

# Towards an open, Interoperable and Standard-Compliant Query Platform for Product Data Templates



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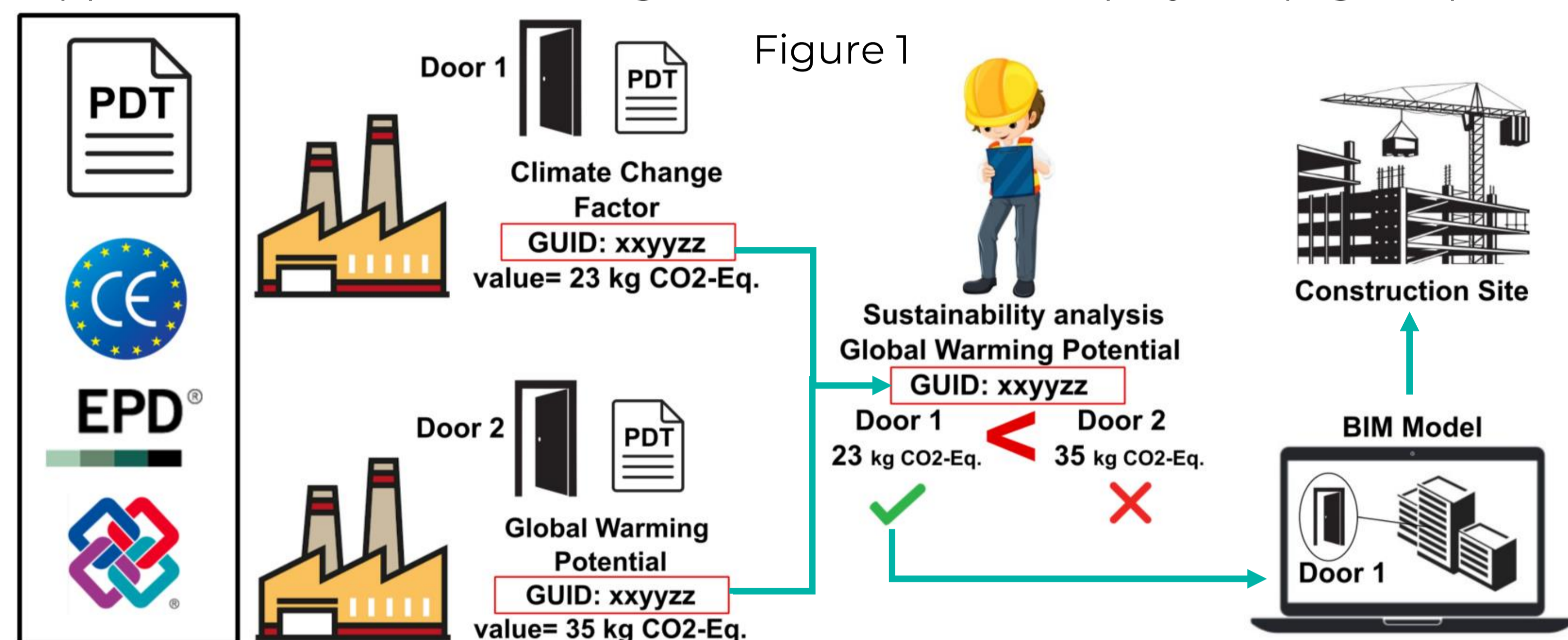
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## Objective

The construction industry is transforming digitally, but data management and interoperability remain critical challenges. Despite Building Information Modelling (BIM) offering integrated project views, the lack of standardized data hampers full digitalization. This research proposes an open-source Product Data Templates (PDT) query platform tailored to the Portuguese construction industry, facilitating data standardization and interoperability.

