



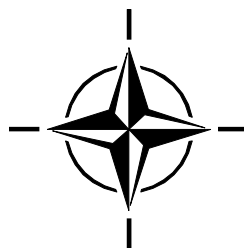
RTO TECHNICAL REPORT

TR-SAS-059

NATO Human Resources (Manpower) Management

(Gestion des ressources humaines
(effectifs) de l'OTAN)

This Technical Report includes best practices, models and methodologies, data issues, skill categories and experience levels in human resources management – the findings of NATO SAS Task Group 059.



Published February 2012





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The Research and Technology Organisation (RTO) of NATO

RTO is the single focus in NATO for Defence Research and Technology activities. Its mission is to conduct and promote co-operative research and information exchange. The objective is to support the development and effective use of national defence research and technology and to meet the military needs of the Alliance, to maintain a technological lead, and to provide advice to NATO and national decision makers. The RTO performs its mission with the support of an extensive network of national experts. It also ensures effective co-ordination with other NATO bodies involved in R&T activities.

RTO reports both to the Military Committee of NATO and to the Conference of National Armament Directors. It comprises a Research and Technology Board (RTB) as the highest level of national representation and the Research and Technology Agency (RTA), a dedicated staff with its headquarters in Neuilly, near Paris, France. In order to facilitate contacts with the military users and other NATO activities, a small part of the RTA staff is located in NATO Headquarters in Brussels. The Brussels staff also co-ordinates RTO's co-operation with nations in Middle and Eastern Europe, to which RTO attaches particular importance especially as working together in the field of research is one of the more promising areas of co-operation.

The total spectrum of R&T activities is covered by the following 7 bodies:

- AVT Applied Vehicle Technology Panel
- HFM Human Factors and Medicine Panel
- IST Information Systems Technology Panel
- NMSG NATO Modelling and Simulation Group
- SAS System Analysis and Studies Panel
- SCI Systems Concepts and Integration Panel
- SET Sensors and Electronics Technology Panel

These bodies are made up of national representatives as well as generally recognised 'world class' scientists. They also provide a communication link to military users and other NATO bodies. RTO's scientific and technological work is carried out by Technical Teams, created for specific activities and with a specific duration. Such Technical Teams can organise workshops, symposia, field trials, lecture series and training courses. An important function of these Technical Teams is to ensure the continuity of the expert networks.

RTO builds upon earlier co-operation in defence research and technology as set-up under the Advisory Group for Aerospace Research and Development (AGARD) and the Defence Research Group (DRG). AGARD and the DRG share common roots in that they were both established at the initiative of Dr Theodore von Kármán, a leading aerospace scientist, who early on recognised the importance of scientific support for the Allied Armed Forces. RTO is capitalising on these common roots in order to provide the Alliance and the NATO nations with a strong scientific and technological basis that will guarantee a solid base for the future.

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Terms of Reference (ToR)

I. ORIGIN

A. Background

At the May 2003 Meeting in Madrid, SPAIN, TURKEY invited NATO Nations and agencies to cooperate in a study on Human Resources Management. The SAS Panel decided to form the exploratory team SAS ET.AK on HRM and recommended Turkey to submit a formal paper that describes areas of the research, Terms of Reference (TOR), Technical Activity Plan (TAP) and Programme Of Work (POW) as it is mentioned on the decision sheet (AC/323(SAS) DS/11) dated 15 June 2003.

B. Justification

Human Resources Management (HRM) is a very broad and complex area ranging from development of manpower required (skills, numbers and organisational models) to the distribution of the personnel authorized against the requirements. This is further complicated by the extensive and different parameters needed at the strategic operational and tactical levels. Currently, developers and analysts working in these areas attempt to build various models.

However, three factors that significantly hamper these efforts are the lack of data, non-harmonised processes and insufficient synchronization between the various sources and systems. Data here means any information about manpower, personnel, demographic factors, and also the sources related. The list below shows many of the problems that currently exist in the HRM arena that make it difficult for Nations' and NATO bodies HRM to function efficiently and effectively:

- Data
- Non-availability of data
- Non-standardized data across Nations
- Poor data quality
- Difficulty in obtaining data
- Lack of interoperability of data systems within and across NATO and PfP Nations
- Duplication of data
- Lack of normalization in data
- Lack of common language based on occupational areas
- Skills mismatch
- Classification problems
- Incorrect categorization of ranks and grades

Because of the problems identified above, this research is being proposed to:

- Identify best practice in HRM.
- Identify the data requirements needed to successfully implement strategic and operational HRM.
- Develop a common language based on occupational areas to categorize the skills and competencies required.
- Catalogue the current HRM models, methods, and methodologies across NATO bodies, NATO and PfP Nations.

Benefits to be derived from this research, at a minimum, are:

- Improved research and modeling in HRM.
- Fully qualified and trained personnel assigned to fill NATO position requirements for staff and deployment of NATO forces.
- Improved internal HRM within NATO bodies, NATO and PfP Nations.

II. OBJECTIVES

A. Area of Research and Scope

The research will address issues concerning the following areas.

1.1 Best Practice

The technical team will identify practices used in military organisations regarding strategic and operational HRM. The group will also define best practice in this area.

1.2 Data Requirements

The technical team will identify and define the data requirements that are necessary for successful implementation of strategic and operational HRM. It is expected from the Technical Team that they would recommend the minimum data parameters required by HRM to accomplish varying needs in the HRM communities (i.e. research, modelling).

1.3 Consistent Skill Categorisation and Experience Levels

The aim is to develop a table based on occupational areas, such as Administration, Intelligence, Operations, Logistics, etc. that categorise the manpower skills and associated competencies required. The Technical Team must use the current NATO Occupational Area Codes as the starting point to develop this catalogue.

