When I look back on the past 30+ years I have been with this company, several milestones and programs really stand out in my mind. One of those programs is naturally the Royal Canadian Navy’s Halifax Class Canadian Patrol Frigates (CPF) as that is where it all began for L3 MAPPS’ Marine Systems and Simulation business. Back in 1983, we had a strong control systems capability in the energy sector and vast simulation expertise but absolutely no experience with ship control systems. This naiveté, our simulation and controls know-how, and the company’s entrepreneurial culture combined with the leadership and vision of the Royal Canadian Navy (RCN) turned out to be the ideal conditions to spawn a pioneering new product—a first-ever completely integrated ship control system. The early systems used computing devices and networks that were roughly a million times slower than current technology yet provided real-time performance in a mission-critical application. Enter the first IPMS (Integrated Platform Management System).

Despite early skepticism, we proved the concept and it spread like wildfire as we won converts among the world’s navies to this pioneering approach to platform controls and ship-wide integration. Imitation is, of course, the sincerest form of flattery and it did not take long before others started offering similar concepts. Nevertheless, through our continuous innovation and the support of our demanding customers, we have led the way for over 30 years. We work hard to listen to our customers and adapt our offerings to anticipate the evolving needs of modern navies. The IPMS is a standard requirement today for warships in most navies and we have grown from six ships in one navy in 1983—for the first batch of the CPFs—to over 220 ships and submarines in 22 navies today.

In 2008, we won the competition to upgrade the 12 patrol frigates in the Halifax Class. It was a rebirth of sorts. In addition to maintaining the original functionality of the system, we significantly expanded the system to integrate the previously separate electrical power management and the damage control system functions within the new IPMS. Our signature Battle Damage Control System (BDCS) functionality brought it all together seamlessly. The Commanding Officer has a large screen display directly in his or her day room and with a single glance can get a comprehensive picture of how the vessel is operating. Equipment Health Monitoring provides enhanced monitoring of the ship’s machinery to warn operators of potential issues before they happen. With the last of the 12 shipsets completing factory acceptance testing, these and many other features have now been proven on board several of these modernized frigates that are being deployed overseas. L3 MAPPS and the RCN are looking forward to showing off the upgrade to customers worldwide as several navies consider similar modernization and ship life-extension projects.

Meanwhile, the setting-to-work and commissioning of perhaps the world’s largest naval IPMS is reaching an advanced stage on the UK Royal Navy’s HMS Queen Elizabeth Class (QEC) aircraft carrier at Rosyth Dockyard in Scotland. One of the proudest moments of my career was stepping into the Ship Control Centre of this massive ship and seeing the dozens of IPMS screens lit up—the space was a beehive of activity as the staff from several organizations worked to progress the ship integration. Our colleagues at L3 Marine Systems UK supported by our experts at L3 MAPPS in Montreal are making us proud with their great work on this marquee program—the QEC IPMS sets the standard for such systems for many years to come. The next generation is here.

Many of our customers are aware of the numerous cool and groundbreaking features we are introducing. Whether at the next trade show or at a private viewing, I welcome you to ask us for a live demonstration of our latest generation of IPMS functionality to see how L3 MAPPS can truly make a difference in the operation and support of your ships and submarines.

In this newsletter, you will see several articles describing some of the new programs we have won recently. We are grateful for the support and encouragement from our customers and the contributions of our great L3 MAPPS team.

Rangesh Kasturi
President
Long Relationship with RCN Pays Off on Halifax Class Ships

Almost 10 years later, the program is winding down as nine ships have successfully completed Sea Trials, two ships are in Set-to-Work and Harbour Trials, and one ship is in the installation phase. HMCS Calgary, the first ship to receive the upgraded IPMS, is already in its five-year refit where L3 MAPPS is engineering the interface for the new diesel generators, chillers and other modernizations to be rolled out to the ships in the years ahead. The RCN are now sailing with the latest generation IPMS, which includes a fully integrated BDCS, CCTV System and enhanced Equipment Health Monitoring System.

All 10 IPMS trainers (five at Canadian Forces Navel Engineering School in Halifax and five at Canadian Forces Fleet School Esquimalt in British Columbia) are now operational and utilized by the RCN. Over the years, L3 MAPPS has executed updates to the trainers to enhance the training for the Navy staff, such as the damage control network troubleshooting system.

