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A PERSONNEL INTERCHANGE WITH INDUSTRY  
PROPOSAL FOR THE CANADIAN NAVY

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May 2002  
CANADIAN FORCES COLLEGE / COLLÈGE DES FORCES CANADIENNES  
CSC 28 / CCEM 28

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## ABSTRACT

The last decade of the 1990s saw drastic cuts to Canada's defence budget. The government was under pressure to reduce the deficit, and with the end of the Cold War and the bad press received by the Canadian Forces from the Somalia inquiry, increases to the military's budget would not have been well received at that time by a public that expected a peace dividend. Reduced resources caused DND to look for ways to become more efficient. In their search, DND turned to the private sector. Business style planning and performance measurement systems were introduced, and processes were re-engineered. Technology continued to advance at breakneck speed and became ever-more complex, particularly in the new naval systems being fielded; software-driven systems had millions of lines of code and a level of integration and complexity never before seen. In spite of the process improvements, the time to upgrade or field new projects got longer rather than shorter. The formality of the contractual arrangement and mechanisms for DND to engage defence industry had remained unchanged, even though there had been a logical migration toward a greater dependence for a wider variety of services to be provided by industry. To address this innovative ideas are required to shorten the procurement cycle. The logical step, given the increased dependence on industry is to consider a form of 'partnering' between DND and industry; they could 'interchange' personnel so as to create better understanding and an aura of improved trust and empathy between the two in order to reduce the formality of the contractual relationship and speed delivery and support processes by leveraging teams. A coincidental benefit will be increased flexibility of employment in which greater technical exposure and experience can be gained for those that desire it and where it serves the need of the service.

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## CHAPTER 1

# INTRODUCTION

*“We have entered a new millennium after a decade of the most profound changes in our defence experience since the end of the Korean conflict. We have witnessed a revolution in world political structures and we have played a major part in helping in those areas where order has broken down. We continue to witness major changes in business and in the economy as deficits are eliminated and as governments and business shift from the old economy to a knowledge based and highly technical future. This process of change is by no means over. We do not for a minute suggest that we understand their full impact. What we do know is that we cannot meet future defence challenges using the tools of the past. We are convinced that we must be in a position to deal with change. To do that we need people who have the skills and knowledge and the commitment to meet the challenges that will be posed in the years to come. No amount of equipment or money will do this; only people will.”<sup>1</sup>*

### BACKGROUND – A NEED FOR FASTER PROCUREMENT

Defence in Canada is expensive, taking up 1% of the country’s gross domestic product (GDP) and 7% of the federal budget.<sup>2</sup> The part of this that is defence procurement is very expensive in and of itself as compared to the rest of defence expenditures.<sup>3</sup> More importantly, it is higher risk, and is a long and complicated undertaking. It is one in which requirements are defined, systems are conceptualized and designed, and then they are built, tested, and finally operationally fielded.

Operational Commanders often express their frustration with the time it takes for this process to produce equipment and systems they can use; the delivered product, even after this process, may still not meet the entire original requirement. Or worse, it is already obsolete at the time of first fielding the system for operational use.<sup>4</sup> Missing the ‘usefulness’ mark in this way can cause conflict between operators ‘screaming’ for the new or upgraded capability, and programme and project managers charged with delivering it in a cost-efficient manner, and in a tested-safe state. This is the well-known operator versus engineer friction<sup>5</sup> – an interesting, and perhaps healthy or even necessary interpersonal competitive dynamic between groups in the Navy and the military in general.<sup>6</sup> In the face of these opposing challenges, trade-off considerations, and personality-type clashes, as the case may be, continuous improvement to shorten the process must therefore be sought, but without compromising cost efficiency or, most importantly, safety. Others around the world are facing this same dilemma.

In a 1999 study, the Australian Defence Organization (ADO) cited several ‘improvement’ considerations likely to influence future technologies for Surface Ships. At the top of their list was the “reduction of acquisition times and acquisition costs of platforms.”<sup>7</sup> Similarly, while discussing the defence Industry ‘crisis’ in Canada, David Haglund and Alistair Edgar summarized the defence Research and Development (R&D) goal of the 1990s Liberal government as being one of “shortening the procurement cycle.”<sup>8</sup> These two examples of the need to field new capabilities faster likely would apply equally to other countries and their defence departments or ministries as they consider future acquisitions or upgrades to assets they already have, and how best to accomplish this. Most around the world have been looking to the business sector for possible answers.



## PROCESS CHANGE – LOOKING TO BUSINESS APPROACHES

These two statements, one looking forward and the other looking back, and made on opposite sides of the globe, indicate very clearly that, like the commercial private sector that has lived with the constant reality that, “as technology, accelerates, time horizons compress”,<sup>9</sup> defence procurement organizations must continue to strive for ways of shortening the cycle time from requirements definition to conceptualization to delivery. Recognition of this need has manifested itself lately in the increasing application of commercial business techniques to the previously un-business-like area of defence acquisitions management; recent examples include Business Process Re-engineering (BPR), the Balance Scorecard, Total Quality Management (TQM), Total Quality Leadership (TQL), Just-in-Time (JIT) Delivery, and Enterprise Resource Planning (ERP) systems.

In Canada, as in other countries, business practices are touted as being ever-more capable of getting things done more quickly and efficiently, and are being used as justification for the move towards Alternative Service Delivery (ASD); under ASD civilian industry provides defence services that do not necessarily need uniformed personnel or civil servants. This ‘civilianization’ has not, however, been without pain, both in terms of government jobs lost, and in the loss of familiarity and expertise in processes and technology that were previously held, and maintained over time, within government rather than industry.

### *THE ACCELERATING EFFECT OF HIGH TECHNOLOGY (SOFTWARE-INTENSIVE) SYSTEMS*

One area where the issue of losing familiarity and expertise in processes and technology rings true is in the acquisition and maintenance of naval combat systems, and particularly those that have been cutting-edge technology and software-intensive.<sup>10</sup> These systems grew in number, size, and complexity by orders of magnitude as the Canadian Navy transitioned from the days of the ‘Cadillac’ steamers<sup>11</sup>, which had little-to-no automated systems onboard, to that of the Canadian Patrol Frigate (CPF) and the modernized Tribal Class destroyers.<sup>12</sup>

Prior to 1995, most naval systems were supported in-house through the Naval Engineering Units (NEUs) and Ship Repair Units (SRUs). Their operational software, if they had any,<sup>13</sup> was developed and delivered to the Navy by industry. Following naval acceptance into service however, maintenance, including software change, configuration management, documentation upkeep, and issue of the software to the Fleet, was carried out by the Fleet Software Support Centre (FSSC – a division of the NEU (Atlantic) in Halifax (NEU(A))); this division was a mix of civil servants and uniformed personnel – normally junior officers and senior NCMs.

The strength of this software support arrangement was that the systems were developed via contract with industry, accepted into service by the Navy, as is the case today, but then maintained by the Navy to meet its own changing operational, tactical, and technical requirements. Civil servants provided the continuity, often maintaining a single software package for years, and the military personnel provided the operational expertise, experience, and naval relevance, at both the officer and NCM levels for operator and technical trades alike, and on a normal posting cycle basis thereby ensuring new perspective periodically. However, when the Navy transitioned to the CPFs and TRUMPed IROQUOISs, and the large amount of operational software that came with them, this all changed.

## PERSONNEL REDUCTIONS AND THE MOVE TO CONTRACTING-OUT

It was not, however, the delivery of this new and complex capability alone that changed things. The government personnel reduction climate of the 1990s was actually the larger catalyst that drove operational software maintenance<sup>14</sup> out of the hands of the Navy to industry. Add to this that industry had, in fact, just successfully delivered these functioning software packages for both platforms (although not without their delays and problems), and the circumambieny was ripe for privatizing naval operational software maintenance. This would reduce government numbers and free up naval personnel to do what naval personnel should be doing – going to sea, and supporting those going to sea and the Ships in which they do so.

Under the Naval Software Support Support Infrastructure (NSSI)<sup>15</sup> put in place in 1995, operational software maintenance would be done via contract rather than in-house; the FSSC was thus disbanded. As was previously the case for software-driven systems in the ‘steamers’, the Navy’s training facilities, as delivered by industry under the CPF and TRUMP contracts, would double as software testing facilities, but the maintenance of the software would now be done within a Government-owned / Contractor-operated (GOCO) arrangement / facility. Naval personnel, in much smaller numbers, would manage the contractor and undertake the critical naval roles requiring operational expertise: defining and refining requirements; completing testing and acceptance; and liaising with naval operational units and staffs. In this way, the contractor could provide the still much-needed continuity (vice expensive civil servants) and apply business best practices to the software maintenance task at hand, and all in an ultra-efficient business-like manner, thereby achieving the goal of leaving sailors to do what sailors should be doing, and also achieving the defence support management aim of delivering a support

service via ‘alternate’ means. While there have been some teething pains with this transition through the remainder of the 1990s and into the new century, the arrangement has worked reasonably well for both the Navy and industry. This wasn’t, however, the only area where responsibility was devolved to industry for the support of naval systems.

When the Maritime Coastal Defence Vessels (MCDVs) were built and delivered, their maintenance, and in this case all maintenance,<sup>16</sup> was contracted out to industry via an In-Service Support Contract (ISSC) rather than transitioning their maintenance and support to the Navy’s Fleet Maintenance Facilities (FMFs – an amalgamation of the former NEUs and SRUs on both coasts).

This trend of ‘packaged’ provision of maintenance and through-life support continues for the Navy today with initiatives such as Pre-Facilitated Contracts (PFCs) and engineering support contracts – in 2001, for example, the HALIFAX (CPFs) and IROQUOIS (TRUMPed) Class Combat System Engineering Support (CSES) contract was signed with Lockheed Martin Canada, providing engineering support for these Ships for at least four years,<sup>17</sup> including Command and Control System (CCS) operational software support. Again, the move towards greater contracting-out overall has in fact been good for the Navy and industry alike, providing for a much better accounting and performance measurement environment (allowing the Navy to get a better handle on the software maintenance ‘bill’), and for the leveraging of business practices and relevant synergies. It has not, however, been without difficulties, these being particularly noticeable in the area of obsessively maintaining the necessary arms-length contractual arrangement for maintaining fairness, competition and openness in the “government-industry duet”<sup>18</sup> arena, and the constant requirement therein for contractual formality and paperwork that has added time rather than saved it.

This has meant that, whilst perhaps more transparent and spinning off the benefits discussed above, the formality of the contractual arrangement seems to have hampered most hopes for reducing the time required to turn around a concept or requirement for change into a useful product (or software change or version release, in the case of software-intensive systems). In fact, it seems to have added, via its inherent formality, increased paperwork and supporting contractual infrastructure. There have been other negative consequences as well.

## **CAREER IMPLICATIONS FOR MARE OFFICERS RESULTING FROM OUTSOURCING**

As a result of the tendency to contract out support, naval engineers and technicians no longer have the same chance they previously had in their career progression to be exposed to the more technical aspects of system design, development, and beta testing, and all that goes with these efforts.<sup>19</sup> This has resulted in a less ‘smart’ naval customer when these individuals come to the points in their careers at which they assume responsibilities in engineering and procurement management.

Perhaps what is needed then, and this seems to jive with other initiatives between government and industry at this time, is to develop this part of the ‘government-industry duet’, to counter this loss of exposure to hands-on technical aspects, and now that a number of ‘learning’ years have passed, to transform the ‘duet’ into more of a partnership,<sup>20</sup> “making more porous the membranes between service and applicable civilian work, with occasional appropriate employment for the service member within industry.”<sup>21</sup> A closer relationship between government and industry, formally agreed between the two, and in which each would have a better understanding of the constraints and needs of the other, could return a previous exposure

to more technical and hands-on aspects of systems' support and provide a new form of development for selected naval individuals, and could also be a new way to help 'shorten the procurement cycle'.<sup>22</sup>

## **PROPOSAL – AN INTERCHANGE WITH INDUSTRY**

This paper proposes a talent 'interchange' of technical personnel<sup>23</sup> (initially MARE officers<sup>24</sup>) of the Canadian Navy and relevant Canadian defence firms as a part of the sought-after solutions to reducing the time and bureaucracy it currently takes to procure systems for Shipboard fitment, and support them. The paper will consider the current CSES contract for the HALIFAX and IROQUOIS Class Ships as a likely pilot programme, using the Defence Research and Development Canada (DRDC) Defence Industrial Research (DIR) programme as a possible starting-point model. It is argued that such an 'exchange' will ensure that expertise and experience will be leveraged and shared where appropriate so as to create better operational systems more quickly, and provide a new career opportunity through increased flexibility of employment for naval personnel, thereby perhaps assisting somewhat in the current recruiting and retention challenges. This paper builds on Commodore Roger Girouard's recent paper on recruiting and retention, and the need for increased flexibility of employment in order to make the Navy an "employer of choice"<sup>25</sup> – *Seeking Flexibility and Fulfillment: Providing 'Wins' on Multiple Levels*. Development and defence of this proposal will be done as follows.

First, the relevant literature that made up the research will be reviewed in order to discuss the background and policy framework for 'partnering' with industry. Next, the relevance of the talent 'exchange' proposal being put forth herein will be explored within the context of the

recent history of technical support to the Canadian Navy, as a possible partial addressing of the 1990s' personnel reductions, and in consideration of Commodore's Girouard's paper and his deductions. Particular attention is paid at this point to identifying the clear need for a DND / industry 'exchange' of personnel in response to a diminished base and loss of exposure. The talent 'interchange' proposal will then be considered in relation to the needs of the Service and of industry, as will its implications for the Defence Services Programme (DSP) process and policies that might be affected or adapted for use. Throughout the paper, other 'exchange' examples, both in Canada and abroad, will be cited and briefly discussed as a source of possible parallels, examples, lessons, and models that could be leveraged to enhance the probability of success for the 'exchange' (they will not be discussed in a separate section but will be touched on where appropriate). Career implications, including possible benefits for individuals, and the likelihood this will help retention will also be explored. Counter arguments to such a proposal, mostly relating to government and industry getting 'too close' and jeopardizing the arms-length relationship that has been the government / industry contractual norm, and to the requirement for openness and fairness to other defence firms. Finally, the other programmes touched upon in the search for the right type of 'partnership', including the DRDC DIR programme as a possible starting-point model, along with the CSES contract as a possible pilot programme within which to establish such an 'exchange', will be married up with the talent 'interchange' idea being put forth so as to give a starting point for further development within DND.

