CISMaRT

Progress Report 2

Development of the Canadian Network for Innovative Shipbuilding, Marine Research and Training - CISMaRT

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Table of Contents

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Members of the workshop organizing committee are Dr. Wei Qiu (Chair), Prof. Jon Mikkelsen (Co-Chair), Dr. Neil Pegg, Brian McShane, Dan McGreer, Leonard Pecore and Dr. Roger Basu.

The preliminary report was prepared by Dr. Roger Basu who serves as a consultant of Memorial University and assists the development of the CISMaRT National Network.

Highlights

- The report describes the activities towards setting up and launching the National Network CISMaRT[1] (**C**anadian Network for **I**nnovative **S**hipbuilding, **Ma**rine **R**esearch and **T**raining). The primary activity described in this report is a one-day workshop held at Memorial University of Newfoundland (MUN) in St. John's on 26 September 2016.
- The MUN Workshop was the second workshop and built upon the outcomes of the first workshop held at the UBC in Vancouver on 6 July 2016. Many of the participants at the MUN Workshop also attended the UBC Workshop which resulted in continuity between the two workshops. There were a number of attendees at the MUN Workshop, not present at the UBC Workshop, who brought a new perspective.
- The MUN Workshop had two objectives. The first objective was to establish, in concept, how CISMaRT should be organized and how it should operate to accomplish its goals. The second objective was to develop a list of tasks that need to be performed, and when, to accomplish the first objective.
- In addition to the objectives mentioned above, the Workshop presentations updated the participants on what had been accomplished to date. This include a summary of the outcomes of the UBC Workshop. There were also presentations on manpower challenges faced by Canadian shipbuilding, and on CARIC (see next bullet point.)
- In regard to how CISMaRT should be organized, the example of CARIC (Consortium for Aerospace Research and Innovation in Canada) as a possible model was discussed taking full account of the significant differences between Canada's aerospace and marine industries. Key model components discussed were governance, management & administration, technical committee, education committee, financial support and publicity.
- The second major subject discussed at the Workshop was the road ahead and input was sought in regard what the next steps should be and when they should be undertaken.
- A post-workshop meeting was held to formalize the input from the Workshop particularly in regard to the initial tasks that need to undertake for the implementation of the network.

[1] The name CISMaRT was adopted at the MUN Workshop and supersedes iSMART.

1 Introduction

The subject of this report is the development of the Canadian Network for Innovative Shipbuilding, Marine Research and Training (CISMaRT). The first task was seeking the input of stakeholders in a systematic way; this was accomplished through two full-day workshops. The first workshop was held at the University of British Columbia (UBC) in Vancouver on July 6, 2016 and the results were summarized in the first progress report[2].

During the UBC Workshop the current state of the marine sector and its technological needs from the perspective of the three stakeholder groups were presented. This led to discussion and the identification of seven key technological areas important to the marine sector: *green ship technologies, marine simulation, advanced shipbuilding technologies, ship design issues (systems design and modeling), arctic technology, marine safety and security, and automation and control*. The education and training discussion outcomes focused on the importance of industry experience in the educational framework through work terms, internships and mentorship for students and early career professionals.

A follow-on workshop to build on the accomplishments of the first workshop was held at Memorial University of Newfoundland (MUN) in St. John's on September 26, 2016. The findings from the MUN Workshop are presented in this report.

1.1 Motivation and Background

Canada is a maritime nation surrounded by three oceans. As such the marine sector is particularly important to Canada. This sector comprises several groups of stakeholders. Among the most important are shipbuilding, ship owners and operators, suppliers to the marine industry, engineering companies, government agencies and academia.

With the renewal of the Canadian Navy and Coast Guard fleets, expansion of the northern water routes of the Arctic and emphasis on the environment green ship technology, the Canadian marine industry is expanding in many directions. However, at the same time, the sector is fragmented without a common or collaborative direction for the future of the industry as a whole. On the research front, while high quality research is being conducted at academic and research

[2] Progress Report - Development of the National Network for Innovative Shipbuilding, Marine Research and Training – iSMART, September 8, 2016.

institutions across Canada, the research is primarily conducted in isolation not taking advantage of the great potential for pan-Canadian collaboration.

