Partner Spotlight: XLDyn

Tom Tecco, COO, discusses Systems Engineering (SE) software, XLDyn, available through the Altair Partner Alliance.

APA: What prompted the development of your software? What problem(s) is XLDyn meant to solve?

Tom: I have worked both as a product development engineer and later as an engineering IT executive. During my career I have seen CAD, PLM and CAE mature to become foundational engineering tools. However, the gap between enterprise data, especially product requirements, and simulation/test is huge.

The product development engineer has lacked the software necessary to do their everyday jobs, one of which is managing requirements and validating that they have been met. Phil Oh and I founded XLDyn to fill that gap with ease of use and functionality in mind. Because of our extensive experience in this area we were in a unique position to build a product that meets the needs of product engineers as well as systems engineers.

APA: What are the benefits of using XLDyn for Systems Engineering?

Tom:

- Extremely fast automated creation of SysML based requirements and verification diagrams
- XLDyn is an actionable tool to balance and track designs at the system, subsystem, and component level
- XLDyn supports all verification methods
- Program status, including mobile, is available to everyone
- XLDyn's ease of use and integration makes MBSE a way to do your work and documentation becomes a byproduct of the design process
- Closing the gap between enterprise data and simulation/test

APA: Are there any unique applications that XLDyn works for that your competition cannot?

Tom: XLDyn automates the creation of actionable Model Based System Engineering (MBSE) diagrams. These SysML compliant diagrams can be used for actual system design and product development because they interact directly with simulation and test.

APA: How much time does it take to learn and start using XLDyn?

Tom: Our introductory training module takes you through the steps to build a model using most of the key features in the software. Step by step instructions for building the model are provided from a 40-minute video or PowerPoint instructions. Our software is used in several university classes where this material is used to train the students. The training exercise can be completed in about two hours after which the students can construct models and use them to develop designs. An additional two hours of training is needed to master the advanced features. We consistently get praise for how easy it is to use the software and be effective in a very short period of time.

View Getting Started Video

APA: What are the biggest challenges or problems that customers in your target market face and how do you address their needs?

Tom: Product Development, Systems, Simulation and Test engineers need to track the status of program requirements as compared to verifications (test/simulation) throughout the design process. Managers need easy access to the status. Our software solves this problem by tracking and managing requirements and verifications all within one easy-to-use software package.

APA: Describe a typical workflow using XLDyn.

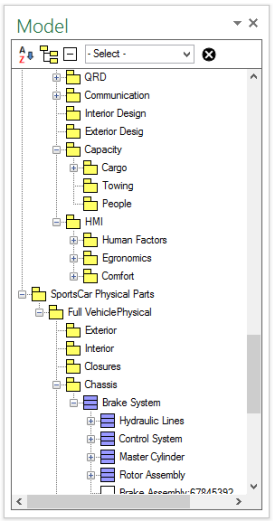
Tom: Product Development engineers create the requirements for their project. They typically start from a templated set of requirements in a requirements management system, or alternately they can create their own requirements document. These Microsoft Word® documents, including IBM DOORS® can be imported to XLDyn and all three views of the requirements can be created in an automated fashion. Next, verifiers can be attached to the requirements. If standard work is available, the verifiers can be selected from the catalog. All verifier types are available. Internal verifiers are ones that are executed from within XLDyn, including cell equations, spreadsheets, 1D Multiphysics simulations (solidThinking Activate and XL1D). Additional internal verifiers can easily be created for other 3rd party or custom simulation tools. External verifiers are used for test and large scale simulations. External verifiers can automatically generate an email request to the test or simulation engineers. When a response is sent back the verifier and requirements table is automatically updated with a single button click. What could be easier? After the models have been established, parametric and system level DOE studies can be performed to balance the design and to adjust requirements if necessary.

APA: What's next for XLDyn, what can we look forward to?

Tom: XLDyn will continue to add integrations with enterprise data, simulation, and test software. Our focus is to help product development, systems, simulation, and test engineers improve their efficiency, thus reducing development time and eliminating errors. Version 1.4 is in the works and will be released at the end of 2016. It has some exciting capabilities including:

- Use Case Diagrams
- Activity Diagrams
- Verifier Change history
- Expanded spreadsheet verification functionality
- Integration of additional simulation software
- Select a verifier from multiple that are attached to a requirement
- Patented Reliability Analysis calculated directly from physical model

For more information about XLDyn, visit the solution page.



ID	Name	Text	Procedure Name	Target	Actual	Method
A	Safety	Vehicle shall meet Frontal crash, sid	Ad hoc			
A.1	Frontal Crash	Frontal Crash shall meet HIC, TCA ar	Ad hoc			
A.1.1	Head Injury Criterion	Head Injury Criterion(HIC<1000) - H	Ad hoc	HIC<1000	347.8	
A.1.2	Thoracic Chest Accelera	Thoracic Chest Acceleration(TCA<60	Ad hoc	TCA<60	45.1	
A.1.3	Femur Load	Femur Load(FL<7560) - Femur load	Ad hoc	FL<7560	4513	
A.1.4	Star Rating	Star Rating (Star=5) – The NHTSA fr	Ad hoc	4.75<Star<5	5.00	
A.2	Side Impact	Side Impact requirements are TBD	Ad hoc			
A.3	Rollover	Vehicle shall meet all rollover requir	Ad hoc			
A.3.1	Static Stability Factor	Static Stability Factor (SSF>1.45) – T	Ad hoc	SSF>1.45	1.198	
B	Energy	Vehicle shall meet fuel economy, rar	Ad hoc			
B.1	Fuel Economy	Vehicle shall meet fuel economy sta	Ad hoc			
B.1.1	Fuel Economy Highway	Fuel Economy Highway Cycle (HWFI	Ad hoc	HWFET>30	42.0	
B.1.2	Urban Driving Cycle	Urban Driving Cycle (UDDS>24) – TI	Ad hoc	UDDS>24	31.09	
B.1.3	Combined City/Highway	Combined City/Highway Fuel Econo	Ad hoc	CombCtyHi	35.2	
B.2	Range	Range(Range>400) – Vehicle shall tr	Ad hoc	Range>400	423	
B.3	Emission	Emission requirements are TBD	Ad hoc			
C	Vehicle Dynamics	The vehicle shall meet acceleration, deceleration, handling, and ride quality requirements while				
C.1	Acceleration	The vehicle shall meet all accelerati	Ad hoc			
C.1.1	0-60 Time	0-60 Time (Z60<6) - The time for the	Ad hoc	Z60<6	7.98	
C.2	Deceleration	The vehicle shall meet all decelerati	Ad hoc			
C.2.1	Stopping Distance	Stopping Distance(Distance<60) – TI	Ad hoc	Distance<6	55.7	
C.3	Handling	The vehicle shall meet all of the follo	Ad hoc			
C.3.1	Turning Radius	Turning Radius(TurnRad<8.6) – The	Ad hoc	TurnRad<8.	8.69	
C.3.2	Axle Weight Balance	Axle Weight Balance (FrtAxle=50) – 1	ad hoc	47.5<FrtAxl	50.0	CAT/CAE
D	Capacity	Capacity is comprised of number of passengers, cargo both weight and volume, and towing.				
D.1	Passengers	Passengers (NumPass=5) – The vehicle must be able to carry		4.75<NumPass<5.25		
D.2	Cargo	Cargo capacity is comprised of both weight and volume measures				
D.3	Towing	Vehicle towing capacity is comprised of trailer weight and tongue weight.				
E	QRD					