



Digital Twin in the AEC/FM Industry: a literature review

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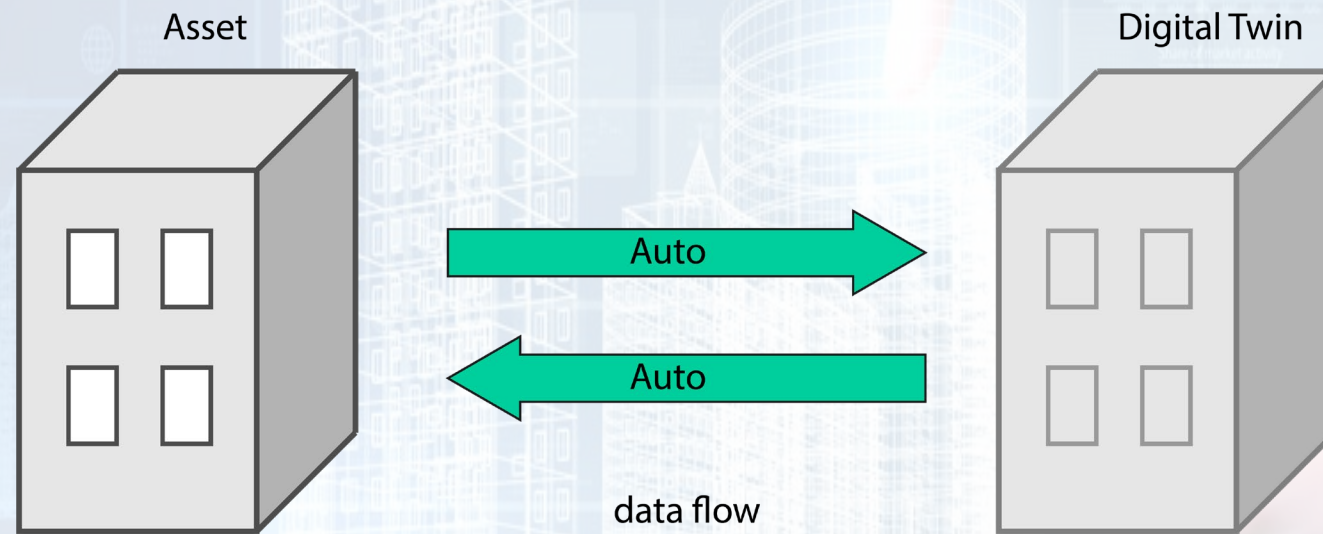
Agenda

- Digital Twin
- From the concept to the constructions
- Research goal
- Systematic Literature review
- Research strategy
- Records
- Origins
- Capabilities and application stages
- Associations and enabling technologies
- Discussions
- Conclusions

