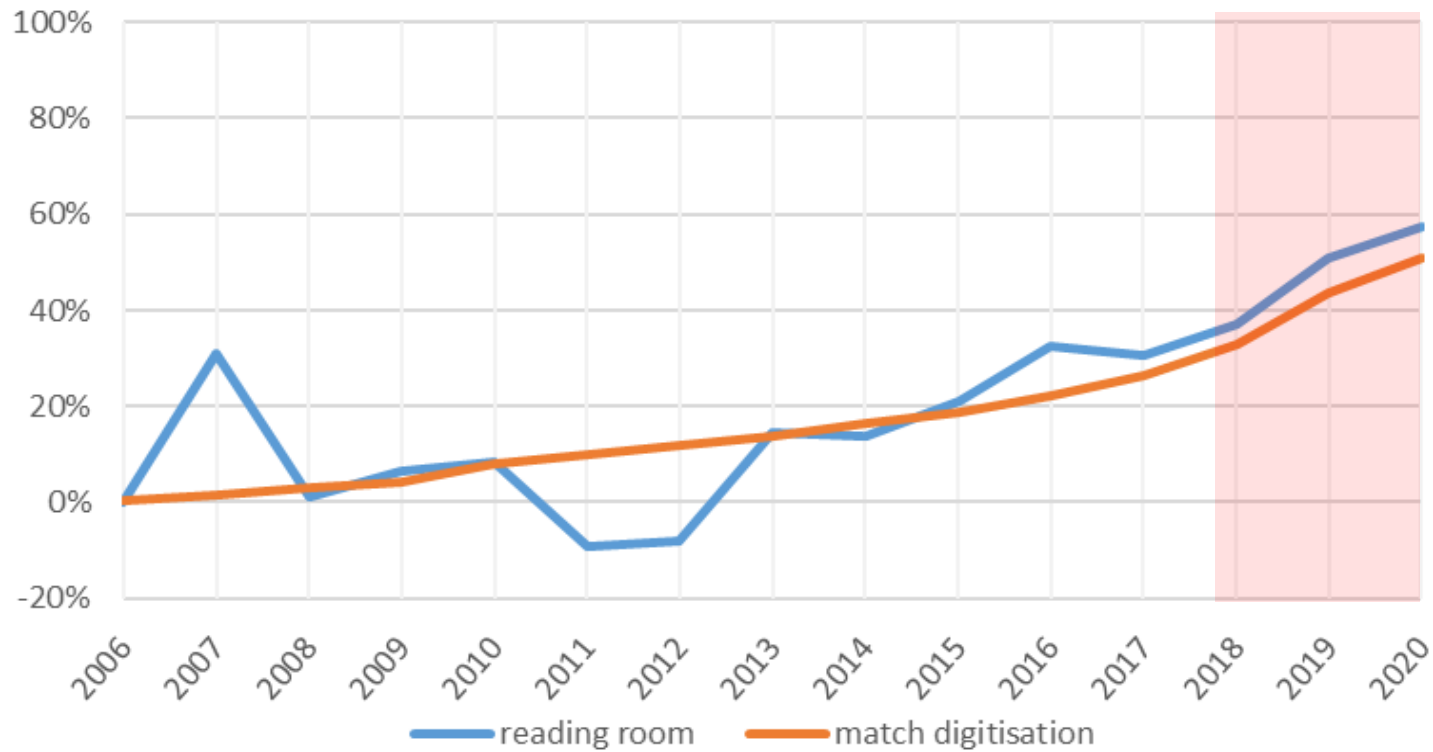
Decrease requests in reading room
Cummulative % digitised total requests (>1x)
(2006-2018)





