

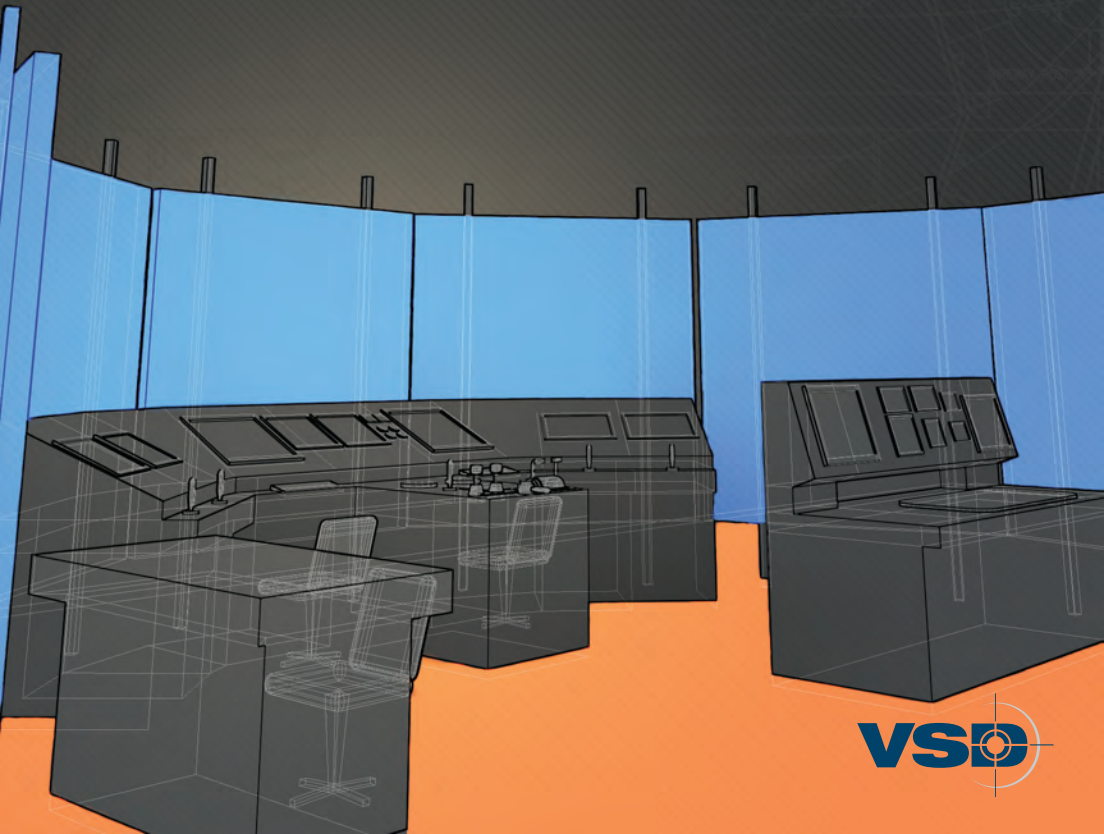
FULL MISSION BRIDGE TRAINER

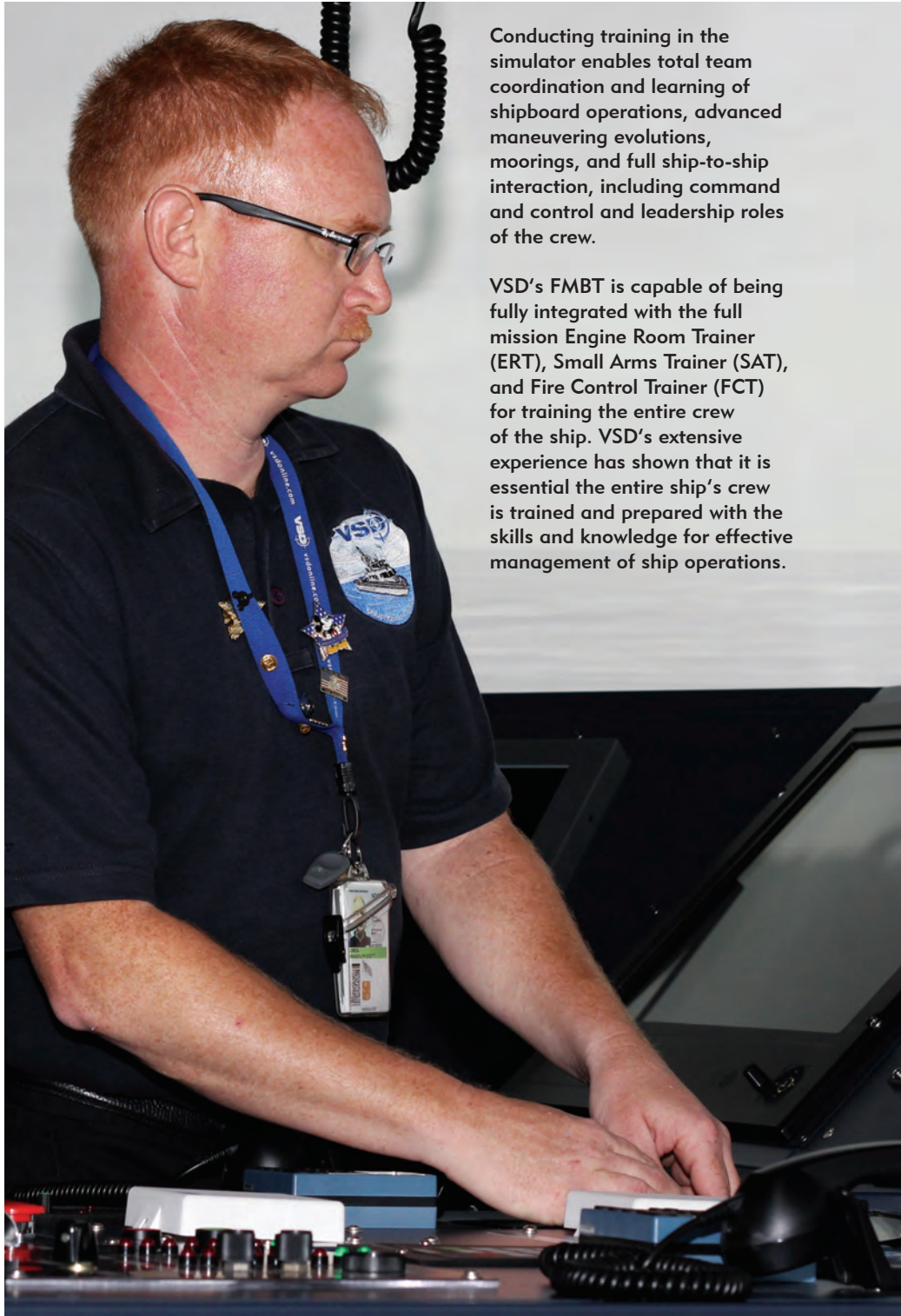
(FMBT)

