



The Canadian Forces Human Resources Research Framework: A Tool for Gap Analysis

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Systems Integration and Personnel Generation

Directorate of Strategic Military Personnel Research and Analysis

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Director General Military Personnel Research & Analysis
Chief Military Personnel



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Abstract

As part of the current initiative between the Chief of Military Personnel (CMP) and the Assistant Deputy Minister for Science and Technology (ADM (S&T)) to coordinate all research pertaining to human resources (HR), personnel and human factors, this study aims to create a new framework which will: 1) provide a formal structure to classify the research; 2) inform about existing research projects; and 3) identify any research gaps. This new HR Research Framework draws extensively from existing HR research categorization found in the academic/professional literature and CMP's lines of operation. It has been validated by mapping Department of National Defence and Canadian Forces (DND/CF) HR research projects into its research categories; and gaps have been identified in categories of research where there are currently no, or very few, DND/CF research projects. This paper provides an overview of the framework and presents the results of the gap analysis, bearing in mind that it was conducted using only one year's worth of data as a test case and does not reflect if earlier research may have touched on the identified gaps. Follow on studies examining past and present research for each component of the framework would be required for more definitive conclusions.

Résumé

Le Chef du personnel militaire (CPM) et le Sous-ministre adjoint (Science et technologie) (SMA[S & T]) mènent actuellement un projet conjoint visant la coordination de l'ensemble de la recherche portant sur les ressources humaines (RH), le personnel et les facteurs humains (FH). La présente étude, qui s'inscrit dans ce projet, a pour but d'établir un nouveau cadre qui permettra : 1) d'adopter une structure officielle de classification de la recherche; 2) d'être au courant des projets de recherche en cours; 3) de relever toute lacune dans la recherche. Ce nouveau cadre s'appuie grandement sur la classification de la recherche en RH qu'on retrouve dans la documentation scientifique/professionnelle et les lignes d'opération du CPM. On l'a validé en appliquant ses catégories aux projets de recherche du ministère de la Défense nationale (MDN) et des Forces canadiennes (FC); des lacunes ont été relevées dans des catégories où il n'y a actuellement pas ou presque pas de projets de recherche menés par le MDN/les FC. Le présent document fournit une description générale de ce cadre et rapporte les résultats de l'analyse des lacunes, laquelle ne constitue qu'une analyse-type fondée sur les données d'une seule année et n'indique pas si des recherches antérieures ont déjà fait état des lacunes relevées. Pour pouvoir tirer des conclusions plus exactes, il faudrait mener des études de suivi sur les recherches actuelles et antérieures portant ou ayant porté sur chacun des éléments du cadre.

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Executive Summary

The Canadian Forces Human Resources Framework: A Tool for Gap Analysis:

Nancy Otis; DRDC CORA TM 2008-059; Defence R&D Canada – CORA;
December 2008.

Background: With the Canadian Forces (CF)' heavy reliance on its people for operational capability, it is vital that human resources (HR)/personnel/human factors (HF) related research be prioritized and coordinated in order to ensure the most efficient and effective use of limited research resources. A joint coordination initiative has been undertaken between the Chief of Military Personnel (CMP) and the Assistant Deputy Minister for Science and Technology (ADM (S&T)), the two Level Ones (L1s) responsible for HR research¹ conducted in the CF, with the Director General of Military Personnel Research and Analysis (DGMPRA) in CMP tasked to develop an HR research framework and a governance structure to coordinate HR research. This study focuses on the development of the framework.

Method: The development of the HR Research Framework was based on a literature review across different research domains, including industrial/organizational psychology, HR management and HF, conducted to identify a comprehensive list of HR research themes and sub-themes. The themes were organized along CMP's personnel pillars and lines of operation to make the research projects more meaningful to senior military officers and the operational linkages more apparent to researchers. The validity and relevancy of the framework was tested by collecting all HR research activities conducted during the year 2007² within the Department of National Defence (DND) and the CF and then mapping them into the framework. This approach made it possible to identify research areas where there is currently little or no DND/CF research being conducted.

Results: The resulting HR Research Framework is made up of 57 themes (with 98 sub-themes) that are organized around seven thrusts: 1) Personnel Management System Integration; 2) Recruit; 3) Train; 4) Prepare; 5) Support; 6) Recognize; and 7) Individual, Organizational and Operational Effectiveness. The first six thrusts reflect the CMP's six personnel pillars as they were at the time of the study³; a seventh research domain was necessary for research themes that were difficult to link to specific pillars, as in some cases they crossed more than one.

During 2007, the DND/CF conducted more than 200 HR research projects. Despite the number of projects, major research gaps have been found in the following areas: recruitment sources and recruitment timing, transfer of training, mentoring, performance appraisal, motivation, burnout, job attitudes and work behaviors. Being labeled as a "major" gap means that very little research

¹ The term "HR research" is meant to be inclusive of HR, personnel and HF related studies.

² 2007 was used as the baseline year in the gap analysis as it was the year during which the framework was developed.

³ CMP's personnel pillars and lines of operation have been revised several times since the conduct of this study so the list here does not necessarily reflect the current structure.

was being conducted by the DND/CF in these areas in 2007, although these are very well researched areas in the academic/professional literature. Some emerging topics in these areas are discussed and suggestions for future research are proposed.

Minor research gaps have been identified in other areas, including: alternate dispute resolution, recognition, pay compensation, pension, and career planning. These are labelled minor research gaps because they represent areas that may require less active research. When an organization already has in place plans, systems, and/or programs that address these areas, the need for research is considered to be relatively lower. Research can become more important in response to external or internal events that provoke assessment and/or updates of what are in place.

Significance: This study provides primary evidence for the usability of a new CF HR research framework to classify all types of research related to HR, personnel and HF. Overall, the framework represents a useful tool to help both researchers and military stakeholders to gain visibility on current HR research and to identify future research that should be done. This paper also presents the results of a preliminary gap analysis, bearing in mind that it was conducted using only one year's worth of data as a test case and does not reflect if earlier research may have touched on the identified gaps. Follow on studies examining past and present research for each component of the framework would be required for more definitive conclusions.

Sommaire

The Canadian Forces Human Resources Framework: A Tool for Gap Analysis:

Nancy Otis; DRDC CORA TM 2008-059; R & D pour la défense Canada – CARO;
Décembre 2008.

Contexte : Comme la capacité opérationnelle des Forces canadiennes (FC) dépend grandement de l'effectif de celles-ci, la recherche portant sur les ressources humaines (RH)/le personnel/les facteurs humains (FH) doit absolument être priorisée et coordonnée de façon à optimiser l'utilisation des ressources de recherche limitées. Le Chef du personnel militaire (CPM) et le Sous-ministre adjoint (Science et technologie) (SMA[S & T]), les deux autorités de niveau 1 (N1) responsables de la recherche en RH¹ au sein des FC, ont entrepris un projet de coordination conjoint. Ils ont demandé à la Directrice générale – Recherche et analyse (Personnel militaire) (DGRAPM), qui relève du CPM, d'établir un cadre de recherche en RH et une structure de gouvernance pour la coordination de la recherche en RH. La présente étude porte sur l'élaboration de ce cadre.

Méthode : Afin d'élaborer le cadre de recherche en RH, on s'est appuyé sur une analyse documentaire menée dans différents domaines de recherche – notamment la psychologie industrielle/organisationnelle, la gestion des RH et les FH – en vue d'établir une liste complète de thèmes et de sous-thèmes de recherche. Ces thèmes ont été regroupés en fonction des piliers de gestion du personnel et des lignes d'opération adoptés par le CPM, afin de rendre les projets de recherche plus faciles à comprendre pour les officiers supérieurs, et les liens opérationnels, plus évidents pour les chercheurs. On a évalué la validité et la pertinence du cadre en regroupant toutes les activités de recherche en RH menées en 2007² au sein du MDN et des FC, puis en les intégrant dans le cadre. Cette façon de faire a permis de relever des domaines pour lesquels il n'y pas ou presque pas de projets de recherche menés par le MDN/les FC.

Résultats : Le cadre de recherche en RH ainsi établi comprend 57 thèmes (et 98 sous-thèmes) divisés en sept grandes catégories: 1) Système intégré de gestion du personnel; 2) Recrutement; 3) Formation; 4) Préparation; 5) Soutien; 6) Reconnaissance; 7) Efficacité individuelle, organisationnelle et opérationnelle. Les six premières catégories reflètent les six piliers de gestion du personnel adoptés par le CPM, tels qu'ils étaient au moment de l'étude³; la septième a été ajoutée pour les thèmes de recherche qui ne pouvaient pas être catégorisés en fonction de l'un de ces piliers, notamment parce qu'ils en touchaient plus d'un.

¹ Le terme « recherche en RH » englobe la recherche portant sur les RH, le personnel et les FH.

² 2007a été utilisée à titre d'année de référence dans le cadre de l'analyse des lacunes puisqu'il s'agit de l'année où le cadre a été élaboré.

³ Les piliers de gestion du personnel et les lignes d'opération adoptés par le CPM ont été révisés à plusieurs reprises depuis la tenue de l'étude. La liste présentée ici ne reflète pas nécessairement la structure actuelle.

En 2007, le MDN/les FC ont mené plus de 200 projets de recherche en RH. Malgré ce nombre élevé, on a relevé d'importantes lacunes dans les domaines suivants : sources de recrutement et calendrier du recrutement, transfert de l'apprentissage, mentorat, évaluation du rendement, motivation, épuisement professionnel, attitude à l'égard du travail et comportement professionnel. L'expression « importantes lacunes » signifie ici que très peu de recherches ont été menées par le MDN/les FC dans ces domaines en 2007, bien qu'il s'agisse de sujets très bien documentés dans les ouvrages scientifiques/professionnels. De nouvelles questions touchant ces domaines font l'objet de discussions et de suggestions pour les recherches à venir.

Des lacunes mineures ont également été relevées dans d'autres domaines, notamment les solutions de rechange pour la résolution de conflits, la reconnaissance des réalisations, la solde et la rémunération, la retraite et la planification de carrière. L'expression « lacunes mineures » signifie ici que ces domaines devraient faire l'objet d'activités de recherche moins actives. Lorsqu'une organisation dispose déjà de plans, de systèmes ou de programmes en place relativement à certaines questions, le besoin de mener des recherches sur celles-ci est relativement moindre. Toutefois, il peut devenir important d'effectuer de nouvelles recherches si certains événements externes ou internes entraînent la nécessité d'évaluer ou de mettre à jour les structures en place.

Portée : La présente étude démontre d'ores et déjà la pertinence d'utiliser un nouveau cadre de recherche en RH au sein des FC en vue de classer tous les types de recherche portant sur les RH, le personnel et les FH. Dans l'ensemble, le cadre constitue un bon outil qui aide les chercheurs et les militaires concernés à avoir une meilleure idée des activités de recherche en cours, et à déterminer les besoins futurs en recherche. Le document présente également les résultats d'une analyse des lacunes préliminaire, laquelle ne constitue qu'une analyse-type fondée sur les données d'une seule année et n'indique pas si des recherches antérieures ont déjà fait état des lacunes relevées. Pour pouvoir tirer des conclusions plus exactes, il faudrait mener des études de suivi sur les recherches actuelles et antérieures portant ou ayant porté sur chacun des éléments du cadre.

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1 Introduction

1.1 Background

There are a large number of research projects examining humans within the context of work that are being conducted by various organizations within the Department of National Defence (DND) and the Canadian Forces (CF), including Environmental Chiefs of Staff (ECSs), Operational Commands, the Canadian Forces Leadership Institute (CFLI), the Directorate of Military Personnel Operational Research and Analysis (DMPORA), the Directorate of Strategic Military Personnel Research and Analysis (DSMPRA), Defence Research & Development Canada (DRDC) Toronto, and other DRDC Centres. Despite the fact that human resources (HR)/personnel/human factors (HF) related research is fundamental to the operational effectiveness of the CF, there has been little or no oversight of such research activities. Recently, the Chief of Military Personnel (CMP) and the Assistant Deputy Minister for Science and Technology (ADM (S&T)) created a partnership to coordinate all HR/personnel/HF related research, with the Director General of Military Personnel Research and Analysis (DGMPRA) in CMP tasked with the development an HR research¹ framework and a governance structure to coordinate the research. This initiative should result in research resources being used more effectively and efficiently by providing situational awareness of research underway or completed, ensuring that the research is focused on the needs of the CF, avoiding duplication of effort, and promoting collaboration. This study focuses on the development of the new CF HR Research Framework.

1.2 Aim

The principal aim of this study is to develop and validate a research framework that will serve to organize HR research conducted across the DND/CF. This framework consists of a classification system that reflects the diverse areas of HR research found in the academic/professional literature and is aligned with CMP's personnel pillars and lines of operation². A secondary aim is to map HR research being conducted to the framework in order to identify gaps and overlaps of research, thereby supporting the future coordination of HR research efforts.

¹ The term "HR research" is meant to be inclusive of HR, personnel and HF related studies.