The motivation for CISMaRT stems from the belief that the relatively small marine sector in Canada, compared to its global competition, would be stronger for the future with the development of a strategic alliance to improve activities including research and education in Canada.

CISMaRT is an attempt to provide a framework within which collaborative applied research and development can be conducted with maximum benefit to Canada's marine sector. The collaborative effort through CISMaRT would position the Canadian marine industry competitively on the global stage. This would be achieved through the facilitation of high quality coordinated research between academia and industry, and the input into value added education and training to produce highly qualified personnel.

The National Shipbuilding Strategy (NSS) is of particular interest in the strategic plan of CISMaRT because of opportunities for technology development and long-term economic benefits for shipbuilding and the broader marine sector within Canada. CISMaRT will make a concerted effort to identify project areas that provide opportunities for Canadian industry and academia to participate in the supply chains of multi-national contractors, fulfilling the Industrial and Technological Benefits (ITB) obligations through technology development and highly qualified personnel training.

Similar formalized collaborative ventures have been set up in Canada in other industries and have found considerable success. Collaborations with them and other international networks are another goal of CISMaRT. In setting up CISMaRT the lessons learned from these other arrangements will be applied.

While the focus for CISMaRT is Canada's marine sector, as it should be, there will be opportunities for Canadian research and development to find a global audience. This can be done on an informal basis and also a more formal basis with collaborations with organizations in other countries, or groups of countries.

In summary, the ultimate goals of CISMaRT are to

a. Encourage collaborative and innovative marine research among Canadian universities/colleges, research institutions, government agencies and the private sector that reflects the needs of the Canadian marine community and supports Canadian competitiveness on the global stage.
b. Undertake relevant applied research and contribute to the development of innovative technologies.

c. Improve marine-related educational and training programs to yield highly-qualified workforce for employment in Canadian industry and government.
d. Provide contractors with potential areas for investment that could generate long-term economic benefits for the broader marine sector in Canada while helping the contractors meet their obligations under the Industrial and Technological Benefits (ITB) Policy.

1.2 Approach

In the development of CISMaRT, it was considered important to engage the Canadian marine community, seek their input and gain a level of commitment to CISMaRT. After discussions with interested parties, the format considered to most likely succeed was engaging with the Canadian marine community in a workshop setting.

It was decided to hold two workshops for the development of the network. The primary goal in the first workshop was to introduce the concept when most of the audience had few preconceptions about such an initiative. After receiving the first round of input, the proposed CISMaRT concept would be further refined in terms of identifying the most relevant technology areas and proposing an organization and arrangement that would have the highest chance of success. The focus of the second workshop was to refine these two aspects further and lay out a plan for implementation of CISMaRT.

The UBC Workshop yielded useful information and guidance. In the discussion of suitable models for CISMaRT the organizing committee was encouraged to investigate examples of collaborative research arrangements outside the marine industry. Among these the most prominent mentioned were CARIC (Consortium for Aerospace Research and Innovation in Canada) and Auto21. The latter ceased operations earlier last year and was not considered further. Initial investigation of CARIC was very encouraging and it was decided to explore CARIC as a potential model for CISMaRT recognizing that significant modifications would be required to render it suitable for Canada's marine sector.

The focus of this report is two-fold:

- The proposed model for CISMaRT based on a suitably modified CARIC model
- The tasks that need to be performed to launch CISMaRT

This report describes the methods used to seek the input of the participants of the MUN Workshop and summarizes the outcomes. On the basis of this input, a rudimentary organization for CISMaRT was set up and a plan was developed for undertaking the initial tasks necessary to make CISMaRT operational.

2 Overview of the MUN Workshop

The second workshop was held at MUN in St. John's, NL on 26 September 2016. The agenda for the workshop is presented in Appendix A.