## CHAPTER 2

# LITERATURE REVIEW

*“Our Human Resource Vision: Look after our people, invest in them and give them confidence in the future.”<sup>26</sup>*

In determining the research direction for this paper, consideration was based on the relevant background of the author, that being, in large blocks (post-initial officer and naval training, and not including sea time<sup>27</sup>): software design, maintenance, and support; as lead officer for the TRUMP CCS software Training with Industry Programme (TWIP) at Litton Systems Canada in Toronto; in technical and operational testing and trials for systems being fielded for use in the Navy (on a foreign ‘exchange’ with the Royal Navy (RN)); and with equipment engineering, and project management and acquisition at National Defence Headquarters (NDHQ) in Ottawa. It is at this last juncture in the author’s career that the idea for a greater level of partnering between the Navy’s engineering and procurement (including support) programme and industry, as a way to address rightsized resources<sup>28</sup> and the lost technical hands-on opportunities that were in place in the past, began its genesis.

### STAFF REDUCTIONS AND NEW TECHNOLOGY

Under Operation EXCELLERATE in the 1990s, NDHQ staffing levels were mandated to be reduced by fifty percent.<sup>29</sup> Department-wide, the actual reductions worked out to be more like twenty five percent<sup>30</sup> after all was said and done.



Even as these staffing reductions were taking place, industry-based support was being contemplated for various systems coming into use and operation in the Navy; mainly because it made sense to do so following the build programmes of the 1990s. As stated, this included support for the about-to-be-delivered-to-the-Navy Command and Control System (CCS) software for the HALIFAX and IROQUOIS Classes of Ships, and the all-encompassing In-Service Support Contract (ISSC) for the MCDVs. Even with these introductions, there still remains a continuing requirement to improve support to the end-user and speed up the procurement process so as to give him or her new or upgraded systems in a more operationally-useful timely manner, and to do so within the relatively new outsourcing environment.

## PARTNERING RESEARCH

The first area of research was to explore the concept of ‘partnering’ between industry and the Government of Canada in general, and to see if there were already precedents in which the relationship between government and industry could be considered a ‘partnership’. The term ‘partnership’, however, conjures up legal ramifications<sup>31</sup> and much of the literature seems to attempt to avoid these ramifications by using other terms. In fact, there are many other terms that are used to describe a closer than *status quo* relationship between DND and industry such as: ‘embedding’; ‘interchange’; ‘exchange’; and ‘teaming’, to name but a few. These terms and their implications are considered herein as part of this proposal. Overall, the government has been moving towards a greater dependence on industry to supply the non-military-only support to the CF and the department.

## PARTNERING FOR ALTERNATIVES

Probably the main concept testing this move towards greater reliance on industry is Alternative Service Delivery (ASD), as previously discussed; the best and most prevalent current example of ASD in DND is the Supply Chain Project (SCP).<sup>32</sup>

Less obvious, but nevertheless tending towards a ‘partnership’ for the government with industry, and still indicating a method of alternative delivery of service, are the more recent

Industry Canada Technology Partnership Canada (TPC) initiatives in which the Office of Collaborative Technology Development (OCTD) has announced the Aerospace ‘Technology Development’ and ‘Supplier Development’ initiatives. The ‘Technology Development’ programme is designed to enhance the competitiveness of small-to-medium sized high-technology companies through multi-partner R&D projects by Canadian defence firms.<sup>33</sup> The ‘Supplier Development’ programme is designed to also help small and medium-sized Canadian defence supply companies “meet the challenges of globalization through the development and incorporation of world-class business and manufacturing practices and technologies.”<sup>34</sup> These initiatives are good examples of working closely with industry and represent, in fact, the most logical area for breaking ground in the area of ‘partnering’ with industry, that of developing a teaming arrangement between DRDC and industry for the risky business of new technology R&D (thereby sharing the risk and providing frequent direction and guidance as new technology areas are explored and developed), and that of providing for seamless supply of goods and parts in support of systems and operations. In fact, this type of ‘partnership’ or ‘teaming’ and alternative delivery has been going on for some time now.

The Defence Industrial Research (DIR) programme, the precursor to the OCTD initiatives, was established “to promote and improve the research and technology capabilities of the Canadian defence Industry.”<sup>35</sup> Under the DIR,

*“proposals are made by a company or consortium to an interdepartmental committee called the DIR Advisory Committee (DIRAC) on which a representative of PWGSC sits. Proposals are ‘godfathered’ by a project manager from the defence science community (normally from a Defence Research Establishment (DRE)), and also a ‘defence relevance’ sponsor from the Canadian Forces. PWGSC are subsequently responsible for letting and administering the contracts.”*<sup>36</sup>

Given its structure, this programme therefore seems quite well suited as a departure point model for a closer ‘partnering’ between DND and industry in the form of an ‘interchange’ of personnel.

In the 1997 *Defence Science Advisory Board (DSAB) Report on ‘Partnering’ – Report 3/97*, the Chief of Research and Development (CRAD; now DRDC) identified the need for the R&D sector of government to further develop the DIR programme and thereby ‘team’ with industry, and suggested that the DIR initiative was an area of pseudo-partnering with industry that was headed in the right direction; it just needed further development, hence the TPC initiatives discussed above recently announced. In the report, CRAD stated that the DIR programme had been “very successful”,<sup>37</sup> for this reason, and the fact that it does represent ‘partnering’, seemingly without compromising the government / industry relationship, this programme is therefore in fact chosen in this paper as a possible model for this ‘interchange’ proposal. Most relevant to the proposal in the DSAB report regarding the DIR programme is the following comments that demonstrate that a closer relationship can be developed, and one in which today’s restrictive and bureaucratically burdensome contracting system can be adapted in order to shorten the process and avoid contractual tension, and all while still ensuring fairness and competition,

*“The approach used for project selection is flexible, responsive, and alleviates the inherent restrictions of the procurement procedure and is thus relatively fast. It has, in addition, achieved this without being challenged. The Board attributes the latter to the openness of the procedure, particularly the use of an interdepartmental committee and involvement of Public Works and Government Services Canada (PWGSC) right from the outset.”<sup>38</sup>*

***The report, however, does support the notion that the current contracting system is rigid and less than optimally flexible (will see later), but that this can be countered by organizational openness and risk sharing, it goes on to say that,***

*“the open, interdepartmental nature of the programme bypasses many of the inherent and time consuming obstacles thrown up by the current procurement contracting system and thus facilitates the relatively speedy establishment of a teaming arrangement.”<sup>39</sup>*

Again, its structure and approach make the DIR programme ideal for adaptation for the proposed DND / industry ‘interchange’. The report further denotes the need for a tailored programme in that the problem with achieving a proper teaming arrangement to speed the development process is that the current contracting system that must still be operated under, “was designed for procurement and as such is subject to a variety of checks and balances aimed at ensuring openness and competition which makes its application complex, rigid, time consuming, and vulnerable to legal challenges”<sup>40</sup> – this must be taken into account and policies and processes, therefore, designed specifically for any ‘liberalized’ ‘exchange’ proposal must be contemplated. The report then went even further in identifying an overall governmental and bureaucratic hypocrisy, “there is a basic incompatibility between the declared intention of the government to promote ‘partnerships, alliances, network, and other linkages with the private sector’ and the means currently available for its execution”<sup>41</sup>, identifying this problem and the specific problems of the procurement contracting system as being a serious impediment to speed and flexibility. The problem, therefore, is not that the will is not there to ‘partner’ or ‘team’ with industry, but that the current mechanisms and procedures are not conducive to a closer relationship.

## **PROCESS AND POLICIES**

The mechanism or process that guides procurement in DND, the Defence Management System (DMS), was therefore examined next, both to see if there were any obvious process improvements that could be made to suit the proposal, but more importantly, to see if there were any process reasons, or guidance or policy therein, that would preclude or discourage a greater ‘teaming’ arrangement.

Having reviewed some examples and the DMS process, the research turned to one of better understanding other departmental policies, and to look for progressive policies that could work within the framework of the proposal for possible adoption and / or adaptation.

The departmental policies, and specifically those on secondments, exchanges, transfers, and career progression were examined to determine their direct applicability and possible adaptability for use in a ‘partnering’ or ‘exchange’ scheme; the documents examined were primarily terms of service guidelines and included the following:

- a. Canadian Forces Administration Orders (CFAOs);
- b. Civilian Personnel Administrative Orders (CPAOs);
- c. Canadian Forces Officer and NCM Specifications; and
- d. Defence Administrative Orders and Directives (DAODs).

Other departmental regulatory documents were also reviewed to search for policies on relationships with industry.

Specifically, the Treasury Board Secretariat Interchange Canada programme’s policy, and those relevant policy documents developed by the ADM (Mat) Director General International and Industry Programmes (DGIIIP) group were reviewed. Of equal importance, however, to reviewing the policy framework, is the research requirement to gauge the will of the department, and specifically that of senior leadership and management, and to verify their will for ‘partnering’ in the given climate of the day, and that a specific requirement clearly needs responsive filling, and that the problem, or set of problems indeed exist, in order that the leaders may provide support.

## **PARTNERING WITH INDUSTRY – THE VIEW OF LEADERSHIP**

In order to understand whether the department is ready for a closer relationship with industry, it must first be determined that there is a need for such an arrangement. The best place to turn for this is to departmental policy, vision statements, documents, and papers prepared by or signed up to by the senior leaders and management of the department and, in particular, by

senior leaders of the CF. That which the leaders articulate for the members of the CF, and in fact for all of DND as well, “describes the hopes, expectations, and challenges for the CF in the coming decades”;<sup>42</sup> several of these were consulted to estimate the mood and likely level of acceptance to any change in policy and attitude regarding government / industry closeness in these times of reduced resources but increased sensitivities and public scrutiny. In each case, it was clearly found that senior leadership had identified the need for increased dependence and ‘partnering’ with defence industry, and equally, the need for increased flexibility of employment for both civilian and military personnel within DND.<sup>43</sup> Later in the paper, the extent to which such recognition has been turned into departmental guidance and direction will be examined.

## **DND VISION AND GUIDANCE DOCUMENTATION**

Several key documents (and one symposium report) put out by DND in the past few years help to point out the ‘need’ for innovative thinking and change, i.e. ‘thinking out of the box’, and particularly so when considering the way ahead for HR activities and the flexibility of employment issues facing the CF and being considered by DND as a whole. The key documents considered as part of the research were:

- a. *Shaping the Canadian Forces: A Strategy for 2020* (a.k.a. *Strategy 2020*);
- b. *People in Defence Beyond 2000: A Human Resource Companion to ‘Strategy 2020’*;
- c. *Human Resources Strategy 2020: Facing the People Challenges of the Future*;
- d. *Defence Plan 2001: The Department of National Defence and Canadian Forces Internal Annual Business Plan for Fiscal Year 2001/2002*;
- e. *Strategic Capability Plan (SCP) for the Canadian Forces*;

- f. The *Creating the Canadian Forces of 2020* Symposium (and its web-based report and discussion); and
- g. *Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper*.

In *Shaping the Canadian Forces: A Strategy for 2020*, otherwise known as *Strategy 2020*, the need for adaptation to a new world that includes a new order for the workers is characterized in the need to deepen competencies, and therefore of obtaining and maintaining,

*“multi-skilled people – key to our success in the future is a strong, self-disciplined and well-motivated work force with multiple skills permitting flexible employment. To ensure progress in this we must focus upon teamwork, intellectual capital, knowledge management, and innovation.”*<sup>44</sup>

It is the ‘multiple skills’ and ‘flexible employment’ portions of this vision that make it especially applicable to, and supportive of, a new career option that would give some the opportunity to ‘interchange’ with industry. Retention of intellectual capital and innovation can be best achieved by offering opportunities in new and unique initiatives which both serve to benefit the service and the individual. For it is the individual that is key in today’s world; as pointed out by Commodore Girouard, the investment made in people is significant and, in today’s climate of skill-set competition, all efforts must be made to make the CF the “career of choice,”<sup>45</sup> where the goal is to “develop flexible career policies to meet changing requirements, examine and adapt new training strategies, and develop and implement a recruitment and retention programme that better meets future defence team requirements.”<sup>46</sup> Having said this, *Strategy 2020* goes even further in indicating that this new attention being paid to the individual must have as its desired end-state to improve the flexibility and capabilities of defence overall.

*Strategy 2020* has ‘Strategic Partnerships’ as its Objective #7; it enunciates clearly that it is important in the future to “establish clear strategic, external partnerships to better position defence to achieve national objectives.”<sup>47</sup> The key five-year targets for this objective include

important strategic partnerships with Other Government Departments (OGDs), public service employee unions, and other national and international players so as to better leverage these to achieve defence goals, the most relevant of these stated as it being important to “reformulate key domestic, public, and private sector partnerships to lever defence capabilities.”<sup>48</sup> *People in Defence Beyond 2000* (the HR companion to *Strategy 2020*) examines the HR implications of *Strategy 2020* and notes that “we need to be innovative and flexible. By doing so, we will enable the defence team to position DND and the CF as an employer of choice over the next decade.”<sup>49</sup> *HR Strategy 2020: Facing the People Challenges of the Future*, which is a 2002 document, describes the recently renewed HR mission as,

*“The HR mission is to develop and implement HR plans, policies and programmes to recruit, develop, and retain people to effectively support the CF in all operations it is asked to perform. The ability of the CF Human Resource system to accomplish its mission is central to the readiness and capability of the CF.”*<sup>50</sup>

This latest document goes even further than *People in Defence Beyond 2000* and *Strategy 2020* in demanding more flexibility and recognizing the need to develop tailored programmes:

*“Personnel policies and programmes must be designed to enable leaders to develop and maintain the commitment, capabilities, and well-being of their people, recognizing that the value of people within the CF increases when they are effectively developed and employed with respect for individual attributes and aspirations.”*<sup>51</sup>

***It then provides direct recognition of the advancing pace of change and a need for  
‘partnering’ with industry:***

*“The capability to keep pace with the Revolution in Military Affairs (RMA) and remain interoperable is high and the effects of rapid innovation and advance in science and technology make obsolete equipment a persistent reality and the CF must respond by encouraging continual learning and establishing partnerships not only with the educational system, but with industry.”*<sup>52</sup>



*Defence Plan 2001* and the *SCP*, whilst being largely business planning oriented, also clearly identify the need for procurement reform<sup>53</sup> and for developing a ‘partnership’ with industry as part of fostering defence relationships overall.<sup>54 55</sup>

The last two documents reviewed in the research approach the topic from a more technical standpoint. However, both come very quickly to the need for innovative thinking, particular as regards HR initiatives, and being very similar in thinking and relevant to the innovative approach touted by the senior military leadership discussed earlier.