² CMP's personnel pillars and lines of operation have been revised several times since the conduct of this study so the list here does not necessarily reflect the current structure.

2 Methodology

2.1 Overview of the Data Analysis Methods

As displayed in Figure 1, this study followed six key steps. Steps 1 to 3 aimed at developing the CF HR Research Framework, through an exhaustive search of the academic/professional literature, inclusion of CMP's personnel pillars and lines of operation, and categorization by themes. Step 4 consisted of collating all HR research activities underway within the DND/CF during 2007³. Step 5 developed a relationship or mapping between the framework (what we should be doing?) and the research activities being conducted (what we are doing?) within the DND/CF. Step 6 utilized comparative analyses conducted line by line to identify research areas where there are gaps or overlaps.

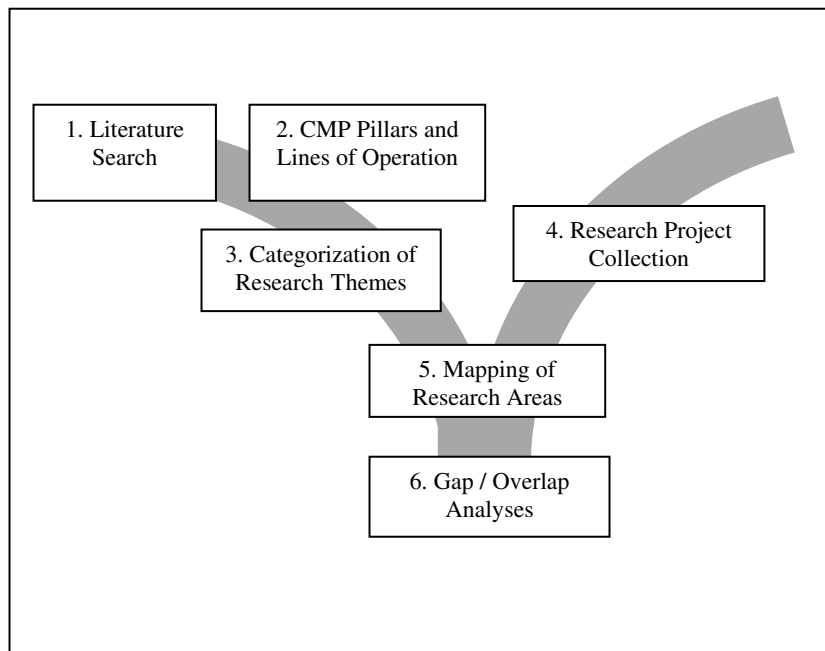


Figure 1: Gap Analysis Flow Down

2.2 Step One – Literature Searches

As mentioned above, the first step of this study was to identify all major research themes in HR research literature. Various sources of information across different research domains were consulted, including: industrial/organizational (I/O) psychology, HR management, and HF. Tables of content in handbooks and textbooks were closely examined to get a sense of existing

³ 2007 was used as the baseline year in the gap analysis as it was the year during which the framework was developed.

categorization of HR research themes. Other important sources of information included web sites of HR conventions and societies and HR key sites, in which research topics for recent and future conventions were examined, as well as how themes were organized. Finally, current research issues in I/O psychology were also identified by searching the PsycINFO database (see Annex A for the complete list of sources used in developing the framework).

2.3 Steps Two and Three – Classification

The second and third steps involved linking the research themes found in the first step to the 11 lines of operation that fell under the six personnel pillars created by CMP at the time of this study. This was done to ensure that the CF HR Research Framework reflects DND/CF priorities. The pillars and their lines of operation represent areas of HR processes and functions across the CF and each has a specific desirable end-state that is tied to the CF's mission and priorities.

While CMP's approach to HR classification is generally consistent with current classifications found in the scientific and professional literature, it does not account for research themes situated at a broader level. Research themes related to leadership, teamwork, organizational development and change, HF, and operational effectiveness were difficult to link to only one of the personnel pillars, since they have implications for several pillars. Therefore, the CF HR Research Framework was organized around seven major research areas. Six of these research areas reflect the six personnel pillars at the time: Personnel Management System Integration; Recruit; Train; Prepare; Support; and Recognize. The seventh research area was labeled Individual, Organizational, and Operational Effectiveness and grouped together research areas that all relate to effectiveness but at different levels. The CF HR Research Framework is described in more detail in Chapter 3.

2.4 Step Four – Collection of Projects

To identify and categorize research projects, a research call letter was sent to all environmental commands and groups within the DND/CF. This letter provided a definition of HR research and a broad list of possible research areas. Organizations were asked to report any projects that fell under one of these research areas and to provide a title and a brief summary for each project. Many organizations responded, although there was not a 100% response rate. This being the first time such a call letter had been issued, it was also not expected that all research activity, spanning such a large organization as the DND/CF, would be captured. Enough, however, was collected to test the proposed framework and to identify significant gaps.

2.5 Step Five – Mapping

The fifth step of the study began by transposing the proposed framework with all of its generated categories to Microsoft Excel spreadsheets. The research projects identified in Step 4 were compiled and classified into the spreadsheets. Projects that examined several research areas were classified in more than one category. The goal was to have a framework that detailed all research activities conducted in the DND/CF in each category, even if some of these activities were not the primary focus of a research project. The subsequent gap analysis would be more accurate using this procedure, by reducing the risk of misidentifying a research gap in a particular area that, in fact, had received some attention.

The mapping of research activities onto the framework allowed for the identification of a few missing categories from the initial conceptual mapping; these were subsequently added into the framework. The added research themes mainly reflected specific military research issues, including, for example, the effects of extreme conditions on soldiers and performance and the effects of drugs/enhancements on performance. When the mapping was done and the framework was revised, a meeting took place during which senior scientists from DGMPPRA discussed the placement of each research project. The final version of the framework, populated with the research activities, was endorsed by this group as well as the Scientific Advisor to CMP.

2.6 Step Six – Gap Analysis

The final step of the study consisted of a theme-by-theme gap analysis. This entailed comparing the research themes in the CF HR Research Framework with information on existing DND/CF research projects. The goal was to identify research areas where there are currently very few or no HR research projects being conducted, bearing in mind that only the research activity in 2007 was being used as the test case and a more definitive gap analysis would require an examination of research that had been conducted in previous years. A distinction between major gaps, minor gaps, and gaps in emerging research themes was used to identify the significance of the analysis. More details of the gap analysis can be found in Chapter 4.

3 The CF HR Research Framework

The CF HR Research Framework consists of three major types of elements: pillars, lines of operation, and themes. This Chapter describes each pillar, line of operation and theme in more detail. Sub-themes are also identified in Annex B, but they are not required for the level of discussion contained herein.

3.1 Pillar 1: Personnel Management System Integration

Research conducted in this pillar is concerned with the design and implementation of internally consistent policies and practices and the creation of an organizational structure that will enable the CF to most effectively achieve its priorities (Wei, 2006). Research in this pillar is concerned not only about the current situation but also involves thinking strategically ahead about the organization and being responsive in a timely manner.

3.1.1 Line of Operation: Strategic Planning and Management

This line of operation is divided into six themes: Job Analysis, the Structure of Work, Personnel Requirements Planning, Strategic Decision-Making, Organizational Development and Change (ODC), and the Uptake of Innovation.

3.1.1.1 Research Theme: Job Analysis

Job analysis research involves collecting information about the various tasks associated with a job and the characteristics people need to successfully perform that job. Job analysis allows an organization to obtain verifiable and replicable data that can be used for different HR applications, such as selection protocols, training programs, performance appraisal, and employee compensation.

3.1.1.2 Research Theme: Structure of Work

Research on the structure of work refers generally to research that has the goal of determining the best way to group people and jobs in an organization. Research on the structure of work focuses on defining the functions, relationships, responsibilities, and authorities of individuals within different occupations, as well as establishing channels for optimal information flow. Outcomes of this type of research include: the design of organizational charts, the design of new jobs, and the distribution of staff for a particular occupation.

3.1.1.3 Research Theme: Personnel Requirements Planning

The goal of personnel requirements planning is to meet the workforce requirements in the most effective manner. Research on personnel requirements planning includes: assessing current resources, forecasting external/internal workforce supply and demand, determining common Individual Training and Education (IT & E) qualification requirements, and deciding which strategy to use in order to meet HR objectives and policies.

3.1.1.4 Research Theme: Strategic Decision-Making

Research on strategic decision-making asks the question “Where is the organization going and how will it get there?” To answer this question, data about the organization, its operations, and the environment is acquired in order to make decisions on HR management practices and meet organizational objectives.

3.1.1.5 Research Theme: Organizational Development and Change

ODC refers to planned attempts to intervene in an organization for the purpose of its improvement (Waclawski & Church, 2001). Examples of large-scale organizational changes are changes to the size, composition, structure, and management of the organization. This research theme is generally concerned with factors that facilitate or undermine organizational change and development, the reaction of employees to change attempts, and the outcome of the organizational change efforts.

3.1.1.6 Research Theme: The Uptake of Innovation

Another example of ODC is the implementation of technical innovation. Given the high costs associated with the introduction and implementation of new technologies, research in this theme is concerned with facilitating the successful acceptance of new technologies and the effective and continued use of such technologies. Technological advancements in computers and communication have also led to new possibilities, such as the ability to telework and to work in virtual teams. This has resulted, for example, in a growing body of research on telework, examining the supervision, trust and productivity of teleworkers.

3.2 Pillar 2: Recruit

This pillar focuses on the steps required to build an effective workforce, which are reflected in its two lines of operation. The first line of operation is Attract, Recruit, Select, and Retain applicants; the second is Career Management.

3.2.1 Line of Operation: Attract, Recruit, Select, Retain

Research under this line should contribute toward the timely delivery of highly capable and well motivated soldiers, sailors, airmen and airwomen in the right type and numbers and be representative of the best of Canadian Society.

3.2.1.1 Research Theme: Attraction and Recruitment Process

The overall objective of this research area is to attract and recruit high quality applicants. Major topics include: the impact of different elements of recruitment practices (the source used to recruit, the recruitment timing, and the recruiter) on potential applicants; job attractiveness and the reputation of the organization; realistic job previews; and the socialization of recruits into the organization.

3.2.1.2 Research Theme: Selection Tests and Standards

This research area includes the development and validation of scientific selection tests and standards, including ability, aptitude and personality tests, interviews, work samples, tests for managerial selection, and fitness assessments. The selection tests seek to objectively assess job candidates through a variety of criteria (attributes, past experiences, etc.) that are known to be good predictors of job performance. The fitness assessments/standards seek to objectively assess members through a variety of physical tasks and activities that are known to be good predictors of fitness levels and operational readiness.

3.2.1.3 Research Theme: Persistence/Withdrawal and Commitment in Organizations

Research in this area is concerned with the different ties that bind employees to organizations. It concentrates on the conceptualization of commitment; the analyses of job withdrawal behaviors that are indicators of lack of commitment; adaptive behaviors that are indicators of organizational persistence in face of job dissatisfaction; and factors that influence commitment, which in turn impact on retention and performance.

3.2.2 Line of Operation: Career Management

Research under this line should contribute toward the timely delivery of personnel with the right skills at the right place at the right time in their careers.

3.2.2.1 Research Theme: Career Planning and Satisfaction

Career planning research is generally undertaken to identify effective career management practices that satisfy employees' career aspirations and organizational resource needs. Examples of specific topics of career planning research are: the assessment of employees' vocational interests, the evaluation of satisfaction with career progression, and the assessment of the prevalence of career coaching.

3.2.2.2 Research Theme: Succession Planning

Research on succession planning seeks to assure that top quality employees can quickly fill positions that become available by forecasting loss of personnel and positions that need to be filled, pinpointing competencies necessary to fill each position, and identifying and training potential successors.

3.2.2.3 Research Theme: Performance Appraisal

Performance appraisal research comprises a wide range of research activities that deal with establishing, maintaining and improving a performance appraisal system that ties employees' performance to career management decisions, such as raises, promotions and termination. Effective performance appraisal fosters employees' career development by providing feedback on how they are doing and how they can improve. More specific research topics include: goal setting, supervisors' coaching, choosing performance criteria, objectivity/accuracy of appraisers, users' reactions to appraisal, and rater training.

3.2.2.4 Research Theme: Other Aspects of Performance Appraisal

Other aspects of performance appraisal consist primarily of Organizational Citizenship Behaviours (OCB) and Counterproductive Workplace Behaviours (CWB). While traditional measures of performance effectiveness focus on task performance and measurable work output, OCB and CWB focus on behaviours that fall outside job requirements (Borman, 2004). OCB is conceptualized in terms of job dedication and interpersonal facilitation, while CWB represents a wide variety of behaviours that harm employees and organizations (e.g., property theft, time theft, on-the-job alcohol or drug use, aggression, and interpersonal deviance). Sub-themes of OCB and CWB research include: creativity; relationship between OCB and various organizational variables (i.e., justice, organizational fairness); how OCB is weighted when supervisors evaluate overall job performance; dimensionality of counterproductive behaviours; and antecedents of counterproductive behaviours.