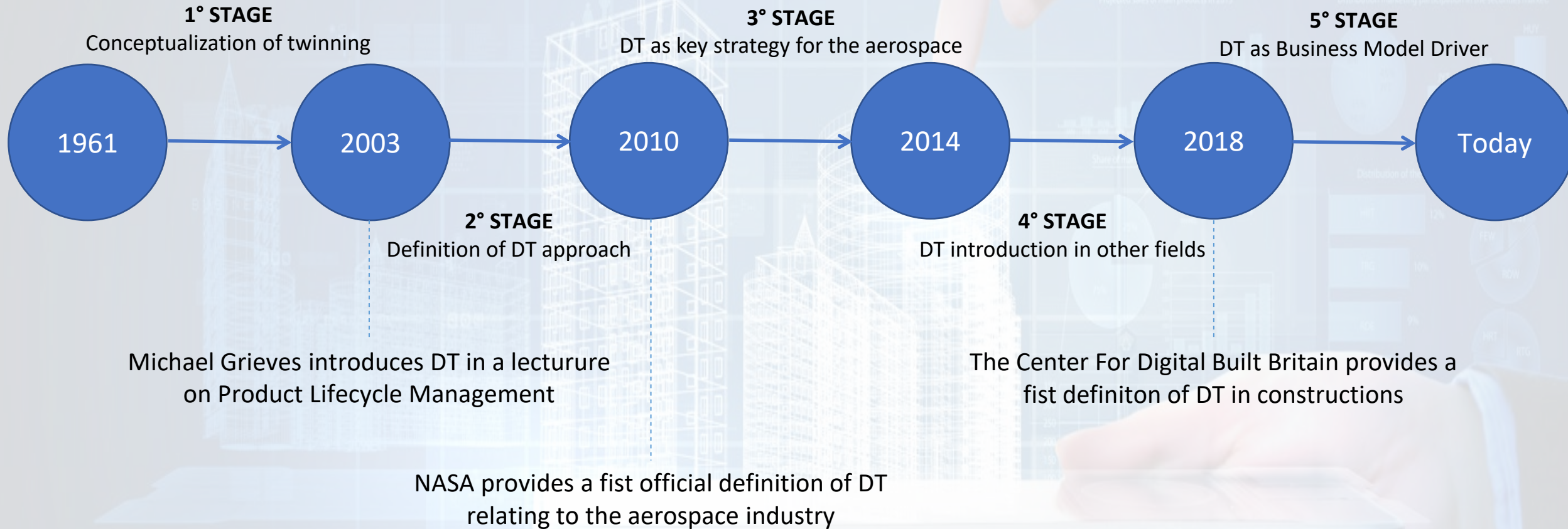


Digital Twin

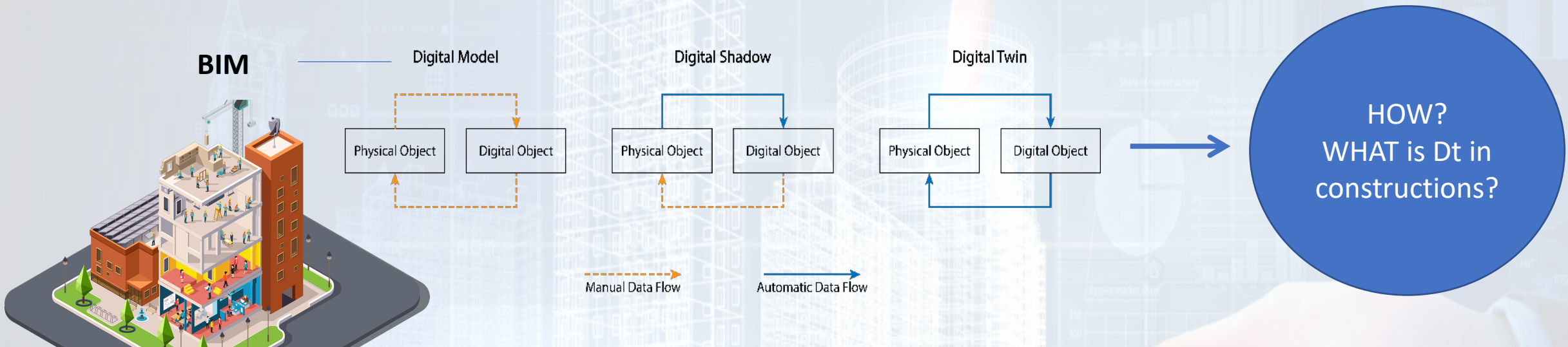
"An Engineering of structural life prediction and management"



From the concept to the constructions



Research goal



Systematic Literature Review

1. PLANNING

Using precise key-words, the search was carried on for three month, starting on 10/09/2020. To collect all the papers available on the topic, no time filters were placed.

2. SEARCHING

Public search engines and scientific research databases were consulted. For the latter, remote access to the university library was mandatory.