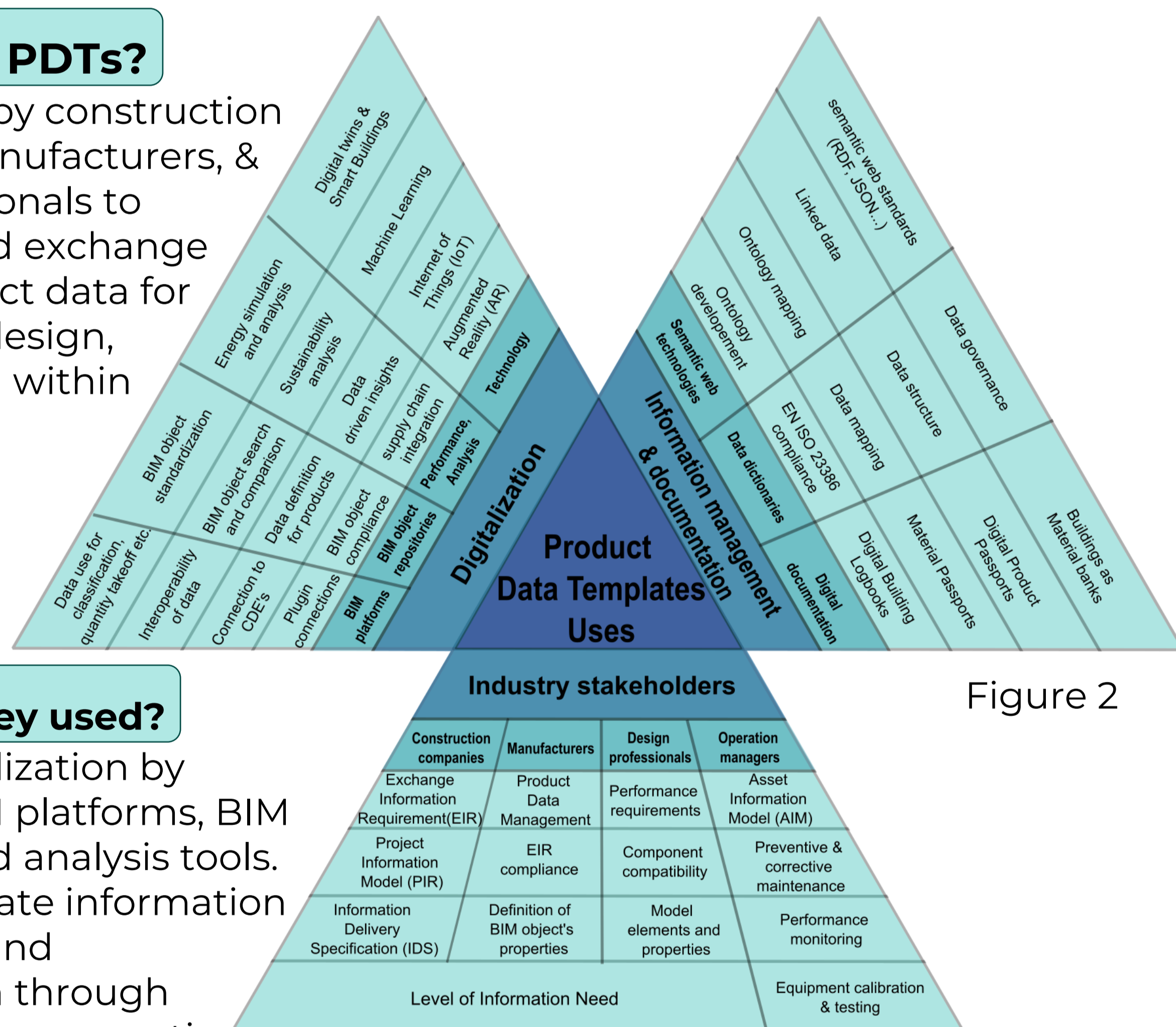
## WHAT are Product Data Templates (PDTs)?

PDTs are standardized digital formats that structure and manage construction product data, ensuring consistency, traceability, and interoperability. Defined by EN ISO 23387:2020 and EN ISO 23386:2020, they support seamless data exchange across construction projects (Figure 1).



## WHO uses PDTs?

PDTs are used by construction companies, manufacturers, & design professionals to standardize and exchange accurate product data for procurement, design, and integration within BIM workflows.



## WHY are they used?

PDTs aid digitalization by supporting BIM platforms, BIM object data, and analysis tools. They also facilitate information management and documentation through data dictionaries, semantic web technologies, and digital documentation (ex. Digital Product Passports).

## Results

### Platform content:

The platform currently hosts 24 PDTs (e.g., Door, Timber beam, etc.) (Figure 5), and we have open channels with the Portuguese industry to continuously improve and add PDTs.

### Platform Capabilities:

- Offers a standardized approach for querying and managing PDTs, accessible via APIs (Figure 6) and downloadable in 3 formats (CSV, JSON, TEXT) (Figure 7).
- Provides a feedback channel for the industry to improve PDTs (Figure 8).

### Compliance:

Full adherence to the PDT standards EN ISO 23387 and EN ISO 23386 ensures interoperability, and data traceability (Figure 9).

### Connection to international Data Dictionaries:

Properties in the platform are connected via Urls to similar properties in international dictionaries like IFC in bsDD (Figure 10).