1.4 Catalogue of Current HRM Models, Methods, and Methodologies

The technical team will develop a catalogue by NATO bodies, NATO and PfP Nations that delineate the various models with their associated methods and methodologies that are currently used in their HRM. The group will categorise models methods and methodologies.

1.5 Research Methodologies

The study of these issues will involve workshops, brain storming, mind mapping, and operations research techniques such as multi-criteria decision making, global search techniques, stochastic programming, simulation, data mining, data fusion, data analysis.

B. Expected Products and Deliverables

1) The following **technical documents** will be prepared:

- A technical report that includes best practice in strategic and operational HRM.
- A technical report that includes HRM logical data and glossary of related terminology.
- A catalogue that categorises the current HRM models, methods, and methodologies across NATO bodies, NATO and PfP Nations.
- A catalogue that defines consistent skill categories and experience levels.

2) A **Symposium** will be organised after which proceedings will be produced.

C. Duration of the Task Group

It is proposed to initiate the work of the RTG in June 2004 and to finish in April 2007. The RTG will submit the final report to the SAS Panel in the spring 2007 meeting. The symposium will be organised in the fall 2007.

III. RESOURCES

A. Membership

Membership of the RTG should include experts in: operations research, human resources management, manpower planning, military functional areas and information technologies. SAS ET.AK Team consisted of personnel from GE, NC3A, NO, SW, TU, UK. NATO bodies, all NATO and PfP Nations are invited to join this RTG. **Lead Nation:** Turkey.

B. National and/or NATO Resources Needed

NC3A needs to be properly tasked by ACT or ACO to participate in this group. Other resources needed are to be determined in due time.

C. RTA Resources Needed

To be determined in due time.

IV. SECURITY CLASSIFICATION LEVEL

Recommended for the activity – NATO Unclassified Releasable to PfP Nations.

Recommended for the publication – NATO Unclassified Releasable to PfP Nations.

The exact classification level will be determined by the RTG during the conduct of the research.

V. PARTICIPATION BY PARTNER NATIONS

PfP Nations are invited.

VI. LIAISON

Liaison with any other organisation would enhance the work of the RTG. Cooperation and involvement with ACO, ACT, NC3A, CNAD and HFM will be promoted. Whenever necessary, collaboration with other academia and industry civilian organisations will be considered.

SAS-059 Membership List

STUDY DIRECTOR / DIRECTEUR D'ETUDE

OZKIL, Asst.Prof. Dr. A.

Atilim University
Industrial Engineering Department
Kizilcasar Koyu
06836 Incek, Ankara
TURKEY

Tel: [90] (312) 586 8318
Fax: [90] (312) 586 8090
e-mail: aozkil@atilim.edu.tr
Mobile: [90] (532) 375 5747

CANADA

MOMBOURQUETTE, Maj. C.

Department of National Defence
Director Strategic Human Resource
Maj. Gen. George R. Pearkes Building
Ottawa, Ontario K1A 0K2

Tel: [1] 613 992 4969
Fax: [1] 613 395 5785
e-mail: Mombourquette.CJ@forces.gc.ca

GERMANY/ALLEMAGNE

HUMM, LTC. T.

Deputy Head of Personnel Management Branch
BMVg PSZ I 1
Post fach 1328
D-53003 Bonn

Tel: [49] (0) 228 12 77 07
Fax: [49] (0) 228 12 52 16
e-mail: ThomasHumm@bmwg.bund.400.de

JUNG, LTC. R.

BMVg PSZ II
Fontainengraben 150
D-53123 Bonn

Tel: [49] (0) 228 12 77 07
Fax: [49] (0) 228 12 52 16
e-mail: RalfJung@bmvg.bund400.de

NORWAY/NORVEGE

OSTBYE, Mr. P.R.

Head of Section for Defence Economics
Norwegian Defence Research Establishment
for System Analysis
P.O. Box 25
Kjeller

Tel: [47] 90 78 47 19
Fax: [47] 63 80 77 15
e-mail: pos@ffi.no
Mobile: [47] 328 51 932

SWEDEN/SUEDE

SVANERHOLM, Mr. T.

Human Research Officer / Research Assistant
Dept. of Command Control and
Crisis Management Studies
Division of Defence Analysis (FOI)
SE-172 90 Stockholm

Tel: [46] 8 55 50 38 72
Fax: [46] 8 55 50 38 66
e-mail: tomsva@foi.se

SWEDEN/SUEDE (cont'd)**TERNBLAD, Mr. S.**

Senior Analyst
Division of Defence Analysis (FOI)
SE-172 90 Stockholm

Tel: [46] 8 55 50 38 17
Fax: [46] 8 55 50 38 66
e-mail: steter@foi.se

TURKEY/TURQUIE**KARASAKAL, CDR. Dr. O.**

Turkish Naval Forces Command
APGE & BILKARDES Division
06100 Bakanliklar Ankara

Tel: [90] (312) 403 2446
Fax: [90] (312) 417 3065
e-mail: okarasa@dzkk.tsk.mil.tr

KARACAOGLU, LCDR. N.

Turkish Naval Forces Command
Personnel Division
06100 Bakanliklar Ankara

Tel: [90] (312) 403 3112
Fax: [90] (312) 417 3065
e-mail: nkaracao@dzkk.tsk.mil.tr

BULBUL, Cpt. A.

Turkish General Staff HQs.
Personnel Division
06100 Bakanliklar Ankara

Tel: [90] (312) 402 1386
Fax: [90] (312) 425 2465
e-mail: abulbul@gmail.com

GENCER, 1st Lt. U.

Turkish General Staff HQs.
Personnel Division
06100 Bakanliklar Ankara

Tel: [90] (312) 402 1386
Fax: [90] (312) 425 2465
e-mail: umgencer@yahoo.com

BOGA BAKIRLI, 1st Lt. B.