Reading room vs Digitisation

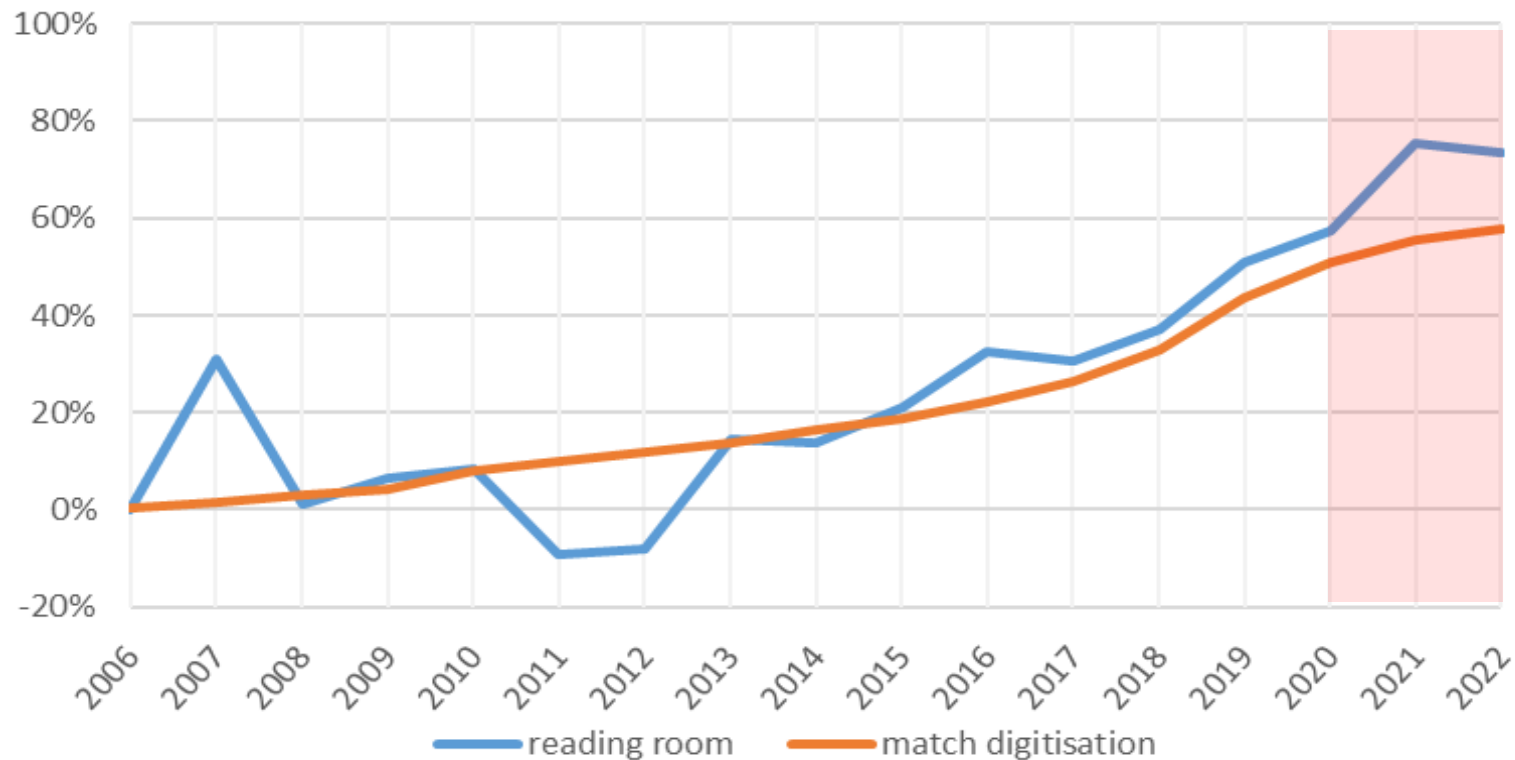
Decrease requests in reading room
Increase digitised total requests (>1x)
(2006-2020)