3.2.2.5 Research Theme: Mentoring

In an organizational setting, mentoring refers to a relationship between a more experienced employee and a less experienced employee. Many organizations are now implementing formal mentoring programs in order to promote employee development, and research is conducted to assess such programs. Other research focuses on informal mentoring relationships (those that developed on their own) and looks at, for example, the initiation of the mentoring relationship and the role of mentoring in career development.

3.3 Pillar 3: Train

This pillar is concerned with developing and maintaining training programs that satisfy CF operational needs and military members' career management requirements. It has one line of operation, namely Individual Training and Education (IT&E).

3.3.1 Line of Operation: Individual Training and Education

Research under this line should contribute toward the timely delivery of sufficient numbers of trained and educated professional military personnel through a training delivery system, driven by the specifications and Military Employment Structure (MES) requirements as informed by capability planning and lessons learned integrated with career management and operational imperatives.

3.3.1.1 Research Theme: Training Program Development

This research area focuses on the different phases of training program development. It includes: assessing who needs training and the content of their training; determining which is the best delivery method of a training program; and evaluating the training program in terms of effectiveness, worthiness, and appreciation by trainees and trainers.

3.3.1.2 Research Theme: Transfer of Training

This research area evaluates whether the learning acquired in a program actually transfers to behaviours on the job and examines characteristics of the environment, training design, and trainee characteristics that enhance or inhibit transfer of training. An important component of transfer of training research focuses on transfer strategies, such as feedback, practice, goal setting, reinforcement, behavior modeling, motivation, adaptive guidance in distance-learning applications, and self-management to maintain changes in behavior. Transfer of training research in the military also looks at how training in a simulator transfers to operations. A more specific example is how training on one type of aircraft transfers to another (e.g., negative transfer of training).

3.3.1.3 Research Theme: Physical Fitness

Physical fitness is essential to the combat readiness of service members. In the military context, research in this theme is concerned with three main activities: designing physical fitness training programs and validating their success; developing and validating fitness standards based on operational requirements for individuals, trades, units and environments; and evaluating and testing personnel against the fitness standards.

3.4 Pillar 4: Prepare

This pillar is concerned with promoting and sustaining a fit and healthy CF, at home and abroad.

3.4.1 Line of Operation: Health Services

Research under this line should contribute toward a fit and healthy CF, at home and abroad.

3.4.1.1 Research Theme: Medical/Dental Research and Development

The goal of this research area is to offer excellence in medical/dental care to all service members. Two examples of research topics are: the assessment of access to health care and developing better preventive measures and treatments.

3.4.1.2 Research Theme: Health Promotion

The interest in this research area is motivating people to achieve optimal physical, mental, social, and spiritual health. Health promotion is generally achieved through programs that provide opportunities for people to learn and engage in healthy behaviours, such as exercising regularly, eating nutritious food, managing stress, avoiding dangerous substances, and engaging in preventive medical screening. Research on health promotion, therefore, focuses on the formation of health policies and on the elaboration, implementation and evaluation of health promotion programs.

3.4.1.3 Research Theme: Prevalence/Critical Incidence of Injuries and Illnesses

This research area deals with the distribution of injuries and illnesses in members. This research has practical implications, such as identifying populations with an increased risk for a designated disease (e.g. all soldiers serving in a specific unit) and informing immunization plans.

3.4.1.4 Research Theme: The Effects of Extreme Conditions on Soldiers and Performance

This area of research examines the effects of extreme physiological (e.g., fatigue, high energy demand, dehydration), psychological (e.g., family separation, stress, traumatic events, information overload), and environmental (e.g., heat, altitude, poor air quality, environmental exposure to toxic materials) conditions on soldiers' well-being and health as well as on operational effectiveness.

3.4.1.5 Research Theme: The Effects of Drugs/Enhancements on Performance

The goal of this research is to identify drugs/enhancements that sustain and increase performance with few side effects. A specific example is a study that compares whether a drug is preferable to another to sustain performance during periods of fatigue and determines the consequences associated with long-term consumption.

3.4.1.6 Research Theme: Medical/Dental Care in Deployed Settings

Research in this area is concerned, first with the capability and quality of care delivered in austere settings, and second with the protection of soldiers in operations. Major topics in this area include: facilitating treatments; increasing the speed of care delivery; developing medical solutions and products for injured soldiers; and developing medical vaccines and drugs to fight infectious diseases and biological threat agents.

3.5 Pillar 5: Support

This pillar focuses on services, programmes, and policies aimed at providing members and their families tangible (e.g., fair remuneration and benefits) and non-tangible (e.g., welfare programs and a harassment-free environment) support during their military life and while making the transition to civilian life. This pillar is composed of four lines of operation: Morale and Welfare; Compensation; Release & Retirement; and Official Languages (OL), Employment Equity (EE), Human Rights and Alternate Dispute Resolution (ADR).

3.5.1 Line of Operation: Morale and Welfare

Research under this line should contribute toward well supported serving CF members and their families.

3.5.1.1 Research Theme: Occupational Health Psychology

This research area aims at improving the quality of work life and preventing organizational risk factors for stress, illness, and accidents in the workplace. More specifically, it is concerned with: safety and safety training; conditions at work that affect health and stress (e.g., work schedule, workload, lack of control, repetitive motions, and physical conditions); and burnout.

3.5.1.2 Research Theme: Family Well-Being

To reflect the increasing importance accorded to family-related issues in both psychology and management literature and practice, a separate category in the framework was created for this topic. Family well-being research generally focuses on the impact of work on family life and spousal relationships. It also deals with family interference on work. Specific topics include: the impact of family relocation; the impact of work stresses on family life; and work/family (W/F) conflict on job satisfaction.

3.5.1.3 Research Theme: International Assignments

This research area focuses on improving the quality of life of employees on international assignments. Examples of research topics are: identifying criteria and factors to consider when selecting people for international assignments; predicting and explaining expatriate job performance and ability to handle stress and to develop a cross-cultural identity (i.e., psychological adjustment); assessing training in terms of expatriate readiness to deal with day-to-day matters, norms, and values of the host-country; and the effects of one's spouse's cross-cultural adjustment on expatriate outcomes.

3.5.1.4 Research Theme: Morale and Welfare Programs & Services

This research theme focuses on the development, implementation, and evaluation of programs that support the physical and spiritual fitness, morale and quality of life of CF members in Canada or deployed (Chief of the Defence Staff Guidance: Canadian Forces Morale and Welfare Programs, 2004).

3.5.2 Line of Operation: Compensation

Research under this line should contribute toward fair remuneration and benefits for all CF personnel.

3.5.2.1 Research Theme: Pay Levels

Pay level research examines how competing organizations pay for a specific job and what they offer in terms of benefits and quality of workplace environment.

3.5.2.2 Research Theme: Development/Evaluation of Compensation Systems

This research area is concerned with developing and evaluating compensation systems.

3.5.2.3 Research Theme: Individuals' Pay Satisfaction

Research in this area examines the impact of individuals' pay satisfaction on various outcomes, such as retention, employees' attitudes, performance, and productivity.

3.5.3 Line of Operation: Release and Retirement

Research under this line should contribute toward effective support of CF members during and after transition to civilian life.

3.5.3.1 Research Theme: Pre-Retirement Planning

This research area focuses on programs and services that assist employees with retirement planning. In the military context, retirement planning may involve training and acquiring qualifications to begin a different post-military career.

3.5.3.2 Research Theme: Pension Plan

Research in this area is concerned with the development, maintenance, and administration of a pension plan.

3.5.4 Line of Operation: Official Languages, Employment Equity, Human Rights and Alternate Dispute Resolution

Research under this line should contribute toward a workplace that promotes equitable treatment and respect in a diverse environment.

3.5.4.1 Research Theme: Official Languages

Major topics in this research area include: the impact of bilingual policies; training requirements to support bilingual policies; and attitudes toward bilingual policies.

3.5.4.2 Research Theme: Employment Equity

The Employment Equity Act makes it compulsory for organizations to create policies and practices and make the necessary accommodations to ensure designated group members achieve equitable representation. Research regarding EE also deals with the identification of ways to develop a diverse workforce and barriers that are preventing its development. Other topics include: women in leadership positions and gender integration.

3.5.4.3 Research Theme: Human Rights

Research in this area has the goal of ensuring respect of the following acts and policies: the Canadian Human Rights Act; Duty to Accommodate Persons with Disabilities in the Federal Public Service; and the Canadian Charter of Rights and Freedoms. Research centers on issues related to non-discrimination on the basis of race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability or conviction for an offence for which a pardon has been granted.

3.5.4.4 Research Theme: Alternate Dispute Resolution

Examples of applied research topics in this area include: evaluating ADR services; reviewing new and existing initiatives; and establishing standards for training related to conflict management and mediator qualifications. More theoretical research topics are: examining strategies used in negotiation; and identifying cultural differences in negotiation.

3.6 Pillar 6: Recognize

This pillar is concerned with demonstrating an appreciation of serving, retired and deceased CF members and their families for their services and sacrifices by means of formal recognition (e.g. awards and medals). There are two lines of operation: recognition, and history and heritage.

3.6.1 Line of Operation: Recognition

Research under this line should contribute toward timely and appropriate recognition of serving, retired and deceased CF members and their families for their service, performance and sacrifices.

3.6.1.1 Research Theme: Recognition

Most of the research on recognition focuses on the different stages of honours and awards program development and their impact on members' morale.

3.6.2 Line of Operation: History and Heritage

The objective of the second line of operation is the preservation and communication of Canadian military history and the fostering of pride in a Canadian military heritage.

3.6.2.1 Research Theme: Research and Writing of Official Histories

This research theme deals with documenting general and official histories (e.g., biographies, historical battles, campaign histories, case studies) to promote a greater understanding of Canadian military history.

3.7 Pillar 7: Individual, Organizational and Operational Effectiveness

This pillar is concerned with the effectiveness and efficiency of individuals, work teams, organizations, and operations. Seven areas of interest run through this research domain: Motivation; Work Behaviours and Attitudes; Teamwork; Trust and Leadership; Human Factors in the Workplace; Organizational Culture and Climate; and Deployment Resiliency.

3.7.1 Area of Interest: Motivation

This research area is concerned with motivating people to do their job well. It includes: the assessment of the intensity/type of employees' motivation; the investigation of motivation interventions; and self-regulation of behaviours.

3.7.2 Area of Interest: Work Behaviors and Attitudes

This research area deals with how employees perceive and respond effectively toward various aspects of their job. It also examines the impact of employees' perceptions of the organization and its HR practices on their attitudinal and emotional responses. Specific topics consist of: job satisfaction; job characteristics; role ambiguity and conflict; perception of fairness; job security; and organizational cynicism.

3.7.3 Area of Interest: Teamwork

This research area is divided into two research themes: Processes of Teamwork and Intervention with Teams.

3.7.3.1 Research Theme: Processes of Teamwork

This research theme examines different components of team functioning and group dynamics. It is interested in linking what is happening inside the team and team performance.

3.7.3.2 Research Theme: Interventions With Teams

This research theme is concerned with designing, implementing and evaluating interventions to increase group/team effectiveness.

3.7.4 Area of Interest: Trust and Leadership

This research area is divided into three research themes: Leadership Theories and Training; Leader Effectiveness; and Specific Leadership Topics.

3.7.4.1 Research Theme: Leadership Theories and Training

This research area addresses the nature of leadership and the processes underlying effective leadership. It asks questions, such as Who will be a good leader?; What do good leaders do?; and How to develop good leaders? The main theories on leadership include: Path-Goal Theory; Trait Approach; Leader Behaviour Approach; Leader-Member Exchange; and Charismatic and Transformational Leadership Theory.

3.7.4.2 Research Theme: Leader Effectiveness

Leadership research is also concerned with ways leaders can enhance the functioning of the organization as well as enhancing followers' motivation and engendering their trust.

3.7.4.3 Research Theme: Specific Leadership Topics

Other leadership topics include: leadership ethics; gender and leadership; abuse of supervisory power; negotiation strategies; and empowerment.

3.7.5 Area of Interest: Human Factors in the Workplace

HF research emphasizes the design of work technology, systems, tools, and environments for productive, safe, comfortable and easy human use.

3.7.5.1 Research Theme: User-Oriented Design

This research theme has the goal to optimize the presentation of information (e.g., zoom in for visualizing long information set) while understanding users' needs and knowledge.

3.7.5.2 Research Theme: Human-Computer Interface

This research theme examines, for example, ways to make software easy to learn and use and to maximize human performance in virtual environments.

3.7.5.3 Research Theme: Mental Workload

Mental workload research refers to designing systems that human operators are capable of using properly under stressful conditions and high workload, and designing automated systems to increase efficiency and safety.

3.7.5.4 Research Theme: Prevention of Human Errors

This research involves identifying problems that could lead to errors and adding features (e.g., clear instruction and warnings on labels) to reduce incidents and damage caused by human errors.

