

ROCKWELL COLLINS eBOOK

Simulation and training – a high-realism look ahead.



Going deep for the answers to the most complex simulation and training challenges.

**Rockwell
Collins**

Building trust every day



You start with clear vision.

Setting out to become the go-to company for some of the world's most complex simulation and training challenges meant having a long-term vision to drive how we would get there.

It involved getting real about our then-current simulation and training capabilities. Leveraging our distinctive strengths in areas such as concurrency between avionics and training media. Making unflinching assessments about where we were lacking – and responding by strategically acquiring assets that would enable us to offer the full range of the simulation and training industry's finest capabilities.

Part of the vision required an ongoing commitment to research and development investments that would keep us at the forefront for innovations in simulation and training. Then, when the pieces were in place, we fulfilled that initial vision by applying one of our greatest strengths – our expertise in integrating diverse elements in any configuration, so that they work together as one cohesive system.

This is how we are making our vision a reality and providing our customers with high-performance, highly realistic solutions to their most challenging training needs. Two recent examples of this are the U.S. Navy's E-2D Advanced Hawkeye and the U.S. Air Force's F-35 training programs.

Just like the horizon line in our long-term vision, the simulation and training industry always seems to be moving forward. Trends emerge, customer needs change and new challenges present themselves. We're ready with the technologies, experience and expertise to assist our customers in taking on any simulation and training challenge.



LeAnn Ridgeway
*Vice president and general manager,
Simulation and Training Solutions
Rockwell Collins*

Join us now as we take a clear look ahead to the future of simulation and training. In this eBook, we'll explore what's next in the industry. We'll also highlight some of the ways Rockwell Collins contributes to simulation and training program excellence today. All following an enduring vision: to bring greater value to our customers.

LeAnn Ridgeway



A look ahead.

Rapidly emerging trends will change the way the industry trains. They will demand new or enhanced simulation and training capabilities. Let's look at seven of these trends, along with the capabilities they will require. To delve more deeply into any of these trends, click on their "Go deeper" links.



Trend 1: Increasing use of extremely complex immersive environments

Military forces are demanding highly realistic training environments to reduce the risks and costs of training in live environments. In addition, as technology advances, the capabilities to improve realistic immersive environments become more available and affordable.

Capabilities: Visual systems, including image generators, 360-degree displays and projectors; night vision capability; head- and helmet-mounted displays; next-gen light sources; augmented reality; motion and sound systems

[» Go deeper](#)



Trend 2: Next-generation Air Traffic Management dramatically changing human factors

NextGen and Single European Sky ATM Research (SESAR) are bringing new capabilities and functionality to the aircraft cockpit as well as to Air Traffic Management. The changes to procedures and human factors in operating manned and unmanned aviation will be revolutionary.

Capabilities: Flight simulators; ground control stations; unmanned aerial vehicle and sensor operator training systems

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Trend 3: Reduced military budgets driving need for more simulated training

Militaries are focusing limited resources by relying on simulation to offset the high cost of live training. The need for innovative training methodologies that provide high-quality solutions increases in importance as global military budgets decrease.

Capabilities: Live Virtual Constructive (LVC) training; simulators; synthetic and enhanced vision; open system architectures; visual systems including image generators, displays and projectors; concurrency between weapon systems and simulators

[» Go deeper](#)



Trend 4: Growing adoption of gaming technology

We live in a digital world where our warfighters are a new generation of smart, technologically savvy users who are comfortable learning through leveraging technology and searching for answers on the web or their smartphones. They have grown up immersed in digital technology and digital media and are learning in ways we never thought possible only a few years ago.

Capabilities: Synthetic training environment; open system architectures; and mobile platforms

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Trend 5: Increasing demand for mobile tablet and smartphone training

In a world filled with mobile devices, information is available at the touch of a finger. Rockwell Collins provides custom training and information for a wide variety of users. Mobile technologies are enabling training on demand in more intuitive, realistic environments as well as the ability to train anywhere on a tablet or mobile phone.