3. COLLECTING

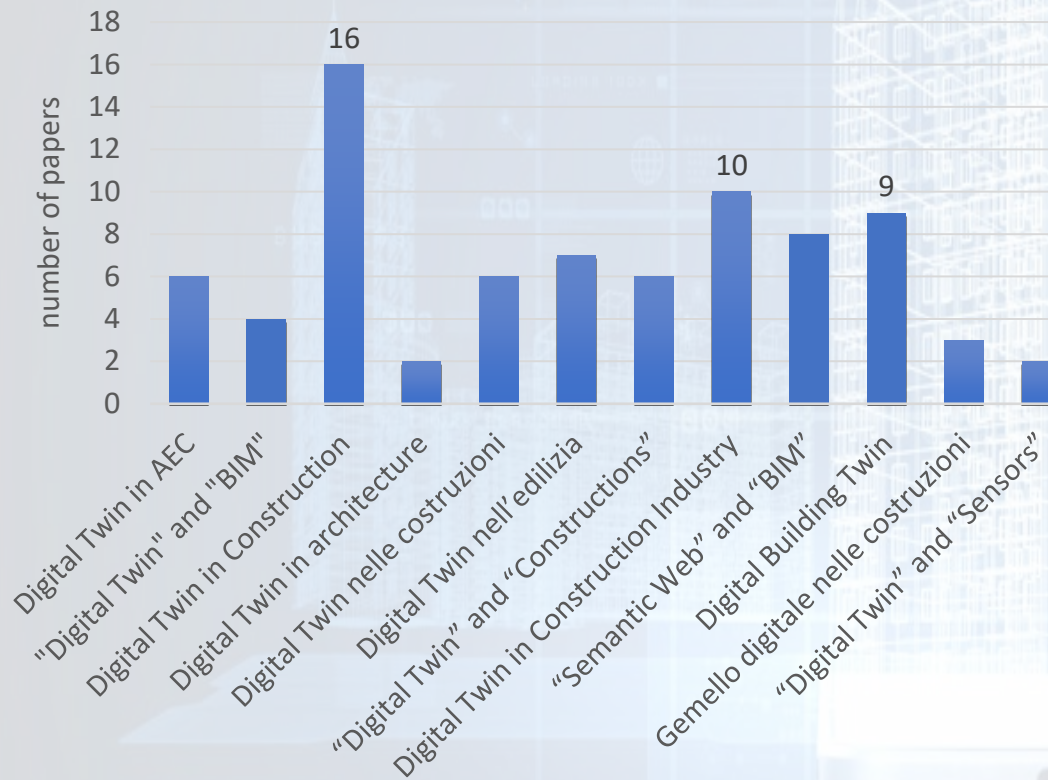
The search results were recorded according different criteria, i.e., publication date, reference database, source and topics covered, and critical appraisal was performed.

4. REPORTING

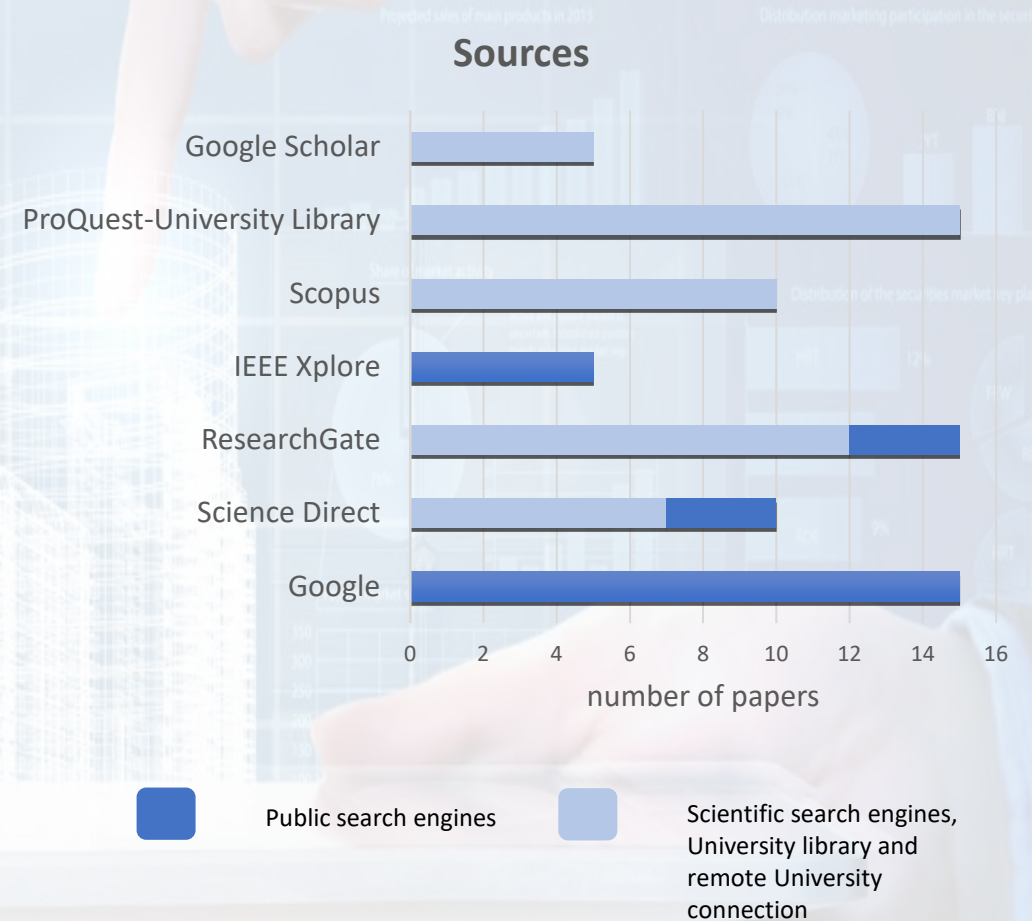
The information extracted has been interpreted and synthesized for the writing of the stand-alone literature review.