3.7.6 Area of Interest: Organizational Culture and Climate

This research area is divided into two research themes: Fostering a Particular Culture and Examining Culture and Climate

3.7.6.1 Research Theme: Fostering a Particular Culture

This research theme examines factors implicated in fostering a specific culture. An example of a specific subject is the role of leaders' personality and behaviours in facilitating an organizational culture.

3.7.6.2 Research Theme: Examining Culture and Climate

Research in this area is conducted to assess the current state of an organization's culture and climate and to better understand the causes and consequences of culture and climate. Examples of specific subjects are subculture and the role of organizational culture and climate in organizational performance and retention.

3.7.7 Area of Interest: Deployment Resiliency

This research theme focuses on the well-being of deployed members and their families, on post deployment health and well-being of members, and on morale in garrison situations. Its goal is to better understand the factors at the personal, group and organizational level contributing to resilience to resist the stress of military deployments and separations from family.

4 Discussion

4.1 Overview of Mapping Results

The Excel database developed for the CF HR Research Framework contains a total of 312 entries, which means 312 research projects were entered in the various categories of the research framework. However, it should be noted that some projects were counted more than once, since they examine various themes. For example, the CF Retention Survey was counted 12 times: intent to turnover, job preview, psychological withdrawal, career satisfaction, W/F conflict, pay satisfaction, second language, satisfaction with leaders, trust, CF future, cynicism, and job satisfaction. When duplication was accounted for, a total of 241 individual research projects were counted. Table 1 shows the number of research activities by theme.

Table 1: 2007 HR Research Activity in DND/CF

Pillars	Lines of Operation	Research Themes	Number of Projects
Personnel Management System Integration	Strategic Planning and Management	Job Analysis	18
		Structure of Work	10
		Personnel Requirements Planning	22
		Strategic Decision-Making	30
		Org. Development and Change	2
		Uptake of Innovation	5
Recruit	Attract, Recruit, Select & Retain	Attraction and Recruitment Processes	19
		Selection Tests and Standards	15
		Persistence/Withdrawal and Commitment in Organizations	13
		Career Management	3
	Career Management	Career Planning and Satisfaction	3
		Succession Planning	0
		Performance Appraisal	0
		Other Aspects of Perf. Appraisal	0
		Mentoring	0

Pillars	Lines of Operation	Research Themes	Number of Projects
Train	Individual Training and Education	Training Program Development	16
		Transfer of Training	5
		Physical Fitness	10
Prepare	Health Services	Medical/Dental Research and Development	2
		Health Promotion	3
		Prevalence/Critical Incidence of Injuries and Illnesses	4
		Extreme Conditions on Soldiers	1
		The Effects of Drugs/Enhancements on Performance	2
		Medical/Dental Care in Deployed Settings	16
Support	Morale, Welfare & Spiritual Well-being	Occupational Health Psychology	11
		Family Well-Being	8
		International Assignments	1
		Morale & Welfare Programs and Services	7
	Compensation	Pay Level	2
		Development/Evaluation of Compensation Systems	1
		Individuals Pay Satisfaction	2
	Release & Retirement	Pre-Retirement Planning	0
		Pension Plan	1
	OL, EE, Human Rights, and ADR	Official Languages	1
		Employment Equity	8
		Human Rights	1
		Alternate Dispute Resolution	1
Recognize	Recognition	1	
	History and Heritage	2	

Pillars	Areas of Interest	Research Themes	Number of Projects
Individual, Organizational; and Operational Effectiveness	Motivation	Motivation	1
	Work Behaviours and Attitudes	Job Satisfaction	4
	Teamwork	Processes of Teamwork	11
		Interventions with Teams	0
	Trust and Leadership	Leadership Theories and Training	12
		Leader Effectiveness	14
		Specific Leadership Topics	0
	Human Factors	User-Oriented Design	0
		Human-Computer Interface	0
		Mental Workload	1
		Prevention of Human Errors	1
	Organizational Culture and Climate	Fostering a Particular Culture	1
		Examining Culture and Climate	14
		Deployment Resiliency	10
	Total	312	

4.2 Gap Analyses

Since Table 1 represents only a picture of research being conducted during the year 2007, the identification of gaps in one type of research does not necessarily mean that this type of research has not been done in the past. A subsequent project, consisting of internal scans, would identify all research projects that have been done over the last ten years, which would eventually help to complete the picture. For now, the gap analyses are useful to flag research areas that the DND/CF is potentially missing and require further investigation.

This section is divided into several sub-sections covering all of the research themes in the CF HR Research Framework. Each of the sub-sections follows the same order: first, DND/CF research currently underway in these themes is listed; then the gaps where research themes are not currently addressed are identified; and finally suggestions for future research directions to address these gaps are presented.

4.2.1 Pillar 1: Personnel Management System Integration

4.2.1.1 Line of Operation: Strategic Planning and Management

4.2.1.1.1 Research Theme: Job Analysis

The DND/CF has several projects, which fall under the theme of Job Analysis (and its associated sub-themes of Job Analyses and Development of New Tools and Systems for Occupational Analysis) (Table 2).

Table 2: Current Research Projects for Job Analysis

Current Project	Sponsor
<i>Job Analysis</i>	
CF Selection Model Development	CMP/ECS
Joint, Interagency, Multinational and Public (JIMP) and Adversarial Intent: Identify Competencies for JIMP Soldiers	CLS
Soldier Competency Framework	CLS
EME/Land Ops Tech Support	DRDC CORA
Job Analyses for Pilot, AEC and ANAV Officers	CAS
Job Analyses for SAR Tech and UAV crews	CAS
Job Analyses for C-17 Flight Engineers and Loadmasters	CAS
Air Tech Officer /AERE Study	CAS
AES OP Study	CMP
Aerospace Control Operator Study	CMP
Air Field Engineering & CE Analyses, 640 Series	CMP
Navy Studies	CMS
Job Analysis, Selection, and Assessment Centre Design	CANSOFCOM
Development and Validation of a Physical Fitness Test and Maintenance Standards for CF Diving Personnel, for CF Protective Services Unit Personnel, and Standards for JNBCD Coy Personnel ⁴	CMP

⁴ These projects involve "maintenance" task analysis that determines what the fitness criterion should be before the test is developed.

<i>Development of New Tools and Systems for Occupational Analysis</i>	
PC CODAP: Update this Occupational Analysis Tool	CMP
DJAS Electronic Job Banks	CMP
Creating a Module to Produce an HR View for Chief Force Development (CFD)	CMP
Post Occupation Structure Implementation Plan (OSIP)	CMP

Based on the projects listed in Table 2, the following gaps between what is being done in the DND/CF and in the general literature were identified:

- ◆ The need for more research assessing the quality of job analysis data; and
- ◆ The requirement to determine potential benefits of using job analysis data for research on various organizational phenomena. For example, the data about the various tasks associated with a job can be used to examine the relationship between amounts of time spent on these various tasks and job performance.

4.2.1.1.2 Research Theme: Structure of Work

Table 3 contains a list of the projects within the DND/CF that examine issues related to the Structure of Work (including the sub-themes of Design of New Jobs, Career Field Structure, Structure and CF Transformation, Optimum Structure Size, and Communication Structure).

Table 3: Current Research Projects for Structure of Work

Current Project	Sponsor
<i>Design of New Jobs</i>	
Occupational Analysis for New Air Field Protection Occupation	CAS
<i>Career Field Structure</i>	
Air Tech Occupation Structure Analysis	CAS (PORT)
Defence Intelligence Career Field Analysis Activities	CMP
<i>Structure and CF Transformation</i>	
Army of Tomorrow (AoT)	DRDC CORA
The Human Resources System Transformation Project	CMP
<i>Optimum Structure Size</i>	
Optimum Distribution of Staff to Employ LFC2IS at Bde and BG HQ	DRDC CORA
Light Infantry Company Structure Study	DRDC CORA
Army Support Review	DRDC CORA
<i>Communication Structure</i>	
DRDC Communications: Evaluation of Existing Communication Structure	ADM(S&T)
Distribution Management Toolset: To Monitor and Influence the Flow of Materiel in the Various CF Lines of Communication	ADM(Mat)

No research gaps in the area of organizational structure were identified based on the projects listed above.

4.2.1.1.3 Research Theme: Personnel Requirements Planning

Table 4 contains a list of the projects within the DND/CF that examine issues related to Personnel Requirements Planning, according to the sub-themes of: Monitor the Supply of Members Available Internally; Forecasting Internal/External Workforce Supply and Demand; Development and Improvement of Analysis Tools; and Common IT&E Qualification Requirements.

Table 4: Current Research Projects for Personnel Requirements Planning

Current Project	Sponsor
<i>Monitor the Supply of Members Available Internally</i>	
Update Data in Staff Data Tables	DRDC CORA
Human Resources-Databases	CMP
<i>Forecasting Internal /External Workforce Supply and Demand</i>	
Development of a Prototype Model for Civilian Occupational Group Projections	ADM(HR-Civ)
Research on Work Force Modelling	Canada COM
Support to the NATO Stockpile Planning Guidance (SPG)	CANOSCOM
AF Pers Transition Modelling	CAS/CMP/ DRDC CORA
Production SIP Model or Production & Strategic CAS/ PORT Intake Model	CAS/PORT
CANUS Defence and Security Organization Relationship and Information Flow Analysis	DRDC CORA
Annual Military Occupation Review (AMOR) Support	CMP
Forecasting the Trained Effective Strength (TES)	CMP
Human Resources Monitoring and Reporting	CMP
The Technical Cooperation Program	CMP
Force Generation Risk Assessment	DRDC CORA
Army Force Generation Modelling	CMP
<i>Development and Improvement of Analysis Tools</i>	
Personnel Managed Readiness Toolset	CANOSCOM/ CMP
ADAMS and GALAHAD Development: Improve the Options Analysis Toolset	CANOSCOM
Design of Robust and Effective Supply Network Engineering Tools (DRESNET)	CANOSCOM
Production Management Tool (PMT) Development and Case Studies	CAS
DRDC-CFACC Operational Tool Development.	DRDC CORA
<i>Common IT & E Qualification Requirements</i>	
JIMP and Adversarial Intent	CLS
Forecasting the Demand for Individual Training & Education Within the CF	CMP
Career Progression Modelling	CMP

No research gaps in the area of personnel requirements planning were identified based on the projects listed above.

4.2.1.1.4 Research Theme: Strategic Decision-Making

The following is a list of ongoing research projects relating to Strategic Decision-Making (including the sub-themes of The External Environment, Internal Environment, Strategic Guidance, and Others) (Table 5).

Table 5: Current Research Projects for Strategic Decision-Making

Current Project	Sponsor
<i>The External Environment: Events, Practices, Research and Trends that May Affect the CF</i>	
SOSIS : Environmental Scans	CMP
Developing a Military Culture of Health and Fitness	CMP
Understanding the Impact of Network Technologies on the Design of Work- Social and Peer Production	CMP
HR Implications of Network Enabled Capabilities	CMP
Extension of Market Principles for New Designs of How Work Will Be Accomplished	CMP
Network Individualism	CMP
Strategic HR Concept: Integrate the Concept of Network Enabled Operations	CMP
Future Sailor Initiative	CMS
Canadian "Employer of Choice"	CMP
Defence Professional Concept	CMP
TTCP Paper on Complaint Resolution and Grievance Mechanisms	CMP
TTCP Paper on Recruiting Practices	CMP
Developments in the Field of Compensation and Benefits	CMP
Prediction of Adversarial Intent: Forecasting Malicious Intent in Potential Adversaries	DRDC Toronto
Support to CF Influence Operations: Review of Influence Mechanisms and Persuasion	DRDC Toronto
Benchmarking Studies-TTCP Papers on Compensation and Benefits, Chaplaincy, and Recognition	CMP

<i>Internal Environment</i>	
Army Culture Study	CLS
Corporate Culture in the CF and DND	CMP
Optempo and Individual Sustainment	CMP
Current Status of Recruitment Research in the CF	CMP
Past, Present, Future - A Review of CF Research Supporting Advanced HR Concept Development and Evaluation	CMP
Past, Present, Future - A Review of CF Research Supporting Retention	CMP
Leadership Lessons Learned in CF Operations	CDA
JAG Research Program	DLAW
<i>Strategic Guidance</i>	
Strategic Guidance on Retention	CMP
Strategic Guidance on Health and Fitness	CMP
Your-Say Continuous Attitude Survey	CMP
Analytical Support to Casualty Support Strategy	CMP
Review of Past Present and Future Research Supporting all the Various Lines of Operation	CMP
<i>Others</i>	
CF Pers Mgt Research Coordination Project / PG4	CMP

No research gaps were identified in the area of strategic decision-making, based on the above information.

4.2.1.1.5 Research Theme: Organizational Development and Change

Table 6 contains a list of the projects within the DND/CF that examine issues related to ODC.