Capabilities: Mobile applications; visual systems; content management systems; e-media; and technical publications

[» Go deeper](#)



Trend 6: Growth in emerging international markets driving industry collaboration and alliances

Original equipment manufacturers (OEMs) and simulation and training solutions providers pursuing markets outside of North America and Europe are seeing traditional business models changing. In addition to the traditional model of acquiring full system simulators, customers in emerging markets are also looking for ways to develop technology in-country to drive local economies and transfer technology. This is driving OEMs to align with local companies and find creative ways to address industrial offset requirements. In addition, it is driving the need for interoperability in simulation and training systems.

Capabilities: Open system architectures; collaborative training system development; and scalable solutions

[» Go deeper](#)



Trend 7: Increasing need for high-fidelity simulation outside of traditional aviation market segments

While simulation and training catered to aviation continue to leverage emerging technologies, the affordability of computing resources has allowed the use of high-fidelity simulation capabilities to permeate into markets beyond aviation. Ambitious and highly complicated projects that will leverage simulation and training capabilities are taking root in numerous non-aviation related fields such as biological systems, pharmaceuticals and surface solutions, as well as disaster simulations.

Capabilities: Open system architectures; visual systems; augmented reality

[» Go deeper](#)



Trend 1:

Increasing use of extremely complex immersive environments

The nature of our industry is to stimulate all of the senses of the student, providing highly realistic training that advances learning. Reduced budgets for live training and the rapid pace of innovation are driving demand for more realistic training systems. Visual systems alone are evolving and advancing at a rapid pace, offering increased realism to training systems.

Visual systems

What the eye sees is key to how the student will act in a given scenario. Improving eye-limited resolution and eliminating motion smear and other display artifacts are clearly on the list. The display and image generation go hand in hand, so you must consider both when designing the system. It is important to look for providers who have strengths in the relevant areas of database modeling, image generators and projectors.

But the pursuit of visual excellence can be costly, so customers must make value decisions while they continue to demand increased training realism. Customers must look for solutions that provide more performance while remaining affordable.

Augmented reality

Stimulating a variety of trainee senses can advance learning by making training feel as intensely real as possible. We are always looking for ways to provide more realism through the use of augmented reality solutions. We are doing this with product advancements and through our research activities – in some cases with our military customers and with universities.

Augmented reality involves enhancing the real-world environment with simulated visual, aural, olfactory and/or motion inputs. At some level of fidelity, augmented reality has been used throughout simulation and training history. Going forward, we anticipate more use of augmented reality and at higher levels of fidelity. There are really no limits to the use of augmented reality, especially in training tasks that carry high risk and high cost to perform. We are seeing this in military applications with the need for off-loading traditional live training toward more virtual training.

It's likely that more customers will adopt the use of augmented reality as a must-have capability. Think of this trend much like how tablet computing technology has grown since its introduction. Its abilities have advanced to such a degree – e.g., fully harnessing “cloud” resources and providing improved information assurance – that it's now becoming a necessity.

Rockwell Collins' role:

We are leading future commercial technology developments. Take solid-state light sources, for example. They are becoming more common and they promise longer life and lower maintenance costs in the next couple of years. We are also

pursuing higher resolution solutions to achieve eye-limited resolution, as well as night vision technologies. All of these are targeted toward increased training realism with reduced cost of ownership.





Trend 2:

Next-generation Air Traffic Management dramatically changing human factors

Many in the industry believe that the change in human factors will be the biggest challenge in the rollout of NextGen and SESAR. Providing information to pilots and air traffic controllers at the right time in the right format will be critical.

For example, with the addition of ADS-B, just one of the new capabilities coming with NextGen and SESAR, pilots and air traffic controllers will have the ability for the first time to see where all of the other aircraft in their area of interest are located – they will have improved situational awareness. So understanding how they react and operate with increasing levels of information is essential.

