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Bentley AssetWise Platform Enhances AIM Benefits with Context Management

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Summary

Asset information management (AIM) offers significant benefits to asset-intensive organizations. Good asset information improves asset performance and the productivity of everyone in asset management. It also helps reduce risk.

Increasingly, organizations are implementing content management solutions to improve their asset information.

While this is encouraging, the lack of context management solutions has forced them to leave many AIM benefits on the table.

But a recent briefing from Bentley on its AssetWise platform shows how the company can help fill this void and enable asset-intensive organizations to significantly enhance AIM benefits.

To reap these benefits, organizations need high-quality asset information that is usable by every stakeholder. Organizations must address two different, but equally important issues to extract maximum value from their AIM investments: information quality and information usability.

Quality is primarily an information *content* issue. High-quality asset information requires content that is complete, accurate, and consistent. Most asset-intensive organizations understand this and have implemented content management solutions to meet these requirements.

Usability is primarily an information *context* issue. Good usability occurs when people can access, understand, and apply asset information in their workflows and decision making efficiently and effectively. This requires information to be organized in ways that align with user needs and presented with supporting information that clarifies meaning and relevance.

The absence of context management solutions has made it difficult for owner/operators to provide good contextual support. As a result, despite extensive investments in content management, they are leaving many AIM benefits on the table. A recent briefing from Bentley on the company's AssetWise platform shows how it can help fill this void, enabling asset-intensive organizations to enhance their AIM benefits.



Context Enhances AIM Performance

Context enhances the value of asset information content by making it more understandable and actionable. This additional information goes beyond that provided by the individual information object and answers fundamental questions like who?, what?, when?, where?, why?, and how?

AIM context comes in two flavors – semantic and environmental. Like supporting words in a sentence, semantic context is the information gained by looking at related content. Environmental context, on the other hand, is information about the conditions surrounding the creation and use of content. Organizations need to support both in their AIM programs to drive maximum benefits.

Context improves AIM performance in both the quality and usability arenas. Semantic context enables organizations to assess the completeness of their asset information and identify gaps that must be filled. This information also helps propagate changes and sustain information accuracy and consistency. Finally, semantic context improves usability by ensuring that people have convenient access to all of the information they need to understand every asset management issue fully.

Similar benefits accrue from environmental context. First, this information extends the concept of completeness beyond the boundaries of traditional AIM content. Second, it adds new dimensions that can help users classify, understand, and analyze other asset information.

Organizations can also leverage knowledge about contextual relationships (i.e., contextual metadata models) to improve and automate AIM processes. They can replace passive acceptance of new asset information during asset handovers with proactive specification of information requirements and governance of information creation and collection tasks. The same applies for change management processes and for collecting asset information during operations and maintenance.

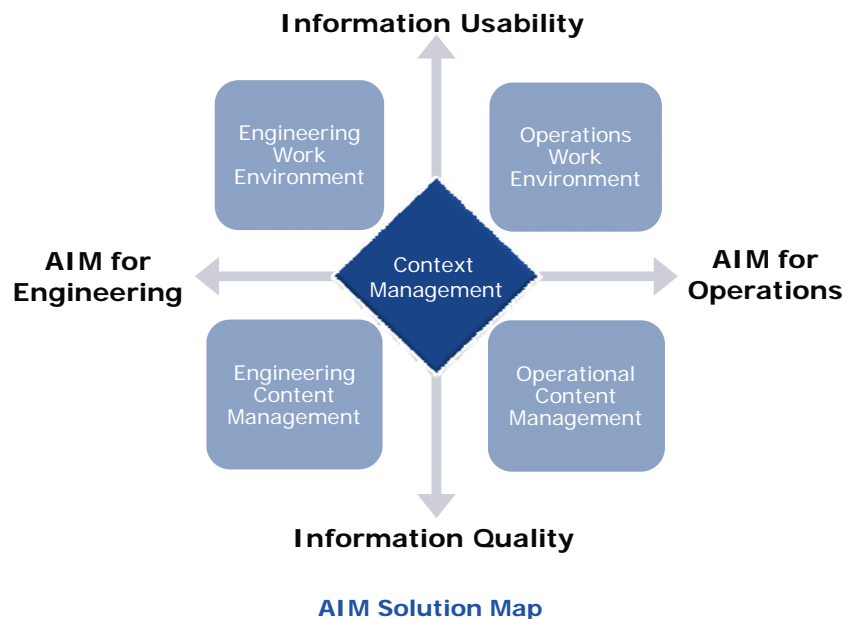
Context Management Is a Separate AIM Challenge

Managing all of the contextual relationships that arise in AIM can be challenging. Individual AIM solutions provide some support, but organizations that want to maximize the benefits of contextual information should enhance these capabilities with dedicated context management solutions.

Semantic context management requires users to identify and manage a multitude of relationships that exist between asset information objects. Basic content management solutions offer little or no intrinsic support for semantic context. More specific solutions, like those used for engineering information, provide support, but only for content they control directly. In all cases, stakeholders waste valuable time because they lack fast, convenient access to all information on a topic.

