Glovius: A Modern CAD Viewer

CIMdata Commentary

Key takeaways:

- *A successful CAD collaboration visualization solution must be cost effective, easy to use, and platform independent.*
- *HCL's Glovius solution meets all three business challenges and delivers important capabilities into the hands of downstream users of design data within the organization and the supply chain.*
- *Glovius directly imports CAD and standard CAD formats without needing a license to any CAD solution.*

Collaborative visualization holds the promise of transforming product development—reducing time to market, improving product quality, and enhancing product capabilities to best satisfy customer and market needs. Initial entry into collaborative visualization begins with the ability to leverage design engineering's virtual CAD models and share them with downstream technical and business organizations, the supply chain, and customers. An effective collaboration visualization solution, however, requires extensive capabilities beyond just viewing.

The business environment for new product development faces three major challenges that must be overcome to provide a successful collaborative visualization solution. The first is it must be cost effective. No company, especially small- to medium-sized businesses, can afford to purchase CAD licenses for all the potential downstream users who need to view and work with the CAD model and drawing data. Nor can they ask their suppliers and customers to purchase CAD licenses. The second challenge is closely related to the first. The collaborative visualization solution must be intuitive and easy to use. Requiring the use of a full CAD license to view product models fails because of the sophisticated nature of CAD applications' interfaces—they are too difficult to learn to use and require substantial training. The third challenge for an effective collaboration visualization solution is it must be platform independent and available not only on desktop and laptop computers but also run in the cloud for use on a wide range of mobile devices including work tablets and smart phones.

Glovius

The collaborative visualization solution, Glovius from HCL Technologies, offers CAD independent viewing and data access. Aptly called a "Modern CAD Viewer" because of its ability to run on an extensive range of platforms including tablets and smart phones, Glovius offers capabilities such as dimensioning, sectioning, markup, 3D compare, and analysis tools to all levels of users. CIMdata recognizes Glovius as a major player in the collaborative visualization market.

Glovius, originally a product of Geometric Limited known for their eDrawings Publishers and CAMWorks solutions, became an asset of HCL Technologies by way of business transfer in 2017.[1] HCL Technologies Limited delivers technology solutions built around digital applications, IoT, cloud, automation, and engineering services for a wide range of industries including aerospace, automotive, industrial manufacturing, healthcare, and energy.

---

[1] For more information on HCL Technologies' tools and technologies portfolio, see. https://geometricglobal.com/products-and-technologies/ .

Multi-CAD Access

One of the more important strengths of Glovius is its ability to import native CAD files from a popular range of CAD systems without the need of a CAD license. Among the many formats it can import are:

- Dassault Systèmes' CATIA V4/V5/V6 and SOLIDWORKS
- Siemens PLM Software's NX and Solid Edge
- PTC's CREO and Pro/ENGINEER
- Autodesk's Inventor

In addition, standard formats STEP (including AP 242), IGES, JT, and STL can be imported. Using the Glovius 2D Viewer, users can view CATDrawings (CATIA 2D drawings), DXF, and DWG files. CIMdata recognizes that with the support of these popular CAD and standard formats, Glovius is positioned well within the design engineering market. Note that once captured by Glovius, CAD data can be exported in 3DPDF, HTML, STL, or Microsoft PowerPoint formats.

Data Accessibility and Interaction

Within Glovius, extensive capabilities are made available to the user. In addition to viewing the 3D product data model using zoom, pan, and rotate, the user can view and search product structures, attributes, and PMI (Part Manufacturing Information) such as GD&T. All the standard 3D view orientations are available as well as perspective. The user can control graphics rendered modes of wireframe, shaded, color, and transparency to better investigate the model.

Especially important for downstream users in the supply chain and manufacturing is the ability to accurately measure the model. The user can generate linear, angular, and radial measurements (Figure 1). A tape measure option is useful in computing the length of a sequence of curves and edges. Surface area of faces can also be calculated.
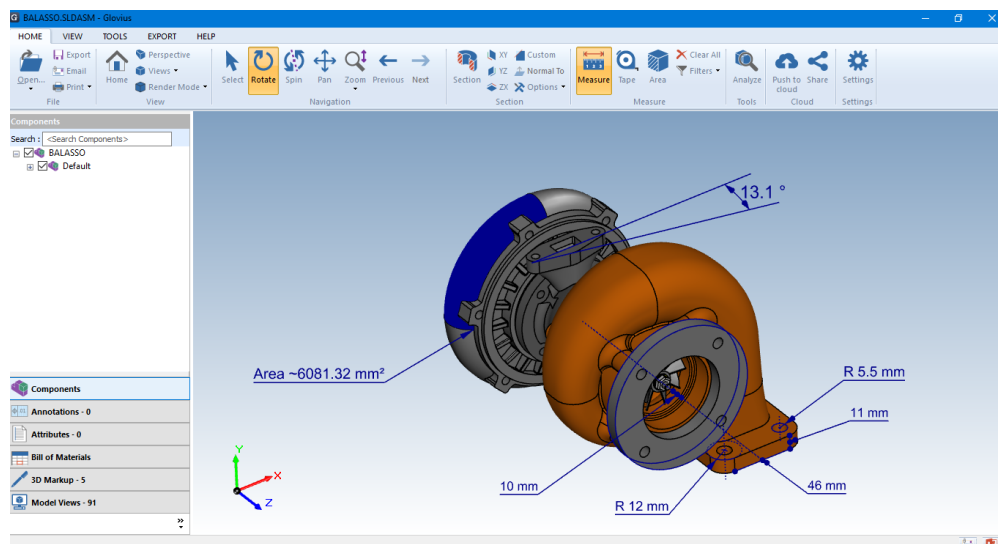

Figure 1—Dimension Measuring within Glovius
(Courtesy of HCL Technologies Ltd.)