The web-based report for the symposium on *Creating the Canadian Forces of 2020* is direct in supporting an ‘exchange’ or ‘interchange’ of technical personnel: “An exchange of people between industry and DND might also promote training and retention of expertise and be an enabler of the co-operative process.”<sup>56</sup> It also supports the need for procurement reform from the industry perspective, in that, “industry experiences with PWGSC suggest that the current procurement process may create the perception of a barrier between a defence client and the defence company supplier. The current rules need to be changed.”<sup>57</sup> The study *Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper* supports a relationship with industry in which industry would get to ‘know best’ what to provide and how, in response to a set of capabilities that DND needs for the longer term as well as providing for more immediate needs: “When planning future upgrades and acquisitions, DND / CF should consider programme buying instead of project buying as this would allow for better capital planning, and it would strengthen relationships with industry.”<sup>58</sup> In this approach, industry might even be best placed, and tasked, to suggest to DND when and how to replace or upgrade systems through their life. The RMA Paper summarizes the suggested way ahead as follows: “The capabilities of the

defence industry community, involved at an early stage in the procurement process, should be fully utilized by DND in the establishment of the future force.”<sup>59</sup>

While the remaining number and types of documents, and Internet and DND Intranet web sites reviewed and visited are varied, they can be grouped into the areas of: partnering research (including examples from OGDs, other countries, etc.); terms of service departmental (DND) guidance; and overall departmental guidance, direction, ‘Way Ahead’ reports, and documents and articles. The sources reviewed all provide direct or indirect support to ‘partnering’ and ‘exchanging’ of personnel with industry in order to adapt to change and to leverage resources. In this context, it seems a logical next step to conduct a specific examination of the support for a need for innovation and change as the next stage for proposing an ‘interchange’ with industry.

## CHAPTER 3

# THE NEED FOR INNOVATION AND CULTURE CHANGE

*“There is no more delicate matter to take in hand, more dangerous to conduct, or more doubtful in its success, than to take the lead in the introduction of a new order of things. For he who innovates will have for his enemies all those who are well off under the existing order of things and only lukewarm supporters in those who might be better off under the new.”<sup>60</sup>*

It is clear that continuous change within DND / CF has been *de rigueur* for some time and looks to remain so. It is also clear that there is a need for continuing innovative thinking in order to leverage resources to the maximum benefit of the service but also for the individual, for it has become a virtual necessity to achieve a win / win arrangement in order for organizations to flourish through the happily applied efforts and achievements of their personnel. There is also a clear recognition of the need for acquisition process reform in order to support the end-user: “to increase their programmes’ opportunities for success (to provide the warfighters what they need, when they need it, and at an affordable cost)”,<sup>61</sup> put another way (again, in US terms, but this time by the USA’s Defence Systems Management College (DSMC) rather than as seen from the perspective of a practitioner military officer) – “the objective will always be to provide the warfighter with more capability, sooner and at less cost.”<sup>62</sup>

This chapter identifies and examines some examples of how some are trying to achieve these improvements, both within and outside Canada, and inside or outside of DND. More importantly though it looks at the views especially of senior CF leaders. It also looks at high-

level documentation in DND / CF about the need for further efficiency gains and a set of processes that cannot afford duplication, but must still remain committed to ‘challenge and support’.<sup>63</sup>

## THE FUTURE OF DEFENCE INDUSTRY IN CANADA – NICHE & SUPPORT

The Defence industry in Canada, some might say, is in a perpetual state of change. For warship building, certainly, the tale has been one of boom and bust. Of late, there has been a shift in thinking that would see the avoidance of such boom and bust times but actual steps are yet to be taken. Two ways that are being considered that are of interest and relevance to this paper and its ‘exchange’ proposal are: development of niche capabilities,<sup>64</sup> for example in the integration of systems bought offshore and brought into Canadian and other nations’ platforms, and development of the integrating Command and Control Systems (CCSs) themselves; and in securing contracts with DND for long term support<sup>65</sup> of operational systems, rather than the traditional transition into internal through-life support by the Navy’s Project and Life Cycle Materiel Management (LCMM) system. But, as put by Alistair Edgar and David Haglund, any such migrations at the defence industry’s macro level will not be easy:

*“For the defence industry (as for other forms of economic activity), success and prosperity are created, not inherited. One lesson that has become clear from our review and analysis of the problems and prospects, as well as the incentives and constraints facing the Canadian defence industrial base in the first post-Cold war decade is that creating the conditions for success is a very complex and difficult task.”<sup>66</sup>*

Canada’s defence industry therefore must work to create the climate for these changes, and it therefore has always had difficulty building up the right type of personnel base, and faces, as a result, difficulties in making the right type of changes, as seen here:

*“Dependence on niche markets also requires that Canadian industries retain a skilled work-force, capable of adapting quickly to changing industrial processes and techniques. The chronic structural reality of the Canadian defence industry is that the industry has traditionally faced shortages, or at least uncertain availability of skilled production workers, experienced technologists, and engineers.”<sup>67</sup>*

There is therefore clear realization that changes must be made in the industry, but also that the right personnel are scarce; therefore other types of innovations must be sought.

*POST-COLD WAR INSTABILITY – THE NEED FOR INNOVATIVE THINKING AND NEW PARTNERSHIPS*

Defence industry then is poised now (and really always has been, it could be argued) to face the reality that “seems evident: the process of change will continue for some time to come”<sup>68</sup> – and the industry leaders are indicating that they are ready to look at a closer relationship with DND in order to achieve this.<sup>69</sup> DND, similarly, is ready to embrace this type of change but it too has had, and will continue to face difficulties.

As the Cold war ended, the search for the ‘peace dividend’ drove most nations, Canada included, to reduce defence budgets. As the 1990s decade drew out, it became clear that instability, rather than the stability and increased security that was expected, was the new order of day in the world<sup>70</sup> for both nation-states and individuals, but the drive for defence budget reductions was already well underway in Canada: “During the budget reduction period in the mid-1990s most of the savings were achieved through personnel cuts and deferring of capital acquisition.”<sup>71</sup> The axe was in fact double-edged, as the cuts came at the very same time when a necessary capital renewal was taking place; the Navy was spending capital to the tune of \$1B per year to replace the ‘steamers’ with the CPFs, upgrade the IROQUOIS class via the TRUMP modernization, and introduce the MCDVs.<sup>72</sup> Worse yet, more general capabilities, vice

specialized ones, were being sought after at around the same time; the 1994 Defence White Paper called for “modern, multi-purpose, combat-capable forces,”<sup>73</sup> placing even more pressure on the CFs personnel systems and budgets in order to keep up and provide a more varied force, with a more tooth-biased tooth-to-tail ratio.

However, not only personnel requirements changes and the reduction in capital drove the need for change. The accelerating pace of technology was equally of a changing nature and daunting. There was the realization by those at the top of the CF and DND that real changes were needed in how business was done and how value was perceived:

*“In the defence programme environment we attempt to minimize the price we pay for goods and services by concentrating our buying power to maximize discounts and by conducting fair competitions. Value is created, however, by acquiring the right thing at the right time in concert with the right training, logistics, and doctrine. It is the consumer of the service or product who ultimately assesses the value. In the case of the defence programme, it is the government and people of Canada receiving the defence good who assess its value. Defence must continuously strive to increase the value of its outputs, building upon its core competencies and producing synergy from its horizontal linkages.”<sup>74</sup>*

The Vice Chief of the Defence Staff (VCDS) of the day (late 1990s), and DND’s overall resource manager, was Vice-Admiral G.L. (Gary) Garnett. His article *The Flag and General Officer as a Resource Manager* points out the demands placed on those in Command and in senior resource management positions during the tumultuous time of change:

*“Such an environment demands that leaders understand, practice, and work to improve efficient, innovative, and technically sound resource management practices, while at the same time working to evolve the institution in order to create an environment conducive to those practices taking hold. Leading and commanding effectively in the modern resource environment demands personnel capable of exercising foresight and initiative at the macro-level, keeping the core business of defence – combat capability – firmly in mind.”<sup>75</sup>*

Admiral Garnett, amongst others, realized very quickly during his time at DND’s resource helm that change was the name of the game and that, while they were still forging ahead with

personnel issues such as Quality of Life and still finishing out the last of the deep reductions in personnel and capital, and all the while still keeping up with the business of planning for continued re-equipping of the Army, Navy, and Air Force, they also had to fundamentally change how they did resource management. He noted that it was by watching the business world and emulating business practices, and keeping up to the changes being made in the private sector, that he and the other leaders would be able to keep up with both the changing face of society and the personnel coming from that society into his military, and with the need to react to the changes the information age brought: “Resource management is a military art that has its roots in business science.”<sup>76</sup> He and his cohorts recognized very quickly that “to do this we must create an environment that attracts and retains highly skilled and motivated people.”<sup>77</sup>

People are the most important element in any change initiative since it affects them, their desires for careerism, and ultimately their families. Many studies have shown that while monetary compensation is an important issue, there are other issues that are important as well when trying to retain people.<sup>78</sup> One area of personal motivation that is sought out by the youth entering the military and those who have been in for some time, as pointed out by Commodore Girouard in his paper, is ‘flexibility of employment’, and this means choices. People are different and what interests or motivates one person is not the same as that which motivates another. One naval officer may want to command a Ship of his or her own (many have been known to pursue this with heightened vigour, this being the more traditional path for so-called operator (MARS) officers), whilst another prefers to be in a support role (engineers, logisticians for example; even some operators that would normally be in that group that would pursue command come to the personal realization that commanding and even going to sea for a lifetime is not necessarily what they, or their families, want, yet they can still, and often want to make a

meaningful contribution to the Navy from ashore, and they can). The challenge is to help these types of personnel who desire to depart somewhat from the traditional mainstream to find their ‘calling’ and to have in place flexible work opportunities.

In the naval engineering community, this can translate to a desire to manage maintenance resources at the waterfront or to manage future projects at NDHQ, or a myriad of other possible employment options considered to fall between these two extremes. Some prefer sea time and others prefer to live and work in Ottawa; either way, the system must present a variety of opportunities so that individuals’ strengths can be leveraged, to the good of the Navy overall primarily, but also to provide meaningful and enjoyable employment for the individual type in question. Since some engineers, for example, are currently attracted to leave the Forces because of the opportunity they seek to work in industry (sometimes because of the financial remuneration, but sometimes not – it may simply represent a desirable career experience), and they can’t taste this fruit without leaving, there is a win / win opportunity in the proposed ‘exchange’ where DND might be able to retain these types of people in the Navy, and, following a ‘secondment’ to industry (rather than having them leave), to make use of their experience there on return to the Navy following this time ‘embedded’ in industry. Admiral Garnett recognized this as another reality of the knowledge age and the emerging DND climate of the day:

*“As we move into ever more integrated methods of warfighting, supported by rapidly developing information technology, and applied through increasingly complex weapon systems, the knowledge held by our service personnel and civilian employees will become a source of power unto itself. Because knowledge is most useful in team environments where it may be exploited to maximum advantage, the informal team is becoming a powerful knowledge-based tool. We must create an environment where knowledge is cultivated and shared through education and integrated interaction. We must seek to generate desired results, allowing for some manoeuvring room in our organizations in order to let our knowledge workers get on with the job of producing results. In such an environment, senior leaders are often best employed in managing the knowledge worker, rather than the knowledge itself.”<sup>79</sup>*



So, this is how the leaders felt about change; they knew it was a constant and that they needed, and continue to need to consider ways to doing so efficiently. The department's direction, guidance and way ahead planning documentation also needed to reflect a commitment to innovation, change, and increased 'partnering' in order to support efficient change.

## **EFFECTING CHANGE WITHIN DND / CF**

As stated in the literature review, the CF is facing major HR issues, being "challenged by social trends, new economies, changing demographics, a rapid pace of technological change and revolutions in business and military affairs."<sup>80</sup> As stated earlier, these are being discussed and manifested in the changes being seen in how the CF seeks the goal of becoming an 'employer of choice'. Perhaps the largest factor identified by the department in terms of change is the discussion on the Revolution in Military Affairs (RMA), and the associated Revolution in Business Affairs (RBA).

It is from within RMA circles that there is discussion on changes to industry and the military as a combined entity. At the symposium on *Creating the Canadian Forces of 2020*, in April 2000, Concept Development and Experimentation and Modeling and Simulation (CDE / M&S) was introduced, and the resultant web-based report concluded that it would have a "likely impact on the direction of Canadian defence and its interrelationship with industry."<sup>81</sup> The symposium report also noted several industry challenges, including, "new niche technologies, further specialization and diversification, the formation of new international collaborative arrangements, and increasing international competitiveness,"<sup>82</sup> and then went on to identify the need for collaboration: "New mechanisms must be employed to ensure a viable, vibrant, and vital Canadian industry niche capability; the establishment / maintenance of a healthy industry /

government collaborative arrangement focused on 2020 and beyond.”<sup>83</sup> In the study *Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper*, there is the strongest support and drive for change overall, particularly in the area of Materiel Acquisition and Support (MA&S), and the need to get closer to industry and of changing the way contracting is carried out:

*“The RMA phenomenon that poses challenges to MA&S is the speed of technological change, both for the initial acquisition and the on-going support. By the time the operational need is defined in a traditional specification, the technology has moved on leaving behind an obsolete document that would be subjected to continual amendment in the attempt to define what the government is contracting for. Solutions such as the adoption of contracting techniques which eliminate / reduce the need for specification writing will help.”*<sup>84</sup>

The RMA concept paper also suggests that the adoption of commercial practices and strategic outsourcing of ‘bundles’ of goods and services should be pursued with industry, and that the best provision and support will be achieved by “specifying only performance standards for the end product / service required as opposed to technical specifications; procurement lead times will be shortened by reducing the complexity of the contract paperwork required.”<sup>85</sup> This paper goes on to clearly state its case for ‘partnering with industry’:

*“The people side of the equation should be emphasized. Creation of partnerships with industry for all stages of procurement should be considered. Along these lines, teaming arrangements should start at the concept stage, proceed through the various stages, where applicable, to the competition stage, to the investment stage. If partnering between government and business is to be successful, there must be a balance between risk sharing and funding. In twenty-first century partnering arrangements, the government must accept its portion of the overall risk of a project, work assignment, programme or joint venture.”*<sup>86</sup>

In its HR discussion, the paper goes beyond the need for procurement reform to espouse an accompanying, complimentary people solution:

*“Less traditional training options must be considered, such as experience in the private sector, partnerships with other federal governments, exchanges with allied forces, acquiring training and developmental means outside of DND / CF,*

*and liaising with outside specialists and experts. The primary objective is sustainability: DND / CF members should benefit from an agile system that is able to change rapidly and adapt to state-of-the-art knowledge. All training must be relevant to the job at hand.”<sup>87</sup>*

The job at hand can take many forms; so should the employment opportunities. It seems then that the leaders, and those who have prepared guidance and way ahead documents on behalf of the department and for those leaders, agree with the need for innovative change and ‘partnering’ with industry in some form. In Canada and in other countries, several initiatives have been heading down this path, for various reasons, and could provide both support to change and exchanging personnel, and models to be built upon.