Table 6: Current Research Projects for Organizational Development and Change

Current Project	Sponsor
QOL Section in "Your Say" Survey: Measures Opinions about CF Transformation and Culture Change	CMP
Army Force Generation Modelling (Engine of the Army)	DRDC CORA

One research gap was found related to the lack of research on factors that mitigate employees' acceptance of change.

4.2.1.1.6 Research Theme: The Uptake of Innovation

Table 7 contains a list of the projects within the DND/CF that examine issues related to the Uptake of Innovation.

Table 7: Current Research Projects for the Uptake of Innovation

Current Project	Sponsor
E-Learning - Towards a CF Strategy	CMP
Content Object Discovery and Registration Architecture (CORDRA)	CMP
Meta Data for E-Learning Content	CMP
Web 2.0 and Operational Learning	CMP
Understanding the Impact of Network Technologies on the Design of Work - Social and Peer Production	CMP

One research gap was found pertaining to the lack of research on telework policies and practices.

4.2.2 Pillar 2: Recruit

4.2.2.1 Line of Operation: Attract, Recruit, Select, Retain

4.2.2.1.1 Research Theme: Attraction and Recruitment Process

Table 8 presents the research activities related to Attraction and Recruitment Process currently active within the DND/CF, with the sub-themes of Job Attractiveness and Organizational Image, Job Preview/Person-Job Fit, Organizational Socialization, and Others.

Table 8: Current Research Projects for the Attraction and Recruitment Process

Current Project	Sponsor
<i>Job Attractiveness and Organizational Image</i>	
Prospect Survey and CF Selection Model Development	CMP
Applicant Survey	CMP
Contact Survey	CMP
Propensity to Join	CMP
Customer Satisfaction Survey	CMP
Recruitment Research	CMP
Evaluation of the Current and Predicted Internal and External HR Environment	CAS
Syndicated Survey: 3SC study by CROP	CLS/ADM(PA)
Syndicated Survey: Reconnecting with Youth; study by Ipsos-Reid	ADM(PA)
Custom Survey: Potential Recruit Profile	ADM(PA)
Visible Minorities Recruiting Research	ADM(PA)
Test Recruitment Advertising	ADM(PA)
<i>Job Preview/ Person-Job Fit</i>	
Naval Officer Assessment Board (NOAB) Realistic Job Preview	VCDS
Canadian Forces Retention Survey	CMP
Canadian Forces Exit Survey	CMP
<i>Organizational Socialization</i>	
First Year Transition For New Chaplain Recruits to CF (Regular)	CMP
RMC Socialization Project	CDA
<i>Others</i>	
Current Status of Recruitment Practices	CMP
TTCP Paper on Recruiting Practices	CMP

Based on the information above, the following research gaps were identified:

- ◆ Lack of understanding of recruitment sources, comparing, for instance, the impact of internet recruiting vs. college/university recruiting on new hire turnover.
- ◆ Lack of research on recruitment timing. Determine the timing and length of a recruiting campaign.
- ◆ Need more research on recruiter effects on applicants, i.e., how characteristics of recruiting groups, including demographics, knowledge of job and aggressiveness, impact on applicants' intentions to join the CF.

4.2.2.1.2 Research Theme: Selection Tests and Standards

Table 9 presents the research activities related to Selection Tests and Standards currently active within the DND/CF, broken down by Selection Test Development, Validation of Selection Tests and Standards, and Interviews and Work Samples.

Table 9: Current Research Projects for the Selection Tests and Standards

Current Project	Sponsor
<i>Selection Test Development</i>	
Explosives Ordinance Disposal Selection	CLS
CF Selection Model Development	CMP
Pilot Vision Study	CAS/ DRDC Toronto
Pilot Anthropometrics Study	CAS/ DRDC Toronto
Non-Pilot Anthropometrics Study	CAS/ DRDC Toronto
<i>Validation of Selection Tests and Standards</i>	
NOAB Validation	CMP
CF Selection Model Development	CMP
MARS Officer Selection and Attrition/ Retention Research Project	VCDS
Review and Validation of Pilot Selection Methods	CAS
Validation of the Royal Airforce Aircrew Aptitude Test (RAFAAT) for ANAVS and AEC Officers	CAS
Investigating the Predictive Validity of Cogscreen for Pilot Selection	CAS/ DRDC Toronto
Investigating Pre-Frontal Cortex Brain Function as a Predictor of Performance for Operational Air Officers	CAS
Investigating Personality Measures as Predictors of Performance for Pilots, AEC and ANAV Officers	CAS
Development of Entry Level Physical Fitness Test for Search and Rescue Technicians (SAR TECH)	CMP
<i>Interviews and Work Sample</i>	
NOAB Maintenance: Questions for Interview Section of Board	CMP

Gap analysis revealed a lack of research in one particular area – managerial selection.

4.2.2.1.3 Research Theme: Persistence/Withdrawal and Commitment in Organizations

Table 10 presents the research activities related to Persistence/Withdrawal and Commitment currently active within the DND/CF.

Table 10: Current Research Projects for Persistence/Withdrawal and Commitment in Organizations

Current Project	Sponsor
Canadian Forces Retention Survey	CMP
Canadian Forces Exit Survey	CMP
First Term Values Study	CLS
Your-Say Continuous Attitude Survey	CMP/ ECS
Unit Morale Profile Survey	CMP/ ECS
Human Dimensions in Operations (HDO)	CMP/ ECS
Cadet Instructor Cadre (CIC) Exit Survey	DCdts
CFFM Firefighter Pension Plan Study	ADM(IE)
Civilian Retention	ADM(HR Civ)
Optempo and Individual Sustainment	CMP
Human Resources Monitoring and Reporting: Report on Attrition	CMP
Supporting Retention	CMP
Strategic Guidance on Retention	CMP

To fill in research gaps, the DND/CF needs to:

- ◆ Know more about withdrawal and adaptive behaviours to reduce job dissatisfaction, assessing the manifestation of employee withdrawal (lateness, absence, avoidance of work, undue socializing) and understanding the withdrawal process.
- ◆ Conduct further research on the conceptualization of organizational commitment in the CF, by examining interactions among commitment types and how these combine to create “profiles” of commitment

4.2.2.2 Line of Operation: Career Management

4.2.2.2.1 Research Theme: Career Planning and Satisfaction

Table 11 contains a list of the projects within DND/CF that examine issues related to Career Planning and Satisfaction.

Table 11: Current Research Projects on Career Planning and Satisfaction

Current Project	Sponsor
Canadian Forces Retention Survey: Assess Career Satisfaction	CMP
Canadian Forces Exit Survey: Assess Career Management and Progression	CMP
CIC Cadence Readership Survey	DCdts

Gap analysis on this research theme revealed insufficient research on career planning.

4.2.2.2 Research Theme: Succession Planning

No research activity currently addresses topics related to succession planning. Consequently there are gaps related to forecasting loss of key personnel and positions that will need to be filled, defining competencies for these positions, and identifying and training potential successors.

4.2.2.3 Research Theme: Performance Appraisal

No current DND/CF research project falls into this theme either. General trends in performance appraisal research could suggest directions for future DND/CF research. A recent literature review identified two main areas requiring research (Latham & Mann, 2006):

- ◆ The first area concerns appraising employees with different cultural backgrounds. For example, research to examine evidence of rater bias against those with different backgrounds; and research that has the goal to determine the best way to appraise and coach employees in accordance with their different cultural and social norms.
- ◆ The second area concerns the appraisal of virtual teams.

4.2.2.4 Research Theme: Other Aspects of Performance Appraisal

There is also currently an absence of projects that examine Other Aspects of Performance Appraisal. A number of research issues could be investigated by the DND/CF to fill this important gap. These include the following:

- ◆ The use of OCB or extra-role behaviours (i.e., altruism, sportsmanship, civic virtue, and time management) to validate officer selection measures.
- ◆ Predicting creative problem-solving from contextual factors, such as leaders' behaviours, feedback, empowerment, and influence.
- ◆ Prevalence of CWB at the individual and unit level (predictors, explanations and consequences).
- ◆ Motives of workplace deviance.
- ◆ Research on drug and alcohol abuse

4.2.2.5 Research Theme: Mentoring

No current research project falls into this theme. While there is a mentoring pilot project for DND civilians, there is currently no formal mentoring program for CF members. A sampling of mentoring research activities presented at the Society for I/O Psychology (SIOP) Conference in 2007 included: ideal mentor perception and individual differences; evaluation of formal vs. informal mentoring programs; cross-cultural issues in mentoring; the relationship between mentoring and OCB: those who have been helped help others; the role of objective setting and organization support structure in the effectiveness of formal mentoring programs; and the structure, content, and formation of developmental networks.

To fill in research gaps, the DND/CF needs to:

- ◆ Gain more knowledge about mentoring in the military (implications, appropriateness, and alternatives);
- ◆ Gain a better understanding of the development of a relationship between leaders and their subordinates; and
- ◆ Conduct a systematic review of literature and member opinion research (members' concerns, interests and preferences concerning mentoring relationships).

4.2.3 Pillar 3: Train

4.2.3.1 Line of Operation: Individual Training and Education

4.2.3.1.1 Research Theme: Training Program Development

Table 12 contains a list of the projects within the DND/CF that examine issues related to training program development (with sub-themes of needs assessment, on line mode of delivery, evaluation/validation, and training improvements).

Table 12 Current Research Projects on Training Program Development

Current Project	Sponsor
<i>Needs Assessment</i>	
IT & E Needs Assessments	CMP
<i>On Line Mode of Delivery</i>	
First Aid Pilot Project	CMP
Meridian Off Line Player	CMP
E-Learning-Towards a CF Strategy	CMP
Content Object Discovery and Registration Architecture (CORDRA)	CMP
Meta Data for E-Learning Content	CMP
Web 2.0 and Operational Learning	CMP
Collective Networked Simulation	DRDC Toronto
Live Virtual Classroom (LVC) Application	CMP
<i>Evaluation/Validation</i>	
Distance Learning Organizational Readiness Survey	ECS
Rapid E-Learning	CMP
Authoring Tool Evaluations	CMP
Computer Supported Collaborative Learning	CMP
Distributed Learning (DL) Return-On-Investment (ROI): Comparison Between Distributed Learning with More Traditional Classroom Method of Delivery	CMP

<i>Training Improvements</i>	
First Year Transition For New Chaplain Recruits to CF (Regular): A Quality Management Tool to Improve Training.	CMP
First Term Values Study: Link Between Recruits' Experiences, Values, and Training Success	CLS

The DND/CF touches all sub-themes in training program development. The emphasis on e-learning reflects current research directions in the general literature.

4.2.3.1.2 Research Theme: Transfer of Training

Table 13 contains a list of the projects within the DND/CF that examine issues related to transfer of training.

Table 13 Current Research Projects on Transfer of Training

Current Project	Sponsor
Sensory Cueing for Embedded and Deployed Training	DRDC Toronto
Accelerated Mission Specific Training and Experimentation Using Wargames	CLS, CMP, DRDC Toronto
Coalition Interoperability	CMP, CAS, DRDC Toronto
Modelling the Behaviour of Groups and Small Populations for Synthetic Training: Include Crowd Behaviour in Constructive Simulations	DRDC Toronto
Simulated Operator for Networks: Collective Training	DRDC Toronto

In general, the DND/CF requires more research on conditions that enhance transfer of training. What are some research issues that could be relevant for the CF? These would include the following:

- ◆ Training design: Effects of task-related stress and task-immersion on transfer of skills; Analyzing costs/benefits of using a variety of learning strategies (e.g., visual support, hands-on activities, instruction, behaviour modeling) and delivery methods in order to account for different learning styles.
- ◆ Trainee characteristics: The impact of learning goal orientation and perceived enablers and barriers on training outcomes.
- ◆ Transfer strategies: Setting distal and proximal goals as transfer-of-training interventions; The impact of meta-cognitive activities and practice strategies on learning outcomes and transfer.

4.2.3.1.3 Research Theme: Physical Fitness

Table 14 contains a list of the projects within DND/CF that examine issues related to physical fitness.

Table 14: Current Research Projects on Physical Fitness

Current Project	Sponsor
Investigating the Selection-Training Continuum and the Philosophy of Training for Air Officers Occupations	CAS
Developing a Military Culture of Health and Fitness	CMP
Strategic Guidance on Health and Fitness	CMP
Development of Entry Level Physical Fitness Test for Search and Rescue Technicians (SAR TECHS)	CMP
Development and Validation of a Physical Fitness Test and Maintenance Standards for CF Diving Personnel	CMP
Development and Validation of a Physical Fitness Test and Maintenance Standards for CF Protective Services Unit Personnel	CMP
Development and Validation of a Physical Fitness Test and Maintenance Standards for JNBCD Coy Personnel	CMP
Validation of a Minimal Physical Fitness Standards for CF Personnel 56-60 yrs of Age	CMP
Validation of a New Forcible Entry Apparatus for CF/DND Firefighters-part of the FireFit test	CMP
Upper Body Muscular Strength & Endurance in CF Female Personnel	CMP

One identifiable gap in the DND/CF research program is research that reviews factors which encourage optimal participation in physical fitness programs.