A rudimentary concept for the National Network was developed prior to the MUN Workshop based on the CARIC, and presented at the workshop. The overall objectives of the one-day workshop were to:

- Develop a model for CISMaRT based on a modified version of CARIC by seeking support from the participants and suggestions for possible improvements to the model.
- Identify and prioritize the tasks necessary to make CISMaRT operational.

As for the MUN Workshop the participants invited were carefully selected to be broadly representative of the Canadian marine community and were drawn, in approximately equal numbers, from industry, academia and government.

The agenda was divided into two parts: the first half was devoted to a variety of presentations and the second part focused on two brainstorming sessions. In the morning sessions, presentations were focused on a number of topics. A report on the progress in developing the CISMaRT concept was presented which included a summary of the key outcomes of the UBC Workshop. This was followed by an overview of the CARIC model and an outline of the proposed CISMaRT model. An industry presentation was given highlighting the challenges of mobilizing a skilled workforce to meet the demands of the NSS shipbuilding program. A lunchtime talk was given on the key features of NSERC programs relevant to the CISMaRT initiative.

The remainder of the day was taken up by two brainstorming sessions. The first session focused on key elements on how CISMaRT would be operated, including membership, governance, management, administration, funding, and program management. The second session was held to seek input on the immediate tasks that should be undertaken to set up the CISMaRT organization and start operations. At the end of the workshop, a brief session was held to explore starting collaborative research and training projects by using NSERC programs such as Engage, Collaborative Research and Development (CRD) and CREATE programs.

2.1 Participation at the MUN Workshop

The participants are listed in Appendix B. A majority of the participants who were present at the MUN Workshop had attended the UBC Workshop providing continuity between the two workshops. There were several MUN Workshop

participants who had not attended the UBC Workshop. The numbers of UBC and MUN participants are 35 and 45, respectively.

For the breakout sessions, participants were divided into six teams with 6-8 members in each team as presented in Appendix C.

3 Key Findings From MUN Workshop

This section summarizes the key findings of the MUN Workshop. The findings reported are based on the recommendations, suggestions and thoughts expressed by the participants of the workshop. No attempt has been made to be comprehensive. The report focuses on areas where a general consensus emerged in the discussions, principally in the breakout sessions, and the subsequent discussions that occurred in the afternoon general sessions. Similarly key thoughts expressed by presenters in the morning session are also summarized.

To systematically elicit the opinions of the participants, a series of questions were posed to the participants in each breakout session. As shown in Appendix D, these questions were presented in forms together with possible answers. The purpose of the latter was to act as a catalyst for the brainstorming sessions. Participants were encouraged to add their own answers to the questions. This approach provided a flexible structure for the discussions that followed in the open session when each group presented their recommendations. The key points made by each breakout group, and those emerged in the general discussion are summarized below.

The key presentations during the morning session are summarized in Section 3.1. The main results of all breakout sessions are presented in Section 3.2.

3.1 Summary of Morning Session Presentations

After welcome addresses from Dr. Gary Kachanoski, the President of MUN, and Dr. Greg Naterer, the Dean of Faculty of Engineering and Applied Science, MUN, round-table introductions were made and an overview of the Workshop was given. This was followed by presentations as follows:

- A presentation from the industry perspective titled “People and Skills – Enabling Canadian Marine Industry Growth” by Phil Hart, Vice President of Fleetway Inc. The presentation provided an overview of Fleetway activities, and manpower challenges faced by Fleetway and Irving Shipbuilding Inc. Also discussed were ideas on how the education of naval architects and engineers can be enhanced by exposing students to relevant industry practices.
- Progress Report on the development of CISMaRT. The presentation focused on the key findings from the UBC Workshop, including technology themes, education and training, strategy and roadmap development, potential models for CISMaRT, and the next steps to be taken.
- Overview of CARIC. The key features of CARIC were summarized including a brief history, the organization’s mission, vision and values, membership,

governance, finances, how projects are selected and organized, and their very active outreach activities.