## **ALTERNATIVE METHODS – LEVERAGING THE RELATIONSHIP WITH INDUSTRY**

In the US and the UK, the ultimate form of ‘partnering’ with industry is in Integrated Product Teams (IPTs). In IPTs, government and industry engage in the process of refining requirements and conceptualizing together right from the start, agreeing on what exactly can be delivered, how, in what time frame, and by agreeing requirements in open meetings right up front, so as to avoid the need to re-hash these in a formal sense every time there is misunderstanding or that there is clarification required, as is the case under the current contracting mechanisms. The idea appears quite simple, as explained in layman’s terms below, but the idea of signing up with a contractor before it is known what is going to be developed and agreed to, is a difficult one to penetrate practically from within typically ‘resistant-to-change’ defence procurement circles:

*“Partnership is an essential strand of smart procurement and IPTs are intended as a means of giving expression to this concept and for its practical application. The idea is simple enough, and to its advocates self-evident. If the people who*

*are going to use the kit – namely the armed services – and the people who are going to provide it – namely industry – can be brought together at the beginning, then the real requirements can be explained and thrashed out at an early stage, and the real potential of modern technology for increasing cost-effectiveness can be released and a wastefully adversarial negotiating process can be avoided. In this way the armed services will understand better what is really needed. This, so the argument runs, should allow agreed trade-offs between capabilities, costs, and in-service dates, with something in it for everybody.”<sup>88</sup>*

IPTs may be worth considering in the future but their overall goals, as stated above, can be attained by, initially at least, restricting the ‘partnering’ to the proposed talent ‘interchange’. Outsourcing and collaborating with industry in order to provide goods and services to DND is not new, and so some of these should be considered for adaptation rather than attempting an IPT construct right away.

Finally, as stated earlier, Alternative Service Delivery (ASD) has been around for some time and is being actively pursued in DND; the department’s stance on ASD is that, “we will continue to pursue ASD and public-private partnering where it makes sense to do so (following the continuous improvement approach), under the Modern Management agenda.”<sup>89</sup>

This chapter has examined the leadership and documentary evidence of the recognition of the need for change agenda maintenance within DND, as well as the view on the need for adaptive, innovative thinking from the departmental leadership, as expressed via published articles and reports in the last couple of years. With this ground work in place, and the continual adaptation of commercial business practices and planning (including capability-based planning as a logical replacement for the former threat-based planning), the climate appears ripe to propose an ‘exchange’ or ‘interchange’ of personnel with industry as DND moves further down the road of ‘partnering’ with industry.

## CHAPTER 4

# AN INTERCHANGE WITH INDUSTRY PROPOSAL

*“The global marketplace is driving change in the industrial sector to the extent that the companies of the future could look much different from their current day counterparts. This profound change will be accelerated by the linkages between the Revolution in Military Affairs (RMA) and the Revolution in Business Affairs (RBA). In turn, this will drive the requirement to improve ties between industry and [Canada’s] Department of National Defence (DND) / Canadian Forces (CF). To that end, existing relationships must be solidified and new ones forged. Our exploration of Materiel Acquisition and Support indicates that much can be done to improve the end-to-end procurement process. Doing so will benefit industry as well as the department. In addition, opportunities exist for industry to become more actively involved in a new support paradigm and the extent of involvement in this area needs to be actively explored.”<sup>90</sup>*

In the last chapter, it was demonstrated that there is a real and required need for innovative change; resources have been stretched to the breaking point, requiring a new look at how future systems are procured and supported, and thus the idea of a ‘partnering’ with defence industry has arisen. Many initiatives are under way in Canada and in other countries; time will tell if they accrue true efficiency savings and speed the process of getting systems and support to the systems used by those who deploy operationally. With staff reductions and belt tightening of budgets, the time has come to allow for a closer, more trusting relationship with defence industry, who are now, as a result of heading in directions such as ASD and other programmes like the DRDC Defence Industry Research (DIR) programme, becoming better positioned to provide for a more end-to-end provision and support regime.

## THE PROPOSAL – AN INTERCHANGE OF PERSONNEL WITH INDUSTRY

The last chapter discussed some examples of initiatives and programmes that are changing the processes and arrangements for getting the job of systems procurement and support done, and done holistically rather than piecemeal, and through the leveraging of the power of ‘teaming’. One ‘teaming’ arrangement in which limited resources and funding levels can be leveraged to the utmost is to collaborate with industry by ‘trading’ personnel with them. Exchanging personnel is certainly nothing new to the Canadian Forces who have been taking advantage of opportunities to send personnel abroad to experience how other nations’ Forces function, and accepting foreign personnel to fill positions, sometimes key ones, here in Canada. The learning opportunities and the application thereof of personnel returning from the host nation has been invaluable in bringing home the shared ideas and the experience for application where appropriate. Foreign exchanges, however, are not the only way that the Canadian Forces and others have entered into these types of win / win situations.

## BUILDING ON THE ‘TRAINING WITH INDUSTRY’ EXPERIENCE

During the CPF and TRUMP projects, the Navy ‘embedded’ personnel in uniform with the contractors designing and building their respective Command and Control Systems (CCSs) as a means of both advancing the development and completion of these complex systems as being responsive to the needs of the Navy (these ‘embedded’ military personnel bringing both the greater desire to produce a field-able product, and sea experience and expertise), and as a means for grass-roots level personnel to gain specific and detailed familiarity with the inner workings of the systems. The idea was that, when considering this group as a team, the collective as well as

the specific knowledge would make the challenge of transitioning these new and complex systems from the development environment of the contractors' laboratories, test beds, and development facilities to Ships and naval support facilities successful. Overall, there is no doubt that the Training with Industry Programme (TWIP), as it was known, was successful in imparting the contractor's technical knowledge to the TWIPs in uniform<sup>91</sup>.

The TWIP had the added effect of contributing to speeding the actual product completion. This is because, as the systems became more mature in the latter stages of development, and came closer to becoming operational, the greater the need was for the developers to understand how the systems were to be used operationally. This is where the TWIP was of benefit to the defence contractors involved, namely Litton Systems Limited for the TRUMP project and Paramax Electronics for the CPF project. The operational experience of sailors, both with operating and / or maintaining systems that were at sea in the older Ships currently sailing in the Canadian Navy, and with just knowing the Navy and sea environments proved invaluable inputs to both the hands-on functionality and the operational applicability of the systems. Therefore, based on these successes, the current management climate, the lack of opportunity for uniformed personnel to 'get close' to the inner design and workings of systems they may someday use or be responsible for in some manner, it appears as though the time has come for a talent 'exchange' between DND and that relevant portion of Canada's defence industry.

## WHY EXCHANGE?

Once a company has won a (major) contract for the development of a system, it is hereby proposed that a long term formal 'partnership' be entered into between DND and that company.

Given the examples previously discussed, this is a logical direction for the DND / industry relationship to take given that in-service support by industry, vice DND, is ever more likely to be included, and therefore contracted for over a long period of time. From this, it is further proposed that, within the framework of this ‘partnership’ (for the given system and associated contract), a talent ‘exchange’ (or ‘interchange’) be established between DND and the company in question. The advantages for industry and DND are as per the TWIP; industry gets an operationally capable and, more importantly, current individual, and the Navy gets an individual back at the end of his or her ‘secondment’ with intimate knowledge of the inner workings, and issues, for the system in question. Even if this knowledge is not directly applied upon return to the Navy from industry, the experience gained can bear upon other and / or future systems equally well in terms of applying the experience and lessons learned.

## THE CANDIDATES FOR EXCHANGING – TECHNICAL PRACTITIONERS

This is the biggest gain, and is precisely why DND should undertake such an ‘embedding’ of their personnel into industry – the direct and applicable knowledge and experience one could receive in being required to carry out tasks that they would never be exposed to currently in their Naval engineering career. These could include: hardware and / or software engineering design and integration (including Commercial-off-the-shelf (COTS) hardware and software); participating in and preparing design reviews; test development; dealing with subcontract issues from the contractor perspective; considering obsolescence issues; requirements refinement and validation and transformation for the design; completing trade-off studies; working with the requirements for configuration and data management (CM and DM) and quality assurance; using and choosing software development tools; building and testing



prototypes; ensuring environmental qualification concerns are addressed; preparing system specifications; and ‘spinning’ the resultant technology for re-use in other projects, to name a few.

The likely candidate rank level, initially at least, would be at a chosen career point between technical qualification (phase 6 – ‘44C’ qualified in the case of a Combat Systems Engineer (CSE) and senior Lieutenant (Navy) (Lt(N))). This is however, only one example of how a young naval engineer could be ‘embedded’ in industry and exposed first hand to the design and development process, and in plain view of industry ‘best-practices’; more senior levels could also be ‘interchanged’.

#### **A MANAGEMENT LEVEL EXCHANGE AS WELL**

At the more senior level, the focus could be one of project management or even participating in a bid proposal<sup>92</sup>, again, all with a view to experiencing, and thereby better understanding the industry response to a Request for Proposal (RFP) or how a design, development, or support project is managed from the industry perspective. At this level, experience could also be gained in such areas as: managing budgets; participation in related project and product teams; participating in a competitive analysis process; gaining an understanding of corporate finance (eg. cost accounts, indirect vs direct costs, overheads, etc.); resource management; and understanding the interplay with supporting departments within the company (eg. procurement, contracts, human resources, finance, business development, etc.)<sup>93</sup>. From this, the benefits for DND of ‘exchanging’ selected personnel (not all engineers would or could be afforded such an opportunity, given the other personal and professional desires and requirements on career progression; this being in line with the ‘Putting people first’ initiative

within Canadian defence ‘Modern Management’ directives<sup>94</sup>) can clearly be seen for at least two points in time of a naval engineer’s career. But, the benefits for an industry ‘secondment’ to DND could be equally beneficial.

*REVERSING THE PROCESS – ‘EMBEDDING’ INDUSTRY PERSONNEL INTO DND*

If a designer, technocrat, or junior manager in a given company does not have military, let alone naval experience, he or she starts immediately from a position of disadvantage when trying to best support and deliver on the requirements of the Navy. Requirements definition and specification writing are considered difficult ‘interpretive’ arts, and these are further constrained, in terms of resolving issues and reaching agreements, and in terms of time lost, by the formal contracting system and its inherent formality. Even if the individual were to be of military or naval background, they may be out of date operationally or technically as to the Navy’s priorities, policies, and overall direction since they left the service. If such a person were ‘transplanted’ or ‘embedded’ into a project management or engineering role within DND, they too could experience the ‘other side of the fence’ and, equally importantly to DND, could bring into DND an understanding of what industry needs or wants or could use in order to deliver a better system more efficiently and quickly. This understanding could be applied to the process for generating and refining both operational and technical requirements. Further, relevant and recent business ‘best-practices’ could be brought to bear where appropriate within DND for application and continuing improvement to processes used in procurement and support.

For the individual coming to DND temporarily from industry, lessons could be learned and returned to industry in areas such as: understanding project and programme management in

government; understanding the relationship with Public Works and Government Services Canada (PWGSC) to a better and more intimate level so as to better comply with contractual requirements more quickly; interfacing with other support personnel and branches within DND; developing and implementing acceptance tests on behalf of the crown (thereby gaining experience in what the customer expects during these); planning for and executing trials including operational sea trials (including the coordinating and calling up of supporting resources such as aircraft, and dealing with conflicts and Ship commitments / interference items, etc.); and understanding the project process within DND, and the constant requirement for ongoing justification of projects vis-à-vis overall funding levels. Again, as per the DND ‘secondment’ to industry, more than one career point could be exploited for the appropriate level of experience and exposure. A junior engineer, for example, and especially one with little or no military exposure could take a two year hiatus from industry and be ‘embedded’ into the DND Equipment Programme Management (EPM) framework in positions such as junior project manager for a small or medium sized project, or project engineer assisting a civilian or military project manager.

In reality, and for all these cases and examples, the possibilities are boundless, and would depend heavily on the specific project and persons involved, and their levels, tenure, and personalities; management and selection of projects and personnel would require careful consideration prior to engagement. In a future iteration of this ‘interchange’ programme, industry contracts and financial management personnel could be considered for similar ‘other side of the fence’ experiences; eventually, the rotation could be almost seamless and serve to build upon itself in terms of return on investment.

*ROOM FOR GROWTH – THE ‘SELF-DEVELOPING’ NATURE OF AN INTERCHANGE  
PROGRAMME*

Such an ‘interchange’ would be ‘self-developing’ as more employees from industry, and DND civilians and military personnel, would rotate through the experience. The further along this ‘interchange’ would proceed over time, the better the experience gained, and the more familiar and intimate the knowledge that could be ‘carried’ back and forth for an improved understanding and more open communication of ideas, concepts, etc., and higher levels of trust between DND and ‘established’ support and development contractors in defence industry. The important point in all of this is to see that only policies and imagination could limit the power and benefit of such a programme; its very name could lead some to misinterpret the idea and resist its implementation.

**WHAT’S IN A NAME? – TO PARTNER, ALLY, TEAM, EMBED, EXCHANGE,  
INTERCHANGE, RELATE, OR INTEGRATE?**

Determining what to name such a proposal for greater ‘partnering’ and ‘teaming’ with industry may seem trivial when compared to the ramifications the proposal may have on defence / industry interdependence and the defence industry culture. However, it is not trivial and requires careful consideration.

The Assistant Deputy Minister (Materiel) (ADM (Mat)), Mr. Alan Williams, has said on numerous occasions that to ‘partner’ with industry is not something he, and his Materiel Group, would like to do.<sup>95</sup> The reason, Mr. Williams said, was that industry does not hold the same values as those on the government side of the ‘government-industry duet’.<sup>96</sup> Industry has different priorities, including the generation of profit and the best return for the company

stakeholders, and this might not always be in the best interest of the customer and end-user, DND. However, numerous examples abound, and these have been previously discussed, where governments of the US, the UK, Australia, and Canada, for example, have stated that they are indeed pursuing a closer ‘partnership’ with industry and other entities. Nonetheless, different titles mean different things to different people, and as is the case for Mr. Williams, people tend to bring different ‘baggage’ and connotations with certain names; so it is therefore important to be careful in choosing the right label for a defence-industry ‘partnering’ / ‘integration’ / ‘narrowing-of-the-boundary’ idea. The Research and Development (R&D) area, because of its very nature to be in continuous pursuit of ground-breaking technology and its application and transformation from a limited laboratory development to something useable and reliable in the field, is one area that has long held, and been carefully developing, its relationship with industry. This is particularly true for the ever-more-frequent application and adaptation of commercial technologies for use in the military environment.

In 1997, the Chief of Research and Development (CRAD) was wrestling with the idea of increasing the level of ‘partnering’ with the R&D and high technology sectors of Canadian industry. In order to examine this question from the proper perspective, the Defence Science Advisory Board (DSAB) produced Report 97/3 on ‘Partnering’, in which future ‘partnering’ possibilities could be explored, possibly based on the fledgling Defence Industrial Research (DIR) programme.<sup>97</sup> The Board also looked at the effects of, and ramifications to, the current contracting system.