The role of aircraft simulation and training programs is pivotal to the success of NextGen and SESAR. Only in real time, highly realistic environments can you determine how pilots will operate the NextGen and SESAR enabled flight decks and then train them accordingly.

Unmanned aircraft system (UAS) integration into civil airspace is coming – by 2015, as mandated by the U.S. Congress, with small unmanned aircraft able to fly even sooner.

This revolutionary change to airspace operations will drive the need for retraining of UAS operators, as well as anyone involved in Air Traffic Management.

The current lack of standardized training methods and simulators for complex UASs demonstrates that this market is still evolving. Although the FAA has defined standards for manned aircraft simulators, such as FAA Level D, no such equivalent exists yet for UAS simulators. The use of complex simulators for UAS training is still in its infancy, offering the industry and government an opportunity to collaborate and bring to market the right training solutions for UAS operators.

Rockwell Collins' role:

We are providing capabilities and creating environments that facilitate collaboration between organizations, such as the FAA, NASA, EUROCONTROL and others.

Our simulation capabilities provide correlated synthetic environments for a wide range of simulations and are among the best in the industry. Rockwell Collins products can be found in abundance, powering state-of-the-art research at multiple NASA and FAA sites.

Rockwell Collins simulation capabilities include high-definition terrain, traffic and weather information that were all streamlined for integration with partners via industry standards.

Our UAS sensor operator training systems enable UAS operators to stay current on flying UASs in restricted airspace today and integrated airspace by 2015.

As a leader in avionics, Rockwell Collins understands the need for a human-centered design approach for future flight decks.





Trend 3:

Reduced military budgets driving need for more simulated training

In today's restrictive military budget environment, maintaining a technological and readiness edge requires changes in the way we identify, acquire and provide military training solutions. We must remain prepared for future known challenges, as well as prepare for the ones that are not yet apparent.