Turkish Air Force Command
Scientific Decision Support Department
06100 Bakanliklar Ankara

Tel: [90] (312) 414 2807
Fax: [90] (312) 414 3856
e-mail: bbakirli@hvkk.tsk.mil.tr

UNITED KINGDOM / ROYAUME-UNI**BREWARD, Miss. L.**

Manpower Analyst
Dstl Policy and Capability Studies
Ively Road, Farnborough
Hampshire GU14 0LX

Tel: [44] (0) 1252 455169
Fax: [44] (0) 1252 455602
e-mail: eebeward@dstl.gov.uk

KEELING, Miss. H.

Defence Science and Technology Laboratory
Room 1001 A3 Building
Ively Road, Farnborough
Hampshire GU14 0LX

Tel: [44] (0) 1252 456547
Fax: [44] (0) 1252 455062
e-mail: hkeeling@dstl.gov.uk

SUBRAMANIAN, Mrs. N.

Dstl Policy and Capability Studies
Ively Road, Farnborough
Hampshire GU14 0LX

Tel: [44] (0) 1252 455606
Fax: [44] (0) 1252 455585
e-mail: n.subramanian@dstl.gov.uk

UNITED KINGDOM / ROYAUME-UNI (cont'd)

KING, Mr. T.

Defence Science and Technology Laboratory
Room 1002 A3 Building
Ively Road, Farnborough
Hampshire GU14 0LX

Tel: [44] (0) 1252 456547
Fax: [44] (0) 1252 455062
e-mail: tking@dstl.gov.uk

UNITED STATES OF AMERICA / ETATS-UNIS

TRYBULA, Mr. D.

OSD-PA&E(RA/EMAD)
Pentagon Room BE-798
Washington, DC

Tel: [1] 713 614 3840
e-mail: david.trybula@osd.mil

NC3A

FRIEDRICH, Dr. G.

NATO Consultation, Command and Control Agency
Operations Research and Functional Services
Qude Waalsdorperweg 61
P.O. Box 174
2501 CD The Hague
NETHERLANDS

Tel: [31] (0) 70 374 3613
Fax: [31] (0) 70 374 3069
e-mail: gernot.friedrich@nc3a.nato.int

CLEMENTS, Mrs. A.

NATO Consultation, Command and Control Agency
Operations Research and Functional Services
Qude Waalsdorperweg 61
P.O. Box 174
2501 CD The Hague
NETHERLANDS

Tel: [31] (0) 70 374 3613
Fax: [31] (0) 70 374 3069
e-mail: audrey.clements@nc3a.nato.int



NATO Human Resources (Manpower) Management (RTO-TR-SAS-059)

Executive Summary

Human Resources responsibilities have become broader and more strategic over time. The role of Human Resources has evolved from primarily being responsible for hiring, firing, payroll, and benefits administration to a more strategic role in employee selection, training and promotion, as well as playing an advisory role to the organisation in areas of labour relations and legal compliance. At the May 2003 SAS Panel Business Meeting in Madrid, Spain, Turkey invited NATO Nations and agencies to cooperate in a study on Human Resources Management. We realized that many of the problems that currently exist in the HRM arena make it difficult for Nations and NATO HRM bodies to function efficiently and effectively. SAS-059 decided to identify practices used in military organisations regarding strategic and operational HRM, to define best practice in HRM, to identify and define the data requirements necessary for successful implementation of strategic and operational HRM and to improve transparency on HRM issues especially between NATO HRM bodies and NATO Nations.

Some of the variations in HRM practices between military and non military organisations are highlighted to provide readers the reasons why SAS-059 has developed a customized HRM framework for military organisations. More stable job definitions, bottom up planning to meet both short- and long-term requirements, recruit personnel only at the entry levels, use internal resources for other levels, personnel selection processes, results and effects of performance appraisal systems, career planning are main areas that differences between military and non-military occurs.

The SAS-059 Human Resource Management FRAMework Model (HRM FRAM) describes HRM related processes throughout an organisation. HRM roles, systems and resources are not considered in the model. The FRAM does not represent a specific model currently in use in any particular country or organisation. It does, however, describe the processes, and the relationships between processes, of a successful personnel management organisation, as agreed on by the SAS-059 study members. The output of all the functions mentioned in the model is the 'Utilisation of Personnel', i.e. the supply of skilled and educated personnel to the particular organisation. The HRM FRAM does not aim to represent a rigid rule set mandating how a country should conduct its HRM planning and in what order. What it does aim to do, however, is to highlight the key generic processes that should be considered in order for a country to have a comprehensive, all encapsulating, efficient and dynamic system. A questionnaire had been designed by SAS-059 to collect information on models and methods that support HRM systems. Models and methods were categorized into groups according to HR FRAM phases.

Human resource management, which has been executed for a long time by dealing only with personnel affairs, now encloses many processes such as personnel selection, evaluation, career management, performance management, reward and salary management, personnel motivation. As a necessity of this structure, human resource management includes various data sets and management of these data sets. The problems with HRM data were discussed in this report.

RTG SAS-059 examined the feasibility of developing a common language based on occupational areas to categorise the skills and competencies required. A literature search to identify similar work that may have been conducted by other countries and other multi-national organisations was conducted and results were provided in this report.

As a result, RTG SAS-059 proposed a generic framework HRM that will help to develop a common understanding of the overarching HRM practices for NATO and PfP Nations. Although there may be variations among the Nations on the implementation of HRM system, the underlying issues such as recruitment, assignment, promotion, appraisal, etc., are common to all nations. Further research on tools, models and methods for those specific issues is expected to provide mutual benefits for NATO and PfP Nations.