## HOW was the query platform created?

### 1. Database structure (Figure 3):

**EN ISO 23387:** database structure & connection to reference documents.

**EN ISO 23386:** Methodology for managing the data dictionary through attributes that ensure traceability.

**ISO 22047:** Integrate sustainability data from Environmental Product Declarations (EPDs) in PDTs.

### 2. Platform Design (Figure 4):

#### • 3 Tier Architecture with API integration

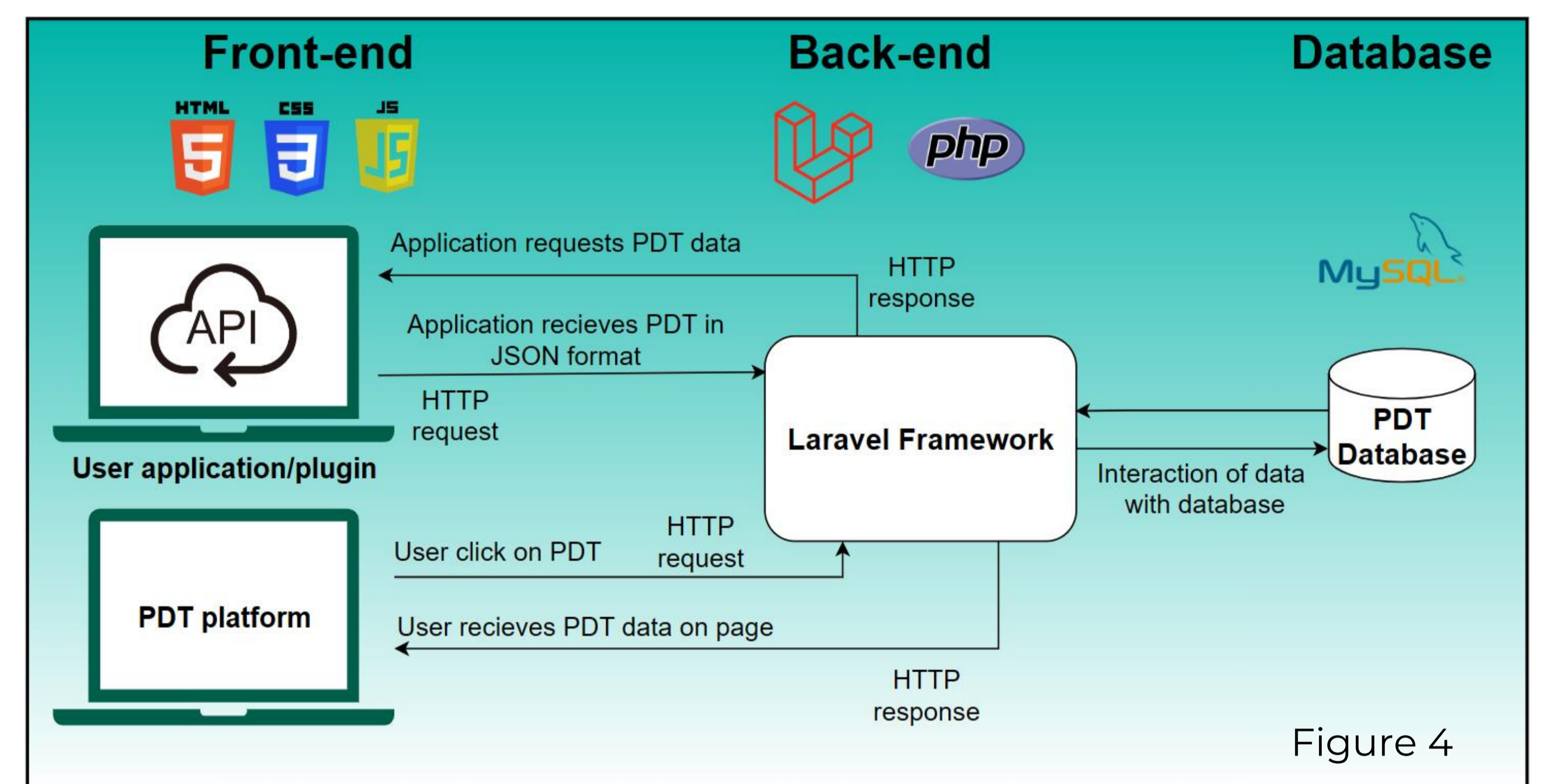


Figure 5



Figure 8

Figure 6



Figure 9

Figure 7



Figure 10

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