What is interesting about this report, is that the first question dealt with is that of ‘partnering’ and the ramifications of the word itself. The ‘Partnering Re-defined’ section of the report states that ‘partnering’,

*“is currently a fashionable word, with a comfortable lack of precision which renders it adaptable to a wide variety of applications which might be better served by more explicit definitions. The Board believes that the word ‘partnership’ should not be used in describing the kind of research collaboration, alliance or teaming arrangements under discussion. A true partnership can entail legal implications and obligations which make it inappropriate. Instead, the term ‘collaborative research teaming’ (teaming) is suggested since it offers more flexible contract arrangements. It is understood that all members of such a team offer and contribute something tangible to achieve a mutually agreed result.”<sup>98</sup>*

So, the term ‘partnering’ was set aside by the DSAB in favour of ‘teaming’ “in order to provide leverage to offset diminishing defence resources and to help sustain the Canadian defence Research Base.”<sup>99</sup> But this was in 1997, and more development in this area has occurred both within Canada and in other countries. The acceptance climate for such ‘partnering’ proposals seems to have softened as evidenced by the many initiatives being considered, and the fact that there seems to be no alternative in the face of diminishing resources – this was, after all, an examination of the Research and Development (R&D) ‘world’. But, ‘collaborative research team’, the term suggested by the DSAB, is not appropriate to the proposal of this paper. Again, perception being everything and the label conjuring up different connotations and interpretations within different people, it is important to choose the right term. The following terms have therefore been considered (in no particular order): ‘partnering’ (partnership); ‘alliance’; ‘teaming’ (team); ‘embedding’; ‘exchange’; ‘interchange’; ‘relationship’; and ‘integration’. For each, their definitions are provided below for comparison sake, as extracted from The Concise Oxford Dictionary, Webster’s Dictionary, and The New Roget’s Thesaurus:

Partnering (partnership) – sharer (with person, in or of thing), person associated with others in business of which he shares risks and profits, associate (*Oxford*); one who shares something with another, two or more persons who run a business together and share in

the profits and losses (*Webster's*); co-owner, colleague, confrere, co-operator, collaborator (*Roget's*);

Alliance – joining in pursuit of common interests, association (*Oxford*); union, connection by common interest, an affinity (*Webster's*); association, union, coalition, federation, affiliation, partnership (*Roget's*);

Teaming (team) – harnessed together (*Oxford*); a group of people trained to work together (*Webster's*); workers, crew, gang, party, faction, sect (*Roget's*);

Embedding – fix firmly in surrounding mass (*Oxford*); to fix or enclose tightly in a surrounding mass (*Webster's*); (-) (*Roget's*);

Exchange – give thing in place of (for) another; give and receive (positions, etc.) (*Oxford*); to give in return for something else; to trade; the substitution of one thing for another (*Webster's*); interchange, commutation, conversion, reciprocation, substitution, *quid pro quo*, give-and-take (*Roget's*);

Interchange – reciprocal 'exchange' (of things) between two persons, etc.; alternation, (of two persons) 'exchange' things with each other, put each of (two things) in the other's place; alternate (*Oxford*); to put each in the place of another; to give and receive in return (*Webster's*); swap, switch, substitute, 'exchange', commute, convert (reciprocal) (*Roget's*);

Relationship – what one person or thing has to do with another, way in which one stands or is related to another, kind of connection or correspondence or feeling that prevails between persons or things (*Oxford*); natural association (*Webster's*); connection, affiliation, alliance, association, interdependence, interconnection, correlation, linkage (*Roget's*); and

Integration – combination of diverse elements of perception, complete by addition of parts (*Oxford*); to make whole by joining parts together; to unify (*Webster's*); (-) (*Roget's*).

Taking each one of these in context, it can be seen by examining the various definitions and synonyms that it is indeed important to select the right one. The dictionary definitions do highlight some 'connotations' (and therefore personal perceptions). Each term has merit, or fault, as follows.

'Partnering', as delineated by the DSAB, has remained a popular and easily-used term but its definitions, particularly in the 'sharing' and 'running' of a business together with the commensurate profits and risks – this is not what is desired between industry and government – do point at an arrangement that some could interpret as being too close (notwithstanding that other organizations and countries make use of the term with some liberal interpretation for the sake of convenience and understandability). In this case, Mr. Williams may be right in his concern about calling the DND / industry relationship or arrangement a 'partnership'. 'Alliance' can also be discounted as 'too close', and is therefore inappropriate.

'Teaming' is the term chosen back in 1997 by the DSAB, and while it may well have been suited to the desired end-state then being sought, it does not capture the essence of two very independent groups that must maintain an arms-length arrangement of sorts, even if the desire is to get them 'closer'.

'Embedding' has been the term-of-choice for the Supply Chain Project (SCP) as regards the placement of military and civilian personnel within the contractor's organization in order to leverage their internal-to-government position, where it makes sense to do so in delivering the services and products of Supply Chain management. 'Embedding' could be used for placing one



side's person into the other's organization, and this does make it attractive as a possible label, since, as in the case of the Navy, this is in fact what is desired in order to get early- to mid-career individuals immersed in the inner workings of a defence industry contractor. However, it is not appropriate to a full two-way arrangement.

Many people in uniform can relate to the term 'exchange' since the Canadian Forces has been participating in exchanges with other Forces around the world for a number of years now. In fact, an 'exchange' of personnel would suit the goals of forging a closer relationship with industry and, by examining its definition, is reciprocal, but without the too-close 'profits and losses' and 'association' connotations of 'partnering'.

'Interchange' is attractive for the same reasons as 'exchange' but goes even further in more clearly pointing out the reciprocity of the 'exchange'.

'Relationship' is not specific enough, allowing for too broad an interpretation, and the application of one's own connotations, thereby running the danger of not being close enough a relationship.

Finally, 'integration' is also discounted, but for the opposite reason in that it implies far too close an arrangement, completely eliminating, seemingly, any notion of the arms-length arrangement.

The term 'interchange' then, has been chosen over 'exchange' both for its better enunciation of the desired reciprocity being sought in this proposal, and since 'exchange' already has its 'place in the sun' for Forces' exchanges with other countries. As well, there already exists an 'Interchange Canada' programme, and an associated Treasury Board of Canada Policy regarding this programme that is a "developmental programme that promotes and facilitates the 'exchange' of employees through temporary assignments between Federal Public Service

departments and agencies and all other sectors both within Canada and internationally.”<sup>100</sup> That programme exists to “foster a better understanding between the Federal Public Service and other sectors for the purposes of creating improved services, and to strengthen Canada’s partnerships”<sup>101</sup> – the approach here being both national as well as international. This makes ‘interchange’ better suited as a term to describe the proposed arrangement over ‘exchange’, which brings with it the connotation, in defence circles at least, of international-only. Having laid out the foundation and chosen a name for the proposal, it is appropriate to consider counter arguments put forth in the literature and in discussion groups.

#### *COUNTER ARGUMENTS TO A CLOSER RELATIONSHIP BETWEEN GOVERNMENT AND INDUSTRY*

There is very little literature and printed matter to argue against ‘partnering’, and even less arguing against personnel ‘exchanges’ (certainly, foreign exchanges for those in uniform have always been viewed as successful in exchanging ideas and practices between countries’ Armed Forces and defence departments). There are, however, problems with government ‘getting so close’ to its industrial provision of goods and services base, and in the most progressive model of ‘partnering’ review thus far, IPTs, there are also counter-arguments.

In his article “Smart thinking”, Humphry Crum “examines the theory underlying the UK defence industry’s Smart procurement initiative.”<sup>102</sup> In this article Mr. Crum points out that the UK reform that resulted from their 1998 Strategic Defence Review, and the Smart procurement initiative, with IPTs as the lynch pin of the initiative, was a “means of getting more for less, to generate, over time, substantial savings in procurement costs.”<sup>103</sup> This seemingly reflects exactly what was pointed out here as being needed by defence departments all over the world – to get the

right equipment to the end-user quickly and cost-effectively. He does pose interesting counter-argumentative questions; amongst others, “was there not a danger that control over the choice of equipment would move from what the armed services need to what industry decided to provide?”<sup>104</sup> He goes on to ask some of the implementation questions of the UK government one would expect after a period of running IPTs, mostly relating to their practical workings. IPTs are not being proposed here, only an ‘interchange’ of personnel which does not go as far as IPTs in aligning industry players with government, but his counter-arguments to IPTs are relevant, and would certainly be applicable should the decision be taken downstream to go further than an ‘interchange’ and on to IPTs as per the US and UK models.

One of Crum’s strongest counter arguments to IPTs and therefore greater ‘partnering’ with industry is that of “partnership and competition often coming into conflict with one another.”<sup>105</sup> In other words, if government and industry are that close, and that soon in the process, how can open and fair competition be maintained without pre-judging the capability of contractors to respond to the requirement and to do so at best value to the taxpayer’s dollar? Crum summarizes this nicely from industry’s point of view:

*“The stronger the requirement for competition the less likely that any particular company will get the contract, and the less likely are the prospects of gaining continuing business. From the recognition of this there is already a greater reluctance on the part of the senior management of industrial companies to allocate money and time to participation in preparatory debate in pursuit of a one-off contract. If competing bidders sit on the same IPT, then there will be an understandable reluctance for them to put forward innovative proposals for the more cost effective procurement of a particular capability when their competitors will be in a position to borrow or steal this.”<sup>106</sup>*

So, this says that maybe it is better for industry, as they do now, to wait for development and then assess their ability and potential to run with a developed technology and make it into what

defence is looking for. There are also personnel implications for IPTs that may have relevance for this ‘interchange’ proposal.

Another area that could have applicability to an ‘interchange’ experience is in the area of career implications for military personnel that would be involved in IPTs. As Crum puts it,

*“Military participants in the IPT should have two conflicting attributes. One of these is that they should hold these appointments for the full duration of the project, something that is difficult to fit into the appointments and promotion structures of a progressive military career. The second is that they should have close, up-to-date, active service familiarity with systems that work well, those that do not and why. This requires, among other things, that individuals should be going in and out quite frequently between staff and front-line appointments. It also requires that the military participants should bring to this relatively mundane work a comparatively scarce and valuable range of skills.”<sup>107</sup>*

This is absolutely true, and could not be truer here in Canada where the military engineering base of those in uniform is small (certainly true in the Canadian Navy’s engineering personnel numbers), making it more crucial that they receive their training and experience at sea – that ever-important operational experience that will enhance their ability to procure the right systems later in their career in response to the requirements as put together by ‘operators’ but whose requirements require ‘translation’ into technical specifications and requirements.

So, how can such individuals spend the time Crum suggests is needed, as part of IPTs, and still gain the all-important sea experience as well? They can’t, at least not if the numbers do not support it<sup>108</sup>, and so in Canada’s naval procurement system, the best option is Crum’s latter of cycling fairly frequently (at the right time is more important really than the frequency) in and out of staff and ‘water-front’ positions. The best way to do this then, given the smaller numbers of personnel for ‘partnering-with-industry’ in Canada, is not, at least for time being, to partner with industry in IPTs, but to ‘interchange’ personnel at the right time and for the right projects –

Crum's argument above against IPTs actually indirectly supports this 'interchange' proposal, as not being such an integrating-with-industry endeavour, against which he argues<sup>109</sup>.

In Canada, the fact that a large number of retiring naval engineers go on to work for defence industry contractors, can help to obviate some of these concerns since these people can also bring their experience and expertise in the procurement arena to the table. Although their operational or acquisition / support experience might be out of date, the experience is nevertheless a positive contributor, their values affected by their time in the Navy – having developed an affinity with the Navy and therefore wanting the best for the Navy<sup>110</sup> - makes these people, as much as any, well suited and positioned to help the Navy, in their new-found industry role, to help ensure the best product or support in the right way and at the right time, to support the 'warfighter'.

Finally, Crum goes on to discuss the need for a negotiated and unrestricted method of 'partnering' in which the barriers of current formal contractual mechanisms are knocked down, and kept down, making IPTs and the Smart procurement initiative more palatable to industry in which established arrangements become:

*“a real pathfinder towards a different and more modern form of supply; to provide a continuing capability, involving ongoing product development and supply of goods and services rather than simply to supply, once-off, a specific number of items to a specified design. If that lesson is learned and sensibly followed through, then smart procurement has a better chance of being perceived by industry as worthwhile in relations to the up-front expenditure and commitment involved. It needs to become a recognizable opportunity to secure, in the fullest sense of that term, ongoing profitable business.”*

The relevance here is that the mind-set needs to shift for procuring systems from one of obtaining something in a best-value-for-money effort and then worrying about support later, to one of bundling – Canada is already thinking this way, as discussed earlier, and needs to continue to do so in a more aggressive way – where the provision of new capability and its long-

term support are tied together in the same contract. This is the mentality that is needed before any ‘interchange’ or even limited partnership with industry is contemplated.

This chapter, then, has come up with a proposal for DND, and for the example purposes of this paper, for the Navy’s capital programme management, to undertake a carefully planned ‘interchange’ of junior- and management-level personnel between DND and industry. The R&D Defence Industrial Research (DIR) programme has been identified as a reasonable model, the recently let CSES contract seems well positioned as a possible pilot, and the existing Treasury Board of Canada ‘Interchange Canada Policy’ can be built upon as an example; the policy and process aspects and implications now need to be considered.

## CHAPTER 5

# THE EFFECT OF A DND / INDUSTRY INTERCHANGE TO PROCESS, POLICIES, AND CAREER PROGRESSION

*“Our people have absorbed this changing environment with a determination to succeed and a continuing high level of commitment to defence and to public service goals and values. But the lesson of the past decade is that we must focus our efforts better and ensure that our plans, policies and programmes allow us to meet the challenges of an unpredictable security environment and that we adapt and exploit the dynamics of social and technological change.”<sup>111</sup>*

Undertaking an ‘interchange’ of personnel, as proposed in the last chapter, is a departure from the normal arms-length relationship that has traditionally existed between the Canadian government and defence industry in Canada. The closest ‘swap’ of personnel of this type, at least in Navy circles, was the TWIP for the CPF and TRUMP projects, and these have been discussed and reviewed previously. For these specific and fixed-duration initiatives there were special provisions and policies that were put in place for employment of personnel alongside the defence contractor. Actually, these were relatively few, and concentrated more on the protection of intellectual property for the contractor. There seemed to be no doubt, both in the mind of the contractor and in the minds of the uniformed personnel involved, that the arrangement was temporary and that the uniforms would return to normal naval service following their ‘embedding’ secondment to industry. Since this was the case, there was no perceived need to put in place stringent policies regarding this temporary employment.

For a more permanent arrangement such as in this ‘interchange’ proposal, and one in which personnel would be ‘disappearing’ into industry, and usually on an individual one-for-one basis rather than as part of a team of TWIPs, the need for strong yet flexible policies is immutable.

This chapter will review some processes and policies, and examine their implications, along with any high level changes to them that may be required to help the ‘interchange’ along.

It will also consider any implications the proposed ‘interchange’ will have to the MARE officer’s career progression, as the suggested ‘interchange’ ‘guinea pig’.