The RCN has elected to put in place an In-Service Support Contract (ISSC) for the IPMS, which is currently in its third year. L3 MAPPS has field service representatives embedded in the Fleet Maintenance Facilities on both coasts (two in Halifax, Nova Scotia and one in Esquimalt, British Columbia) who provide consistent system updates and improvements to ensure continuous RCN operation for both the ships and trainers. The ISSC also allows for future platform considerations, as well as a direct and efficient line of communication to the IPMS engineering know-how for RCN mandatory requirements.

The upgrade program has been a huge success for the RCN and for L3 MAPPS, with all shipsets delivered on time and on budget and the majority of the committed Industrial Regional Benefits having been met.

L3 MAPPS is currently working on many proposals for the next-generation RCN frigates and destroyers—the Canadian Surface Combatant Program. We are hopeful that the longstanding relationship and IPMS leadership that we have enjoyed globally can continue to bring economic benefit to Canada for years to come.

L3 MAPPS was selected competitively by the Canadian Government in 2008 as the integrator to perform what is likely to be the largest systems upgrade for any global navy for the Royal Canadian Navy’s 12 Halifax Class frigates. Systems included the Integrated Platform Management System (IPMS), Battle Damage Control System (BDCS) and electrical systems. This report provides an update.
The AOPS IPMS includes the latest monitoring and control technologies of the platform, including a fully integrated Battle Damage Control System (BDCS) utilizing large screen displays throughout the ship, digital CCTV, On-Board Training and a fully integrated fire and gas detection system.

The final design of the IPMS and procurement for all six shipsets is now complete. The build of the AOPS test site in L3 MAPPS’ Montreal facility is underway. Consoles, remote terminal units (RTUs), CCTV, fire and gas detection systems, bridge and alarm panels and associated equipment are being installed and interconnected to prepare for the first article acceptance test with the Department of National Defence (DND) and ISI. In addition, interim tests are being conducted to validate the interfaces to the bridge, power management and propulsion and bow thruster systems. The first factory acceptance test on the equipment for the first AOPS vessel is planned for early May 2017 with delivery in July 2017.

Did You Know?

The AOPS is known as the Harry DeWolf Class, with HMCS Harry DeWolf as the lead ship, named in honour of a wartime Canadian naval hero.

A native of Bedford, Nova Scotia, Vice-Admiral Harry DeWolf (Royal Canadian Navy) was decorated for outstanding service throughout his naval career, which included wartime command of HMCS St. Laurent from 1939 to 1940, and later, his 1943-44 command of HMCS Haida, known as the “Fightingest Ship in the RCN.”

Subsequent ships in the class to date are named to honour other prominent Canadian naval heroes who served their country with the highest distinction. This is the first time in its history that the RCN is naming a class of ships after a prominent Canadian naval figure.

In 2013, through a competitive process, Lockheed Martin Canada selected L3 MAPPS’ Integrated Platform Management System (IPMS) and integrator technology for the Royal Canadian Navy’s Arctic Offshore Patrol Ships (AOPS) Project Definition Phase. In 2015, L3 MAPPS began the Project Implementation Phase for the supply of six IPMSs, as a Tier 1 subcontractor to Irving Shipbuilding Inc. (ISI).

Commander Harry G. DeWolf, the Commanding Officer of the destroyer HMCS Haida, 5 May 1944.
L3 MAPPS builds IPMS for Korean Navy’s AOE-II

The Integrated Platform Management System (IPMS) for the AOE-II (Soyang class) fast combat support ship program was awarded to L3 MAPPS by Electro Electric Systems Division of Hyundai Heavy Industries (HHI-EES). The vessel is being built by HHI Special Division for the Republic of Korea Navy (ROKN). L3 MAPPS started its engineering effort from January 2015 and delivered main equipment in 2016. The ship is undergoing the Set-to-Work phase in 2017 and IPMS commissioning is expected to be completed in summer 2017.

The L3 MAPPS scope consists of main mission critical software including propulsion control system software and related hardware, high level power management System (PMS) control function (remote on/off control to third-party PMS), Battle Damage Control System (BDCS), real-time personnel and equipment tracking as part of a resource tracking system, ship dynamic stability calculations, and a complete On-Board Training System (OBTS). The OBTS includes training scenarios in the form of pre-programmed lesson plans, as well as an instructor facility and tools for creating malfunctions and additional training scenarios. The OBTS software includes detailed dynamic simulation of the propulsion and electrical systems as well as models for damage control, auxiliary and ancillary systems.