Gestion des ressources humaines (effectifs) de l'OTAN (RTO-TR-SAS-059)

Synthèse

Les responsabilités de la fonction ressources humaines se sont étendues et ont gagné en importance au fil du temps. Les ressources humaines, chargées à l'origine de l'embauche, du licenciement, de la paie et de la gestion des prestations sociales, sont passées à un rôle plus stratégique de sélection, formation et promotion des employés, ainsi que de conseil vis-à-vis de l'organisation dans les domaines des relations de travail et de la conformité au droit. En mai 2003, lors de la réunion de travail de la commission SAS, à Madrid, en Espagne, la Turquie a invité les pays et les agences de l'OTAN à effectuer en coopération une étude sur la gestion des ressources humaines (GRH/HRM). Nous avons compris que beaucoup de problèmes qui se posent actuellement dans la GRH rendent difficile un bon fonctionnement entre les organes de GRH de l'OTAN et des Nations. Le groupe de recherche SAS-059 a décidé : d'identifier les pratiques employées dans les organisations militaires en matière de GRH stratégique et opérationnelle ; de définir les meilleures pratiques de GRH ; d'identifier et de définir les informations nécessaires à une mise en œuvre réussie de la GRH stratégique et opérationnelle ; et d'améliorer la transparence en ce qui concerne les problèmes de GRH, en particulier entre les organes de GRH de l'OTAN et les pays de l'OTAN.

Quelques variantes des pratiques de GRH entre les organisations militaires et civiles sont soulignées afin d'indiquer au lecteur pourquoi le groupe de recherche SAS-059 a élaboré un cadre de GRH personnalisé pour les organisations militaires. Les principaux domaines dans lesquels il existe des différences entre les organisations militaires et civiles sont : la stabilité des définitions de poste ; la planification ascendante pour répondre aux exigences de court et de long terme ; le recrutement du personnel uniquement aux niveaux les plus bas ; l'utilisation des ressources internes pour les autres niveaux ; les processus de sélection du personnel ; les résultats et les effets des systèmes d'évaluation des performances ; ainsi que la planification de carrière.

Le modèle-cadre de gestion des ressources humaines (HRM FRAM) du groupe de recherche SAS-059 décrit les processus liés à la GRH dans toute organisation. Les rôles, systèmes et ressources ne sont pas pris en considération dans le modèle. Le FRAM ne représente pas un modèle spécifique actuellement utilisé dans un pays ou une organisation en particulier. En revanche, il décrit les processus et les rapports entre processus au sein d'une organisation efficace de gestion du personnel, tels qu'en sont convenus les participants à l'étude du SAS-059. Le résultat (la « production ») de toutes les fonctions mentionnées dans le modèle est l'« utilisation du personnel », autrement dit la fourniture de personnel compétent et instruit à l'organisation en question. Le HRM FRAM ne vise pas à constituer un ensemble de règles rigides spécifiant comment il faut qu'un pays mène sa planification GRH et dans quel ordre. Il vise cependant à souligner les processus génériques essentiels que les pays doivent prendre en compte pour avoir un système complet, efficace et dynamique. Le SAS-059 avait conçu un questionnaire destiné à recueillir des informations sur les modèles et les méthodes qui soutiennent les systèmes de GRH. Les modèles et méthodes ont été classés par groupes en fonction des phases de HRM FRAM.

La gestion des ressources humaines, qui ne s'est occupée pendant longtemps que des questions de personnel, englobe à présent de nombreux processus tels que : la sélection, l'évaluation, la gestion de carrière, la gestion des performances, la gestion des récompenses et du salaire, et la motivation du personnel. En conséquence, il faut que la gestion des ressources humaines dispose de différents ensembles d'informations et assure la

gestion de ces informations. Les problèmes liés aux informations de GRH sont examinés dans le présent rapport.

Le groupe de recherche (RTG) SAS-059 a étudié la possibilité de développer un langage commun, fondé sur les domaines professionnels, pour classer les savoir-faire et compétences requis. Une recherche documentaire a été menée afin d'identifier des travaux semblables éventuellement réalisés dans d'autres pays ou organisations multinationales ; les résultats en sont fournis dans le présent rapport.

Le groupe de recherche SAS-059 propose finalement un cadre général de GRH qui va contribuer à développer une appréhension des pratiques générales de GRH commune aux pays de l'OTAN et du Partenariat pour la paix (PPP). Bien qu'il puisse exister des variantes entre les pays sur l'application du système de GRH, les problèmes sous-jacents de recrutement, d'affectation, de promotion, d'évaluation, etc., sont partagés par tous les pays. Des recherches complémentaires sur les outils, modèles et méthodes relatifs à ces questions spécifiques devraient bénéficier à l'ensemble des pays de l'OTAN et du PPP.

OVERVIEW – SAS-059 FINAL PROJECT BRIEFING

Human Resource (Manpower) Management (HRM) RTG SAS-059 Final Report

Col. Dr. Altan OZKIL, TGS
Chairman RTG

SAS PBM, 22 April 2008, Budapest, HUNGARY



Presentation Overview

- ✓ NATO Manpower Management
- ✓ Justification
- ✓ Objectives
- ✓ Deliverables
- ✓ Participants
- ✓ Meetings and Workshops
- ✓ Code of Best Practice



Code of Best Practice

- ✓ Introduction
- ✓ Current HRM Practices in Military and Non-Military Organisations
- ✓ HRM FRAMework Model (HRFRAM)
- ✓ HRM Data Issues
- ✓ Review of Occupational Classification Systems
- ✓ Conclusions and Recommendations



NATO Manpower Management

- ✓ To meet the military imperative within the constraints of the manpower made available by nations.
- ✓ The military imperative is that any military organisation be effective and cost-efficient in peacetime but be able to transform to an agreed establishment to meet a crisis in a specified timescale and with minimum re-organisation, as required.
- ✓ Military organisations must be capable of operating in Article V and other operations in accordance with their agreed roles and responsibilities, within given time-frames.