A high-performance,
state-of-the-art, integrated

SHIP'S BRIDGE SIMULATOR

specifically designed to provide a highly effective training
and learning environment for the deployment and operation of
programmed ships.





Conducting training in the simulator enables total team coordination and learning of shipboard operations, advanced maneuvering evolutions, moorings, and full ship-to-ship interaction, including command and control and leadership roles of the crew.

VSD's FMBT is capable of being fully integrated with the full mission Engine Room Trainer (ERT), Small Arms Trainer (SAT), and Fire Control Trainer (FCT) for training the entire crew of the ship. VSD's extensive experience has shown that it is essential the entire ship's crew is trained and prepared with the skills and knowledge for effective management of ship operations.

FMBT SYSTEM

The FMBT consists of a fully integrated system of hardware and software that provides real-time simulation for a scenario-based fully integrated multistudent training environment. The simulator is designed to provide total team training to the entire ship's crew.

BRIDGE DESIGN

VSD's approach to simulated bridge design is to provide clients with the closest mockup possible of the desired ship. Our design engineers and technicians will design, build, and integrate a modern simulated bridge to replicate the client's own ship equipment, instruments, and controls.

In addition, VSD offers a standard ship design approach that provides clients with our standard instruments and control modules and panels allowing the end user flexibility to integrate any custom or generic equipment tailored for their training needs.

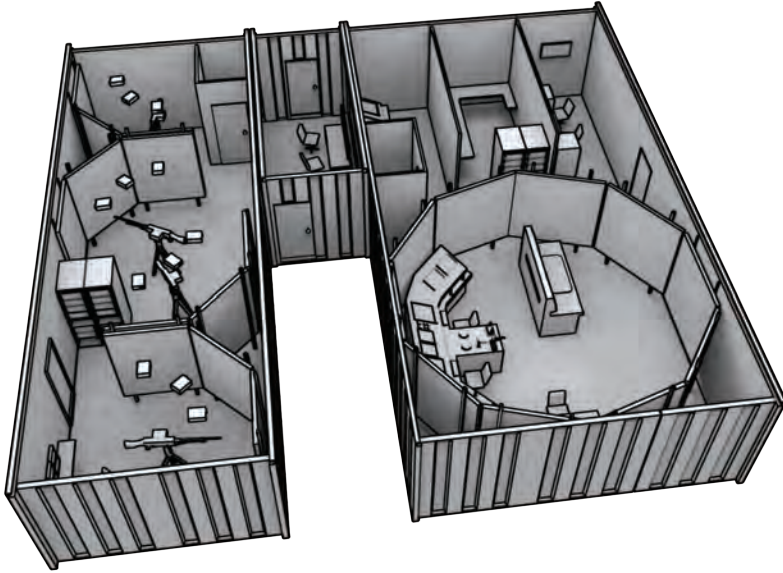


VISUAL SYSTEM

Fleetman software has a variety of display options up to 360-degree, super-size high-definition LCD or LED screens, and front or rear projection. These display options will simulate multiple ship windows including rearview, and (pending ship type) a visual channel for flight deck can be included.