The solution includes power management as well as condition assessment systems. L3 MAPPS assumed full responsibility for integration with these products and the interfaces with HHI-EES equipment.

This award to L3 MAPPS was the 28th contract in a series of vessels for the ROKN since 1994. L3 MAPPS has been engaged on ROKN Minelayers, Minesweepers, Landing Ship Tanks, Landing Platform Helicopter amphibious assault ships, Frigates and Destroyers. The hybrid electric CODLAD (COmbined Diesel eLectric And Diesel) propulsion system consists of twin-shaft propulsion plant with two identical shaft sets each fitted with a diesel engine, an electric propulsion motor, a reduction gear box and a controllable pitch propeller (CPP). The ship length is approximately 190 m, with a displacement of about 12,000 tons. Nominal cruising speed is 17 knots with a maximum speed of about 23 knots.

The BDCS functions provided by L3 MAPPS include an isometric ship view diagram, kill cards, casualty plotting, operator decision aids, CCTV interface, acoustic sequences, NBC detection system interfaces, resource tracking system, HMI voice alarm and messenger capability.

This program was the second collaboration between HHI-EES and L3 MAPPS on IPMS projects; HHI-EES and L3 MAPPS also jointly participated on a Minelayer program for the ROKN.

[Image of AOE-II propulsion system configuration]
Commencing as an L3 MAPPS support centre for Set-to-Work and commissioning activities in 1999, under the guidance of L3 MAPPS, the team at L3 India over the years has successfully transformed the company from an engineering support services centre to a net exporter of IPMS products with complete ownership of activities ranging from design to deployment to lifecycle support.

2009 was a watershed year for L3 India when L3 MAPPS took a bold but visionary step to engage L3 India as the prime contractor for an Indian Navy Project-28 (P-28) project (the Kamorta-class anti-submarine warfare (ASW) corvettes). It was a formidable challenge not only to drive the project to an engineering and financial success, but also provide the confidence to the Indian Navy that a world class IPMS could be designed, developed, commissioned and supported completely indigenously. The IPMS for the P-28 ASW corvettes, which incorporated, technologies hitherto not tested onboard a warship, was a resounding success and a major milestone in establishing L3 India as a world-class IPMS provider using local efforts.

Not only was the P-28 an IPMS success story, but an Integrated Bridge System (IBS) seamlessly integrated with IPMS was also successfully delivered. The IBS was being introduced for the first time onboard a frontline warship of the Indian Navy. Consequently, team India, apart from ensuring successful technology induction and crew training, had to also provide the much need confidence to the Indian Navy to be able to maintain and support the IBS for the life cycle of the ship utilizing indigenous resources. All the above objectives were met overwhelmingly.

The success of P-28 work subsequently opened a plethora of avenues for L3 India. The IBS for the offshore patrol vessel for the National Coast Guard of Mauritius was the next project,
which L3 India won against stiff competition. The majority of the project work was executed at L3 India. This vessel was the first-ever export of this kind from India and attracted a high level of exposure in the international media. The ship has been in service for two years now with the IBS uptime being 100 percent.

The next project was for the Indian Navy’s Pipavav NOPV – once again, L3 India won the IPMS project. In this project the local content has been achieved to the highest possible levels.

The successful indigenization of many IPMS hardware components for the Indian projects to stringent MIL standards opened up opportunities for exporting this hardware to L3 MAPPS projects around the world, thereby further cementing L3 India’s position as a world-class supplier. This wave of successes reached its crest when L3 India, with the support of L3 MAPPS, successfully bid on and won several export orders. L3 India is actively pursuing more opportunities, both for the Indian and export markets.

L3 India is now firmly set on a path of growth and is fully equipped on all fronts to Make in India a world-class IPMS.
The Indian Navy’s Offshore Patrol Vessel—Project 21—was the first of the projects that the Government of India, Ministry of Defence decided to build through private shipyards. Reliance Defence and Engineering Ltd. (formerly Pipavav Defence and Offshore Engineering Company Ltd.) won the contract for building five ships. Alion Science provided the ship design. L3 India was selected to provide the Integrated Platform Management (IPMS) systems for these NOPVs.

L3 India won the contract competitively to supply the IPMS and, given the very high level of indigenization achieved by us in India, adopted a successful strategy of maximizing local content for both hardware, engineering, software design and implementation. The project encompassed several engineering design challenges and an aggressive commissioning schedule. The project often required L3 India engineers to go beyond the call of duty to ensure not only that the equipment delivery was completed per schedule, but also that the system design enabled commissioning within three months.

