

# **Structuring Visual Data in a Common Data Environment to Support Facilities Operations and Maintenance**

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## **ABSTRACT**

Image and video data can be valuable for supporting facilities' operations and maintenance tasks. However, this data should be captured and cataloged during the construction phase of a project to enable use during the operations phase. With advancements in technology, there are many approaches to capture, store, and retrieve image- and video-based data. This research aims to review the existing methods to capture, tag, store, and retrieve such data along with how this data can be retrieved and updated to support operations and maintenance. First, a literature review was completed on the existing methods and technologies for image capture, storage, tagging, and retrieval. Afterward, a taxonomy was identified for image-based technology. Image capture can be performed by either fixed or mobile devices. Image tagging was defined as assigning information regarding the location and time of the image capture along with identified content within the image. This content can be identified either manually or automatically using computer vision techniques, such as object detection and image classification. A content analysis was conducted on common data environments for image storage. The findings of this research can be used by practitioners to support high-value use case implementation. Results can also be used to highlight areas where image-based technologies can be expanded through research and development initiatives.