Justification – 1

- ✓ Personnel support is a national responsibility
- ✓ Personnel
 - Different ranks
 - Different experience levels
 - Different skills and competencies
- ✓ No standart approaches for HRM systems



Justification - 2

- ✓ Very broad and complex area
- ✓ From the development of manpower required (skills, numbers and organisational models)
- ✓ To the distribution of the personal authorized against the requirements
- ✓ Getting more complex by the extensive and different parameters needed at the strategic operational and tactical levels



Justification - 3

- ✓ Three factors that significantly hampers these efforts
 - ✓ The lack of data
 - ✓ Non-harmonized processes
 - ✓ Insufficient synchronization between the various and systems



Objectives - 1

- ✓ Identify best practice in HRM
- ✓ Identify the data requirements needed to successfully implement strategic and operational HRM.
- ✓ Identify the data issues and considerations regarding the successful implementation of strategic and operational HRM.



Objectives - 2

- ✓ Develop a common language based on occupational areas to categorise the skills and competencies required.
- ✓ Examine the feasibility of developing a common language based on occupational areas to categorise the skills and competencies required.
- ✓ Catalogue the current HRM models, methods, and methodologies across NATO bodies, NATO and PfP Nations.



Deliverables

- ✓ Technical Report
 - ✓ The best practice in HRM.
 - ✓ HRM data issues and considerations.
 - ✓ A catalogue that categorizes the current HRM models, methods, and methodologies.
 - ✓ Occupational Classification Systems.
- ✓ Symposium



Participants



C. MOMBOURQUETTE – P. BENDER



T. HUMM – R. JUNG



P. OSTBYE



S. TERNBLAD – T. SVANERHOLM



L. BREWARD - N. SUBRAMANIAN – G. PORTER
H. KEELING - T. KING - F. KATE



A. OZKIL - O. KARASAKAL, N.KARACA OGLU,
A. BULBUL - B. BOGABAKIRLI - E. CICEK



A. CLEMENTS - G. FRIEDRICH (NC3A)



Meetings and Workshops

- ✓ 1 st Meeting Istanbul (TUR)
- ✓ 2 st Meeting } The Hague (NLD)
- ✓ 1 st Workshop }
- ✓ 3 st Meeting Bonn (DEU)
- ✓ 4 st Meeting Stockholm (SWE)
- ✓ 5 st Meeting Oslo (NOR)
- ✓ 6 st Meeting } Ottawa (CAN)
- ✓ 2 nd Workshop }
- ✓ Editorial Meeting Fornborough (GBR)



HRM -1

✓ Includes all processes that enable, guide, execute and control the matching of personnel supply to the jobs required i.e. “spaces vs. faces”.

✓ Operational and Strategic HRM

✓ Operational deals with individuals, such as career planning, whilst strategic focuses on the system as a whole, i.e. **“having the right numbers in the right places at the right time”**.



HRM - 2

✓ Strategic HRM is a general approach to the management of human resources in accordance with the intentions of the organisation on the future direction it wants to take.

✓ Strategic HRM is the overall framework which determines the shape and delivery of the individual strategies.



HRM - 3

- ✓ **Operational HRM are tactical in nature.**
 - ✓ **Employment applications are processed,**
 - ✓ **Current openings are filled,**
 - ✓ **Supervisors are trained,**
 - ✓ **Safety problems are resolved**
 - ✓ **Wages and salaries are administered.**



Intended Audience

- ✓ **HR Groups in NATO, NATO and PfP nations.**
- ✓ **Individuals seeking an understanding and appreciation of the main components of Defence HRM and the relationships between those components.**
- ✓ **NATO and PfP nations who have yet to build robust and effective HRM systems**



HRM in Non Military Organisations - 1

- ✓ Shift from a fully controllable resource to a new dimension that treats personnel issues such as working environment, warfare of personnel their feelings, creative personnel as high priority
- ✓ Consideration of human to maintain position within market.
- ✓ Less hierarchical, more flexible and decentralized organisations.
- ✓ HRM polices started to be integreted with business strategies.



HRM in Non Military Organisations - 2

- ✓ Job Definitions (more stable in military, more flexible in non-military)
- ✓ Recruitment (only recruit at the entry levels in military, at any level in non-military)
- ✓ The decisions taken in HR planning in military organisations in the short term may have long term implications.



HRM in Non Military Organisations - 3

- ✓ The personnel pool from which you recruit, select and promote is different for military and non military.
- ✓ In entry levels, military organisations rely on mainly external resources. For upper levels, military organisations must select or promote personnel from within the organisation.
- ✓ However non military organisations can use both internal and external resources for any level.



HRM in Non Military Organisations - 4

- ✓ In military organisations there is a requirement for some level of training before being able to carry out a job. This is not always the case in non military organisations.
- ✓ Military organisations will have in house training while non military organisations may not have this requirement.
- ✓ The results from performance appraisal systems have different effects.