4.2.4 Pillar 4: Prepare

4.2.4.1 Line of Operation: Health Services

4.2.4.1.1 Research Theme: Medical/Dental Research and Development

Table 15 contains a list of the projects within DND/CF that examine issues related to medical/dental research and development.

Table 15: Current Research Projects on Medical/ Dental Research and Development

Current Project	Sponsor
Operational Stress and Neurocognitive Impairments: To validate the Efficacy of New Treatment Modalities	DRDC Toronto
Chronic Pain Management	CMP

Gap analysis revealed lack of research on one area: the assessment of access to health care.

4.2.4.1.2 Research Theme: Health Promotion

Table 16 contains a list of the projects within the DND/CF that examine issues related to health promotion.

Table 16: Current Research Projects on Health Promotion

Current Project	Sponsor
Developing a Military Culture of Health and Fitness	CMP
Strategic Guidance on Health and Fitness	CMP
Health and Lifestyle Survey 2004	CMP

No apparent gap in health promotion research was found.

4.2.4.1.3 Research Theme: Prevalence/Critical Incidence of Injuries and Illnesses

Table 17 contains a list of the projects within DND/CF that examine issues related to prevalence/critical incidence of injuries and illnesses.

Table 17: Current Research Projects on Prevalence/ Critical Incidence of Injuries and Illnesses

Current Project	Sponsor
Helicopter Crew Neck Strain	CMP
CF Supplement to Canadian Community Health Survey Cycle 1.2-Mental Health and Well-being: Examine Prevalence of Mental Health Problems	CMP
Findings of a Comprehensive Clinical Evaluation Program of Canadian Gulf War Veterans: Understanding the Nature of Medical and Psychiatric Problems	CMP
Secondary Analysis of the Goss Gilroy Dataset on Canadian Gulf War Veterans: Prevalence of Symptoms	CMP

No research gap was identified in this research area.

4.2.4.1.4 Research Theme: The Effects of Extreme Conditions on Soldiers and Performance

As can be seen in Table 18, there is little research currently conducted on this theme.

Table 18: Current Research Projects on the Effects of Extreme Conditions on Soldiers and Performance

Current Project	Sponsor
Cosmic Radiation Monitoring Project	CAS/ DRDC Toronto

4.2.4.1.5 Research Theme: The Effects of Drugs/ Enhancements on Performance

Table 19 contains a list of the projects within the DND/CF that examine issues related to the effects of drugs/enhancements on performance.

Table 19: Current Research Projects on the Effects of Drugs/ Enhancements on Performance

Current Project	Sponsor
Human Enhancement	DRDC Toronto
Pharmacokinetics in Extreme Operational Environments	DRDC Toronto

No apparent research gap was found.

4.2.4.1.6 Research Theme: Medical/Dental Care in Deployed Settings

Table 20 presents the research activities related to medical/dental care in deployed settings currently active within the DND/CF.

Table 20: Current Research Projects on Medical/ Dental Care in Deployed Settings

Current Project	Sponsor
Remote Mass Casualty O2 Delivery System	CMP
Prospective Trauma Registry at a Role 3 Medical Facility	CMP
Use of Thromboelastography	CMP
Findings of an Enhanced Pre-Deployment Screening Program	CMP
Health Effects of CF Deployments	CMP
Prevention and Treatment of Injury and Disease	DRDC Toronto
Agents of Immediate Operational Impact	DRDC Toronto
Defence against Radiological Hazards	DRDC Toronto
Personnel Protection	DRDC Toronto
Combat Fluid Resuscitation Interoperable Capability (CFRIC)	DRDC Toronto
Combat Trauma and Resuscitation	DRDC Toronto
CF Operational and Occupational Health	DRDC Toronto
CF Operational Preparedness and Health Hazard	DRDC Toronto
Field Diagnostic, Telehealth and Net-Enabled Technologies	DRDC Toronto
Field Injury Diagnosis and Interventions	DRDC Toronto
Analytical Support to Casualty Support Strategy	CMP

No research gap was identified.

4.2.5 Pillar 5: Support

4.2.5.1 Line of Operation: Morale and Welfare

4.2.5.1.1 Research Theme: Occupational Health Psychology

Table 21 presents the research activities related to occupational health psychology currently active within the DND/CF, in three sub-themes: safety, work schedule and occupational stress.

Table 21 Current Research Projects on Occupational Health Psychology

Current Project	Sponsor
<i>Safety</i>	
Flight Safety Trend Analysis	PG3/ Air OR
<i>Work Schedule</i>	
OPTEMPO-Length/ Frequency of Deployments	CMP
PERSTEMPO-CF Members	CMP
Optempo and Individual Sustainment: The Effect of Perstempo on Morale	CMP
Canadian Forces Exit Survey: Examines Postings	CMP

<i>Occupational Stress</i>	
HDO Survey: Examines Stress in Unit Members	ECS
Unit Morale Profile (UMP) Survey: Examines Role Stressors	ECS
Resiliency Project	CLS
Moderating Effects of Hardiness, Coping and Self-Esteem on the Relationship Between Peacekeeping Experiences and PTSD	CMP
Family Resilience	CMP
Canadian Forces Retention Survey: Examines Operational Role Stress	CMP

To address the research gaps, the DND/ CF needs:

- ◆ A better understanding of burnout. Research on burnout has moved from the study of organizational consequences of burnout to a focus on the link between burnout and employee mental and physical health (for a review see Shirom, Melamed, Toker, Berliner, & Shapira, 2005). Future studies should investigate and prevent burnout in the CF to reduce disability, prevent early retirement, and lower health care costs. Areas of future research for the CF on burnout could include: a) What is contributing to burnout and develop training program that focus on these factors. and b) Moderator/ mediator between antecedents and burnout.
- ◆ More research on safety. In particular, the shift toward more team-based work environment has resulted in an increased interest in the implication of teamwork on workplace safety (Turner, Parker, & Williams, 2006). In line with this trend in safety research, the CF could benefit from conducting research on factors affecting safety, such as poor worker-employer collaboration, cross-training in teams, and the relationship between team size/conflict and safety behaviours. Other innovative topics on safety include: poor safety culture, deficient knowledge and training, and lack of incentives-based compensation systems (Barlin & Frone, 2004).
- ◆ While no apparent gaps in research on occupational stress were identified, stress research is currently a major concern in both I/O literature and practice. Among the recent research issues on occupational stress that could be relevant to the CF are: a) proactive self-regulatory coping; b) relationship between different types of control occupational stress; and c) organizational support and organizational politics as antecedents of stress.

4.2.5.1.2 Research Theme: Family Well-Being

Table 22 presents the research activities related to family well-being currently active within the DND/CF, pertaining to W/F conflict, family and operational effectiveness, and other.

Table 22: Current Research Projects on Family Well-Being

Current Project	Sponsor
<i>W/F Conflict</i>	
UMP Survey	ECS
Canadian Forces Retention Survey	CMP
Unit Morale / Ships Climate Profile	VCDS
<i>Family and Operational Effectiveness</i>	
PERSTEMPO-Spouses of CF Members	CMP
Family Resilience	CMP
Optempo and Individual Sustainment	CMP
<i>Other</i>	
Canadian Forces Exit Survey	CMP
The Relationship Study: Examine Family Well-Being and Family/Relationship Violence	CMP

No significant gap was identified. However, further research on W/F conflict is likely as it is one of CMP's highest priorities and constitutes, as well, a current issue in the general literature. Below is a list of potential topics that could be of interest for future research on W/F conflict (SIOP, 2006; 2007).

- ◆ Interaction between W/F coping strategies and workload;
- ◆ Examining employee use of family-friendly benefits;
- ◆ Cross-over effects of W/F conflict from one spouse to the other;
- ◆ W/F boundary management practices; and
- ◆ Age effects on the relationship between work overload and W/F conflict

4.2.5.1.3 Research Theme: International Assignments

Table 23 presents the research activities related to international assignments currently active within the DND/CF.

Table 23: Current Research Projects on International Assignments

Current Project	Sponsor
HDO Survey: Assess Cultural Awareness Training and Pre-Deployment Training	ECS

The following gaps were identified in this research area:

- ♦ Lack of research in expatriate adjustment, selecting and evaluating expatriates, and coping with job relocation. Whereas international assignment research is now attracting considerable attention in the management and I/O research community, the CF is conducting very little research on the subject. This may be due to the fact that the CF focuses more on the effects of operations and postings. Further, contrary to many organizations, which have experienced a recent increase in international assignments, international assignments have always been a part of most CF jobs.

4.2.5.1.4 Research Theme: Morale and Welfare Programs & Services

Table 24 presents the research activities related to morale and welfare programs and services currently active within DND/CF.

Table 24: Current Research Projects on Morale and Welfare Programs and Services

Current Project	Sponsor
Awareness and Comprehension of Canadian Forces Support Agency/ Non Public Funds (CFPSA/NPF)	CMP
Discount Study	CMP
Evaluation of the Third-location Decompression Program in Cyprus	CMP
Client Satisfaction Survey	ADM(HR-Civ)
Develop a Searchable Database for Federal Government / DND Research Publication Libraries	CAS
MFRC Study: Needs Assessment and Service Evaluation for Clients	CMP
Benchmarking Study-TTCP Paper on Chaplaincy	CMP

No research gap was identified.

4.2.5.2 Line of Operation: Compensation

4.2.5.2.1 Research Theme: Pay Level

Table 25 shows that there is very little research is currently conducted on this theme.

Table 25: Current Research Projects on Pay Level

Current Project	Sponsor
Development in the Field of Compensation and Benefits	CMP
Benchmarking Study on Compensation and Benefits	CMP

A suggestion for future research would be the modelling the effects of compensation on attrition.

4.2.5.2.2 Research Theme: Development/Evaluation of Compensation Systems

Table 26 shows that there is very little research is currently conducted on this theme.

Table 26: Current Research Projects on Development/Evaluation of Compensation Systems

Current Project	Sponsor
Canadian Forces Individual Accommodation Requirement Study: Establish a Baseline for Living Accommodation Allowance	CMP

4.2.5.2.3 Research Theme: Individuals Pay Satisfaction

Table 27 lists all relevant research projects in the research area related to pay satisfaction.

Table 27: Current Research Projects on Individual Pay Satisfaction

Current Projects	Sponsor
Canadian Forces Retention Survey: Pay and Benefits	CMP
Canadian Exit Survey: Pay and Benefits	CMP

No research gap was identified.

4.2.5.3 Line of Operation: Release and Retirement

4.2.5.3.1 Research Theme: Pre-Retirement Planning

No research in the CF/DND currently addresses topics related to preparation for retirement.

Contemporary research on retirement include:

- ◆ Life expectancy as an influence on intended age of retirement;
- ◆ Younger and older workers considerations for the timing of retirement;
- ◆ The effect of time remaining until retirement on self-regulation and motivation;
- ◆ Retirement and the pursuit of a new identity; and
- ◆ Explaining early retirement intentions from work and non-work factors (spouse's subjective norms, anticipated work quality, perceived control, attitudes). (SIOP, 2006, 2007).

4.2.5.3.2 Research Themes: Pension Plan

As can be seen in Table 28, only one current project touches on pension plan related research questions.

Table 28: Current Research Projects on Pension Plan

Current Projects	Sponsor
CFFM Firefighter Pension Plan Study	ADM(IE)

Future research could examine the relationship between pension attributes and attrition.

4.2.5.4 Line of Operation: Official Languages, Employment Equity, Human Rights and Alternate Dispute Resolution

4.2.5.4.1 Research Theme: Official Languages

Current DND/CF projects related to OL are listed in Table 29.

Table 29: Current Research Projects on Official Languages

Current Projects	Sponsor
Canadian Forces Retention Survey: Examines Satisfaction with Second Language Training	CMP

Future research could examine the impact of bilingual policies and members' attitudes toward these.

4.2.5.4.2 Research Theme: Employment Equity

Table 30 contains a list of the projects within the DND/CF that examine issues related to EE.

Table 30: Current Research Projects on Employment Equity

Current Projects	Sponsor
Diversity Climate Survey	ADM (HR-Civ)/CMP
Gender and Leadership: Lessons Learned	CDA
Canadian Forces Prospect Survey: Analysis by Employment Equity Group	CMP
Employment Equity Promotion Analyses for the Regular Force	CMP
Your-Say Continuous Attitude Survey	CMP

<i>Evaluation of Courses, Workshops</i>	
Feedback Analysis of the 2006 Aboriginal Awareness Course	CMP
Effectiveness of BMQ and BOTP Employment Equity and Diversity Modules	CMP
An Analysis of the 2006 CF/DND Employment Equity Workshop for Managers and Supervisors	CMP

No research gap was found.

4.2.5.4.3 Research Theme: Human Rights

Table 31 contains a list of the projects within the DND/CF that examine issues related to human rights.