3.2 Workshop Outcomes and General Discussions – CISMaRT Model

Based on discussions at the UBC Workshop and subsequent deliberations, the model used by Canada's aerospace industry, known as CARIC, was regarded as a useful starting point for CISMaRT. It was recognized that there are significant differences between Canada's aerospace and marine sectors. Nevertheless, the key features of the CARIC model were used as a basis for the discussions.

The following features of the organization were discussed:

- Membership
- Governance
- Management & Administration
- Technical Committee
- Education Committee
- Financial Support
- Publicity

The discussions in the breakout session and also the general discussion are summarized below.

3.2.1 Membership

The primary targets for membership are shipyards, suppliers to the marine industry, engineering companies, offshore oil and gas, classification societies, academic institutions, research organizations and government.

Some participants suggested that ports, ship owners and standards bodies should be invited to become members. Others mentioned include those in ocean sciences and technologies. One group considered it important to include owners and operators as they are the end users of marine and offshore systems and, as such, aware of the technological needs of the industry. Other sectors of the marine industry that warranted consideration were, for example, communications and instrumentation industries relevant to the marine sector. Most groups considered it important to "broaden" the membership focus.

There was general support for considering organizations represented at the UBC and MUN Workshops as "founding" members. One group suggested industry associations should be approached to increase membership levels.

There was a consensus that a membership fee should be charged once the organization is up and running. This was considered important as a means for

demonstrating commitment. A sliding scale was suggested recognizing that the range in terms of size of member organizations is likely to vary considerably. One question raised was whether individuals could become members.

3.2.2 Governance

The discussion was structured around various committees that would comprise the CISMaRT governance. The focus at the Workshop in this area was on the composition of the following committees:

- Board of Directors
- Technical Committee
- Finance Committee
- Education Committee

Board of Directors. Organizational leadership of CISMaRT will be provided by a Board of Directors. Among several suggestions, it was recommended that the board should be kept small to avoid too much bureaucracy and make the board more agile and responsive. Some groups expressed concern that industry and the research community should be properly represented and that balance should be maintained. Several groups considered regional representation important. While the recommendation varied somewhat, the most popular scheme suggested four regions as follows: East, Central, West and Arctic. One group suggested that the regional representatives should be part-time.

Technical Committee. One recommendation suggested that the chair of the Technical Committee should come from the Board of Directors. At the very least the Board of Directors will appoint the chair of the Technical Committee; whether the chair should also be a member of the Board of Directors is a matter for discussion. A suggestion was made that each strategic (technical) area has a sub-committee. One group considered it important to focus on a small number of technological areas and also to require "concrete deliverables" early.

There were also discussions of the key technologies that CISMaRT should focus on. One group was keen that some technologies identified at the UBC Workshop should be renamed. The subject of key technologies that CISMaRT should focus on was extensively discussed at the UBC Workshop. There were several attendees at the MUN Workshop that did not attend the UBC Workshop and hence some new suggestions were made with respect to technologies that the network should focus us. This is a subject that will be revisited as CISMaRT evolves.

Finance Committee. As for other committees, it was noted that the Board of Directors should appoint the chair of the Finance Committee. One recommendation concerned the size of the Committee – it was suggested that the committee be no

bigger than absolutely necessary. As observed by one group the conduct of the Finance Committee is important in establishing the trust with the membership.

Education Committee. A suggestion was made regarding the composition of this committee - it should include representatives from universities, colleges and industry. More specifically, it was suggested in one case that a representative from a high school might be appropriate.

3.2.3 Management & Administration

Executive Director. "Executive Director" was considered a better title than "President/CEO". There was a consensus that this would be a full-time paid position. Among the attributes considered important are experience with both industry and academia, and also someone with good contacts. An important attribute for this position is that the person be senior enough to allow interaction with senior figures from industry and government. Administrative services could be provided by in-kind support from the membership.

Regional Representatives. As discussed above the consensus is that there should be four such representatives – East, West, Central and the Arctic.