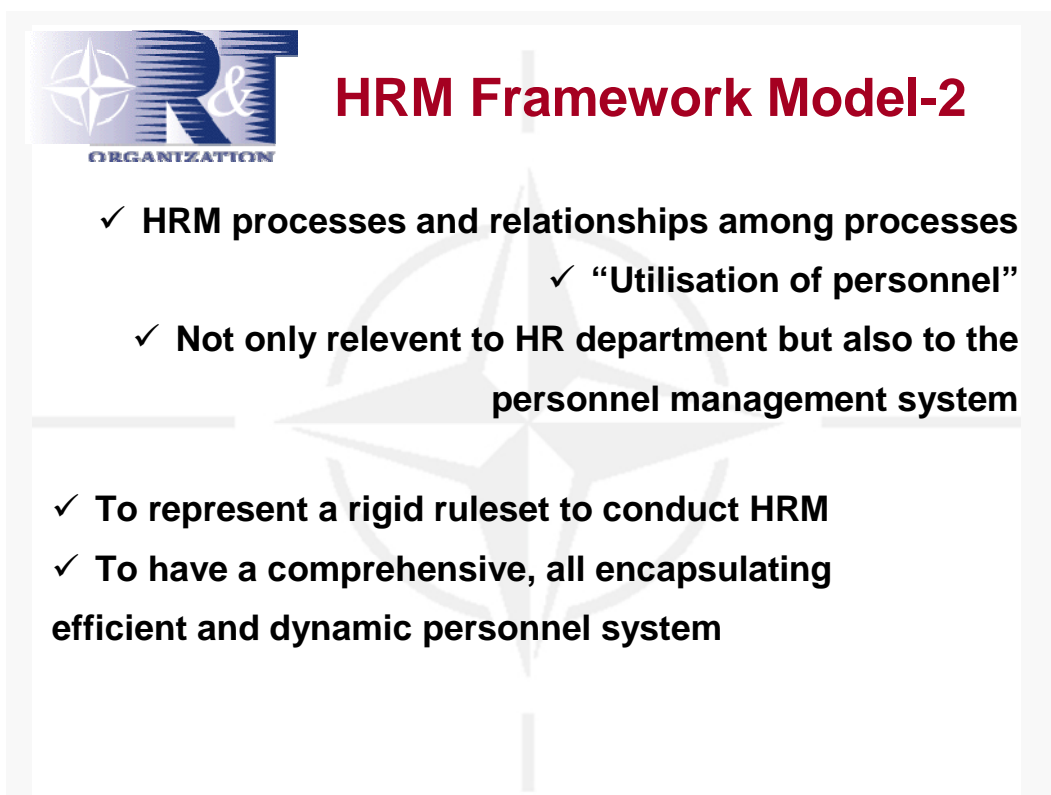
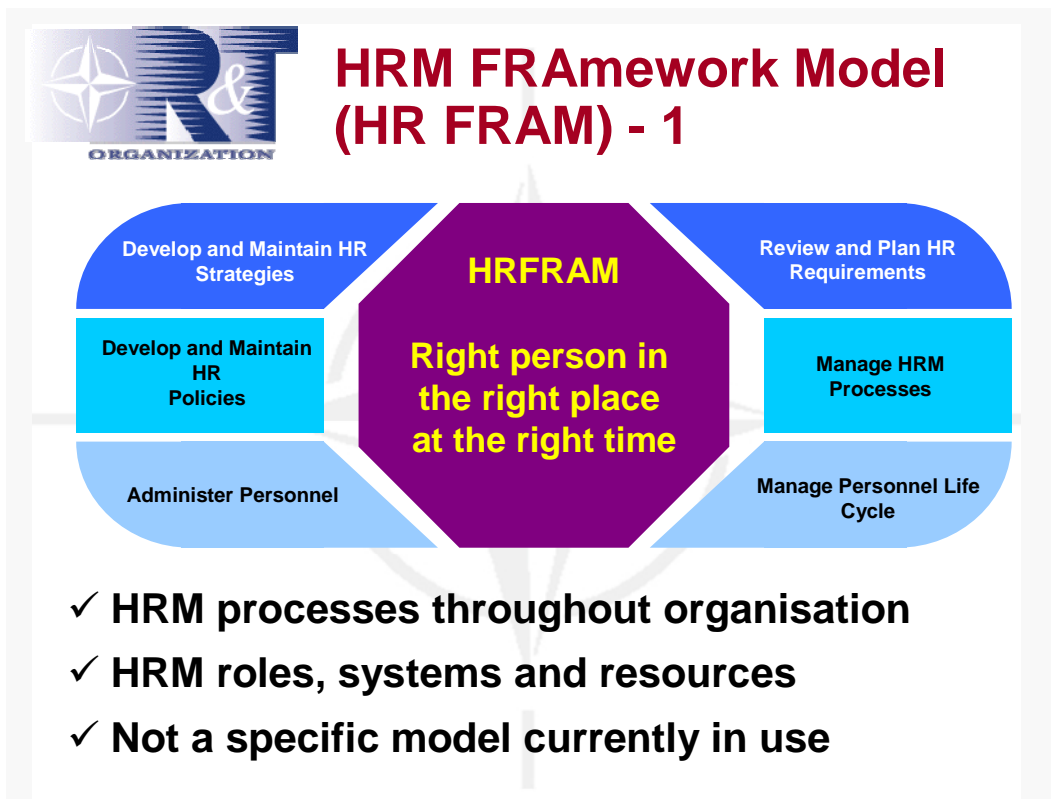
HRM in Non Military Organisations - 5