## THE DEFENCE MANAGEMENT SYSTEM

The mainstay for defence acquisition in Canada is the Defence Services Programme (DSP). The process for acquiring military systems is guided by the Defence Management System (DMS). At the core of the process is a structure in which specialist organizations interact with one another in order to oversee the process from conception to development (building if appropriate on R&D efforts) to production, to testing and trials, to acceptance and placement into service. In the Navy’s case, this is started and overseen for a given project within the Chief of Maritime Staff’s (CMSs) future requirements section – Director Maritime Requirements Sea (DMRS). On the engineering side, ADM (Mat) conducts the engineering and programme management function of the DMS project delivery at DGMEPM. This division is separated into project management and engineering, finance and contracting, and Fleet management functions – in the Navy, this is affectionately known as the ‘matrix’ – members from each of these groups form integral parts of engineering project teams, and also provide for day to day support of the running Fleet. For all projects, there is interaction between DGMEPM and PWGSC who is responsible for contracting with industry.

The effect to the DMS by this ‘interchange’ proposal is considered minimal. It involves, as a start, uniformed members in DGMEPM (on the project management and engineering side) going to work in industry rather than at DGMEPM, for the duration of their tour or part of it (in other words, they could come back to DGMEPM following their time seconded to industry). The DMS process itself remains the same otherwise for the time being; changes could be made



downstream should the drive be to integrate more fully and / or adopt the IPT approach as in the UK and US. As well, only after some time has passed could the actual DMS process be reviewed to see where the ‘interchange’ programme could produce efficiency savings. Overall, the ‘interchange’ programme, as proposed in its form here, in and of itself, does not hinder or slow any other departmental initiatives to reform the acquisition process. In the case of policies however, there are more implications and immediate changes would have to be considered.

*POLICIES – THE APPLICABILITY OF CF FOREIGN EXCHANGES AND THE  
INTERCHANGE CANADA PROGRAMME TO AN INTERCHANGE WITH INDUSTRY*

There are policies that affect military personnel if they are selected for ‘exchanges’ with the militaries of other countries abroad, but none that currently deal with the ‘interchange’ of military personnel with industry. In the case of foreign exchanges, CFAO 10-4 lays out the goals for those chosen as being “to enable them to compare methods of operation and gain knowledge and experience of value to their parent force or agency, and, by their presence, enhance understanding and cooperation.”<sup>112</sup> Conveniently, this is directly applicable to the proposed ‘interchange’ with industry. CFAO 10-4 also points out that a further goal of ‘exchanges’ is skill-set development when it states that a criteria for establishing ‘exchange’ or liaison positions is “to maintain, augment and extend the level of operational and technical knowledge and skills essential to the CF;”<sup>113</sup> again, a similar goal to that stated for this ‘interchange’ proposal. CFAO 10-4 therefore could be drawn upon to lay the foundation for the proposed ‘interchange’. The Treasury Board of Canada Secretariat Interchange Canada Programme policy also provides some useful departure points for use in this ‘interchange’ proposal.

Under the Interchange Canada programme, policies have been put into place for, as stated earlier, the ‘exchange’ of public service employees between Federal departments and agencies and other sectors, both at home and abroad.<sup>114</sup> This includes “other governments; private industry; unions; academic institutions; and non-profit organizations.”<sup>115</sup> The Treasury Board Secretariat policy goes on to stress in the programme eligibility section that:

*“Participants must clearly demonstrate attachment to their home organization, have the support of their home organization, and remain an employee of that organization. Further, participants must return to their home organization at the end of the assignment.”<sup>116</sup>*

This is ideally suited to use for the proposed ‘interchange’ and could therefore also be adopted with only minor modifications.

Overall, the policy is organized along the following lines: introduction; programme objectives; authorities; programme eligibility; assignments (to do with durations, etc.); participant salary and benefits; relocation; conflict of interest / post-employment / security; monitoring; roles and responsibilities; references; and enquiries. A review of these reveals that almost all are applicable, either directly or following adaptation, to this ‘interchange’ proposal.

With respect to salary and performance of personnel, and this is also directly applicable, the policy states that “participants continue to receive full salary and benefits at their substantive level from their home organizations; performance evaluations are completed by the host organization in collaboration with the sponsoring organization.”<sup>117</sup> Having found and discussed some applicable guiding policies, the more contentious area, to industry at least, of Intellectual Property (IP) bears consideration.

## INTELLECTUAL PROPERTY POLICIES

One of the main areas that will require further exploration and clear definition prior to embarking on an ‘interchange’ with industry is in the area of conflict of interest and intellectual property (IP) rights, as those existing policies reviewed for possible applicability were too

specific to their own project or arrangement for easy applicability. In fact, there is evidence that even those nations that have progressed much farther than Canada down the ‘partnership with industry’ path (the UK here) are having trouble addressing the IP issue:

*“It has to be asserted that the Integrated Product Team (IPT) system is not going to work as intended unless sufficiently water-tight protection for the intellectual property rights (IPR) in innovative proposals is built into the system. There is no sign that this is adequately recognized within the Ministry of Defence or at senior levels within the procurement agency. It is also questionable whether it is recognized by the ultimate paymaster, the Treasury.”<sup>118</sup>*

Therefore, specific IP policies for this ‘interchange’ would have to be developed that would be both stringent and flexible.

A ‘firewall’ framework would have to be put into place so that uniformed personnel would not share the wrong type of information with even those managing them back in their home organization, essentially to temporarily ‘shift’ their loyalties from certain points of view<sup>119</sup>, and certainly not to share sensitive information with other companies or non-company-trusted individuals.

Overall then, from the policy standpoint, both the Interchange Canada Programme and CFAO 10-4 on CF Foreign exchanges provide excellent foundations for establishing policies for the ‘interchange’ proposal herein. To round out a review of relevant processes and policies that could be either affected or made use of, it is necessary to consider career implications of the ‘interchange’ proposal.

*THE EFFECT OF AN INTERCHANGE WITH INDUSTRY TO MARE OFFICERS’ CAREER  
PROGRESSION*

Not all MARE officers would experience the proposed ‘interchange’ with industry. In fact, this is one of the strengths of adding this flexibility to the career options for MAREs – those who do ‘interchange’ with industry can bring back the experience and impart it to others who have not and, more importantly, apply it to other future projects. The individual in question should bring a better understanding of the ‘other side of the fence’ back into DND, and thereby ease and facilitate the level of mutual understanding and cooperation in order to keep barriers to progress and equipment and service delivery down, or at least minimized.

A review of the ‘Canadian Forces Officer Specification for the Maritime Engineering Occupation’ reveals that such an ‘interchange’ would enhance the MARE’s career by reinstating a previous role dimension, that of experience in hands-on design. In the MARE Occupation Specification there are four complimentary and interdependent dimensions to the role of the Maritime Engineer (MARE): Operations and Maintenance (O&M); Design and Acquisition; Personnel; and Infrastructure.<sup>120</sup> The MARE Occupation Specification goes on to state that “Maritime Engineer officers will spend much of their time developing and interpreting technical specifications.”<sup>121</sup> Since the mid-1990s, as stated earlier, the drive has been to outsource system design and support, and have DND military and civilians working in procurement manage rather than practice. This includes any opportunities some MAREs previously had to design, code, test, and support operational software. Therefore, this dimension, and the development and interpretation of technical specifications has been an experience which is less and less frequent in the career of today’s MARE officer. An ‘interchange’ with industry, coupled with the drive to outsource and collaborate with industry, pushing more of these issues over the longer term to them, will give selected MAREs the chance to do this type of ‘hands-on’ work again, when so

‘embedded’ in industry. Again, the experience will make them individually ‘richer’ and an overall greater contributor to the Navy’s acquisition team.

This chapter has examined the implications of the suggested ‘interchange’ proposal to established procedures and policies currently used in DND for procurement. Largely, current policies and manuals are, it has been show, unaffected. The Interchange Canada Policy, combined with certain aspects of the CF Foreign exchange policy as laid down in the CFAO, could be built upon and modified so as to easily develop a supplementary draft CFAO to cover an ‘Interchange with Industry’. Work is required in the area of securing Intellectual Property (IP) rights for involved companies so as to protect these rights and efforts of development. The challenge will be in the area of achieving a good balance that still allows for military individuals to be involved in nearly all aspects of a company’s day to day activities, so that he or she can bring this experience back to DND thereby making for a better mutual understanding so as to cut down the formality of the contractual arrangement and achieve acquisition and support more efficiently and quickly. From the MARE perspective, it has been shown that introducing an ‘interchange’ will afford the MARE the opportunity to regain some of the lost exposure to hands-on activities, including design, development, and testing at a level which is not currently available to him or her.

## CHAPTER 6

# CONCLUSION

*“Implementation of Concept Development and Experimentation and Modelling and Simulation (CDE/M&S) initiatives will require new ways of doing defence procurement, therefore it is suggested that joint ventures with industry should be included in the planning process. Much greater awareness of international business practices and new defence procurement systems also needs to be included in the planning process. Cultural change is required to maximize the synergies between industry and the department. If management had a better understanding of current business practices, then there could be a smooth transition from the derivation of the Canadian Forces (CF) requirement through its development to its eventual implementation and integration as a capability. To accomplish this culture change within the department, implementation of a management-training programme for decision-makers in the most effective and efficient business procurement processes may be in order.”<sup>122</sup>*

### *REDUCTIONS AND THE RECENT GRASP FOR BUSINESS APPROACHES – TIME FOR SOMETHING NEW*

This paper has considered the drastic changes that have taken place in defence procurement in Canada, most notably through the 1990s as the world shifted from the Cold War posture to the current ‘search for stability’ era of the present. It looks, though, as if it will be a difficult search indeed.

One of the largest effects of the decade of change was to defence budgets worldwide, and Canada has been no exception. The resultant requirement has been for the downsizing of human work forces, and then of streamlining of the myriad processes those work forces use. The first step attempted by defence procurement organizations was to adopt more business-like

approaches and tools; to take a page out of the commercial sector's book, and thereby improve efficiency. For those in defence, industry was seen as being much more bottom-line focused, and was therefore a good example to try to emulate if costs were to be reduced and if the time taken to provide support and new systems to the end-user was to be cut down. The business approaches – using the 'Total Quality' initiatives, thinking in terms of 'just-in-time', and preparing business plans as a means to get better and faster simultaneously, all certainly produced a number of results, bad and good<sup>123</sup>, depending on where you stood (or sat).<sup>124</sup> It can be argued, however, that these have been 'tapped out' and that it is time for another round of innovative thinking, or perhaps more correctly, to continue to evolve the innovative thinking that got things this far.

## SEPARATING CORE AND NON-CORE FUNCTIONS, AND OUTSOURCING

If Canada's Department of National Defence (DND) is to provide for the increased demand of late for global deployability, and potentially for a growing number of such deployments simultaneously, and to be able to do this with less personnel, then the effort must become one of separating core and non-core military and management functions.

Militaries must concentrate on generating 'warfighters', to coin the US term. More than ever now, the balance between the 'warfighters' and those in and out of uniform that support them, must be tilted towards the former; the job done by the latter must continue to be done however, even if there are less resources. Much has been written and said about how this can be achieved by leveraging the government / industry interface by 'integrating', 'partnering', and 'teaming' wherever possible, but it needs to be done without blurring the interface so far as to jeopardize the government / industry relationship beyond the level of public acceptability or how

industry can operate within its competitive framework. Much of the literature out today, particularly when examining that in support of initiatives such as ‘technology partnerships’ and ‘Integrated Project Teams (IPTs)’, indicates that this can be done, and that the way to do it is to reduce conflict, share risk, and get together right up front in the development and procurement processes. There are direct team-based benefits to both defence and industry, and also direct benefits to the individuals involved when they take advantage of the ‘partnering’ synergies to ‘cross’ over and take advantage of the opportunities for learning and self-improvement.

## PARTNERING AND PEOPLE EXCHANGING

The Canadian naval experience of Training with Industry (TWIP) for the CPF and TRUMP projects is considered a success in terms of the way, for both projects, industry and naval personnel were able to work side by side, leveraging their relevant skills and strengths in order to produce useable state-of-the-art Command and Control Systems (CCSs). As government and defence industry head further and further down the path towards ‘partnering’, their arrangement can begin to take a new form that mimics the temporary arrangement that was the TWIP in which the right type of people are ‘exchanged’ and are given the chance to both learn from each other and, by combining their skills, produce a better product for the ‘warfighter’, and more quickly.

Given the success of the TWIP, the best place to start such an ‘exchange’ is with technical personnel, specifically with naval engineers. As such a programme develops and matures, it can be extended to technicians and from there to operators and other occupations. Also, the best way to ‘exchange’ people is to make it a career option and a tool to the manager, to be used when and where it makes sense to do so. In this way it is not necessarily a part of the



hard and fast career progression for an occupation. Rather, it can be tailored for both support or development contracts, and for people.<sup>125</sup> Doing this, as it has been shown, brings benefits both to the individuals involved, and ultimately then, to DND and defence industry. In turn, this will provide the impetus that is needed to ultimately offer more relevant and timely delivery of improved capability, and all the while doing so in as cost-efficient a manner as possible. There are other precedents for ‘partnering’ besides the TWIP, and these can be built upon and, more importantly, some of these can be models that can serve as starting points to get on with quickly and with reduced risk.

*A MODEL AND SUGGESTED PILOT CONTRACT FOR THE INTERCHANGE WITH  
INDUSTRY PROPOSAL*

Treasury Board’s Interchange Canada policy has been shown to make a good starting point for pulling together a policy framework for the ‘interchange with industry’ proposal. In order to get started, the DRDC Defence Industrial Research (DIR) programme has been shown to be a good model for the ‘interchange’ to be based upon, and can be examined for possible adaptation. Finally, the recently signed CSES contract for long-term support of the relatively technologically mature HALIFAX and IROQUOIS Class naval vessels is the appropriate place to pilot such an ‘interchange’ programme.

To initiate the process will require that a ‘team’ be stood up to examine the benefits, possible pitfalls, contractual concerns, career implications, intellectual property and commercial-in-confidence issues, etc. of such an arrangement. At a minimum, representation, under the current procurement constructs for defence in Canada, should include (but not be limited to) PWGSC, ADM (HR Mil), ADM (HR Civ) (a possible future programme expansion

consideration), DGMEPM, and industry (suggest Lockheed Martin Canada (LMC) under the auspices of the CSES contract since it is established and running).

Following these initial setup meetings in which the details of ‘interchanging’ people are worked out, a small select group of naval engineers (MAREs to start) could be either ‘exchanged to’ industry, to start, or ‘interchanged’ with their industry counterparts, as determined by the initiation team. It is suggested that the positions to be ‘interchanged’ be in Ottawa for both DND and LMC, and that LMCs Montreal facility, where much of the new project development for the CSES contract is done, also be considered for this pilot ‘interchange’.