Through determined efforts, the team at L3 India overcame all challenges and have successfully delivered the equipment, setting new standards of performance. Although the final and most challenging test, Set-to-Work and commissioning, is yet to commence, there is a high level of confidence amongst the engineers that L3 India will get the job done right.

“...”

Wendy Allerton with Vice-Admiral Ron Lloyd, Commander of the Royal Canadian Navy

L3 India delivers IPMS for Indian Navy Offshore Patrol Vessels

Wendy Allerton named one of Canada’s Top Women in Defence

Congratulations to our very own Wendy Allerton (director, marketing & sales - L3 MAPPS Marine Systems and Simulation) for receiving an award as one of Canada’s Top Women in Defence in 2017. The award ceremony took place on 10 April 2017 at Ottawa City Hall. The event was hosted by Esprit De Corps, one of the most respected defence publications in Canada.

“We are so pleased that Esprit de Corps has recognized Wendy’s efforts and the leadership role she plays in L3’s contribution to Canada’s defence preparedness,” said Rangesh Kasturi, L3 MAPPS president. “We have always been proud of Wendy’s perseverance and ability to develop successful projects and are happy that her peers see what we see.”

Wendy is responsible for selling naval and marine platform management systems, trainers and services to navies and coast guards in North America and select international markets. She has led numerous successful capture pursuits and is currently focused on winning business in Canada’s naval and coast guard programs, all part of the National Shipbuilding Strategy.

In addition to her full time job at L3 MAPPS, Wendy also serves as the director for the L3 Canada Marine Systems initiative representing several L3 divisions’ products and services interested in developing business in Canada.

In 2005, Wendy was a founder of and the first president of Women in Defence and Security Canada (WiDS). Today, Wendy sits on the WiDS Advisory Board and participates in selecting recipients for the WiDS Scholarship Award each year.

Wendy holds a Bachelor of Education degree from McGill University and has been with L3 MAPPS (and predecessor CAE Marine Systems) for several years.

To learn more about Wendy and the other amazing women who have been recognized by Esprit de Corps, be sure to check out the article “Breaking Down the Barricades: Women in the Defence World” in the March 2017 Esprit de Corps magazine (espritdecors.ca/women-in-defence/breaking-down-the-barricades-women-in-the-defence-world).

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The UK Royal Navy is tracking on a steady course to deliver a cutting-edge replacement for its Anti-Submarine Warfare (ASW) Type 23 Frigates early in the next decade.

The Type 26 Global Combat Ship is a state-of-the-art warship designed to protect the Royal Navy’s Continuous at Sea Deterrent and Carrier Strike Group. The ship is optimised to meet the Royal Navy’s three core roles of warfighting, maritime security and international engagement in concert with continuing the Royal Navy’s tradition of delivering advanced ASW capabilities in support of NATO and UK allies worldwide. Performance will be formidable, capable of speeds in excess of 26 knots and a range of around 7,000 nautical miles whilst technology enabled lean-manning results in a crew of just 157 personnel.

At present the programme is preparing to transition from an extensive Demonstration Phase to a Manufacture Phase and thereafter an anticipated order for the first batch of the 8 ship class. In addition, the Shipbuilder, BAE Systems, is actively pursuing the sale of the platform to a number of countries across the globe.

Heavily involved since 2013, L3 Marine Systems UK (L3 MSUK) has so far secured contracts for the Platform Management System (PMS) and Whole Ship Controls and Instrumentation (C&I). Together, these packages will provide an advanced control and monitoring system for Ship’s Staff and cement L3 MSUK’s position as the automation supplier of choice for the Royal Navy surface fleet and potential for further expansion through export markets.

The Type 26 PMS will be responsible for the management, control and surveillance of Ship services and machinery including the power and propulsion systems and will facilitate information exchanges between non-marine systems in support of wider mission operations. C&I includes sensors, equipment stop, atmospheric monitoring and oily mist detection systems with information clearly displayed in real time, interfacing with PMS as required.

Clearly the challenges of delivering such a complex package are significant but experience of working together on the UK’s Queen Elizabeth Class (QEC) Aircraft Carrier programme has proved invaluable and was recognised at the earliest stage in the Type 26 programme. Without doubt, this has forged strong and close relationships between the UK Ministry of Defence, BAE Systems and L3 MSUK, benefitting design and development work thus far and will no doubt result in the delivery of cutting-edge warfighting capabilities to the Royal Navy and beyond.