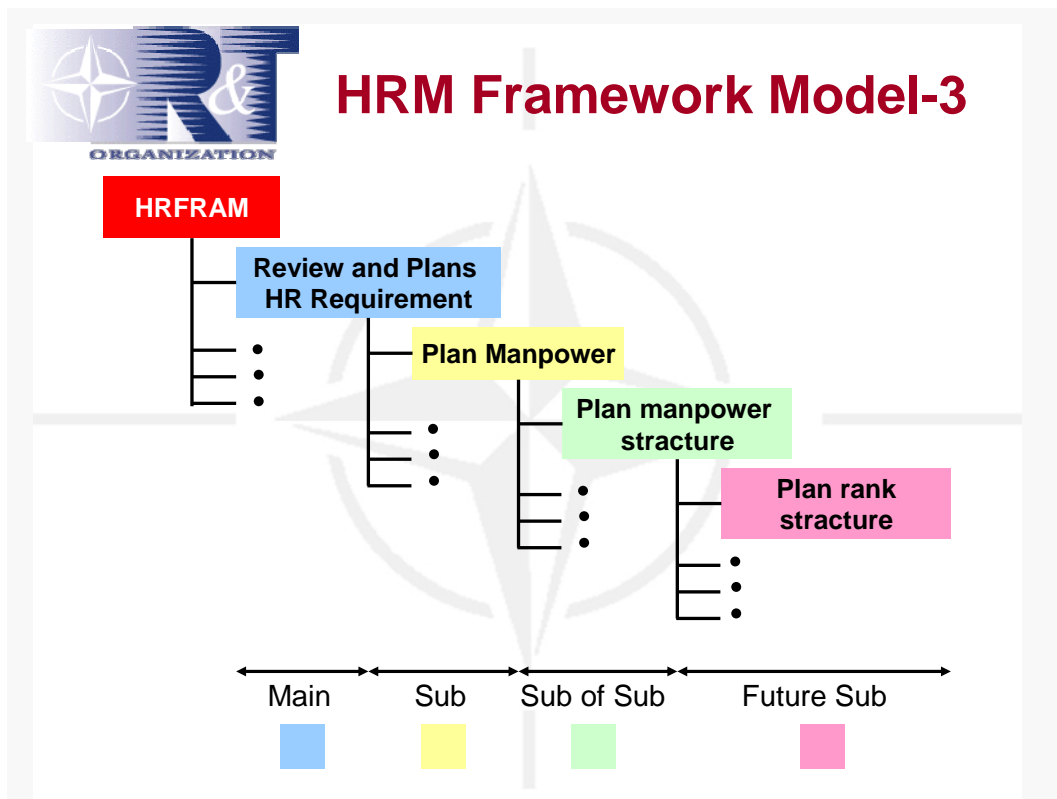
- ✓ While in military organisations one has to promote rank by rank and salary is linked directly to rank and years of service, promotion can include more than one level at one time and salary can be directly linked to performance in non-military organisations.
- ✓ Military personnel particularly officers are required to undertake a series of different roles before they can be assigned to specific post. This may not be case for non-military.



HRM in Non Military Organisations - 6

- ✓ Career planning should be carefully designed to ensure officers have the opportunities to gain the experience required in order to be assigned to a specific job or be promoted.
- ✓ This is not always the case in non military organisations where you have the opportunity to recruit from external sources.





Develop and Maintain HR Strategies

- ✓ Monitor and Assess existing strategies
- ✓ Analyse alternative strategies
- ✓ Implementing HR strategies



Review and Plan Requirements

- ✓ **Evaluate personnel requirements**
- ✓ **Analyse fulfilment feasibility**
- ✓ **Plan manpower**



Develop and Maintain HR Policies

- ✓ **Monitor and assess existing policies**
- ✓ **Analyse alternative policies**
- ✓ **Implement HR policies**



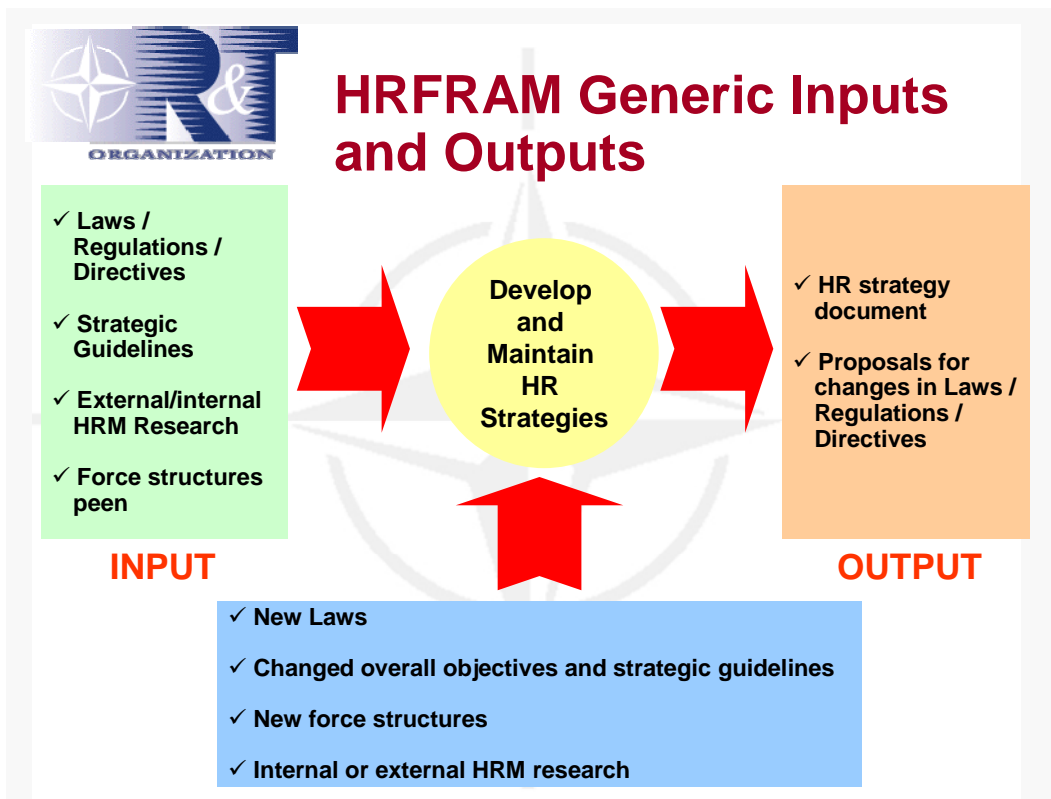

Manage Personnel Life-Cycle

- ✓ Recruit personnel
- ✓ Develop personnel
- ✓ Discharge personnel



Administer Personnel

- ✓ Manage personnel budget
- ✓ Administer legislative issues
- ✓ Conflict resolution
- ✓ Promote personnel
- ✓ Assign personnel
- ✓ Administer employment contracts
- ✓ Maintain regular reservists
- ✓ Administer daily routines
- ✓ Administer monetary and non-monetary benefits

The Questionnaire Models and Methods That Support HRFAM -1

Q-1. Identification.
State the name of the nation and the affiliation of the respondent(s).

Q-2. NAME.
What is the name of the model (expand acronyms in full)

Q-3. BRIEF DESCRIPTION OF THE MODEL/METHOD.