Reading room vs Digitisation

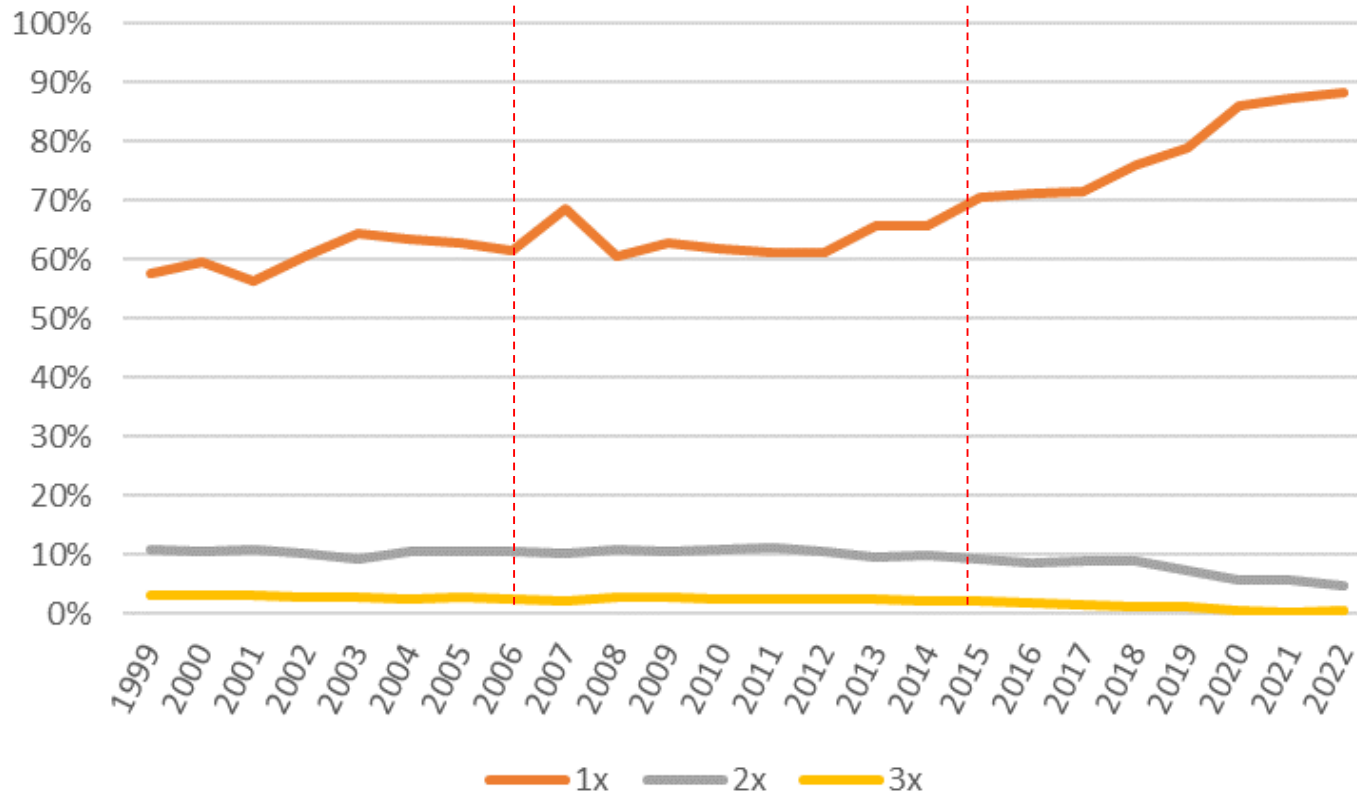
Decrease requests in reading room
Increase digitised total requests (>1x)
(2006-2022)





Reading room

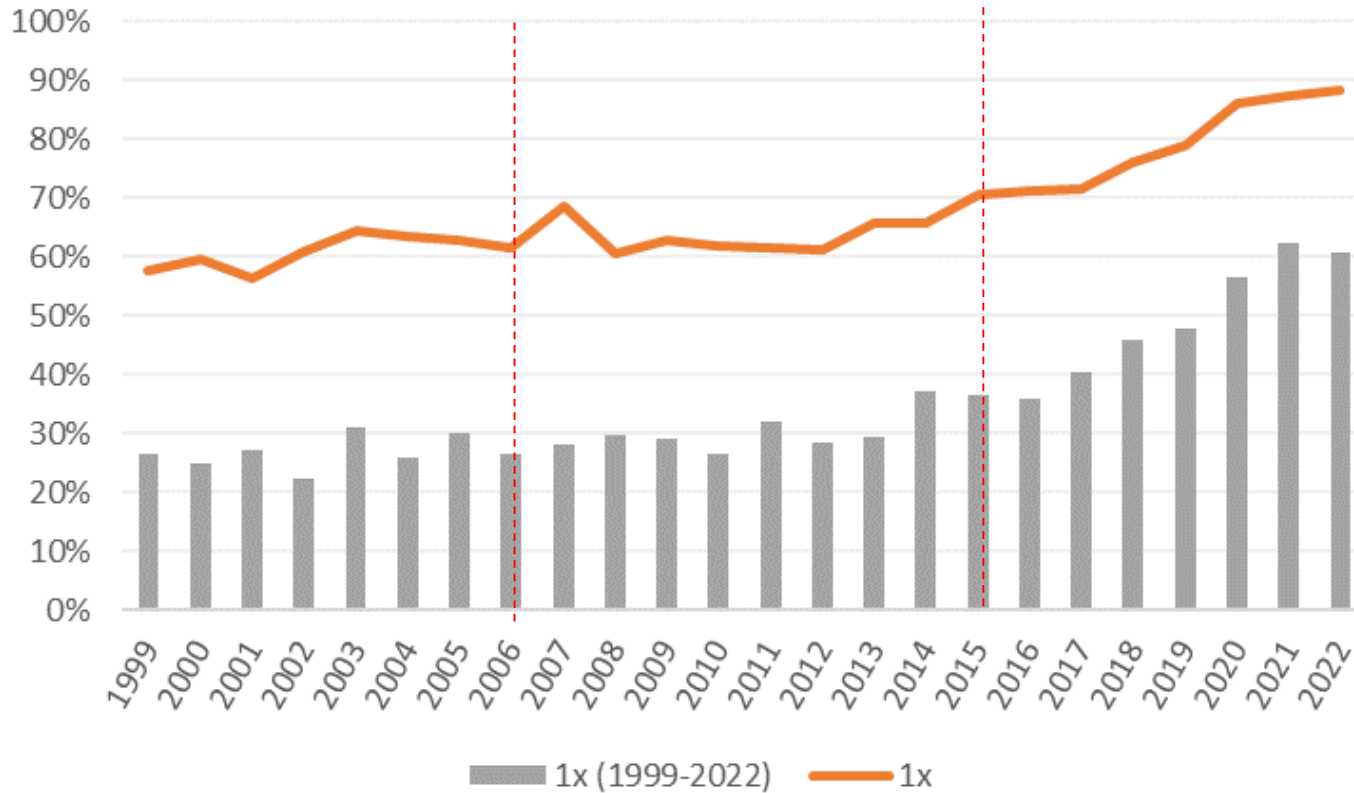
% records grouped by times requested per year
(1999-2022)