Table 31: Current Research Projects on Human Rights

Current Projects	Sponsor
Experience of, and Attitudes Towards, Persons with Disabilities in the CF	CMP

The following gaps were identified:

- ◆ There is a lack of research on contemporary discrimination issues, such as religious accommodation and practices to accommodate aging workers.
- ◆ No study is currently investigating sexual harassment. Potential issues that could be investigated are: the effects of occupation type on perceptions of sexual harassment, and sexual harassment observers and the reporting of sexual harassment incidents.
- ◆ No current attention is devoted to stereotyping. A potentially worthy subject is the comprehensive investigation of gender stereotyping of occupations.
- ◆ There are no ongoing surveys that assess the status quo of all of the types of harassment.

4.2.5.4.4 Research Theme: Alternate Dispute Resolution

Table 32 shows that there is little research currently conducted on this theme.

Table 32: Current Research Projects on Alternate Dispute Resolution

Current Projects	Sponsor
TTCP Paper on Complaint Resolution and Grievance Mechanisms	CMP

4.2.6 Pillar 6: Recognize

4.2.6.1 Line of Operation: Recognition

Table 33 shows that there is little research currently conducted on this theme.

Table 33: Current Research Projects on Recognition

Current Projects	Sponsor
Benchmarking Study - TTCP Paper on Recognition	CMP

4.2.6.2 Line of Operation: History and Heritage

4.2.6.2.1 Research Theme: Research and Writing of Official Histories

Table 34 contains a list of the projects within the DND/CF that examine issues related to Canadian military history and traditions.

Table 34: Current Research Projects on History and Heritage

Current Projects	Sponsor
Historical Perspectives - Leadership Lessons	CDA
Historical Military Case Studies: Ethical Perspectives	CDA

No research gap was identified.

4.2.7 Pillar 7: Individual, Organizational and Operational Effectiveness

4.2.7.1 Area of Interest: Motivation

Table 35 contains a list of the projects within the DND/CF that examine issues related to motivation.

Table 35: Current Research Projects on Motivation

Current Projects	Sponsor
UMP Survey: Measure Individual-Level Issues such as Motivation	ECS

From the above information, the following research gaps were identified:

- ◆ Lack of research on motivation-enhancing techniques. The DND/CF could examine, for instance, goal setting and performance feedback interventions, the impact of various goal dimensions (e.g. self-set vs. assigned goals; learning vs. performance goals) on motivation for various tasks, and task performance.
- ◆ Lack of research on strategies for increasing goal attainment (i.e. self-regulatory strategies), such as emotional control, monitoring and planning.

4.2.7.2 Area of Interest: Work Behaviors and Attitudes

Table 36 contains a list of the projects within the DND/CF that examine issues related to work behaviors and attitudes.

Table 36: Current Research Projects on Work Behaviours and Attitudes

Current Projects	Sponsor
<i>Job Satisfaction</i>	
UMP Survey: Measures Job Satisfaction	ECS
Canadian Forces Retention Survey: Measure Job, Cynicism, Role Ambiguity and Conflict	CMP
Canadian Forces Exit Survey: Use of Skills, Available Resources, Fair Treatment	CMP
QOL Study 2001	CAS

The following research gaps were identified:

- ◆ No research on emotions at work. This is an area that is now receiving a lot of attention in the I/O psychology literature (Ashkanasy & Ashton-James, 2005; Kiefer & Briner, 2006). Emotions at work is worthy of investigation since evidence suggests that they may be a stronger predictor of performance than job satisfaction, especially aspects of performance like loyalty and wanting to “go the extra mile” (Ashkanasy & Ashton-James, 2005).
- ◆ Very little active research on cynicism. For instance, examining supervisor and organizational support as a defense against organizational cynicism.

4.2.7.3 Area of Interest: Teamwork

4.2.7.3.1 Research Theme: Processes of Teamwork

Table 37 contains a list of the projects within the DND/CF that examine issues related to processes of teamwork, including the sub-themes of group development, group cohesiveness, communication, group performance, and trust.

Table 37: Current Research Projects on Processes of Teamwork

Current Projects	Sponsor
<i>Group Development</i>	
Human Dimension of the Expeditionary Air Force	CAS, CMP, DRDC Toronto
<i>Group Cohesiveness</i>	
UMP Survey	ECS
Human Dimensions in Operations	CLS/ DRDC Toronto
Optempo and Individual Sustainment	CMP
<i>Communication</i>	
JIMP and Adversarial Intent: Develop Communication and Decision-Making Requirements	CLS
<i>Group Performance</i>	
UMP Survey: Job/Unit Performance	ECS
Modelling Team Performance	CMP, CLS, DRDC Toronto
<i>Trust</i>	
Trust Research: Examine Trust in Small Teams	CLS
Trust Violation and Repair in Team Context	CLS, CMP, DRDC Toronto
JIMP and Adversarial Intent: Trust and Team Building	CLS/ DRDC Toronto
The Building of Relation with the Religious Other: An Issue of Trust	CMP

While the DND/CF is conducting a considerable amount of research on team processes, gaps were found in these sub-themes:

- ◆ Group composition and fit;
- ◆ Team commitment;
- ◆ Cooperation and competition;
- ◆ Social Influence;
- ◆ Group decision-making;
- ◆ Process loss;
- ◆ Conflict;
- ◆ Leadership in group;
- ◆ Group deviance.

To guide future research, recent academic research in some of these sub-themes is listed: a) impact of information sharing on decision quality; b) role of teamwork skills and abilities on team performance; c) investigating the best configuration of teams for performance: the contribution of individual traits, gender, and cultural heterogeneity; d) vertical and shared team leadership; and e)

virtual teams (Axtell, Fleck & Turner, 2004; Day, Gronn, & Salas, 2006; Hollenbeck, DeRue, & Guzzo, 2004; Humphrey, Hollenbeck, Meyer, & Ilgen, 2002).

4.2.7.3.2 Research Theme: Interventions With Teams

The DND/CF has no current research project that falls into this theme, so there is a need to identify factors most responsible for enhancing team performance in the unique CF context. Potential examples are:

- ◆ The impact of a training program that forces teams through a large number of decision cycles on the quality of real life decisions;
- ◆ The relative value of team training versus individual training; and
- ◆ The role of cross-training on team adaptability.

4.2.7.4 Area of Interest: Trust and Leadership

4.2.7.4.1 Research Theme: Leadership Theories and Training

Table 38 contains a list of the projects within the DND/CF that examine issues related to leadership theories and training.

Table 38: Current Research Projects on Leadership Theories and Training

Current Projects	Sponsor
<i>Literature Review/ Development of Leadership Concepts</i>	
Leadership: An Annotated Bibliography	CDA
Command Intent: International Perspective	CDA
Research Bin Project– Vol. 3: Collection of Research Papers Deemed of Interest and Value For the CF	CDA
Professional Development Readings List	CDA
Introduction to Ethics (Theory and Concepts)	CDA
<i>Leadership Training</i>	
RMC Socialization Project	CDA
Executive Leadership Program	CDA
Professional Development Framework	CDA
Inside CF Transformation	CDA
Strategic Leadership Development: International Perspectives	CDA
Measuring Leadership	CDA
Collaborative Decision Making	CLS

No research gap was identified.

4.2.7.4.2 Research Theme: Leader Effectiveness

Current DND/CF research projects related to leader effectiveness are listed in Table 39.

Table 39: Current Research Projects on Leader Effectiveness

Current Projects	Sponsor
<i>Trust in Leadership</i>	
Trust: In Harms Way Book Series	CDA
Trust Research	CLS
Canadian Forces Retention Survey	CMP
<i>Leader Effectiveness</i>	
Leadership Lessons Learned in CF Operations	CDA
Gender and Leadership: Lessons Learned	CDA
Military Leadership Handbook: Chapters of Subjects of Interest to Military Leaders	CDA
Perspectives on Leading the Canadian Forces Institution	CDA
Institutional Leadership in the Canadian Forces: Contemporary Issues	CDA
Leadership and Cultural Intelligence	CDA
Collaborative Decision Making	CLS
Ethics and Professionalism	CLS
UMPs for all Environments: Leadership Styles and Behaviors	ECS
Canadian Forces Retention Survey: Satisfaction with Leadership	CMP
Canadian Forces Exit Survey: Satisfaction with Leadership	CMP

No research gap was identified.

4.2.7.4.3 Research Theme: Specific Leadership Topics

No research is currently conducted on this theme in the CF/DND, so the following gaps were identified:

- ◆ Lack of research on abuse of supervisory power. Recently, the negative side of leadership (e.g., destructive leaders, leaders' errors, and deviance) has received increased attention from researchers. This is evidenced by a recent special issue of the journal "The Leadership Quarterly" (Tierney & Tepper, 2007) and by proliferation of articles on the dark side of leadership.
- ◆ Lack of research on followership and mutual influences. However, this topic is perhaps addressed in the leadership theories theme (leader-member exchange leadership model).
- ◆ No research on the role of negotiation in leadership. This theme is less examined by academics but is receiving attention by HR professionals, in particular ethical and gender issues in negotiation.

4.2.7.5 Area of Interest: Human Factors in the Workplace

4.2.7.5.1 Research Theme: User-Oriented Design

No research is currently conducted on this theme.

4.2.7.5.2 Research Theme: Human-Computer Interface

No research is currently conducted on this theme.

4.2.7.5.3 Research Theme: Mental Workload

Table 40 shows that there is only one DND/CF project related to mental workload.

Table 40: Current Research Projects on Mental Workload

Current Projects	Sponsor
FWSAR Search Window Effectiveness Analyses	DRDC CORA

4.2.7.5.4 Research Theme: Prevention of Human Errors

Table 41 shows that there is also only one DND/CF project related to the prevention of human errors.

Table 41: Current Research Projects on Prevention of Human Errors

Current Projects	Sponsor
Flight Safety Trend Analysis: Include Various HF Considerations	DRDC CORA

4.2.7.6 Area of Interest: Organizational Culture and Climate

4.2.7.6.1 Research Theme: Fostering a Particular Culture

Table 42 contains one project within the DND/CF that examines issues related to fostering a particular culture.

Table 42: Current Research Projects on Fostering a Particular Culture

Current Projects	Sponsor
Ethics and Professionalism: Fostering an Ethical Culture	CLS

No research gap was identified.

4.2.7.6.2 Research Theme: Examining Culture and Climate

Table 43 contains a list of the projects within the DND/CF that examine issues related to culture and climate.

Table 43: Current Research Projects on Examining Culture and Climate

Current Projects	Sponsor
Army Culture Study	CLS
Validate Duty with Honour	CLS
Ethics and Professionalism	CLS
Your-Say Continuous Attitude Survey; HDO/ UMP Surveys: Assess Climate of Regular Force Units/ DND Civilian Organizations	CMP/ECS
QOL Section in "Your Say" Survey: Military Ethos	CMP
Defence Ethics Survey	CMP/ CRS
Canadian Forces Retention Survey	CMP
Corporate Culture in the CF and DND	CMP
<i>Cross-Cultural Issues</i>	
Lethal Believers: The Ethical Challenge of Religiously-Motivated Terrorism	CMP
The Canadian Forces Chaplain Branch: Modeling Interfaith Cooperation and Pluralism in Afghanistan	CMP
Mimetic Modeling Reconciliation in a Theatre of War	CMP
The Building of Relation with the Religious Other: An Issue of Trust	CMP
"Military Chaplains as Agents of Peace: The Theology and Praxis of Reconciliation in Stability Operations"	CMP
Moral and Ethical Dilemmas in CF Operations: Enhance Pre-Deployment Training and Preparation, and Multinational Perspectives	CMP, CLS, DRDC Toronto

The following research gap was identified for this theme – a lack of research on the causes and consequences of culture and climate.

4.2.7.7 Area of Interest: Deployment Resiliency

Current DND/CF projects on deployment resiliency are listed below in Table 44.

Table 44: Current Research Projects on Deployment Resiliency

Current Projects	Sponsor
HDO Survey: Improve Operational Effectiveness; Provide Incremental Information on Unit Climate, Stress and Coping	CLS
Resiliency Project: Develop a Resiliency Index; Monitor Stress and Strain in Operations and in Garrison; Focus on Selection and Training to Reduce the Effects of Operations	CLS
Optempo and Individual Sustainment (Impact on Military Readiness)	CMP
Family Resilience	CMP
PERSTEMPO-Spouses of CF Members	CMP
PERSTEMPO-CF Members	CMP
Moderating Effects of Hardiness, Coping and Self-Esteem on the Relationship between Peacekeeping Experiences and PTSD	CMP
Psychophysiological Challenges and Operational Readiness	DRDC Toronto
Evaluation of the "Third Level Decompression" in Post Deployment	DGHS
UMP Survey: Stress of Unit Members in the Garrison Setting	ECS

No important research gap was identified.