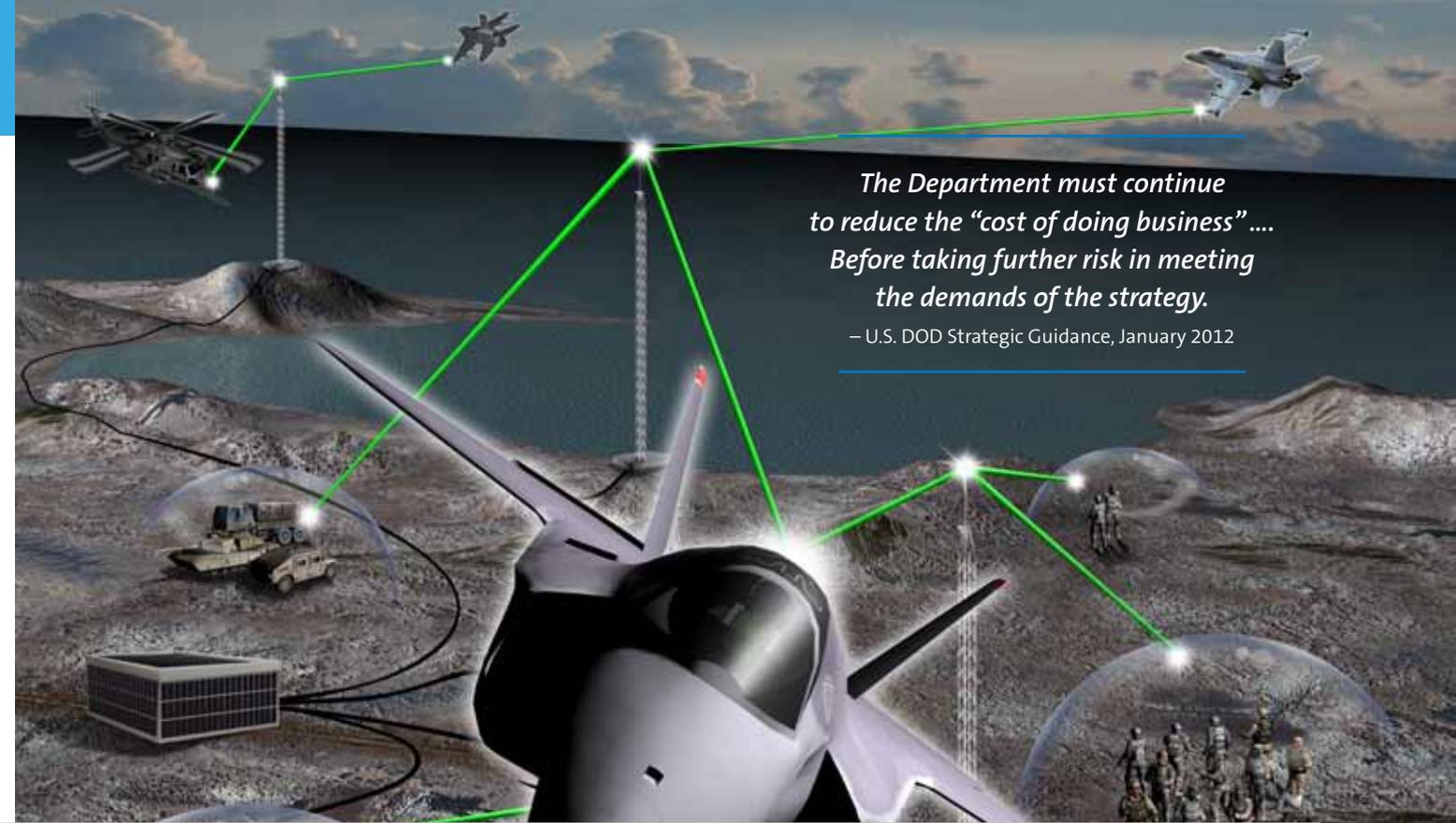
Guiding principles of military training include: the need for balance, distinction between irregular and conventional warfare, and providing high-quality, cost-effective initial qualification, concurrency and proficiency training.

We face a future of potential conflicts ranging across broad spectrums of operations, requiring training options

that include flexible and responsive state-of-the-art, multi-service solution sets.

Militaries are focusing limited resources by increasing their reliance on modeling simulation solutions to offset the high cost of operating equipment, and to maximize other limited training resources such as time, equipment availability and travel expenditures to cost-effectively maintain a high level of readiness.

This trend has already taken place in many areas, and we expect it to rapidly increase as the current wars wind down, economies struggle and acquisition strategies change from the procurement of new platforms to modifying and updating legacy systems for extended life.



The Department must continue to reduce the "cost of doing business" Before taking further risk in meeting the demands of the strategy.

– U.S. DOD Strategic Guidance, January 2012

Rockwell Collins' role:

As military budgets decrease in many countries around the world, Rockwell Collins can deliver high-quality, affordable, concurrent training (simulations, simulators and crew training) solutions in preparation for the changing landscape.

We are on the forefront of developing technologies that provide integrated, open architectures for cost-effective solutions to differing platforms and mission requirements. We can enhance value through fully integrated development solutions.

We achieve this by employing the following principles:

- ▶ Single engineering development environment – for development and test tasks, allowing for the most cost-effective use of resources
- ▶ Seamless integration of simulated and stimulated components and systems – allows aircraft integration to begin earlier in the schedule and reduce total development time
- ▶ Re-use of components between platforms and training media – rehosted software reduces the investment required to achieve final design and test of both the platform and the training system to support the platform

- ▶ Effective concurrent development – capability to develop, evaluate and validate real-time operation and workload for operator stations/cockpit flight decks during development, prior to build of flight hardware/software
- ▶ Life cycle concurrency – ensures use of common components that are designed from the development cycle so that all platform and training updates occur simultaneously

Live Virtual Constructive training. In addition, Rockwell Collins is a leader in LVC research and development. Our LVC research is a direct response to the economic challenges faced by the armed forces in the training domain. The program is focused on developing a set of tools that can be used by customers to dramatically increase the effectiveness of every training dollar spent.