Reading room

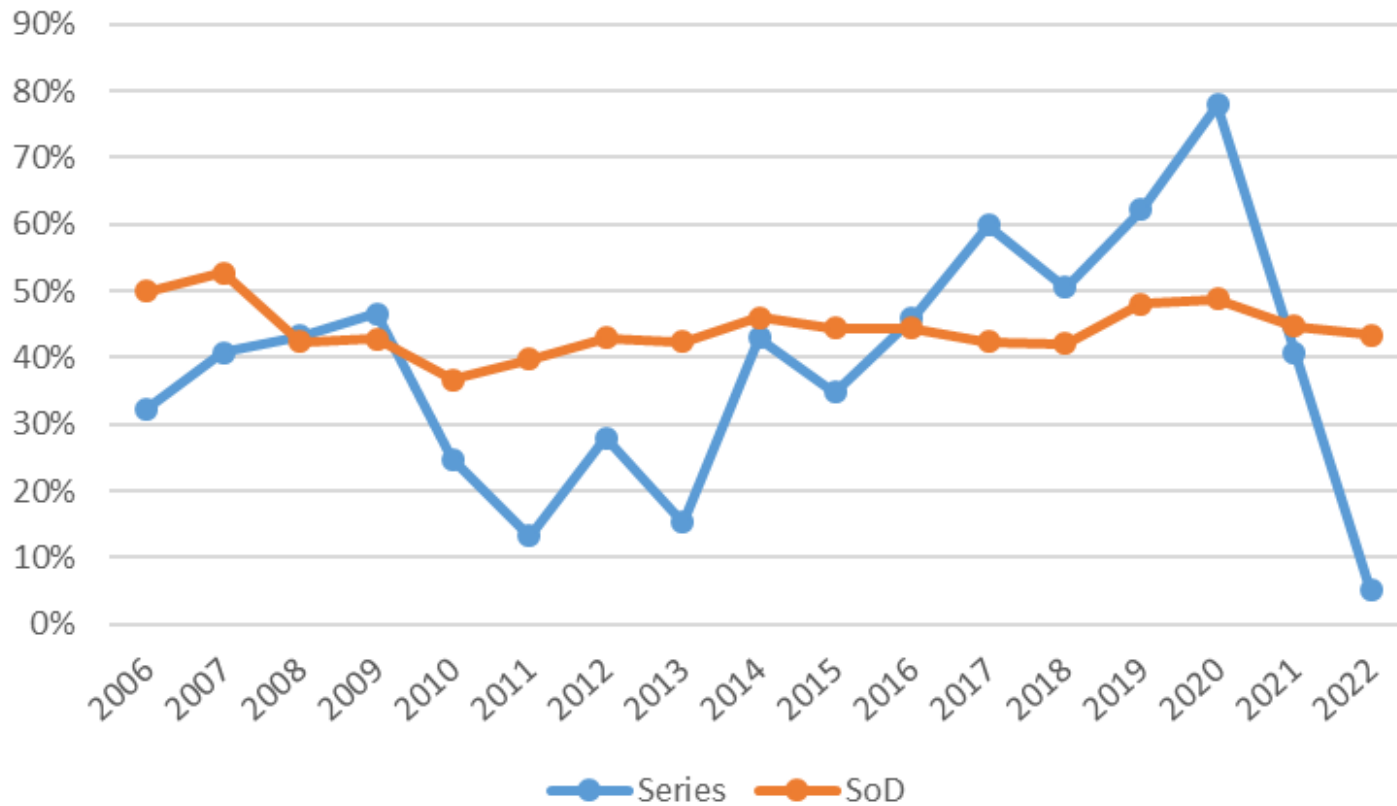
**% records requested 1x/year
and
% records requested 1x (1999-2022)**





Digitisation

**% records requested in reading room
and digitised
(2006-2022)**



✘✘✘ Conclusion

Best practice?

- Models are useful to test what-if scenarios :
Do different inputs result in different outputs?
- Models / data are communication tools to justify a choice





Thank you!

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