5 Conclusions and Recommendations

5.1 CF HR Research Framework

The CF HR Research Framework captures all major research themes in HR research organized in a way that is useful for the DND/CF but reflects at the same time existing classification systems in the academic and professional literature. The mapping of existing research projects onto the framework was relatively easy, making it possible to draw initial conclusions regarding the utility and validity of the proposed new framework. The CF HR Research Framework is recommended as a potential tool to classify all HR/personnel/HF research conducted in the DND/CF, to communicate ongoing research, prioritize research activities, and identify research gaps and future research directions.

5.2 Gap Analysis Findings

In the present paper, a research gap is a gap between what is being done in the general literature and what is being done in DND/CF. To make the gap results meaningful, a distinction is proposed between major gaps, minor gaps, and gaps in key research themes. This represents only an initial interpretation of gap results. Resolving these gaps will require a comprehensive analysis of CF future priority issues for research and their relative cost. Only then, it will be possible to determine which gaps need to be filled.

5.2.1 Major Gaps

The following research areas can be regarded as “major gaps” because they refer to areas that: 1) are receiving very little or no current attention within DND/CF; 2) are potentially relevant to the DND/CF; or 3) represent active research areas in the academic/ professional literature. It is recommended that the DND/CF consider these areas as a high priority when planning for future research:

- Recruitment Sources and Recruitment Timing,
- Transfer of Training,
- Mentoring,
- Performance Appraisal,
- Motivation, and
- Burnout.

5.2.2 Minor Gaps

The following gaps are referred as minor because these areas may require less active research. When an organization already has in place plans, systems, and/or programs that address these areas, the need for research is relatively lower. Research can become more important in response to external or internal events that provoke assessment and/or updates of what are in place. It is recommended that DND/CF consider these areas as a lower priority when planning for future research:

- ADR,
- Recognition,
- Pay compensation,
- Pension plans, and
- Career management.

5.2.3 Emerging Research Themes

Emerging research themes reflect current and future issues in HR research. The present analysis revealed that the DND/CF is currently giving attention to some of these “newer” issues but gaps in some topics were also identified. It is recommended that DND/CF continue to consider these issues in discussions and decisions regarding future research:

- Member health, well-being, and safety. These topics represent together a relatively new and rapidly expanding field (Spector, 2006).
- Family well-being. The recent I/O psychology literature contains many references to W/F conflict. This is evidenced by numerous review articles and books (Greenhaus & Foley, 2007; Major & Cleveland, 2007; Thompson, Beauvais, & Allen, 2006).
- Team research. Over the last 20 years, the importance of team research has grown steadily in parallel with the increase in team-based organizations (Ilgen, 1999). Current research domains reflect the new challenges teams are facing. For example, there is abundant research on multi-team systems, geographically dispersed teams and virtual teams (Connell, 2002; Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005; Polzer, Crisp, Jarvenpaa, & Kim, 2006).
- Leadership. Current issues in leadership include: gender issues and leadership, ethical issues related to leadership, the measurement of leadership performance, cross-cultural leadership, and leadership and emotions (Ashkanasy & Ashtoon-James, 2005; Lyness, & Terrazas, 2006).
- Cultural issues. Trends toward globalization and increased workforce diversity in Canadian organizations highlight the need to study more cross cultural issues, such as work motivation across cultures, conflict resolution, and cultural differences in information relevance (Burke & Ng, 2006).
- Technology. As the role of technology in the design, execution, and evaluation of work has increased, research on technology has also increased (Burke & Ng, 2006). Examples of research topics are: the impact of videoconference technology on interviewer evaluations of job applicants; the equivalence of computerized and paper-and-pencil cognitive ability tests; and older workers’ technology attitudes (Chapman, & Rowe, 2001; Mead & Drasgow, 1993; SIOP, 2007).

5.3 Conclusion

With the subsequent stand-up of Partner Group 4 (PG 4) since this study was conducted, HR/personnel/HF research in the DND/CF is now being coordinated in a more systematic manner. That being said, as PG 4 grows and evolves, this study should provide some assistance in providing structure and identifying gaps in current and proposed HR research.

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Annex A Sources of Information Used in Developing the Framework

A.1 Books

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A.2 Convention and Societies

Society for Human Resource Management Website:

<http://www.shrm.org/hrmagazine/06january/>

Human Factors and Ergonomics Society Website:

<http://www.hfes.org>

Academy of Management-Divisions and Interest Groups Website:

http://www.aomonline.org/aom.asp?ID=44&page_ID=15#

2007 Society for Industrial and Organizational Psychology Inc. (SIOP) Conference Research Program Website:

<http://www.siop.org/Conferences/07Con/Program/TableofContentspdf.aspx>

A.3 Key Web Sites

Human Resources Guide:

<http://www.hr-guide.com/>

Industrial and Organizational Links by Subtopic:

<http://www.socialpsychology.org/io.htm>

American Psychological Association Books:

<http://www.apa.org/books/industrial.html>

Book Reviews: Organizational Psychology and Behavior:

http://www.hrconsultant.com/br/br_ter_org_psych.html

List of Human Factors Sites:

<http://www.aviation.uiuc.edu/institute/acadProg/epjp/humFacsites/hotlist.html>

Annex B The Full CF HR Framework

Pillar 1	Area of Interest	Research Themes and Sub Themes
Personnel Management System Integration	Strategic Planning and Management	<p>Job Analysis</p> <ul style="list-style-type: none"> • Job/ Occupational Analysis • Assessment of Quality of Job Analysis • Use of OA for Selection, Performance Appraisal, Employee Compensation and Research <p>Structure of Work</p> <ul style="list-style-type: none"> • Design of New Jobs • Establishing Relationships among Jobs • Communication Structure <p>Personnel Requirements Planning</p> <ul style="list-style-type: none"> • Monitoring Current Supply of Workers Available Internally • Forecasting Internal/ External Workforce Supply and Demand • IT/ E Qualification Requirements <p>Strategic Decision-Making Operational Lessons Learned</p> <p>Organizational Development and Change (OCD) OCD Processes and Outcome</p> <p>Uptake of Innovation</p>

		<p>Performance Criteria</p> <ul style="list-style-type: none"> • Rater Training • Performance Appraisal and Individual Development • Promotions <p>Other Aspects of Performance Appraisal</p> <ul style="list-style-type: none"> • Organizational Citizenship Behaviours (OCB) • Prosocial Behaviours, Creativity, Innovation • Integrity at Work • Time Management • Counter Productive Behaviours. <p>Mentoring</p>
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Pillar 3	Area of Interest	Research Themes and Subthemes
Train	Individual Training and Education	<p>Training Program Development</p> <ul style="list-style-type: none"> • Need Assessment • Content of a Training Program • Choice of Training Methods • E-learning • Training Validation <p>Transfer of Training</p> <ul style="list-style-type: none"> • Work Environment • Training Design Characteristics • Trainee Characteristics • Simulation <p>Physical Fitness</p>

Pillar 4	Area of Interest	Research Themes and Subthemes
Prepare	Health Services	<p>Medical/ Dental Research and Development</p> <p>Health Promotion</p> <p>Prevalence/ Critical incidence of Injuries and Illnesses</p> <p>The Effects of Extreme conditions on Soldiers and Performance</p> <p>The Effects of Drugs/ Enhancement on Performance</p> <p>Medical/ Dental Care in Deployed Settings</p>

	<p>Release & Retirement</p> <p>Official Languages, Employment Equity, and Human Rights, and Alternate Dispute Resolution</p>	<p>Pre-Retirement Planning</p> <p>Pension Plan</p> <p>Employment Equity Act</p> <p>Human Rights</p> <p>Official Languages</p> <p>Alternate Dispute Resolution</p>
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Pillar 6	Area of Interest	Research Themes and Sub themes
Recognize	Recognition History and Heritage	Recognition Research and Writing of Official Histories

Pillar 7	Area of Interest	Research Themes and Sub themes
Individual, Organizational and Operational Effectiveness	Motivation	<ul style="list-style-type: none"> • Measuring Job Motivation and Involvement • Motivation-Enhancing Technique • Strategies for Changing Behaviours
	Work Behaviours and Attitudes	<ul style="list-style-type: none"> • Job Satisfaction (Antecedents and Consequences) • Job Characteristics (Skills Variety, Task Identity, Task Significance, Autonomy, and Feedback from Job) • Role Ambiguity and Conflict • Perception of Fairness • Job Security • Organizational Cynicism
	Teamwork	<p>Processes of Teamwork</p> <ul style="list-style-type: none"> • Group Development • Group Composition and Fit with Individual • Group Cohesiveness • Team Commitment • Communication • Cooperation and Competition • Group Performance • Social Influence (Roles, Norms) • Group Decision Making • Trust • Process Loss • Group Diversity • Conflict

	<p>Organizational Culture and Climate</p> <p>Deployment Resiliency</p>	<ul style="list-style-type: none"> • Effects of Automatization <p>Prevention of Human Errors</p> <p>Fostering a Particular Culture</p> <p>Examining Climate/ Culture</p> <ul style="list-style-type: none"> • Causes and Consequences of Culture/Climate
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List of Acronyms

ADM (S&T)	Assistant Deputy Minister (Science and Technology)
ADR	Alternate Dispute Resolution
CF	Canadian Forces
CFLI	Canadian Forces Leadership Institute
CMP	Chief Military Personnel
CORA	Centre for Operational Research and Analysis
CWB	CounterProductive Workplace Behaviours
DGMPRA	Director General Military Personnel Research and Analysis
DMPORA	Director Military Personnel Operational Research and Analysis
DND	Department of National Defence
DRDC	Defence Research & Development Canada
DRDKIM	Director Research and Development Knowledge and Information Management
DSMPRA	Director Strategic Military Personnel Research and Analysis
ECS	Environmental Chief of Staff
EE	Employment Equity
HF	Human Factors
HR	Human Resources
I/O Psychology	Industrial and Organizational Psychology
IT&E	Individual Training and Education
OCB	Organizational Citizenship Behaviours
ODC	Organizational Development and Change
OL	Official Languages
R&D	Research & Development
SIOP	Society of Industrial/Organizational Psychology
W/F	Work/Family

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DOCUMENT CONTROL DATA

(Security classification of title, body of abstract and indexing annotation must be entered when the overall document is classified)

1. ORIGINATOR (The name and address of the organization preparing the document. Organizations for whom the document was prepared, e.g. Centre sponsoring a contractor's report, or tasking agency, are entered in section 8.)		2. SECURITY CLASSIFICATION (Overall security classification of the document including special warning terms if applicable.)	
DGMPPRA National Defence Headquarters 101 Colonel By Drive Ottawa, ON K1A 0K2		UNCLASSIFIED	
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The Canadian Forces Human Resources Framework: A Tool for Gap Analysis:			
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As part of the current initiative between the Chief of Military Personnel (CMP) and the Assistant Deputy Minister for Science and Technology (ADM (S&T)) to coordinate all research pertaining to human resources (HR), personnel and human factors, this study aims to create a new framework which will: 1) provide a formal structure to classify the research; 2) inform about existing research projects; and 3) identify any research gaps. This new HR Research Framework draws extensively from existing HR research categorization found in the academic/professional literature and CMP's lines of operation. It has been validated by mapping Department of National Defence and Canadian Forces (DND/CF) HR research projects into its research categories; and gaps have been identified in categories of research where there are currently no, or very few, DND/CF research projects. This paper provides an overview of the framework and presents the results of the gap analysis, bearing in mind that it was conducted using only one year's worth of data as a test case and does not reflect if earlier research may have touched on the identified gaps. Follow on studies examining past and present research for each component of the framework would be required for more definitive conclusions.

Le Chef du personnel militaire (CPM) et le Sous-ministre adjoint (Science et technologie) (SMA[S & T]) mènent actuellement un projet conjoint visant la coordination de l'ensemble de la recherche portant sur les ressources humaines (RH), le personnel et les facteurs humains (FH). La présente étude, qui s'inscrit dans ce projet, a pour but d'établir un nouveau cadre qui permettra : 1) d'adopter une structure officielle de classification de la recherche; 2) d'être au courant des projets de recherche en cours; 3) de relever toute lacune dans la recherche. Ce nouveau cadre s'appuie grandement sur la classification de la recherche en RH qu'on retrouve dans la documentation scientifique/professionnelle et les lignes d'opération du CPM. On l'a validé en appliquant ses catégories aux projets de recherche du ministère de la Défense nationale (MDN) et des Forces canadiennes (FC); des lacunes ont été relevées dans des catégories où il n'y a actuellement pas ou presque pas de projets de recherche menés par le MDN/les FC. Le présent document fournit une description générale de ce cadre et rapporte les résultats de l'analyse des lacunes, laquelle ne constitue qu'une analyse-type fondée sur les données d'une seule année et n'indique pas si des recherches antérieures ont déjà fait état des lacunes relevées. Pour pouvoir tirer des conclusions plus exactes, il faudrait mener des études de suivi sur les recherches actuelles et antérieures portant ou ayant porté sur chacun des éléments du cadre.

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Human Resources; Personnel; Human Factors; Research Framework; Pillars;
Line of Operation; Themes



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