Model Exploration

Interaction within Glovius also extends into sectioning. The user can cut dynamic sections along either standard or user defined planes (Figure 2). In addition, the user can create multiple sections and improve their visibility by adding crosshatching. CIMdata especially welcomes the ability of Glovius to measure section profiles. The analyze feature in Glovius shows key information about a selected component with a single click. This includes extent dimensions, mass, surface area, volume, center of gravity, and the number of component instances in the assembly. The feature is very helpful for estimating the material required and cost of manufacturing the component which is particularly useful for preparing quotations. Purpose built tools for die casting and injection molding applications include thickness analysis, draft angle measurement, and projected area calculation.
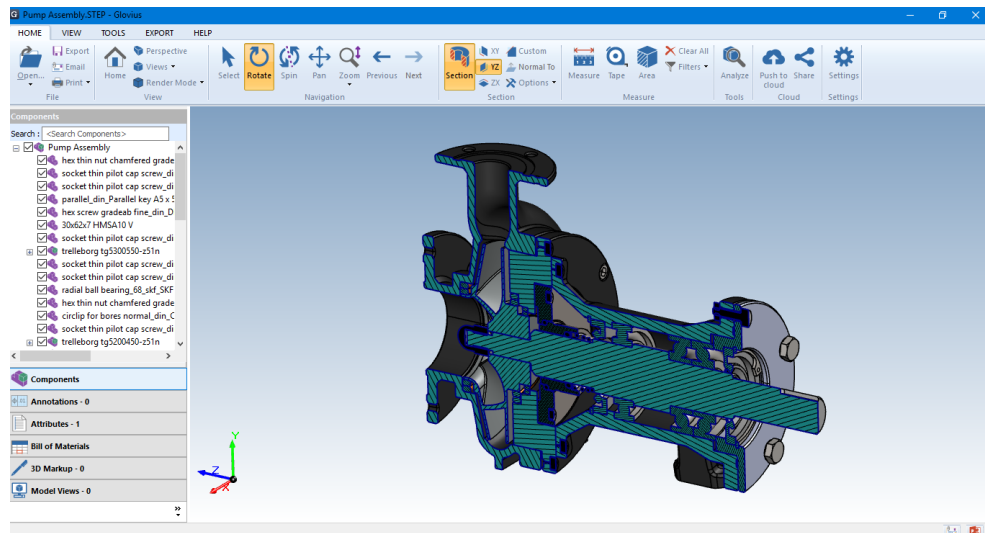

Figure 2—Sectioning within Glovius
(Courtesy of HCL Technologies Ltd.)

Assembly Analysis Tools

Yet another welcome capability is a suite of tools to help users analyze a product's assembly structure. The user can modify a component's color and apply transparency. Glovius also has the capability to move components and produce exploded views of an assembly to allow users insight into its construction. One of the more important functions is 3D Compare. During the complex design interaction of new product development, often between OEM and the supply chain, confusion can arise due to the ever changing revisions of product models. 3D Compare allows the user to identify added, deleted, and modified features of parts and assemblies to better understand changes between revisions. CIMdata strongly believes that any visualization solution that does not support 3D Compare would fail in today's market.

Collaboration Across Devices

While all these capabilities are useful to individual users the primary purpose of Glovius is to be used as a collaboration visualization tool. Its largest impact derives from the ability to annotate and markup the viewed model. Those notes and markups can then be shared with other users. This interaction is most powerful when used between the OEM and a supply chain company to help better understand the models and avoid misinterpretations which can otherwise delay product development and impact costs.

The cross device capabilities of Glovius are very impressive. The "Push to Cloud" feature in Glovius allows users to upload their files to a Cloud based account. These files can then be viewed using a web browser or on mobile devices using the Glovius iOS or Android apps. Users can measure and section designs, add markups and annotations, and pass URLs to files for easy sharing. This makes for a seamless collaboration experience between teams located in different locations.

Glovius Desktop also provides options to export files to Image snapshots, PowerPoint, 3DHTML, 3DPDF, and Bill of Materials (BoM) for easy sharing and collaboration.

Summary

Glovius delivers a strong collaborative visualization choice for users looking to improve their data sharing experience during product development. HCL Technologies has positioned it well against the three major business challenges of being cost effective, easy to use, and platform independent. The result places Glovius in the forefront of effective solutions for collaboration visualization. CIMdata recommends that users looking to improve their downstream and supply chain interaction take a look at Glovius as a possible vehicle to drive those improvements.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata's services, visit our website at http://www.CIMdata.com or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.