Research strategy

Key words



Sources



Records

89
records

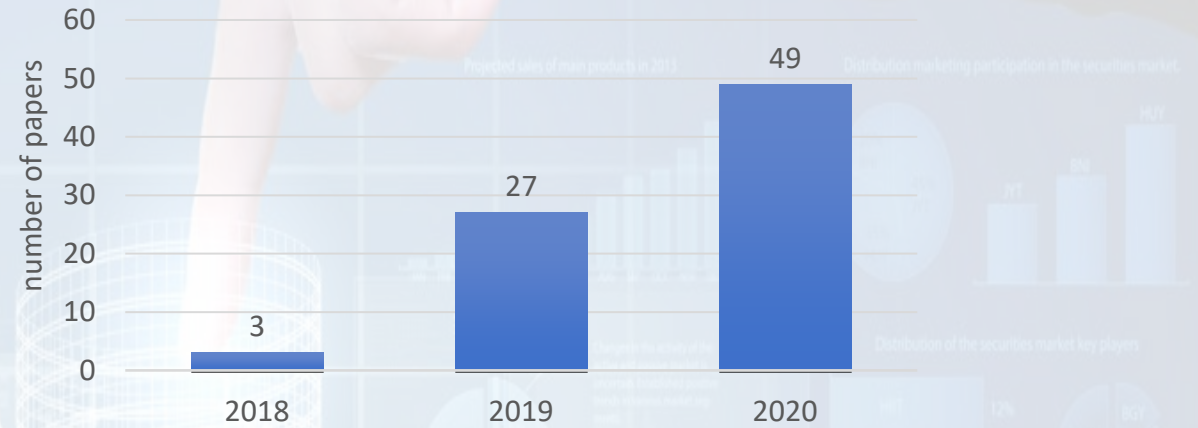
19

Counted out papers

79

Analysed papers

Publication date



Document type



Origins

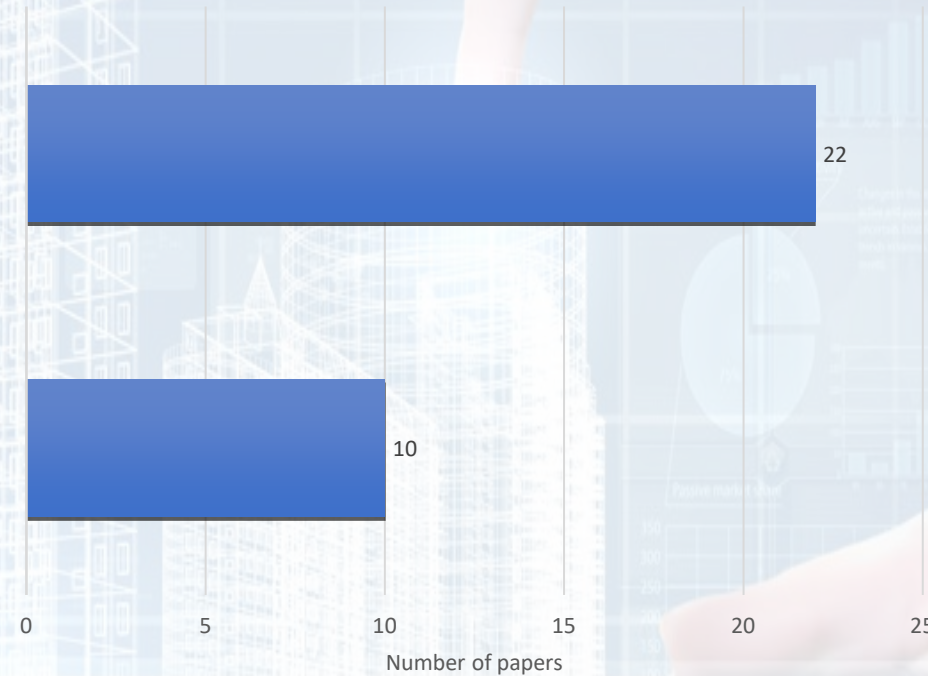