L3 MSUK’s Involvement in the British Royal Navy’s Cutting-Edge Type 26 Global Combat Ship Programme

source: TurboSquid

newbusiness
L3 delivers IPMS for UAE Navy’s Ban-Yas Class Ships

In 2016, L3 MAPPS and L3 India were selected to supply their state-of-the-art Integrated Platform Management System (IPMS) on board the Ban-Yas Class TNC 45 fast attack crafts of the United Arab Emirates Navy.

One of the tasks was to contribute to the service life extension of these 1980s era ships by replacing the existing Machinery Control and Alarm System (MCAS) and electronics with L3 MAPPS’ advanced, reliable and modern IPMS—in use by several premier navies around the world.

The program started with an intensive site survey on the ships to ensure that the engineering and design work could be carried out successfully. A dedicated team from L3 India, supported by L3 MAPPS, performed the survey as well as the engineering, installation, testing, commissioning and harbour and sea trials and successfully delivered IPMSs for the first two vessels in 2016.

With the completion of the retrofitting and delivery of the new IPMSs, the UAE Navy is assured to have better information control and visibility, higher degree of performance, reliability and operational agility to deliver overall operations excellence.

Follow-on vessels are scheduled to undergo the retrofit process later in 2017.

Sachsen Class Frigates to be equipped with L3 MAPPS IPMS

In October 2015, L3 MAPPS was awarded a contract by MarineArsenal (MArs) in Germany for the upgrade of the F124 Integrated Platform Management System (IPMS).

L3 MAPPS originally supplied the IPMS for the F124 frigates during the construction phase in the late 1990s. The upgrade replaces key components of the IPMS with new form-fit-function equivalents to ensure the continued supportability of the system for years to come.

The upgrade also included new technology, such as a 55-inch touch screen in the Machinery Control Room to facilitate battle damage control activities.

Trials are almost complete on the first ship, F221 Hessen, with upgrades on the remaining vessels to follow during scheduled dockings.
Vibration Analysis is an important element in monitoring the health of any rotating machinery, and ships are no different. Abnormal vibration in machinery can reduce performance, cause premature wear, and most importantly, be a marker for serious issues that can imperil both equipment and personnel.

L3 MAPPS has implemented and interfaced to several vibration analysis systems on a number of programs over the years, and has now developed a new vibration analysis system which is fully integrated with the Integrated Platform Management System.

There are three elements in the new L3 MAPPS Integrated Vibration Analysis System: (1) the Vibration Sensor (accelerometer), (2) the Vibration Data Collection and Signal Processing Unit (DCSPU) and (3) the Human Machine Interface (HMI).

A key element to keeping a ship operating safely and effectively is to understand the vibration profiles of the rotating equipment that is keeping the ship going.

Some of the important aspects with regard to all L3 MAPPS designs are flexibility, modularity and scalability. The Integrated Vibration Analysis System achieves all of these objectives. It has the flexibility to accept virtually any vibration sensor (accelerometer), making it an excellent choice for retrofit opportunities and new builds alike. The DCSPU is modular—its small footprint can be installed directly within an IPMS data acquisition unit or in a standalone enclosure—and each DCSPU can be configured to interface with up to 16 separate vibration channels.
The DCSPU is the module where vibration data is collected and processed. Vibration data can be programmed to get broadband values as well as third octave bands for each vibration channel.

The IPMS network interfaces directly to the DCSPU and the vibration data is available from any IPMS console. A handheld unit is also available, which provides the ability to get ad hoc readings from different equipment.

Specialized pages have been created to display the vibration data directly in the IPMS HMI. Broadband and third octave values are displayed. Third octave values are also represented graphically.

Third octave values can be compared with pre-defined baseline values or previously recorded values, and current and previous trends are shown superimposed so the operator can clearly recognize any differences.

Vibration data without context can be difficult to analyse, therefore to make the vibration monitoring more meaningful, context data like engine speed, engine load, etc. can be defined. This way, comparison can be made between vibration data recorded for two similar operating conditions.

A key element to keeping a ship operating safely and effectively is to understand the vibration profiles of the rotating equipment that is keeping the ship going. In addition to having access to the vibration data for various equipment, it is also important to put that data into context by understanding the operating profile of the equipment. L3 MAPPS’ newly developed and implemented Integrated Vibration Analysis System is a helpful tool in achieving this objective.
L3 MAPPS at LAAD Defence & Security 2017

L3 MAPPS was pleased to participate at the LAAD Defence & Security 2017 exhibition in Rio de Janeiro from 4 April to 7 April 2017. LAAD is the largest and most important defence and security event in Latin America.