Specifically, we are developing standards-based avionics architectures that allow embedding virtual participants into flight-ready equipment without traditional costs associated with Operational Flight Program (OFP) modifications.

This embedded training functionality is based on the same CORE™ simulation architecture used in our simulation and training systems products. When coupled with the ability to rehost the actual aircraft OFP into virtual devices and drive it using CORE, this avionics architecture provides a significant discriminator in maintaining concurrency between live platforms and virtual training assets.

The modular, "plug-in" nature of the CORE simulation environment supports the concept of selecting training functions for a specific student based on a "menu" of available simulation capabilities, tailoring the flight deck on a per-curriculum basis while using a baseline pool of avionics and training aircraft.

Our goal is to ultimately increase the number of live flight hours to air forces around the world. We make this possible by moving assets that do not need to be instantiated in the real world into the virtual domain. For example, in some of our demonstrations,

Rockwell Collins proved that it is possible to shift all aggressor squad participants that are engaged in Beyond Visual Range (BVR) mode into the simulation domain.

Some live aggressor participants may still be required in our scenarios for direct engagements that require visual identification and maneuvering. This capability allows high-quality training using live assets in a more efficient manner than currently associated with live range and rangeless training.

Furthermore, LVC capabilities also provide an effective means to train for fifth-generation fighter platforms. Exercising the highly advanced integrated sensor and weapons systems present on these platforms is complex and costly, as it requires large numbers of live and electronic entities. By stimulating the sensor system with synthetic entities, LVC provides the levels of complexity required for training without requiring large numbers of supporting aircraft or auxiliary equipment.

» LVC white paper



Trend 4:

Growing adoption of gaming technology

We live in a digital world where our warfighters are a new generation of smart, technologically savvy users who are comfortable learning by leveraging technology and searching for answers on the web or their smartphones. They have grown up immersed in

digital technology and digital media and are learning in ways we never thought possible only a few years ago. Simulation and training systems of today will not necessarily meet the needs and demands of our next-generation defense forces.

Rockwell Collins' role:

We are on the leading edge of understanding how this new generation of users interacts and learns. We are adapting our training methodologies to meet the needs of today's users. Rockwell Collins is exploring and aligning on all aspects of current gaming technologies. We are developing our image generation systems and simulation environments to seamlessly connect to whatever battlefield simulation technology is on the horizon.

At the same time, we are in a constant struggle between leveraging these new, cost-effective training technologies and the warfighter's continuing need for more realism in the training environment. This demand for realism drives the need for expanded theater of operations, joint-force exercises, larger and more complex databases, rapid correlation of sensor inputs and real-time database construction. Rockwell Collins is working closely with customers to make trades on low-cost training needs with complex database environments.



Trend 5:

Increasing demand for mobile tablet and smartphone training

In a world filled with mobile devices, information is available at the touch of a finger. Mobile technologies are enabling training in more intuitive realistic environments

as well as the ability to train anywhere on a tablet or mobile phone. Training providers are rapidly adapting training applications for delivery on mobile devices.

Rockwell Collins' role:

We provide custom training and information to a wide variety of users and are working to provide users with more mobile solutions.

For example, we just released a new iPad® app that simulates flying an aircraft with our Head-up Guidance System (HGS™). The goal of this app is to familiarize pilots with the advantages of HGS. Users can experience head-up and eyes-forward flying and can use an iPad to simulate flying an approach into Innsbruck, Austria, under a variety of weather conditions. In the first five days of releasing this app, we had 2,861 downloads. Now, the downloads number more than 12,000. <https://itunes.apple.com/us/app/hgs-flight/id571321011?mt=8>

From aircraft flight to documentation access, we are working to create mobile, interactive and personally configurable solutions for customers.