Drivers for DT implementation in AEC

Government polices and Industry 4.0

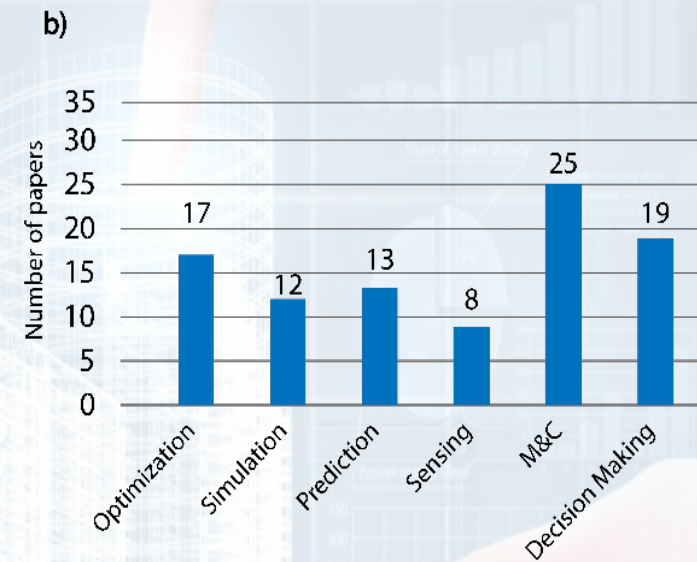
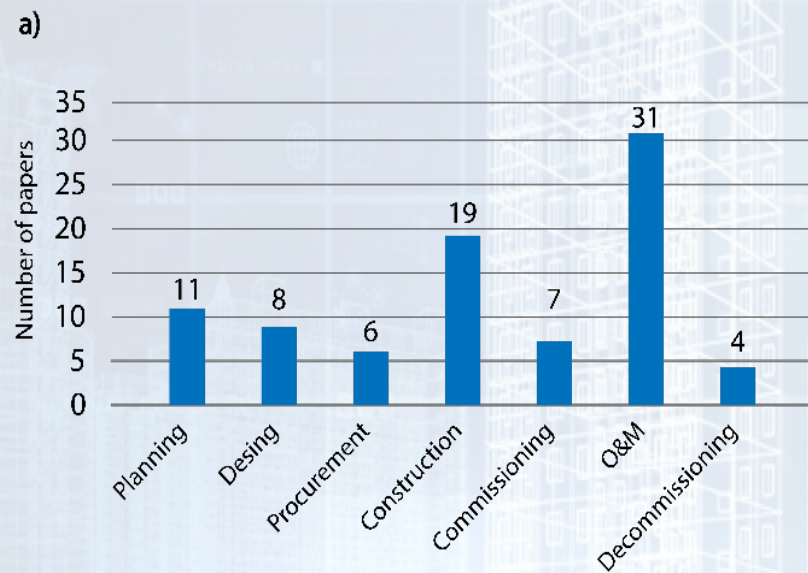
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Limits of current practices

