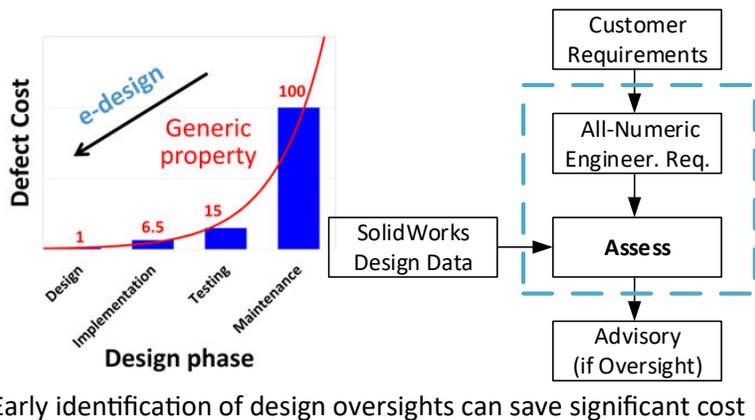


Now with automatic verification of requirements for cost, weight and dimensions



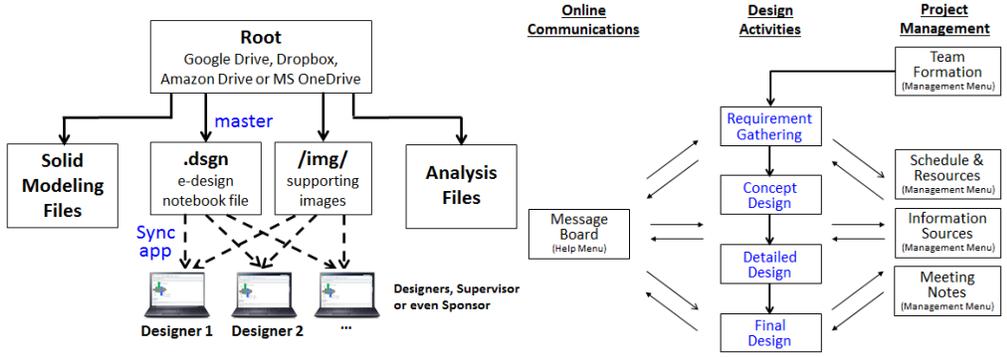
# Ecosystem for Design Assessment and Verification 1.18



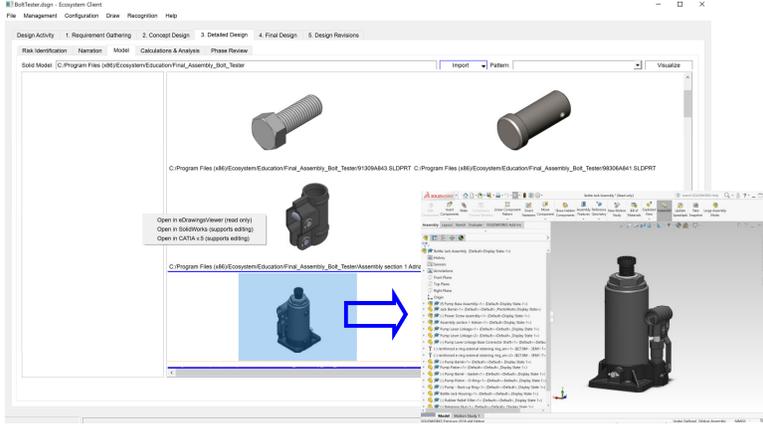
Early identification of design oversights can save significant cost

## Benefits

- Structured way of guiding designers through the design process, and fostering proper design techniques
  - Much reduced chance of costly design oversights (productivity interruptions)
  - Friendly, real-time advisories (the early identification can save significant cost)
  - Clean & efficient user interface (extended auto-population mechanism)
- Automatic & objective assessment of design activities
  - Less time spent on elementary oversights
  - ABET-compliant learning objectives
- Systematic capture of rationale supporting design decisions greatly helps with knowledge transfer
- Multiple features for facilitating communications
  - Automatic generation of formatted project reports
  - Interfaces with Google Drive, OneDrive and Dropbox
- Great facilities for project and part management