For example, in the past, our manuals and training have only been available in complete

book or course format. Our customers' expectations are driving the need for personally configurable information. The end users of Rockwell Collins systems want the ability to manage the content on their mobile devices.

We are listening to our customers and will be releasing a mobile application that allows users to manage their personalized, publications and training libraries. Rockwell Collins will push updates when required, ensuring that users will always have the latest revision available. Users can manage their libraries, and in turn, can reduce their library storage footprints and lower maintenance costs.

Rockwell Collins is developing a solution that automatically detects the type of device the content is going to. The user will be able to use a dashboard to configure content on a desktop computer and later be able to view the configured content formatted for viewing on an iPad or Droid® device. The support infrastructure will interface with the mobile app to create a seamless user experience.





Trend 6:

Growth in emerging international markets driving industry collaboration and alliances

As OEMs pursue markets outside of the United States and Europe, traditional business models are changing. Rockwell Collins is focused on providing systems that offer greater value to our customers. That value varies from one opportunity to the next. However, common themes such as reduced integration risk, high confidence in simulation fidelity and collaboration in teams or consortia are requirements that we are seeing as we expand in places such as the Middle East, India and Brazil.

In addition, customers in emerging markets are looking for ways to develop technology in-country to drive local economies and transfer technology. This is prompting OEMs to collaborate with local companies and find ways to address industrial offset requirements.

Flexible business models that offer the ability to provide complete training systems or partial open architecture systems appear to be the right approach in global emerging markets. Interoperability is becoming even more important for training systems internationally for joint missions and industry alliances.

Rockwell Collins' role:

By providing complete, turnkey visual systems including database tools, database content, image generators (out the window and sensors) and displays, Rockwell Collins is able to ensure the overall training system performance meets requirements, reduces integration risk, and allows our customers to develop and maintain the necessary content themselves.

As a provider of avionics and targeting systems, Rockwell Collins is able to provide related system simulations that ensure the highest level of simulation accuracy. Many of these systems

are developed using the same modular software architecture used in our simulation products; we are able to deliver these simulations earlier in program life cycles and can ensure concurrence is maintained.

Also, in emerging countries, we are finding that providing collaborative development environments with our CORE simulation architecture better enables customers to integrate their own hardware and software, developed in country, to develop full simulation and training systems. This plug-and-play approach allows for a greater level of flexibility in working with international customers.



Trend 7:

Increasing need for high-fidelity simulation outside of traditional aviation market segments

Simulation technology continues to be used to proactively address safety of flight issues. Rockwell Collins is actively involved in studies to identify root causes for flight incidents and accidents, including addressing issues related to spatial disorientation, icing effects and pilot workload as well as human-machine interface development.

While simulation and training catered to the aviation market continue to leverage emerging technologies,

the affordability of computing resources has allowed the use of high-fidelity simulation capabilities to permeate into markets beyond aviation.

Ambitious and highly complicated projects that will leverage simulation and training capabilities are taking root in numerous non-aviation related fields such as biological systems, pharmaceuticals and surface solutions as well as disaster simulations.

Rockwell Collins' role:

We are focused on ensuring that decision makers, irrespective of industry, are well prepared to execute complicated tasks during critical scenarios. We continue to research how to leverage simulation technologies and our expertise into these emerging fields.

Our modular and highly adaptable CORE simulation architecture has been designed to use parallel and often independent development activities

and to bring stand-alone but interdependent elements into a holistic simulation. CORE provides a flexible development environment that caters to collaboration across multiple, disparate teams and varying levels of simulation element fidelity while leveraging technological advances that continuously add capabilities while maintaining reusability of the simulation elements.



Simulation and training program excellence today.