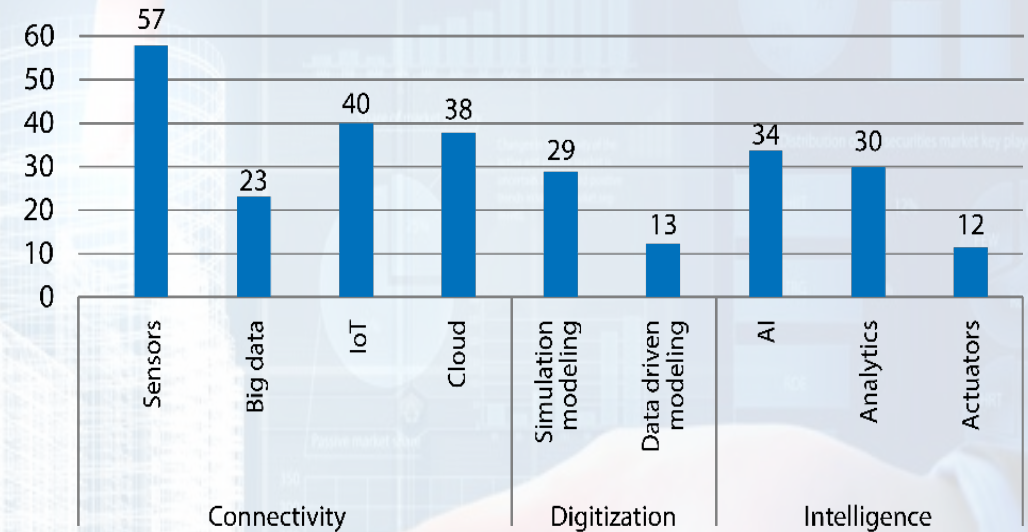
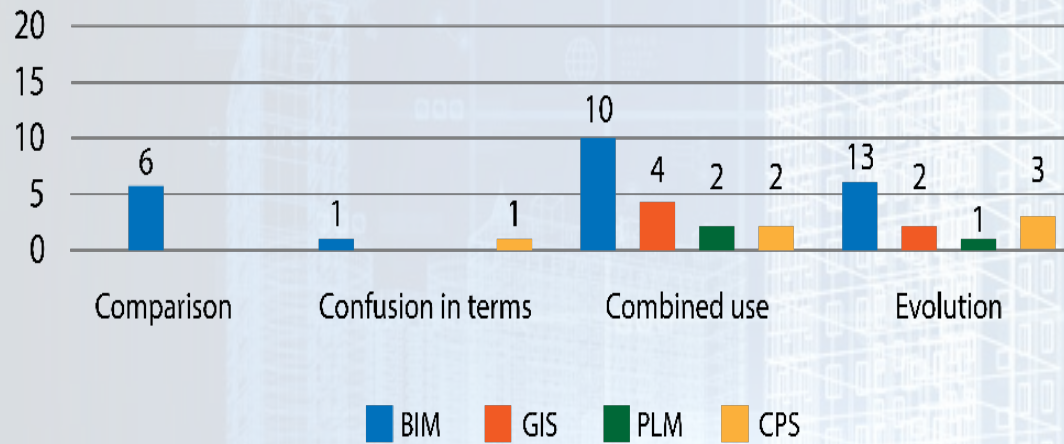
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Capabilities and Application stages



Associations and Enabling Technologies



Discussions

- This is a comprehensive and all encompassing review of the Digital Twin in the AEC/FM;
- DT overcomes the backwardness of this sector in the management of facilities and infrastructures;
- BIM is a necessary but not sufficient source; otherwise CPS are two distinct concepts;
- The set of technologies and associated approaches allows a twinning.



GAPS

Ontological definition

Guideline for DT implementation

Application examples

Economic framework

Conclusions

- DT is an innovative, and still heating, tool for managing construction assets;
- Limits of current practices and mandatory government policies are drivers for a DT implementation in construction;
- DT is applied especially for M&C, support for Decision Making and Optimization purposes;
- It could be implemented for Smart Environment;
- Dt is an integrated system of approaches and technologies.

Future works

- Analysis of an existing frame of asset management;
- Possibility of DT introduction in a project to develop.



Projected sales of main products in 2013

Distribution marketing participation in the se

Share of market activity

Changes in the activity of the active and passive markets is uncertain. Established positive trends in various market seg-

Distribution of the securities market key

| | |
|-----|-----|
| HRT | 12% |
| TRG | 10% |
| RCE | 9% |

Thank you

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