

A formal approach for managing facility change information and capturing the change history

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Problem Statement

-As-built conditions of the facilities are frequently being changed

- "30% of all space is renovated annually" (Cotts, 1999)

-Up-to-date facility information and history of changes are needed for M&R

- Cost of O&M personnel staying idle because of unavailability of as-is information is approximately \$1.5 billion a year (Gallaher et al. 2004)

- Daily FM operations need to be tracked to provide data for major repair and project financial analysis (Klammt 2001)

-Changes to as-built conditions of a facility need to be captured and stored

- 10 to 20% out of date drawings become obsolete (Cotts, 1999)

- "Costly as-builts will be completely out of date within four years" (Cotts, 1999)

-As changes are not captured facility information need to be recreated/reentered or validated

- Cost of creating OMSI in electronic format is \$40K per project (East and Kirby 2006)

- O&M personnel spend \$4.8 billion a year for verifying existing documentation (Gallaher et al. 2004)

- \$613 million spend for converting information into a useful format (Gallaher et al. 2004)

Expected Contributions

-A framework for classifying and representing M&R changes

-Formalized templates for capturing field changes

-Mechanisms for storing changes in BIM

-Mechanisms for automatic reasoning about changes and their impacts

Main Objective

Storing the history of changes as a result of maintenance and repair (M&R) work to provide up-to-date FM documents to FM personnel by;

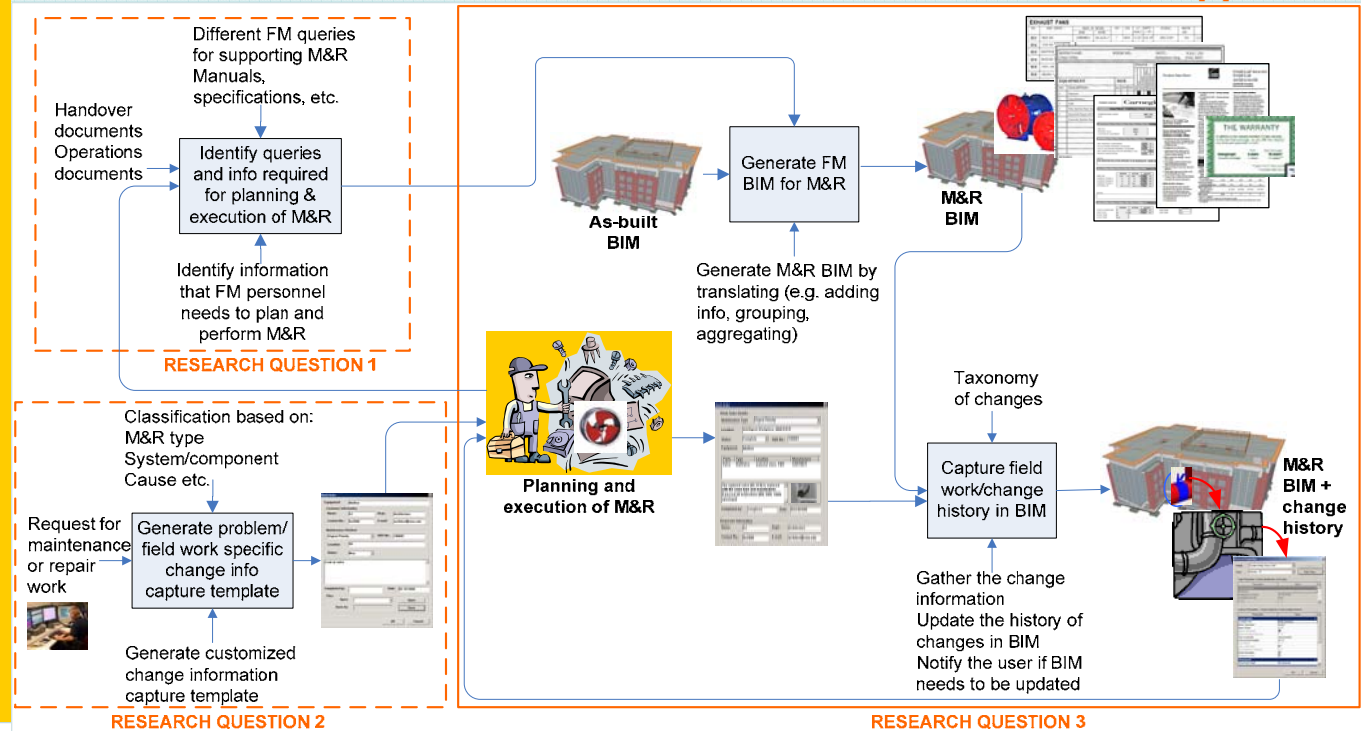
- identifying the information needs for planning and execution of maintenance and repair

- formalizing an approach for tracking, classification and representation of changes

- developing a set of methods and mechanisms that would enable keeping the model up-to-date

- developing methods to represent and store a change history

Approach



Publications

- Akcamete, A., Akinci, B., Garrett, J. H., Jr., (2009) "Motivation for Computational Support for Updating BIMs", 2009 ASCE International Workshop on Computing in Civil Engineering, June 24-27, 2009, Austin, Texas, U.S.
- Akcamete, A., Akinci, B., Garrett, J. H., Jr., (2009) "Lessons Learned from Generation of BIM for Construction Management: Case Study", Fifth International Conference on Construction in the 21st Century (CITC-V) "Collaboration and Integration in Engineering, Management and Technology" May 20-22, 2009, Istanbul, Turkey.
- Akcamete, A., Akinci, B., Garrett, J. H., Jr., (2008) "Towards A Formal Approach for Updating Building Information Models", 5th International Conference on Innovation in Architecture, Engineering and Construction 2008, Antalya, Turkey.