Project Manager. More than one group noted that this position should be more properly called "Program Manager". The Program Manager would be responsible for the conduct of projects and would be supported by Project Managers each of whom would have day-to-day responsibility for all administrative aspects of the projects concerned.

Administrative Staff. Level of staff that can be supported will of course depend on the funding available. One suggestion made was that administrative functions might be undertaken by in an "in-kind" arrangement with member organizations. It was noted that funding agencies might have programs designed to provide financial support for administrative functions required to administratively support CISMaRT activities.

3.2.4 Technical Committee

The subject of key technologies was revisited. At the UBC Workshop the technologies most relevant to Canada's needs were identified. Additional technologies were identified since there were several attendees at the MUN Workshop that did not attend at UBC. Among other topics mentioned were: materials, high voltage power and energy, marine renewable energy, "internet of things", human factors and safety.

One observation was on the focus of CISMaRT activities. It was advisable to select three key technologies and concentrate on those; core competencies should be

focused on.

The brainstorming groups were asked to consider the application of the Technology Readiness Level (TRL) to CISMaRT projects. There was universal support for the idea although, it was noted, that a different concept was required when considering education and training initiatives.

3.2.5 Education Committee

In the UBC Workshop a number of education and training elements were identified as important:

- Greater use of work-terms
- Curriculum improvements
- Mid-career training
- Better preparation for high school students / greater awareness
- Practical shipyard experience

The breakout sessions at the MUN Workshop were asked to consider these and also suggest other elements that are missing. Several comments were made in regard to each of the elements.

Overall there was general support for the initiatives listed above. However, there were several suggestions for enhancements: "mid-career training" should be regarded as a continuous working lifetime process; "practical shipyard experience" should be broadened to "practical industry experience"; and the involvement of professional societies and associations should be encouraged.

In regard to mid-career training, it was noted that the possibility of changes/improvements to curricula is limited since only a finite amount of time is available. It was suggested that CISMaRT should consider programs for enhancing education/training by working with industry partners.

One suggestion was made that government agencies should be involved in CISMaRT possibly by having "observer" status in the Education Committee and other committees.

3.2.6 Financial Support

In the discussions a general approach for funding the work of CISMaRT has emerged. There is a consensus that the following are the most likely sources of funds:

- Membership fees
- In-kind contributions from the membership
- Various government programs designed to encourage research and education/training envisaged by CISMaRT

- Industry through Industrial and Technological Benefit policies and, in particular, funds available through the NSS Value Proposition arrangement

Several other suggestions were made including:

- Provincial programs
- Private foundations with an interest in topics with a marine component, e.g. green shipping

3.2.7 Publicity

The idea of an annual conference to rotate successively through Atlantic, Eastern and Western Canada found general support among the participants.

There was some discussion on how to publicize CISMaRT and how to generate interest and support for the initiative. Among the vehicles mentioned are:

- Political lobbying
- Methods for communicating the results of the work of CISMaRT
- To support the above an "elevator pitch" is desirable perhaps in the form of a one- or two-page description of CISMaRT including what the initiative would mean to the stakeholders
- Website and project portal

Other suggestions made include:

- Prepare a communications plan
- Hold CARIC-style "Connect" events which provide a venue for outlining recent accomplishments, current initiative and presenting research ideas.

3.3 Workshop Results and General Discussion – The Road Forward

In Section 3.2 above the focus of the discussion was on how CISMaRT should be organized, administered, funded and what its focus should be in regard to research and education/training. The breakout sessions and the subsequent general discussion reported below were focused on the steps necessary to set up, initiate and operate CISMaRT. It was appropriate that the emphasis is on the first steps. The objectives of the session were therefore:

a. Identify the tasks that need to be performed in setting up CISMaRT
b. Estimate approximately when the tasks should be undertaken

The discussion was organized around the following six topics:

a. Governance – CISMaRT management & administrative structure

b. Membership – developing membership categories, membership fees
c. Finance – sources of funds for projects and other expenses
d. Project Implementation – procedures for processing proposals and projects
e. Develop Relationships – developing relationships with the marine sector
f. Public Relations – attracting organizations to join and/or work with CISMaRT membership

The output was sought to help guide the first steps that the Interim Board should take. Discussions subsequent to the Workshop considered the output of the Workshops and developed a short-term action plan; this is outlined in Section 4 of this report.