Offering the full training spectrum. Rockwell Collins' market-leading avionics solutions, superior fidelity and unprecedented environment realism enable trainees to make a seamless transition from training environment to real-world operations. Today, we provide incomparable image generation, dynamic model and terrain interaction, open systems architecture, rehosted avionics software and a wide range of trainer types, from head- and helmet-mounted to laptop portable to full-mission simulators. We deliver complete systems with the sophistication and flexibility to meet the most exacting training requirements. We regularly ensure maximum concurrency and on-time delivery through the life of every program.

Rockwell Collins customers and partners benefit from our systems integration experience on multiple platforms – fixed wing, rotary wing or vehicle. Whether it's rehosted avionics, communications, visual and sensor systems or bringing live and virtual assets together in one training exercise, customers can depend on us for comprehensive, reliable solutions.



» Simulation and training video

Our simulation and training solutions include: real-world environment matching through one of the industry's largest environment database libraries; easy portability; and rapid deployment. Our CORE simulation architecture ensures that training advances with technology while keeping ownership costs low.

We offer customers a wide range of operator training options, from instructor led to full-mission simulators – all to maximize efficiency, effectiveness and operational cost savings.

Enhanced training is most effective when it feels so real it can make heart rates rise and adrenaline surge. When forces train in this environment, they're as ready as they can be for the battlespace, next-generation airspace or any environment.

Our full simulation and training spectrum helps prepare customers for any mission.

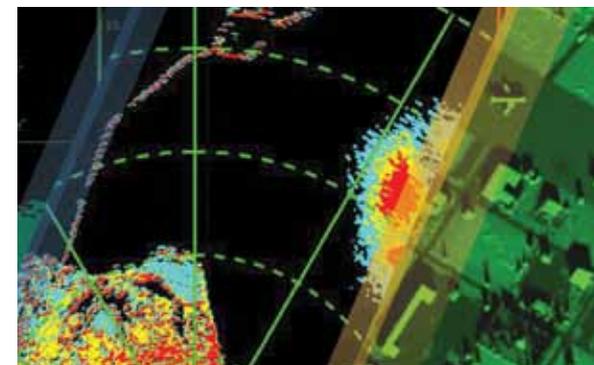


Image generation.

With our breadth of image generator systems, we offer the superior visual realism that meets customers' most complex training requirements while keeping life-cycle costs low. Every system provides enhanced features, including true 3-D volumetric clouds, blowing sand, snow and sea states for unsurpassed realism in a synthetic environment.

Display systems and projectors.

Proven in the most demanding training applications, our display and projector systems deliver exceptional flexibility and performance with a broad range of out-the-window options. High reliability keeps hands-on maintenance to a minimum for more available training time. Features include: collimated or real-image displays; patented black-level ability to achieve instantaneous sequential contrast ratios unsurpassed in the industry; best-in-class night-vision goggle stimulation for true mission rehearsal; enhanced motion-blur reduction; smooth blending; and auto calibration for maintaining the perfect out-the-window experience.

Sensor systems.

We provide the full range of sensor simulation capabilities, including synthetic and inverse synthetic aperture radar imaging, weather radar and high-fidelity sensor modeling. Our customers receive a proven, reliable system that offers full correlation and integration with other training systems through our modular, open-systems architecture.

Maintenance training.

Rockwell Collins maintenance training systems balance effectiveness, speed, cost and asset availability through innovative design and execution. Following a platform's interactive electronic technical manual, our systems blend virtual and physical tasks with sophisticated simulation models.

Instructors can monitor and interact with trainees through the integrated instructor station. Customers can choose from high-value, multiplatform options that include instructor-led, computer- and web-based, desktop, part-task and integrated training.

Solving customers' most challenging simulation and training problems.

Rockwell Collins continues to provide value to customers by solving challenging training problems. For example, we helped develop a simulator for the most advanced aircraft in the world. In this case, we had to help our customer design a synthetic visual solution – providing 360-degree field of regard, night-vision simulation and advanced sensor capability for a simulator – before the aircraft was even developed.