The exhibition, held every two years, brings together domestic and international companies, equipment and services suppliers and technologies for use by the military and police forces.

LAAD Defence & Security 2017 hosted more than 160 official delegations from 80 countries. Special guests included defense ministers and high-ranking officials from the armed forces in Latin America and around the world.

Euronaval 2016

L3 once again had a strong presence at one of the premier naval-oriented trade shows in Europe—Euronaval 2016—which took place on 17-21 October 2016 at Le Bourget in Paris.

L3 MAPPS was joined by L3 WESCAM, L3 Calzoni, and L3 Marine Systems and displayed an impressive range of products from our IPMS to L3 WESCAM’s new MX-10MS naval EO surveillance turret, L3 Calzoni’s submarine periscope and helicopter landing systems, and L3 Marine Systems’ new hybrid electric drive system being fitted on the US Navy DDG destroyers.

LIMA 2016

The beautiful island of Langkawi (some 30 km off the coast of mainland Malaysia) was once again the setting for the LIMA* 2017 (21-25 March 2017). L3 has been a proud participant of this important international exhibition since the early 1990s. The show has grown considerably over the years, as has L3’s presence. L3 was present at both the Air and Naval pavilions of the exhibition, together with L3 WESCAM. A great deal of interest was generated in the products that both divisions displayed at LIMA 2017.

L3 was honoured to receive a visit from Datuk Seri Hishammuddin Hussein, the Minister of Defence for Malaysia, accompanied by the Chief of the Royal Malaysian Navy, Admiral Tan Sri Ahmad Kamarulzaman Bin Haji Ahmad Badaruddin.

*Langkawi International Maritime and Aerospace Exhibition
L3 MAPPS was pleased to participate at CANSEC 2016, Canada’s global defence and security trade show. CANSEC 2016 took place at the Ernst and Young Centre in Ottawa on 25-26 May 2016 where there were over 11,000 attendees, 309 exhibitors, 65 foreign delegations, and 365 VIPs including top military and government personnel. Notable speakers included General Jonathan Vance, Chief of the Defence Staff and Judy Foote, Minister for Public Services Procurement Canada.

L3’s team was composed of 12 divisions at CANSEC. They included L3 Canada Marine Systems and L3 MAPPS who were actively promoting L3 products and services for all National Shipbuilding Strategy programs, including AOPS, JSS and CSC. Technology displays included IPMS, Integrated Bridge and Navigation, Underwater and Above Water Warfare Systems, Intelligence Surveillance and Reconnaissance and Sensor Systems, Marine Handling and Lighting Solutions, and Power Conversion and Distribution, including the revolutionary Power Node Control Center and leading edge Shipboard Integrated Communications Systems.

CANSEC has been held annually in Ottawa since 1998 by the Canadian Association of Defence and Security Industries (CADSI). CANSEC showcases leading-edge technology, products and services for land-based, naval, aerospace and joint forces military units. The two-day event is the largest and most important defence industry event in Canada.

In 2017, CANSEC takes place at the Ernst and Young Centre in Ottawa on 30 May to 1 June. L3 will be exhibiting and will have some next generation IPMS technologies on display. We look forward to seeing you in Ottawa!
The following are upcoming conferences, exhibitions and seminars where you can expect to meet with L3 MAPPS Marine Systems and Simulation.

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Uniquely Designed, Built and Supported in Canada by Canadians for Canada

From our first distributed digital ship control system over 30 years ago to our current offerings, L3 MAPPS has pioneered cutting-edge developments like the Integrated Platform Management System, including our Battle Damage Control System, On-board Team Training System, Enhanced Equipment Health Monitoring System and Personnel Location Monitoring System. We offer the industry’s most reliable and innovative solutions, adding value through smart automation and integration to reduce manning, increase ship safety and improve survivability.

With experience on over 220 ships and submarines for 22 navies, we’ve applied our expertise to deliver control systems for new builds and modernization programs while providing in-service support and forward-thinking training solutions. Our innovative ideas, a drive to satisfy emerging customer requirements and unrelenting dedication separate L3 MAPPS from the rest.

For more information on L3 MAPPS’ Total Integration, Ship Control Systems and Training Solutions, visit L3T.com/MAPPS.