Environmental context management requires organizations to collect, associate, and maintain additional information for every content object. Many asset management solutions do this on a local basis, but inconsistent, silo definitions of environmental variables limit the value of this information. Aggregating information for critical asset management processes -- like performance evaluation, root cause analysis, and compliance reporting -- remains a major challenge and constrains improvement efforts.

Context management solutions fill these gaps and represent a unique category of AIM solutions. Unlike other AIM solutions that focus on information content or the user experience, context management solutions focus on managing contextual information and relationships to support use of semantic and environmental context.



Good context management solutions provide a variety of critical information management capabilities. These include:

- **Environmental Variable Management** — Effective environmental context management requires a set of unique, unambiguous categories and terms. Furthermore, these concepts must be tightly controlled and consistently applied to ensure information integrity.
- **Relationship Management** — Complex relationships are fundamental to asset information. The ability to develop and apply complex data models that link information objects to assets, people, processes, etc. is critical.
- **Information Loading** — Good information quality management begins with good management of information loading processes. This includes validating completeness, accuracy, and consistency and automating transformations for asset management solutions.
- **Change Management** — Change is a hallmark of asset information and it's essential to propagate changes across all information objects. Auditable tracking of all changes and management of complex approval processes are critical for compliance in many industries.
- **Information Sharing** — While user support is a central context management theme, information sharing is just as important. Federated information management is common, requiring a variety of adaptors. Publishing and web services are also fundamental for broad-based information exchange with external partners, vendors, and contractors.
- **Information Security** — Asset information is a valuable resource that cannot be easily replaced. Securing it from accidental or intentional harm is critical and requires proper management of rights and privileges. A common set of security management services ensures consistent protection of all asset information.

Bentley AssetWise Meets the Requirements

Bentley Systems is well known for its engineering collaboration and design solutions. Many owner/operators currently use, ProjectWise, the company's project team collaboration and work-sharing platform, to manage work in progress and for handover of project information. The company developed AssetWise to help owner/operators deal with their other AIM challenges and it comprehends many of the capabilities required for good context management.



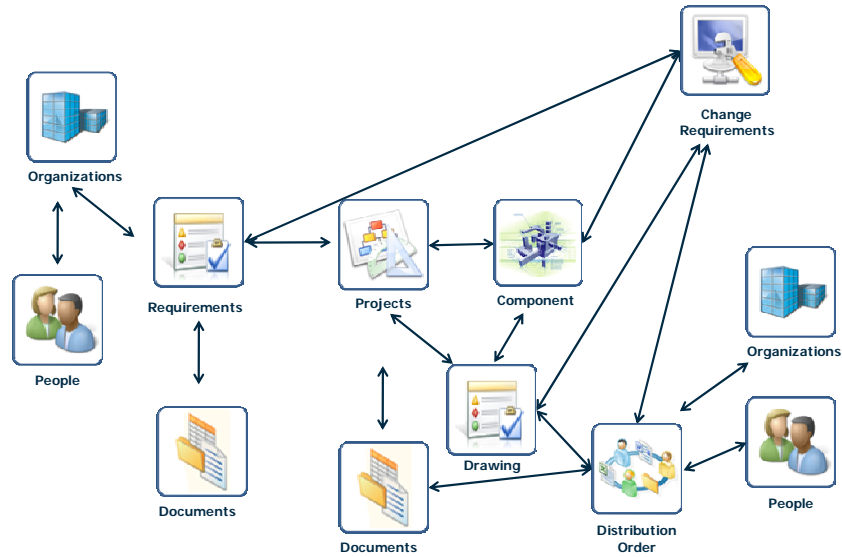
Bentley AssetWise Capabilities

AssetWise consists of a platform of information management services and a layer of applications for specific information management challenges. The platform is part of every AssetWise implementation and includes essential tools for information modeling, integrity management, and consumption. Users select components in the application layer as needed to solve higher-level information management issues and address unique industry needs.

The solution enables organizations to model semantic and contextual relationships surrounding their asset information objects, without requiring database gurus or computer scientists. This capability goes beyond the basic asset hierarchies common in many asset management solutions. The information models address relationships among many AIM content types, such as models, drawings, documents, point clouds, and unstructured data. Highly engineered, infrastructure assets are a key focus for Bentley. The company's AssetWise modeling capabilities include support for the unique, complex challenges of linear networks and spatial references.

A complete set of tools for managing the integrity of all information content and relationships complements these modeling capabilities. This includes sophisticated change management, audit trails, and support for key security issues like roles and permissions/rights.

The platform also offers noteworthy information-sharing capabilities. Information consumption services support transformation to/from hard copy, collaboration, and federated content management.



Bentley AssetWise Information Modeling Capabilities

With these core context management capabilities in place, users can leverage AssetWise applications to extend contextual support to other critical asset information management areas like document control, records management, incident management, and requirements management. An unusually comprehensive configuration management application reflects the company's experience in nuclear plants. By tightly coupling information and physical changes, AssetWise solves a problem that frustrates every asset-intensive organization.

Conclusion

Asset information management is important and challenging. While important, content management is not a panacea. Organizations need to pay equal attention to context management to extract the full value from their investments in asset information.

Context enhances information quality and usability. But organizations need context management solutions to unleash these benefits. Bentley's AssetWise platform addresses this challenge and should be considered by every asset-intensive organization.

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