EDITORIAL: CIB W78 Special track on Compliance Checking

PUBLISHED: November 2016
GUEST EDITORS: Dimyadi J. & Solihin W.

This special issue features a selection of special track papers initially presented at the 32nd International CIB W78 (Information Technology for Construction) conference in Eindhoven, Netherland, 2015, on the topics related to Assessment and QA, Rule and Code Compliance Checking, and Compliance Checking in general.

It is exciting to see there have been continuing research interests in the area of code compliance checking in the AECO (Architecture/Engineering/Construction/Operation) domain. This has been an active research topic for almost half of the century, yet we are still remotely close to a practical solution. One silver lining to it is that we can see a significant progress towards this objective in recent years, partially attributed to the increased uptake of the Building Information Modeling (BIM) as the key enabler for solving this problem. IFC (Industry Foundation Classes) has also emerged as the widely accepted open standard for BIM data interchange. As an open standard that has become widely adopted by many BIM applications, IFC has the potential to streamline the effort to solve compliance checking problems.

While we see interesting research in this area, there is still a lack of holistic approach to addressing the problem. The term automated code compliance or rule checking is often used too liberally and vague. There are many isolated research efforts looking at various aspects of compliance checking. However, it is often unclear as to what exactly each of these efforts contributes to the overall scheme. This may have partly contributed to the lack of success to date in turning research ideas into actual implementations. From the vantage point of view, the problem of automatic code compliance or rule checking can be categorized into several boxes that each research work could fit into (Figure 1). It is not a one-to-one mapping, i.e. a research work could fit into one or more boxes. We foresee that eventually, as it is typical to any research approaches, different complementary ideas will merge into a seamless and integrated solution through collaboration efforts. In this model, each of the collaborating work will be able to focus on its strengths. In this way, the output will be worth much more than the sum of its parts. By taking advantage of the special track in the CIB W78 conference and followed by this ITcon special issue, it is exactly our hope that we may encourage more research collaborations that focus on achieving common goals in the field of automated compliance checking. Ultimately, we set to solve this outstanding problem to help boost the productivity in our industry and in this increasingly challenging world and create better and more environmentally friendly buildings.

We, therefore, are glad to present a few selected papers in this special issues that would fit in the boxes in Figure 1. Some of the work presented are still in the early development phase, but they are included because they display great potentials for contributing to the overall solution. The boxes with a hatch pattern are those represented by the papers in this special issue. While we see a good coverage, there may still be many unaddressed issues in the overall scheme. It is our hope that the few selected work presented in this special issue will motivate accelerated efforts in this active research area and encourage a higher degree of collaborations among researchers to create a much higher impact to the final goals of the holy grail of the truly automated code-checking solutions for the industry.
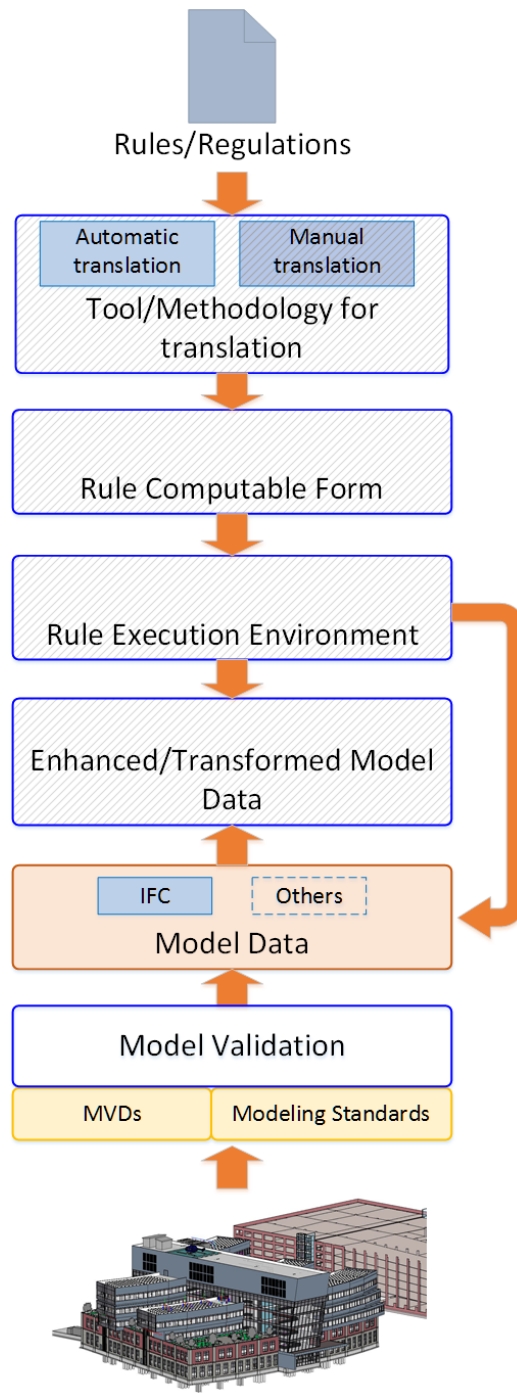
Figure 1 - Categories of automatic code compliance checking research