Another important aspect that should accompany the ‘interchange’ programme is to institute, at the outset, a benefits measurement programme to accompany it and provide management on both sides with timely and frequent feedback on the issues and successes or failures of the programme. The goal of this benefits measurement must, at least at programme outset, be qualitative – leaving any quantitative assessment for later implementation, thereby avoiding any first-look tallying of contributions by the individuals involved. In other words, the initial programme reviews must concentrate on assessing the benefits to defence acquisition and support, and to the players, overall, rather than conducting a comparison of the contribution of individuals.

Personnel involved in the ‘interchange’ should be frequently (if not constantly) questioned as to whether they are gaining a better appreciation for the processes on the ‘other side’, so as to examine if teaming in such an arrangement really does obviate conflicts and the inherent time-loss that comes with formal issue resolution via contractual mechanisms; they should also be quizzed as to what benefits they are gleaning from exposure to a new set of day-to-day co-workers.

## WHAT MANAGEMENT SHOULD LOOK FOR FROM AN INTERCHANGE WITH INDUSTRY

The managerial leadership questions to be posed of ‘interchanged’ individuals are likely to be many, as just discussed, but the most important issue at the start must be to concentrate on breaking down the barriers between government and defence industry that have been inherent with the formal contracting process of the past, so as to ease and speed the process of getting new requirements and ideas transformed into useable operational equipment for the ‘warfighting’ end-user.

All other established contractual arrangements as to performance of contractors should remain, at least those that are complimentary to the programme and that ensure system delivery and acceptance in accordance with the original requirements, and in a timely manner. This is the challenge, in that one of the organizations may try to blame the ‘implanted’ individuals for delays or flaws – this must be avoided at all costs and calls for frequent management nurturing of the programme, particular at the commencement of play.

This paper has proposed an ‘interchange’ with industry which will enhance the career flexibilities of individuals and provide a greater knowledge-base to the Canadian Forces and DND as a whole. Much innovative adaptation and renovation to processes, organizations, and even cultural thinking within defence circles has taken place over the past fifteen years or so, but more is needed. Capability-based planning and making use of business practices to better manage and lead people and resources have made their mark and continue to do so. Given the recent reductions, losses of resources – both financial and human – and the resultant shift to concentrating on the priority of core capabilities, maximum use of opportunities for leveraging experience and knowledge in personnel must be made.

As well, in order to avoid losing these personnel within which much investment has been made, tailored programmes that allow them to better choose their career path and role in the organization must be established. In other words, more flexibilities and opportunities need to be made available to both the manager and the worker so that, together, and taking into account the

priorities and desires of both DND and the individual, the right balance choice can be made without impediment of short sighted, inflexible, or invariable programmes or policies.

In terms of ‘interchanging’ with industry, the sharing of risks, financial commitments, and tasks between government and industry serve to leverage the power of teams over individuals, and better mutual understanding results from looking at things from ‘the other side of the fence’, and ‘walking a mile in the other’s shoes’ so as to better the sum of the parts with a more productive whole in which the notion that,

*“partnering differs from conventional relationships in that effective communication strategies amongst partners leads to openness and trust, better and earlier identification and hence management of project issues, particularly risks, and increased value for money gained in large scale complex procurements.”<sup>126</sup>*

This must be known, maintained and exploited to the maximum available and prudent extent.

It is therefore recommended that this ‘interchange’ with industry proposal be considered for a pilot project along with the setting up of the appropriate guidance body from senior management. A working group should be established to examine policies and processes in greater depth in order to ensure success and to remove any obvious barriers. Through continual nurturing and ensuring the goals of reforming procurement and tightening up of procurement cycle times are strived for within this programme, it will undoubtedly be successful, following which it can be built upon for other occupations and rank levels within the CF, and for civilians.

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<sup>1</sup> Department of National Defence, People in Defence Beyond 2000 – A Human Resource Companion to Shaping the Future of the Canadian Forces: A Strategy for 2020, (Ottawa: Department of National Defence), p. 2.

<sup>2</sup> Brigadier General D.L. Dempster, “Generalship and Defence Programme Management”, in Bernd Horn and Stephen J. Harris, Generalship and the Art of the Admiral: Perspectives on Canadian Senior Military Leadership, (St. Catharines: Vanwell Publishing, 2001), p. 438.

<sup>3</sup> Defence procurement here refers specifically to that portion of the Capital programme set aside for purchasing new equipment for the Canadian Forces, and in this case, the Canadian Navy. It also includes that portion of the budget used for system changes and upgrades that are natural for defence systems in their life cycle. Other portions of the defence budget include O&M (Operations and Maintenance), personnel, etc.

<sup>4</sup> It is noted here that delivering obsolescent equipment is certainly not desirable for anyone involved on either the procurement side or on the end-use side of the Department of National Defence’s (DND’s) materiel or operations programmes; in terms of results it is the exception rather than the rule, but it does happen, and it could be argued that it does so more often than would be preferred.

<sup>5</sup> This dynamic is certainly well-known in the Canadian Navy and results in a friendly to and fro banter between naval officers in particular (although it does occur at the Non-Commissioned Member (NCM) level as well).

<sup>6</sup> Further, this would likely make an interesting case study in and of itself as an area of human psychology and team dynamics very relevant to the attainment of organizational goals (for organizations as large as the Navy or indeed the Canadian Forces); no further discussion, however, will be undertaken in this paper.

<sup>7</sup> S. Cannon, K. Gaylor, G. Goodwin, P. Jewsbury, R. Phillips, and B. Walsh, Defence Science and Technology Organisation (DSTO), “Future Technologies for the Next Naval Surface Combatant,” Journal of the Australian Naval Institute, vol. #25, April/June 1999: 1/8.

<sup>8</sup> Alistair D. Edgar and David G. Haglund, The Canadian Defence Industry in the New Global Environment, (Quebec City: McGill-Queen’s University Press, 1995), p.85.

<sup>9</sup> Dempster, Generalship and Defence Programme Management, p. 457.

<sup>10</sup> *Ibid.*, p. 447; see Dempster for a discussion on how these new high-technology systems affected funding and the types of support during the transformation that was seen through the 1990s.

<sup>11</sup> The Ships built for the Canadian Navy in the 1950s and 60s were powered by steam plants, and came to be affectionately known as the ‘Cadillacs’ as they were seen as quite advanced for their day and yet ‘comfortable’ to serve in both in Canada and abroad; the classes that were the ‘Cadillacs’ included the MACKENZIE, RESTIGOUCHE, and ANNAPOLIS class Ships and these saw service right up until the introduction into service of the Canadian Patrol Frigates (CPFs) in the 1990s.

<sup>12</sup> The four IROQUOIS Class destroyers, originally delivered to the Canadian Navy in the 1970s underwent the Tribal Class Update and Modernization Program (TRUMP) in the late 1980s and early 90s, coinciding quite closely with the CPF build programme.

<sup>13</sup> There were some software-intensive high-technology systems that had been present in the old ‘steamers’ but none of the distributed nature and complexity level of the CPF and TRUMP Command and Control Systems (CCSs); these did however face their own complexity challenges. Examples include the Automated Data Link and Processing System (ADLIPS), the Canadian Electronic Warfare System (CANNEWS), the Message Handling System (MHS), and the Anti-Submarine Warfare Directing System (ASWDS), to name a few.

<sup>14</sup> For the CPF and TRUMP projects, the main operational software, as stated previously, was the Command and Control System (CCS) package, with both systems being in the millions of source lines of software code (SLOCs). These software-driven systems were highly distributed and involved complex, multiple-processor operation and co-ordination not previously seen in the Canadian Navy, or even in other countries or other services. They are of course much more commonplace today. Further, although the term has been used in this paper before this point, it is perhaps appropriate here to mention that the term software ‘maintenance’ is, to some, a contentious one. Software ‘maintenance’ is not the same as hardware maintenance in that it is not taken apart, etc. and ‘maintained’ *per se*, but it does require constant ‘maintenance’-type attention as it is almost never delivered as a perfect product (to do so would require much more time than is already taken to deliver on software production products) and therefore requires optimization over time post-delivery (in other words it was delivered ‘good-enough’ and gets perfected and

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changed as time goes on). Also, the end-user requirements will undoubtedly change over time (this is one reason, amongst many today, that software is used to control hardware systems). There are also other reasons that define the need for continuous post-delivery ‘care and feeding’ of naval software-intensive systems, including the requirement to change or add to the overall combat system, vice just changing the software of the CCS itself, of the vessel in question.

<sup>15</sup> The NSSI was developed at the time of, but not specifically as part of either the personnel reductions (OPERATION EXCELLERATE – the Canadian Forces’ (CFs) programme to reduce personnel numbers, particularly in headquarters’ staffs), or the CPF or TRUMP projects.

<sup>16</sup> The MCDVs do not have the same operational systems as the CPFs and TRUMPs because of their roles, concept of operations, and crewing by the Naval Reserve. Also, relatively speaking, a larger number of their systems are Commercial-off-the-Shelf (COTS) and can therefore be supported via commercial industry methods and supplies (spares for example). This made them very much more suited for arms-length, industry-led, support right from the start.

<sup>17</sup> The CSES contract is an eight-year contract, to be reviewed initially at the four-year point, with a possible opening to competition should the project management and leadership deem it so necessary (if they were to be unhappy with the support or if another industry group expressed interest and capacity to provide this type of engineering support, for example). Or, if all was well, an extension could be granted for two additional two-year periods (again, reviewed in between these two periods), for the total of the eight years.

<sup>18</sup> Edgar and Haglund, *The Canadian Defence Industry in the New Global Environment*, p. 69; Edgar and Haglund are quoting W.L. Claggett.

<sup>19</sup> Examples of ‘hands-on’ activities that junior engineering officers are more and more unlikely to encounter or experience, that they might have prior to outsourcing engineering and software support, includes hardware engineering design, software development, attending and planning for design reviews (from the ‘other side of the table’), test development, dealing with detailed subcontract issues, obsolescence management, requirements’ analysis and translation into high-level design, trade-off analyses, configuration management, data management, quality assurance, the exposure to and use of software development tools, the building of prototypes and testing, re-use of software and technology for use in other related projects, dealing with environmental qualification issues, and specification writing, to name but a few.

<sup>20</sup> ‘Partnership’, as a term used to describe a government-industry relationship, brings connotations of employer-employee relationship issues with it for some. However, it continues to pervade much of the literature of late that deals with developing a closer (and better) supporting-supported relationship between government and industry in general. Other terms that can better represent and define a government-industry ‘partnership’, and have also seen use in some of the literature and in some specific projects and undertakings, are employee ‘embedding’, employee ‘sharing’, ‘secondments’, ‘teaming’, ‘exchange’, ‘interchange’, and ‘collaborate’; a suggested ‘best’ term for the proposal being put forward will be developed within this paper.

<sup>21</sup> Commodore Roger Girouard, *Seeking Flexibility and Fulfillment: Providing ‘Wins’ on Multiple Levels*, (Victoria: Royal Roads University, 2001), p. 1.

<sup>22</sup> This was the previously stated goal for better procurement and support to the ‘warfighter’. In his paper *Seeking Flexibility and Fulfillment: Providing ‘Wins’ on Multiple Levels*, Commodore Girouard employs a win/win/win parlance, signifying ‘wins’ for the Navy overall, for industry, and for individuals. He spends considerable time developing these; see his paper for a greater appreciation.

<sup>23</sup> In his paper, *Seeking Flexibility and Fulfillment: Providing ‘Wins’ on Multiple Levels*, Commodore Girouard states within one of his recommendations that resulted from his research that DND should “assess the potential of embarking on a full, long-term partnership programme with industry. Select occupations to conduct pilot programmes (MARE and technical occupations lend themselves particularly to the process, as do individuals targeted for business or management employment), then design and offer ‘custom-made’ partnered career opportunities where *employee sharing* is a viable concept with industry;” this supports the notion that technical personnel would be suited to be considered for a pilot exchange with industry programme that fits within the various career progressions.

<sup>24</sup> Not all MAREs or even all Combat Systems Engineers (CSEs) within this occupation would be appropriate for exchanging with industry within this proposal; it does not have to be incorporated formally as part of the MARE Occupation Specification (OCC SPEC) or career progression. In keeping with the current drive for more flexibility of employment, this exchange of personnel is simply another ‘tool in the tool box’ for leaders and managers. Also, if successful and beneficial to both the service and individuals, a reciprocal move of industry personnel into DND project management positions, for example, could be considered – this will be explored later in this paper.

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<sup>25</sup> Department of National Defence, Shaping the Future of the Canadian Forces: A Strategy for 2020, (Ottawa: Department of National Defence, 1999), p. 10; much of DND's guidance documentation, as well as Commodore Girouard's paper, states this as a goal. *Strategy 2020* terms it 'Career of choice' in its objective #6, further stating the aim to be to "position defence as a rewarding, flexible and progressive workplace that builds professional teams of innovative and highly skilled men and women dedicated to accomplishing the mission."

<sup>26</sup> Department of National Defence, People in Defence Beyond 2000 – A Human Resource Companion to Shaping the Future of the Canadian Forces: A Strategy for 2020, p. 1.

<sup>27</sup> Sea time includes time training to be a Maritime Engineer (MARE) – Combat Systems (CS), and the time spent as the Combat Systems Engineering Officer (CSEO) of HMC Ships SAGUENAY and NIPIGON.

<sup>28</sup> Lieutenant David Evans, "Naval Maintenance for the New Millennium," Maritime Engineering Journal, October 1997: 14-17.

<sup>29</sup> Lieutenant General George E.C. Macdonald, "Leadership in an era of change and complexity", in Bernd Horn and Stephen J. Harris, Generalship and the Art of the Admiral: Perspectives on Canadian Senior Military Leadership, (St. Catharines: Vanwell Publishing, 2001), p. 169.

<sup>30</sup> Department of National Defence, DND Intranet web site: [http://vcds.mil.ca/dgsc/tem1\\_e.asp?doc=page4a&sec=lin](http://vcds.mil.ca/dgsc/tem1_e.asp?doc=page4a&sec=lin) - Resource Centre – Links – MCCRT Historical Report, (Ottawa: Department of National Defence, 2000), visited 07 March 2002.

<sup>31</sup> Department of National Defence – Defence Science Advisory Board (DSAB), DSAB Report 97/3 on Partnering, (Ottawa: Department of National Defence, 1997), p. 1.

<sup>32</sup> In a May 2000 SCP Update (Volume 1, Issue 3) put out by ADM (Mat), the issue of 'embedding' (one of the terms to be considered for naming this 'exchange' proposal and an example of 'partnering' with industry) military personnel at a contractor's facility is discussed. See the report for more details; for the purposes of this paper suffice to point the SCP out as an example of ASD and 'partnering', therefore no more information on the SCP will be given here.

<sup>33</sup> Technology Partnerships Canada, Backgrounder – Canadian Aerospace Collaborative Technology Development Initiative, (Ottawa: Industry Canada), p.1.

