

## Case Study:

### A Ten-Year Transatlantic Training & Simulation Success Story with GL Studio

A successful partnership of German engineering and American ingenuity

For more than fifty years ESG Elektroniksystem- und Logistik-GmbH (ESG) has been one of the leading German companies in the development, integration, and operation of complex, safety-related electronic and IT systems. During their tenure, they have developed a robust reputation for delivering complex training systems to the German Bundeswehr on time and within budget.

For ESG, choosing the right development tools and partners has played a large role in their success – including their decision over a decade ago to standardize on DiSTI's GL Studio as their HMI tool of choice.

### Building A Relationship

ESG's adoption of DiSTI's GL Studio began in 2007, since then they have used it in the delivery of seven programs for the Bundeswehr. At the time, ESG was looking for a cost effective, high performance and flexible solution in developing the interactive graphics for their simulators. After a detailed and extensive evaluation, ESG selected GL Studio.

With the initial two programs, the MK88A SeaLynx Cockpit Procedure Trainer (CPT) and the CH53GA German Avionics Management System (GAMS) for the CH53 FF5 upgrade ment services to accelerate their program time schedule while minimizing development costs.

Working side-by-side with ESG, DiSTI's professional services not only trained ESG on how to fully utilize GL Studio's capabilities, but also did so while simultaneously assisting with product delivery. After those introductory programs, ESG continued the use of GL Studio for five subsequent simulator projects on their own as a result of the significant benefits of the HMI solution. Among the many features of the product, one has stood out – the decoupling of the graphics behavior from the simulation and operating system.

*"The decoupling of the graphics behavior from the simulation and the operating system agnostic approach to HMI development allows ESG to have shorter development cycles and minimizes project risk."*

**Jürgen Mayer**  
Head of Systems Technologies & Simulation

### Challenge

- Increase speed and flexibility in moving from design into production
- Achieve accurate representation of cockpit instrumentation
- Decrease cost and improve margins

### Solution

- GL Studio HMI Development Tool
- DiSTI Professional Services

### Impact

- Speed and flexibility to rapidly prototype designs and move them into production
- Successful acquisition of additional contracts
- Leveraging of the services, enabled ESG to improve the efficiencies of their own design and engineering teams



CH53 Cockpit, courtesy ESG

This flexible approach to independently develop the UI has allowed ESG to reduce their development cycles and minimize project risk when mid-stream program or engineering changes affected the program. By leveraging GL Studio for the graphics development, ESG engineers have been able to focus on more challenging technical design and implementation tasks resulting in many successful deliveries of key programs.

## A Decade of Success with GL Studio

A key element to ESG's efficiency and on time delivery was the use of GL Studio in prototyping and developing the gauges and full cockpits. The speed with which the prototypes could be quickly developed, tested, modified and then placed into production enabled the developers at ESG to quickly produce the high fidelity photorealistic graphics needed to match the sophistication and level of immersion of their simulation systems.

GL Studio's ability to generate high performance visual displays enabled ESG to complete the virtual environments for their simulators rapidly by reducing the overall production time, costs and risk. Of the created simulators, ESG accomplished three main goals imperative for their projects:

- Quickly developing accurate photorealistic run-times of cockpit instrumentation that can efficiently run on lower-cost PC's and embedded devices
- Decoupling graphics behavior from the simulation functionality to mitigate project risk in the case of mid-stream project changes, meaning that engineers could focus on the simulation and modeling rather than artwork
- Having operating system flexibility, allowing developers to use the same design file generating the same code
- Having simple ease-of-use and reducing the development times of junior engineers/technical artists in comparison to other HMI tools or hand coding

*"We strive to provide state-of-the-art technology to aid our customers in completing and sustaining their visions. The longevity and relationships created between ESG and DiSTI have proven to be highly mutually successful and we look forward to a continued collaboration well into the future with our colleagues at ESG."*

**Christopher Giordano**  
DiSTI VP of UX/UI Technology

ESG trainers have effectively trained thousands of German Bundeswehr / BAABw operators and maintainers, as demonstrated from their portfolio of projects powered by GL Studio dating back to 2007:

**MK88A SeaLynx** (2007-IFD) – Construction of training devices for the flying and tactical training of SeaLynx MK88A aircraft crews. Cockpit Procedure Trainer (CPT) consisting of 2D instrument board with animated system diagrams. Mobile Training Devices - a laptop version of the CPT in 3D.



*SeaLynx operations trainer, courtesy ESG*

supported by different sensor systems in situational perception - e.g. during landing under brown-out conditions. Development of a 3D landing symbology for stereoscopic visualization in the 3D-enabled Helmet Mounted Display (HMD) from BAE. Used in the ESG CH53 simulator.

**Sensor Assisted Landing Aid PTT** – "SeLa PPT" (2014-2015) – Creation of a training tool to support the teaching and senior staff in sensor assisted landing aid training. Replica of the SeLa control panel and the SeLa Helmet Mounted Display (HMD) as a laptop / tablet version in the form of a SeLa PTT (Part Task Trainer).

**Missions Avionics Test Platform** – "MAT" (2016-IFD) – Program Missions Avionics Testplatform carrier (MAT). A flying test platform for general helicopter investigations. Development of a multi-colored symbology for BAE's Helmet Mounted Display (HMD); including monochrome representation for other helmet systems used in the MAT.

**CH53GA-FFS** (2010-2015) – Re-engineering of the Rockwell Collins German Avionic Management System (GAMS) for the CH53-GA Full Flight Simulator. A replica of the Control and Display System consisting of Multi-Functional Displays (MFD), Integrated Standby Instrument System (ISIS), Control & Display Unit (CDU) and Digital Map Generator (DMG).

**CH53GA-TL** (2010-2015) – Development of training devices for the training of maintenance personnel of the CH53-GA helicopter. Two Cockpit Procedure Trainers (CPT) consisting of a 2D instrument panel with animated system diagrams and 30 Mobile Training Devices as a portable version of the CPT in 3D for training courses.

**Project SeLa, Sensor Assisted Landing Aid** (2014-2015)

– Possibilities were investigated, how the crew can be supported by different sensor systems in situational perception - e.g. during landing under brown-out conditions. Development of a 3D landing symbology for stereoscopic visualization in the 3D-enabled Helmet Mounted Display (HMD) from BAE. Used in the ESG CH53 simulator.

**UH Tiger, FPS-H (2017-2018)** – Mission preparation for helicopter pilots. Replica of the UH Tiger instrument panel for a Mission Rehearsal trainer to support mission preparation for helicopter pilots.

## Looking Ahead

For ongoing and upcoming simulator programs ESG once again will leverage the benefits of using GL Studio for human factors, cockpit designs and VR-based maintenance training.

The strength of the relationship between DiSTI and ESG is built around the flexibility and power of GL Studio allowing ESG engineers to focus on their strengths of building the architecture and simulation models as opposed to the actual development of UI design tools.

Over the last 10 years, GL Studio has a proven record of reliability and cost savings needed to deliver projects on razor-thin margins. The next 10 years looks promising as both partners work together towards solving the challenges and evolving needs of customers with the newest generation of simulation and training tools.



*CH53 Container operations trainer, courtesy ESG*

For more information on The DiSTI Corporation and GL Studio contact us at [sales@disti.com](mailto:sales@disti.com)

For more information on ESG's portfolio and services, [esg-defencesecurity.com](http://esg-defencesecurity.com)