Typical data management and design flow



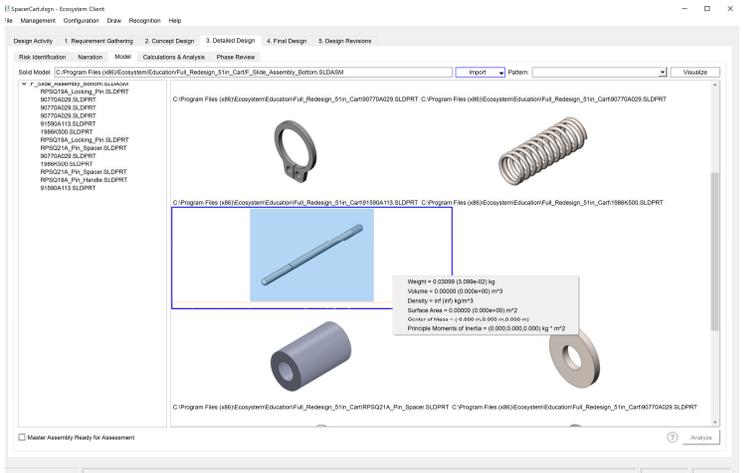
Automatic visualization of parts & assemblies + Solidworks interface

## Who Should Care

- Student design teams, instructors and sponsors
  - Capstone design teams
  - Teams participating in design competitions
- Engineering design organizations
  - To capture, track and verify requirements, or manage critical parameters

[www.imagars.com](http://www.imagars.com)  
[marketing@imagars.com](mailto:marketing@imagars.com)

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 Acknowledgement: NSF SBIR Awards 1447395, 1632408



Importing of SolidWorks assemblies + Real-time extraction of meta data

# Benefits to Capstone Design

- Help with systematically collecting the customer feedback
- Support for extracting all-numeric engineering requirements
- Tools for associating the engineering requirements with the customer requirements and validating
- Tools for objectively scoring design ideas (design selection)

Customer requirements extracted from customer interviews

Cost Requirement Exceeded

Your cost for aggregate cost for the column titled COST (\$1319.24) exceeds the system budget (\$1000).

OK

Guiding advisory from the Final Design phase.

# Benefits to Design Teams: Parts & Project Management

The Ecosystem for Team Design and Assessment offers valuable support to design teams:

- Risk identification & mitigation
- Scheduling & resource planning
- Requirements validation
- Parts & assembly
- Bill of Material (from SolidWorks)
- Manufacturing options

Nicely formatted reports enable designers to systematically present detailed design work to supervisors or sponsors, and clearly articulate compliance with the design requirements

House of Quality along with Decision Matrix for design selection

Automatic verification of cost requirements

# Sample Testimonials

"Since Sept. '17, I have required my Formula and BAJA SAE teams to use the Ecosystem SW. Proper documentation of the vehicles greatly helps in terms of knowledge transfer, esp. if key personnel becomes unavailable come competition time shortly before competition. The automatic reports, with tables and images all linked in, greatly help in terms of organized presentation to the design judges. The judges are expecting to see the design decisions for each subsystem, with supporting rationale, properly documented and effectively communicated."

Prof. Brian Moravec, Faculty Advisor, BAJA SAE, Oregon Tech

"I have only two teams and both have performed admirably. The Dynamometer team has managed to stay on schedule a little better but I'm not certain whether that is due to Ecosystem or some other factor."

Dr. William Dick, Faculty Advisor, BAJA SAE Dynamometer team,

1. The user interface was easy to understand and allowed us to insert information quickly and painlessly.
2. The detailed outline helped us understand each component for the design report.
3. The extensive user manual gave useful instruction on how each tab operates.
4. The examples provided with the Ecosystem helped us understand the information to be included in each tab.
5. We liked the ability to hover over any given section and bring up a description of the section: This allowed us to save time to understand each section.
6. The ability to insert information into the meeting minutes, information sources, and deliverables facilities, for each design phase, also helped us save time."

BAJA SAE Dynamometer Team, University of Nebraska

"I really like the interface of the Ecosystem with the e-Drawings Viewer as well as the manufacturing support (e.g. the ability to specify the tooling level)."

Joel Ludwig, Chief Executive Engineer, TriCon