The visual system software includes:

- Multitexturing
- Antialiasing
- Realistic water surface reflection
- Realistic calculation of light reflection and water color
- Dynamic sea ripples
- Dynamic surf
- Dynamic coastal objects (cranes, vehicles, trains, radar antenna units)
- 3D bow waves, buoy wakes
- Propeller wash ahead and astern
- Sunset and sunrise effects, user-defined sea color
- Sun/sky/cloud effects on sea surface
- Moon path
- Rain and snow effects
- Realistic layered clouds
- 3D clouds with user definition for speed, movement direction, elevation, and meteorological type
- Local fog bank
- Visual wave model fully correlated with the mathematical wave model
- 360-degree searchlight
- Minimum of 30 frames per second update rate for a typical marine scenario



FMBT SOFTWARE

VSD uses its own DTM Global Fleetman, Windows®-based, state-of-the-art naval bridge trainer software for interactive training in ship handling and bridge procedures; a classroom-based naval training system; and a naval radio communications trainer.

The Fleetman Bridge Trainer uses a 360-degree field of view, simulated bridge and engine controls, instrument panels, and electronic chart display. It can simulate a range of routine operations—from the simple to the highly complex—as well as potentially dangerous situations. Maritime training exercises can include ships and



aircraft in different ports and at sea, with accurate depth contours and differing weather conditions. An integrated Radio Communications Trainer sharpens communication skills and improves operational safety.

INTEGRATED OPERATION

With built-in integration capabilities, Fleetman software allows the FMBT to be integrated with static desktop student stations. When the stations are integrated with an FMBT simulator, all personnel can be actively engaged in a single training scenario.

AUDIO SYSTEM AND SOUND GENERATION

The FMBT sound generation system includes a high-quality surround sound system. Using the latest Sound Propagation Model, the program is capable of generating 3D sound dependent upon the observer position, taking into account direction and distance to the source of the sound.

SOUND PROPAGATION MODEL

- Sound attenuation during propagation from the point of origin to the reception point
- Frequency-dependent absorption of sound in the air
- Doppler effect
- Acoustic damping during the passing of obstacles

DATABASES

The bridge simulator will be supplied with the following databases:

- Exercise areas
- Own ship models
- Target models



INSTRUCTOR STATION CAPABILITIES

The instructor station will be delivered with the capability to:

- Monitor communication traffic during the exercise, at any of the frequencies used by the trainees, and interfere in their traffic
- Introduce the different types of noise
- Perform functions of a coast telex and telephone subscriber, coast radio station and RCC operator in telephone and telex modes of operation
- Provide recording and playback of radio telephone and intercom communications
- Set and promptly change the trainee ships' positions by using an electronic chart
- Generate exercise scenarios and use these scenarios during the classes
- Interrupt the conduct of an exercise at any time
- View the exercise log containing the list of messages transmitted by using the DSC, radio telex, and satellite communication systems (INMARSAT- B/C/Fleet77), as well as some of the trainee actions
- Print out and save in memory the exercise log
- Edit the database of objects (ships or coast radio stations) and use it in the compiling of new groups and scenarios
- Monitor the operator procedures at any workplace on the real-time scale from a special terminal
- Display the status window of all the instruments at any workplace on the instructor workplace
- Configure workplaces for operation in the different GMDSS Sea Areas

BRIDGE CONTROL HARDWARE

The FMBT provides usable, replicated hardware for the following bridge systems:

- Dual throttle/telegraph control for engine operation
- Conning control panel
- Autopilot control panel
- Steering gear control panel
- Visualization panel
- Dual non-follow-up control levers
- Dual thruster controls for bow and stern thrusters
- ARPA/radar control keyboard
- ECDIS keyboard
- VHF radio

INSTRUCTOR STATION AND OPERATION

The FMBT instructor station is designed in an ergonomic fashion to ensure the most convenient method of monitoring all trainee operations and allows the instructor to interact with trainees in the most efficient ways for training and assessment purposes. A standard



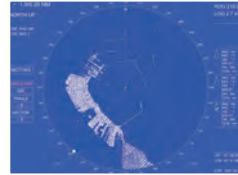
Windows program is provided, allowing the instructor the flexibility to create any information needed and save any scenario settings for future use.

USER-FRIENDLY FEATURES

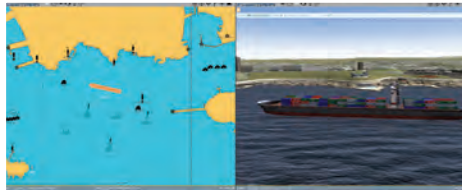
Instructor control features are grouped together at the instructor station for easy access.

These groups are:

- Ship editor
- Workgroup editor
- Scenario editor
- Monitoring and watchkeeping window
- Log window
- Workplace status window
- Electronic chart



Fleetman radar display



Replay exercises and view scenarios from the student's perspective

CUSTOM TOOLS AND DESIGN

VSD understands the client's need for customized training tools that are tailored to individual requirements. VSD offers its clients the ability and option to create individualized training tools, models, and scenarios that are based on the client's own ship's characteristics, target data, environments, and exercise areas.



FOR DETAILED INFORMATION

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