The State of BIM Software and Autodesk

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What is BIM?

In structure and building engineering, the concept of having different files from different software packages that can talk to each other is not new. The idea is that throughout the whole project life-cycle, including cost management, construction management, project management and facility operation, no matter what software packages you use, no matter at what phrase, your work should be interoperable with other applications, as long as both of your software support a common standard definition.

This concept-- called Building Information Modelling(BIM)-- **has existed since 1970**. But for Infrastructure and Civil Engineering, the interoperability comes much later than in structure.

BIM File Formats

There are a lot of formats pertaining to BIM when it comes to infrastructure and civil engineering, ranging from proprietary formats by Autodesk - NavisWorks (**.nwd, .nwf**) to the Open Standard format, **Industry Foundation Class** (**.ifc**). IFC format is developed by **BuildingSmart**, an international organization which aims to improve the information exchange between different software applications.

Since Autodesk format is proprietary, other software vendors will have a very difficult time to support this format, so thus far only NavisWorks can open its own file format. IFC, on the other hand, is meant to support everyone; all the BIM players, regardless of Autodesk, Tekla or ArchiCAD can and should support it.

The CAD File Format War

Like the CAD industry, BIM industry is overshadowed by one single large giant, the **Autodesk**. In the case of **(AUTOCAD) DWG** vs. **(Open standard) DXF**, DWG and Autodesk have won the CAD war so completely that DXF barely registers in the consciousness of CAD software users. Ask your friend around, how many of them are aware of the DXF file formats? And how many of them are actually using it?

Autodesk has no interest in letting others read or write DWG files, for obvious reason. So when **Open Design Alliance** created its own DWG read/write libraries, Autodesk tried to defeat it by tweaking its proprietary formats almost on yearly basis. But technical solutions were never sufficient; for every new format, the developers at Open Design Alliance can quickly reverse engineer it and thus make the DWG files open to everyone who wishes to read and write it-- after all, CAD files contain information, ***information wants to be free*****.**

So Autodesk did the unthinkable, in 2006, **it sued Open Design Alliance for "trademark infringement"** in an attempt to stop Open Design Alliance for good. The lawsuit settled with a compromise from both parties-- Autodesk modifying the warning message in AutoCAD 2008 (to make it more benign), and the Open Design Alliance removing support for the TrustedDWG code from its DWGdirect libraries.

All these brouhahas just tell us one thing-- that any form of monopoly is bad.

Autodesk vs. The Rest of The World, Again

10++ years have passed, now BIM industry has the same problem.

For many years, Autodesk has been heavily lobbying governments to use its BIM solutions, so much so that BIM software is now mandatory for government projects for quite a number of countries around the world. The sales pitch is "*files generated by software application catering to different stages of construction should be interoperable*". **Interoperability** is the keyword that Autodesk uses to sell its BIM solutions. It's quite ironic that this word appears here at all, because Autodesk is not really interested in interoperability, unless we are talking about interoperability within its own families of software. But of course this is not true interoperability!

Autodesk is never really interested to support Open Standards such as IFC, and when it does, it's done with lukewarm effort at best. Take one example: **Navisworks Freedom is a free viewer** for Autodesk Clash Analysis software. Because Navisworks software is very pricey, and quite a lot of people only need it for viewing the file purpose-- they don't need to run clash analysis, they don't need to edit the utility entities, so a free viewer is all that is required. **Autodesk makes a conscious decision to *not* support IFC format in Navisworks Freedom**.

Now if you are using **Tekla BIMsight** to generate clashing utilities, and your government is using Autodesk solution, you cannot check whether Tekla is generating the IFC files correctly or not using Navisworks Freedom, you will have to buy a new Navisworks license to do so. This is really discouraging to the average users who otherwise might want to opt for Autodesk competitors. If I have to buy Navisworks in the end, then why I want to buy other software in the first place?

So, Where Does This Leave Us?

As a software vendor, we wish to support as many export formats as we can. So for now, **our MiTS 2 is supporting IFC format in MiTS 2.1**. And since Navisworks, Tekla BIMsight, Civil3D and many other solutions supports IFC format, our files can be exported to those software to do further editing and manipulation.

We also start supporting direct **read/write to Civil3D in MiTS 2.3.** We just want to promote interoperability in its truest sense.

Even so, we also hope that there will be a day when Open Design Alliance or anyone can come up with libraries to read/write to .Revit or .nwd formats. The CAD software market is long due for a (or a few) competitors who can give Autodesk a run of its money.

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