In the paragraphs below a summary of the output from the breakout and general sessions is provided. As with the previous breakout session the report below focuses on suggestions and recommendations that attracted broad consensus. No attempt has been made to report on the detail. The summary below is presented in terms of the six topics listed above.

3.3.1 Governance

There was general support for the idea that the Organizing Committee responsible for organizing and leading the two workshops should act as the Interim Board. The current target for the setting up the permanent Board of Directors is two years. Several suggestions were made regarding what the initial tasks of the Interim Board should be. Among the priorities mentioned were a new name, mission statement, scope, by-laws, and strategic goals.

3.3.2 Membership

Fairly diverse opinions were expressed in regard to membership. Some thought CISMaRT should be open to all that are interested and that no limits should be set in this regard. As the short-term target, the development of a statement summarizing the benefits of membership should be pursued. The suggested medium-term activities include developing a communications plan addressing advertising and publicity, and also developing a policy to include students and first nations representatives.

3.3.3 Finance

As discussed under 3.2.1 there was general support for a membership fee to be charged. However, it was suggested that there should not be a fee in the early stages of setting up CISMaRT. One of the tasks for the Interim Board is the development of a fee structure. With respect to funds from ITB sources, it was noted that there are several relevant deadlines in the coming months and that the Interim Board should be aware of them and plan activities accordingly.

3.3.4 Technical and Education Project Implementation

There was limited input in this category. One group suggested that this task should follow establishing the initial sources of funding. Another group recommended that project templates should be drafted in the short-term and further refined over the medium-term. Also considered important was establishing criteria for project support.

3.3.5 Develop Relationships

This category concerned relationships with the broad marine sector. While the importance of the relationship of CISMaRT with industry, academia and government is clear, there are potentially several other potential stakeholders with which it may be advantageous to have a relationship. It was pointed that while outreach efforts are important the first priority is to build up membership.

Among other possible stakeholders mentioned were first nations and student groups. Since it is a long-term initiative, the value of international relationships and collaboration was also noted.

3.3.6 Public Relations

There is general support for publicizing CISMaRT at trade shows, conferences, workshops, but this is regarded as a medium-term activity. One group suggested that holding workshops should be delayed until some meaningful work has been completed.

Among other methods for publicizing CISMaRT, website and social media were suggested as short-term and medium-term activities.

4 The Road Ahead

The Interim Board met following the Workshop to discuss the immediate steps necessary to set up and launch CISMaRT. Based on the input received from the UBC and MUN Workshop participants together with subsequent discussions, the Interim Board identified the necessary steps going forward.

The preliminary list of tasks are summarized below:

1. Preparing Progress Report No. 2 – MUN Workshop
2. Preparing Minister's Briefing Note
3. Developing Strategic Plan
4. Developing Implementation/Operating Plan
5. Circulating Briefing Note
6. Confirming Founding Membership
7. Developing Proposal for Core Funding
8. Finding the Path and Submitting the Core Proposal
9. Extending the Invitation for Membership to Broader Marine Sector
10. Forming Interim Technical Committee
11. Forming Interim Education/Training Committee
12. Developing a Vision Document for Technical & Education/Training