<sup>34</sup> Technology Partnerships Canada, Backgrounder – TPC Aerospace and Defence (A&D) Supplier Development Initiative, (Ottawa: Industry Canada), p.1.

<sup>35</sup> Defence Science Advisory Board (DSAB), DSAB Report 97/3 on Partnering, p. 1.

<sup>36</sup> *Ibid.*, p. 5.

<sup>37</sup> *Ibid.*

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.*

<sup>40</sup> *Ibid.*, p. 3.

<sup>41</sup> *Ibid.*

<sup>42</sup> Girouard, Seeking Flexibility and Fulfillment: Providing 'Wins' on Multiple Levels, p. 13.

<sup>43</sup> *Ibid.*, p. 7.; Commodore Girouard's paper devotes considerable energy examining the research related to covering attrition issues such as recruiting, retention, skill-set competition and "the desire for satisfaction, challenge, and growth opportunity amongst today's workforce;" see his paper for a more detailed analysis. The Commodore's findings are herein accepted as valid as regards the ability, or lack thereof, for DND to recruit and retain personnel, and therefore it is agreed that there is a need for a more flexible work environment (in fact, this supports the basis for proposing a greater leveraging of synergies through a greater 'partnership' and / or exchange with industry since resources are so tight). Much of the research conducted by Commodore Girouard, however, was conducted prior to the terrorist attacks on the USA on 11 September 2001, and it could be argued that, as a result of these, and the economic downturn that occurred in, around and following that event might somewhat have improved the opportunities and ability to recruit and retain within militaries in general. Nevertheless, in the opinion of the author, his overall conclusions and recommendations remain valid and applicable.

<sup>44</sup> Department of National Defence, Shaping the Future of the Canadian Forces: A Strategy for 2020, p. 8.

<sup>45</sup> *Ibid.*, p. 10.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*, p. 11.

<sup>48</sup> *Ibid.*

<sup>49</sup> Department of National Defence, People in Defence Beyond 2000 – A Human Resource Companion to Shaping the Future of the Canadian Forces: A Strategy for 2020, p. 2.

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- <sup>50</sup> Department of National Defence, HR Strategy 2020: Facing the People Challenges of the Future, (Ottawa: Department of National Defence, 2002), p. 4.
- <sup>51</sup> *Ibid.*, p. 5.
- <sup>52</sup> *Ibid.*, p. 12.
- <sup>53</sup> Department of National Defence, Defence Plan 2001: The Department of National Defence and Canadian Forces Internal Annual Business Plan for Fiscal Year 2001/2002, (Ottawa: Department of National Defence, 2001), p. 5-6; Chapter 5 (The Change Agenda), Key Initiative 3.2.3 states that “ADM (Mat) is to execute the first stages of the implementation plan (developed during FY 01/02) for a 30 percent reduction in the capital acquisition cycle time between receipt of Preliminary Project Approval (PPA) and achievement of Full Operational Capability (FOC). An initial progress report shall be made to Defence Management Committee (DMC) by October 2002.”
- <sup>54</sup> *Ibid.*, p. 5-7.; Chapter 5 (The Change Agenda), Key Initiative 4.1.1 states “ADM (Mat) is to strengthen and continue to implement key domestic and international public and private sector alliances for the provision of end-to-end materiel acquisition and support to lever defence capabilities. An initial progress report shall be made to Defence Management Committee (DMC) by October 2002.”
- <sup>55</sup> Department of National Defence, Strategic Capability Planning for the Canadian Forces, (Ottawa: Department of National Defence, 2000), p. 11; this document summarizes the new reality of the day, “As the span of potential asymmetric security threats continues to widen, the importance of synergistic co-operation between government agencies and business sectors will only become more important.”
- <sup>56</sup> Department of National Defence, DND Intranet web site: <http://vcds.dwan.dnd.ca/dgsp/dda/symp/> - VCEMD – Director Defence Analysis: Creating the Canadian Forces of 2020 symposium (26 – 28 April 2000), (Ottawa: Department of National Defence, 2000), visited 07 March 2002, p. 4 of 5.
- <sup>57</sup> *Ibid.*, p. 3 of 5.
- <sup>58</sup> Department of National Defence, Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper, (Ottawa: Department of National Defence, 1999), p. 10.
- <sup>59</sup> *Ibid.*, p. 33.
- <sup>60</sup> Macdonald, Leadership in an Era of Change and Complexity, p. 172; General Macdonald is quoting Machiavelli, 1531.
- <sup>61</sup> Colonel Richard Engel, “Overarching Integrated Product Team – Working Integrated Product Team Process”, Defence Systems Management College: Project Management Special Issue, January / February 1997: 50.
- <sup>62</sup> Defence Systems Management College, Web site: <http://www.dsmc.dsm.mil.jd> - Integrated Product Teams (IPTs), visited 07 March 2002, p. 1.
- <sup>63</sup> This is a term often used by Commodore James R. Sylvester, Director General Maritime Engineering Programme Management (DGMEPM), on the need for separate equipment programme managers, and supporting financial and supply groups that both support the project managers in obtaining systems and services, and challenge them as to finances and contracts, mostly with respect to transparency, financial accountability, and competitive fairness.
- <sup>64</sup> Edgar and Haglund, The Canadian Defence Industry in the New Global Environment, p. 78.
- <sup>65</sup> Department of National Defence, Director General International and Industry Programmes (DGIIP) Report – Defence Industry Policy and International Relations with Industry, (Ottawa: Department of National Defence, 1998), p. 12.
- <sup>66</sup> Edgar and Hagland, The Canadian Defence Industry in the New Global Environment, p. 143.
- <sup>67</sup> *Ibid.*, p. 78.
- <sup>68</sup> *Ibid.*, p. 144.
- <sup>69</sup> In the author’s last National Defence Headquarters (NDHQ) position within DGMEPM, senior industry executives and programme managers expressed on several occasions that a ‘partnership’ or even exchange of personnel with DND was palatable to them and could serve to alleviate problems on both sides of the DND ‘government-industry duet’.
- <sup>70</sup> Department of National Defence, Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper, p. iv; this paper states in the forward that “while at first the Cold war’s end seemed to promise a permanent draw-down of armed forces, it has become clear in these last years of the 20<sup>th</sup> century that while the threat of global war is remote, conflict is more prevalent than ever.”
- <sup>71</sup> Dempster, Generalship and Defence Programme Management, p. 446.
- <sup>72</sup> Captain (N) Greg Romanow, Director Maritime Requirements Sea (DMRS), briefed Command and Staff Course (CSC) #28 in January of 2002 that the combined expenditures of the CPF, TRUMP, and MCDV projects, at their cumulative height in the 1990s, were totalling \$1B per year.



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- <sup>73</sup> Department of National Defence, Web Site: [http://www.dnd.ca/eng/min/reports/94wpaper/white\\_paper\\_94.html](http://www.dnd.ca/eng/min/reports/94wpaper/white_paper_94.html) - 1994 White Paper on Defence, (Ottawa: Department of National Defence, 1994), visited 07 March 2002, Chapter 3.
- <sup>74</sup> Dempster, Generalship and Defence Program Management, p. 443.
- <sup>75</sup> Vice Admiral Gary L. Garnett, "The Flag and General Officer as a Resource Manager", in Bernd Horn and Stephen J. Harris, Generalship and the Art of the Admiral: Perspectives on Canadian Senior Military Leadership, (St. Catharines: Vanwell Publishing, 2001), p. 466.
- <sup>76</sup> *Ibid.*, p. 467.
- <sup>77</sup> *Ibid.*, p. 473.
- <sup>78</sup> Girouard, Seeking Flexibility and Fulfillment: Providing 'Wins' on Multiple Levels, p. 46; in fact the entry level of the Canadian military put so-called 'soft issues' quite far above pay as reasons for joining. In order, the reasons for joining are: challenge; career opportunity; responsible job; learn skill; serve country; work with leaders; discipline; independence; education opportunity; comradeship; travel; job security; *pay*, pay education; live elsewhere; learn 2<sup>nd</sup> language; and jobs scarce – Commodore Girouard's source for this survey is ADM (HR): Long Term Capital Plan (Human Resources) (LTCP(HR)), 1999.
- <sup>79</sup> Garnett, The Flag and General Officer as a Resource Manager, p. 475.
- <sup>80</sup> Department of National Defence, Defence Plan 2001: The Department of National Defence and Canadian Forces Internal Annual Business Plan for Fiscal Year 2001/2002, p. 4-1.
- <sup>81</sup> Department of National Defence, DND Intranet web site: <http://vcds.dwan.dnd.ca/dgsp/dda/symp/> - VCEMD – Director Defence Analysis: Creating the Canadian Forces of 2020 symposium (26 – 28 April 2000), introduction.
- <sup>82</sup> *Ibid.*
- <sup>83</sup> *Ibid.*
- <sup>84</sup> Department of National Defence, Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper, p. 23.
- <sup>85</sup> *Ibid.*, p. 26.
- <sup>86</sup> *Ibid.*, p. 31.
- <sup>87</sup> *Ibid.*, p. 37.
- <sup>88</sup> Humphry Crum, Web site: <http://www.global-defence.com/pages/smart.html> - Smart Thinking, Global Defence magazine, visited 07 March 2002, p. 1.
- <sup>89</sup> Department of National Defence, Web Site: [http://www.vcgs.dnd.ca/dgsc/asd/tem2\\_e.asp?sec=1](http://www.vcgs.dnd.ca/dgsc/asd/tem2_e.asp?sec=1) - Director General Strategic Change: About ASD, (Ottawa: Department of National Defence), visited 07 March 2002, p. 1.
- <sup>90</sup> Department of National Defence, Canadian Defence Beyond 2010 – The Way Ahead: An RMA Concept Paper, p. viii.
- <sup>91</sup> The knowledge referred to here is that at the grass roots – within those designers and developers closest to specific and small parts that made up the greater Command and Control Systems (CCSs) and the overall Combat Systems for both Classes – being imparted to those in the Navy both chomping at the bit to take delivery, and to put this new technology 'through its paces'.
- <sup>92</sup> Participating, as someone still serving actively in, and being paid by the Navy, in an activity such as a bid proposal, i.e. prior to any firm contract being awarded for a given procurement or support system or activity poses a number of ethical, intellectual property, commercial-in-confidence, and policy issues. It is envisioned that a number of policy and contractual frameworks would have to be put into place – a type of 'firewall' arrangement, and signed up to by all parties (particularly the uniformed individual being seconded to industry). These will be discussed in the next chapter.
- <sup>93</sup> The author was intimately involved in his last position with the putting into place of the Combat Systems Engineering Support (CSES) contract for long-term support of the HALIFAX and IROQUOIS Classes of Ships (including their software support and change requirement – this being done by industry; specifically Lockheed Martin Canada in this case). In fact, outsourcing of support via the previously discussed GOCO arrangement has been in place since the end of the CPF and TRUMP contracts. Those in DND charged with overseeing support for these systems have had to learn about such issues as direct vs indirect costs if they were to properly manage the contract and the support – it might be more efficacious to give some of these individuals more direct exposure that they could 'bring back'.
- <sup>94</sup> Department of National Defence, DND Intranet web site: [http://dgpa-dgap.mil.ca/dgpa/mod\\_man/Agenda\\_e.htm](http://dgpa-dgap.mil.ca/dgpa/mod_man/Agenda_e.htm) - Modern Management in Defence – April 2001 (Human Resources Strategy Pillar: People – Our most important Resource), (Ottawa: Department of National Defence), visited 07 March 2002, p. 7 of 24.

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<sup>95</sup> Mr. Williams stated this at a presentation to Command and Staff Course (CSC) #28 at the Canadian Forces College (CFC) in Toronto in the fall of 2001. He has also said it when providing a briefing to personnel of DGMEPM at a Professional Development seminar, in the fall of 2000.

<sup>96</sup> Mr. Williams has not been heard by the author to employ the 'government-industry duet' term; this is the author's term borrowed from Edgar and Haglund (and Claggett).

<sup>97</sup> Another example of such a programme is the Industry Research and Development (IRAD) programme; the IRAD will not be discussed here; suffice to say that it is sufficiently similar in nature to the DIR programme for the purposes of this paper.

<sup>98</sup> Defence Science Advisory Board (DSAB), DSAB Report 97/3 on Partnering, p. 1.

<sup>99</sup> *Ibid.*, p. 1.

<sup>100</sup> Government of Canada – Treasury Board Secretariat, Interchange Canada Policy, (Ottawa: Government of Canada), p. 1.

<sup>101</sup> *Ibid.*

<sup>102</sup> Humphry Crum, Web site: <http://www.global-defence.com/pages/smart.html> - Smart Thinking, p. 1.

<sup>103</sup> *Ibid.*

<sup>104</sup> *Ibid.*

<sup>105</sup> *Ibid.*

<sup>106</sup> *Ibid.*, p. 2.

<sup>107</sup> *Ibid.*

<sup>108</sup> In both the UK and the US, they are developing, for both military and civilians, a procurement or acquisition stream, or career path, so that, once a candidate is selected, they can be assigned to a specific role.   
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<sup>121</sup> *Ibid.*

<sup>122</sup> Department of National Defence, DND Intranet web site: <http://vcds.dwan.dnd.ca/dgsp/dda/symp/> - VCEMD – Director Defence Analysis: Creating the Canadian Forces of 2020 symposium (26 – 28 April 2000), p. 4 of 5.

<sup>123</sup> There are some that believe, and will always believe, that government is not a business venture – that government is not in the business of ‘making money’ – and should more rightly concentrate on providing services and combat capability with the inherent costs that entails, with less concentration on watching costs and streamlining processes. Another way of looking at it for these people is that they view government as the ‘last line of defence’ and therefore must have some backup and extra capacity and oversight capacity, to be able to pick up where the country’s effort might fail (hoping they will not of course).

<sup>124</sup> The author first heard this from the former ADM (Mat), Mr. Pierre Lagueux, who used this old adage ‘bureaucratic politics’ model phrase to describe ‘point of view’ issues – the actual phrase he liked to use was “where you stand depends on where you sit”.

<sup>125</sup> Girouard, Seeking Flexibility and Fulfillment: Providing ‘Wins’ on Multiple Levels, p. 53; Commodore Girouard terms the process of marrying people up with their ‘calling’ or a task that is suited to their strengths and desires (these may be driven by profession, personal, or family priorities) ‘job sculpting’, the name having been coined by Butler and Waldroop in their book *Job Sculpting – The Art of Retaining Your Best People* (see Commodore Girouard’s paper for more details) and its definition being: “the art of matching people to jobs that allow their deeply embedded life interests to be expressed.”

<sup>126</sup> Defence Suppliers Service UK, Web site: <http://www.dgcom.mod.uk/dgcom/partner/quotes> - Selling to the Ministry of Defence: A Note on Smart Procurement, visited 07 March 2002.

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