In addition, we delivered hundreds of fire suppression training systems for the Mine Resistant Ambush Protected (MRAP) vehicles in 10.5 months – ahead of schedule – to meet the urgent need to field these life-saving vehicles.

When the U.S. Army needed to field a new Black Hawk helicopter and simultaneously train the pilots on the aircraft simulators in the field, it turned to Rockwell Collins. As provider of avionics on the Black Hawk, we were able to do this successfully with minimal time and NRE.

Each of these cases demonstrates our value proposition to the market – the highest level of realism and trust that the program will succeed on time and on budget. These are all examples of simulation and training program excellence that we are delivering to our customers today, as we leverage changing technology to continue to deliver in the future.



Case study 1 – Transportable Black Hawk Operations Simulator (T-BOS)

T-BOS takes flexible, efficient Black Hawk flight training to the battlefield.

Problem: For the first time in U.S. Army aviation history, the Army needed to field new Black Hawk helicopters and train pilots on the aircraft using new Black Hawk flight simulators – simultaneously. This posed several never-before-seen challenges:

- ▶ Simultaneous development and deployment – the new UH-60M helicopters and their training system had to be developed and deployed at the exact same time

- ▶ Multi-mission capable – the training system needed to support simulation training for both the new UH-60M and the legacy UH-60L
- ▶ Transportable – pilots needed to train right in the field, so the training system needed to be designed to go virtually anywhere

» [Read the full T-BOS case study](#)



Case study 2 – Mine Resistant Ambush Protected (MRAP) vehicle

Innovative new training tools increase soldier safety.

Problem: The U.S. Army needed to quickly deploy MRAP vehicles in Iraq and Afghanistan. And they needed to train Army mechanics at 19 different locations in the United States to troubleshoot problems with the mission critical Automatic Fire Suppression System within the vehicle.

Often the first line of defense when encountering an improvised explosive device, the MRAPs have saved hundreds of U.S. lives.

The Automatic Fire Suppression System works to reduce the amount of damage to the vehicle – increasing the chance of a soldier's survival.

Proper training on the MRAP reduces downtime and extends the life of the vehicle. But training on the real vehicles posed multiple problems related to safety, logistics and expense.

» [Read the full MRAP case study](#)

CORE simulation architecture

Rockwell Collins' CORE simulation architecture is being used to build a testing solution for our Rockwell Collins engineers who are developing avionics solutions for Boeing's KC-46 tanker.

Rockwell Collins is the only company with full avionics development and full simulation and training capabilities integrated together.

CORE simulation architecture's modular design allows engineers to simulate each aircraft system as an individual piece, creating a virtual aircraft in a building-block fashion. The architecture also supports the incorporation of real aircraft hardware as those building blocks, so avionics developers can test avionics hardware in as realistic an environment as possible.

Read about CORE and the KC-46 program on page 5 of our *Horizons* magazine.

» [Read Horizons article on CORE](#)

F-35 Lightning II visual system

Pilots on F-35 Joint Strike Fighter aircraft will train with the world's most advanced visual system. This full-mission simulator system features image generation with whole Earth training, world-class image quality and scene density using programmable COTS technologies.

The system's rear-projected display dome offers unprecedented contrast. Its modular fields of view provide low- to high-end options and cost-effective upgradability.

» [Read about our display dome](#)

E-2D Advanced Hawkeye training system

Our E-2D Advanced Hawkeye Integrated Training System for Aircrew (HITS-A) provides the U.S. Navy with advanced radar, aircraft systems and avionics that improve supportability and increase readiness.

The U.S. Navy named Rockwell Collins prime contractor for HITS-M, the first integrated E-2D maintenance training system. HITS-M will include instructor-led training, computer-aided instruction, interactive courseware, a simulated maintenance trainer and power plant trainer.

» [Read press release on HITS-A and -M](#)

Building trust every day.

Rockwell Collins delivers smart communication and aviation electronic solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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