Appendix A Agenda of MUN Workshop

iSMART National Network – MUN Workshop (DRAFT) Location: EN4002 Faculty of Engineering Main Boardroom, Memorial University, St. John's NL Monday, September 26, 2016 Agenda		
8:00-8:30	Breakfast Meeting • Welcome • Roundtable Introduction • Objectives of the MUN Workshop	Gary Kachanoski, President of MUN Greg Naterer, Dean of Engineering Wei Qiu
8:30-9:00	People and Skills – Enabling Canadian Marine Industry Growth • Industry Perspective	Speaker: Phil Hart, VP of Fleetway
9:00-9:30	Progress Report (outcomes of the UBC Workshop and other Findings)	Speaker: Wei Qiu
9:30-10:00	Overview of the CARIC Network	Speaker: Roger Basu
10:00-10:30	Networking Break	
10:30-11:00	Proposed iSMART Network Model • Terms of Reference • Governance Structure • Funding Model • Project Model • Proposed Implementation Strategy (Short, Medium and Long term)	Speaker: Wei Qiu
11:00-12:00	Proposed iSMART Network Model Discussion Discussion Points: • Mission and Vision • Membership • Organization (Governance and Administration) • Operations (Finance and Projects)	Tools Required: Flip Charts *Format: Breakout Group Brainstorming* Facilitator: Roger Basu
12:00-1:00	Lunch - Overview of NSERC Programs *Group photo will be taken before the presentation	Speaker: Gordon Deveau NSERC-Atlantic
1:00-1:45	Proposed iSMART Network Model Discussion	Large Group Discussion/Conclusions Facilitator: Roger Basu
1:45-3:15	The Road Forward • Action Plan (Short-, Medium- and Long-term Plans) • Assignment of Action Items • Communication Mechanism	*Format: Working Session (5 min Overview/Breakout Group Brainstorming)* Facilitator: Roger Basu
3:15-3:35	Networking Break	
3:35-4:20 4:20-4:45	The Road Forward Short-term Projects Involving Universities/Industry on Training and Research Using NSERC Grants • NSERC Engage Projects • NSERC CREATE Program on Shipbuilding and Marine Research and Training	Large Group Discussion/Conclusions Facilitator: Roger Basu Large Group Discussion Facilitator: Wei Qiu/Roger Basu
4:45-5:00	Summary and Next Steps	Wei Qiu
6:30-9:30	Working Dinner at Portobello's (115 Duckworth St)	All the Participants

Appendix B List of Participants (MUN Workshop)

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Appendix C Breakout Session Teams

iSMART MUN Workshop - Breakout Session Teams

Team 1	Andrew	Kendrick	***Lead***
	David	Molyneux	
	Sherry	Scully	
	David	Benoit	
	Dave	Finn	
	Brian	McShane	
	Dan	Oldford	
Team 2	Peter	Noble	***Lead***
	Robert	*Beck*	
	Jason	Gu	
	Bonnie	O'Rourke	
	Jim	Millan	
	Trevor	Butler	
	Darren	Larkins	
	Andrew	Gerber	
Team 3	Neil	Pegg	***Lead***
	Dwayne	MacLeod	
	Claude	Daley	
	Michael	Maguire	
	Tony	Patterson	
	Sarah	Simpson	

Team 4	Leonard	Pecore	***Lead***
	Farid	Taheri	
	Freeman	Ralph	
	Lin	Paddock	
	Charlie	Nisbet	
	Brian	Veitch	
	Lawrence	Mak	
Team 5	Joe	Rousseau	***Lead***
	Mike	Kelloway	
	Gordon	Deveau	
	Fraser	Winsor	
	Phil	Hart	
	Sue	Molloy	
	Mohsen	Mohammadi	
Team 6	Jon	Mikkelsen	***Lead***
	Catherine	Dutton	
	Joseph	Tam	
	Bill	Jackson	
	Angela	Porter	
	David	Whitehouse	
	Pierre-Charles	Drapeau	

Appendix D Workshop Breakout Session Questionnaire

Breakout Session 1

Proposed Network Model

Breakout Session: Proposed Model

The objectives of this session are to establish the main characteristics of iSMART in terms of its structure and how it will operate. Your input is being sought in the following categories:

1. Membership
2. Governance
3. Management & Administration
4. Work of Technical Committee
5. Work of Education Committee
6. Financial Support
7. Publicity

The proposed features under each category are listed in the table below, sometimes with questions added in *italics*. Please comment on each of the features proposed. Space is provided for adding other features that you consider important.

1. Membership

Feature	Comments/Questions
iSMART target membership: shipyards, suppliers to the marine industry, engineering companies, academic institutions, research organizations & government *Should other marine sectors be targeted? Ship owners, ports, etc.*	
"Founding" membership to comprise participants at UBC and MUN workshops	

2. Governance

Feature	Comments/Questions
Board of Directors *How many? What criteria should be used?*	
Technical Committee	
Finance Committee	
Education Committee	
Do we need other committees?	

3. Management & Administration

Feature	Comments/Questions
President/CEO	
Regional Representatives *Which regions?*	
Project Manager	
Administrative Staff	

4. Technical Committee

Feature	Comments/Questions
Key technologies 1. Green ship technologies 2. Marine simulation 3. Advanced shipbuilding technologies 4. Ship design issues concerned with systems design and modeling 5. Arctic technology 6. Cyber security 7. Automation and control	

Are there other important technologies?	
Guidelines for project development *Is TRL useful for iSMART?* *Should funding schemes depend on TRL?*	

5. Education Committee

Feature	Comments/Questions
Key Training Focus: 1. Greater use of work-terms 2. Curriculum improvements 3. Mid-career training 4. Better preparation for high school students / greater awareness 5. Practical shipyard experience *Are there other important areas?*	
Guidelines for project development *What should the funding schemes be? Is it necessary to require industrial contribution? How industry can be involved?*	

6. Financial Support

Feature	Comments/Questions
Are there other sources of funding not mentioned that might be considered?	

7. Publicity

Feature	Comments/Questions
Annual conferences in Atlantic, Eastern and Western Canada	
Connectivity events	
Workshops on special topics	
Publicizing iSMART at other events – conferences, trade shows, professional society	

meetings?	
Other ways to market iSMART?	

Breakout Session 2

The Road Forward

Breakout Session: The Road Forward

The objectives of this session are to:

a. Identify the tasks that need to be performed in setting up iSMART
b. Estimate approximately when the tasks should be undertaken.

In regard to b. above the time estimate should be considered in three categories:

a. Short-term (~ a few months)
b. Medium-term (> 6 months and < 1 year)
c. Long-term (> 1 year)

The tasks are considered in the following six categories:

a. Governance – iSMART management & administrative structure
b. Membership – developing membership categories, membership fees
c. Finance – sources of funds for projects and other expenses
d. Technical and Education Project Implementation – procedures for processing proposals and projects
e. Develop Relationships – developing relationships with the marine sector
f. Public Relations – attracting organizations to join and/or work with iSMART membership

Six tables are presented below, one for each of the categories listed above. Under each category several tasks are listed together with associated time estimates.

Please modify/add as follows:

a. Add tasks not noted
b. Change time estimates as necessary

Governance

Task	Short-term	Medium-term	Long-term	Comments
Set up interim board	✔			
Set up working committee/s		✔		

Set up board based on iSMART membership			✔	

Membership

Task	Short-term	Medium-term	Long-term	Comments
Decide on scope of membership of iSMART *e.g. should ship operators be targeted?*	✔			e.g. should ship operators be targeted?
Decide on membership categories		✔		
Attract members for iSMART	✔	✔	✔	

Finance

Task	Short-term	Medium-term	Long-term	Comments
Decide on membership fee structure			✔	
Seek core funding from ISED (proposal development)	✔			
Develop sources of long-term funding			✔	

Technical and Education Project Implementation

Task	Short-term	Medium-term	Long-term	Comments
Criteria for project teams		✔		
Proposal evaluation procedures		✔		
Acceptance of deliverables procedure		✔		
Confidentiality		✔		
IP procedures		✔		

Development of Relationships

Task	Short-term	Medium-term	Long-term	Comments
Seek buy-in from industry including NSS ITB opportunities	✔			
Seek buy-in from government	✔			
Develop relationships with trade associations		✔		
Develop relationships with professional societies			✔	
Other organizations?				

Publicity

Task	Short-term	Medium-term	Long-term	Comments
Introduce iSMART at trade shows / conferences	✔			

Organize iSMART workshops		✔		