Q-4. DOMAIN OF THE MODEL/METHOD.
On what areas/types of problems is this model applicable? (indicate all that apply)

- Developing HRM Strategy and Processes.
- Managing HRM Processes.
- Maintaining HR Policies.
- Reviewing and Planning HR Requirements.
- Administering Personnel.
- Managing Personnel Life-Cycle.
- Other (specify).

Q-5. MODEL/METHOD CLASS.
What is the type of the model/method? (indicate if more than one applies):

- Mathematical model.
- Simulation.
- Optimisation model.
- Statistical models.
- other (specify).

Q-6. DATABASE(S).
Are there any database(s) associated with this model/method? (Please write a brief description of the database(s))

Q-7. MODEL/METHOD STATUS.
What is the status of the model/method? Select from "in operation", "under development" or "conceptual".

Q-8. QUANTITATIVE METHODS USED.
What are the main quantitative methods used (e.g. simulation, linear programming, etc)



The Questionnaire Models and Methods That Support HRFAM -2

Q-9. QUALITATIVE METHODS USED.

What are the main qualitative methods used (e.g. military judgement, Delphi, multi criteria decision analysis, etc.)?

Q-10. BASIC INPUTS TO THE MODEL/METHOD.

Q-11. BASIC OUTPUTS OF THE MODEL/METHOD

Q-12. SOFTWARE IMPLEMENTATION.

- In what programming language is the model implemented?
- On which hardware platform is the model implemented?
- What are the special hardware requirements?

Q-13. MODEL/METHOD USE.

- How often has the model been used?
- Is the model/method releasable to nations and PfP?
- List model/method documentation (e.g. user guide, logbook) that are releasable to nations and PfP.
- List model/method documentation that shows applications of this model over the past 5 years that may be nations and PfP releasable.

Q-14. STRENGTHS AND WEAKNESSES.

- What are the strengths of this model?
- What are the weaknesses of this model?

Q-15. SUMMARY ASSESSMENT.

Please provide summary description of the value of this model in HRM.

Q-16. ADDITIONAL INFORMATION.

Please provide any additional information that is relevant to the model that has not been covered under previous questions.

Q-17. POINT OF CONTACT.

Please list the name, position, and contact details of the point of contact for this model.



Models and Methods for “Managing HRM Processes”

MODELS	NATION
PROSAM (Promotion System Analysis Model)	TUR
Planning Personnel Provision and Training Model	TUR
Armed Forces Compensation Scheme	GBR
VA Financial Forecast Model. DASA P&P	GBR
VA Workload Forecast	GBR



Data Related HRM Problems

- ✓ **Non-availability of data**
- ✓ **Non-standardized data across Nations**
- ✓ **Poor data quality**
- ✓ **Difficulty in obtaining data**
- ✓ **Lack of interoperability of data systems within and across NATO and Peace for Partnership Nations**
- ✓ **Duplication of data**
- ✓ **Lack of normalization in data**



HRM Data Issues -1

- ✓ **HRM Analysis require maintaining a huge personnel data base and management of these data sets**
- ✓ **The types and quantities of data in these data sets one increasing continually**
- ✓ **The change and progress in the types of the data limit the possibilities of using a whole data base which is unique to HRM**



HRM Data Issues -2

- ✓ Simple statistical calculations were replaced by complex models in which various data sets are needed to make predictions and inferences
- ✓ Not only collect but also update the datasets are needed
- ✓ Data sets from different countries are needed to be standardized



HRM Data Issues -3

- ✓ Classification of HRM datasets
- ✓ Managerial and related with personnel affairs
- ✓ Analytic HR data sets for controlling HR system
- ✓ The systems are becoming more and more dependent on historical data sets
- ✓ Some of the data needed by HRM must be compatible with NATO and NATO nations.



Occupational Classification Systems

- ✓ Identifies the nature of work required
- ✓ Advises on the knowledge and skills necessary to perform that work
- ✓ Can be used to perform a multitude of task



Reasons for Developing on Occupational Classification System

- ✓ To allow workers to work more efficiently
- ✓ To work to be manageably more efficiently
- ✓ Enables us to identification the simulates and differences between work fruitions



Different Occupational Classification System

- ✓ The standard occupational classification (Soc)
- ✓ Holland, Hexegow
- ✓ The world of work map (MM)
- ✓ The North American Industry Classifications Systems (NAICS)
- ✓ The Minnesota Occipital Classifications Systems (MOC III)
- ✓ Occupational Information Network (O*Net)
- ✓ Skills and framework for the Information age (SFIA)
- ✓ NATO Occupational Code (NC)



O*NET Occupational Information Network

The Content Model Forming the Foundation of O*NET



- ✓ Common league for defining and describing occupations
- ✓ Database contains information about knowledge, skills ed abilities (KSAs), interests general work activities, (GWAs) and work context



The Skills Framework for the Information Age (SFIA)-1

- ✓ Give employers a framework which they can use to measure the skills they have against the skills they need and identify skill gaps
- ✓ Allows ICT practitioners and users to benchmark which skills they need for particular jobs or career paths
- ✓ Gather labour market intelligence coherently and consistently
- ✓ quantify the skill requirements of the ICT market
- ✓ identify skills which are in short supply, or report on how short the supply is
- ✓ Set national education and training targets for the IT community
- ✓ Tell education and training providers what the job market wants



The Skills Framework for the Information Age (SFIA)-2

- ✓ Two dimensional framework
 - Areas of work
 - Levels of responsibility
- ✓ Each level;
 - Follow
 - Assist
 - Apply
 - Enable
 - Ensure, advise
 - Initiate, influence
 - Set strategy, envision



NATO Occupational Code -1

- ✓ No consistent skill categorization system across the nations.
- ✓ NATO Consultation Command and Control Agency (NC3A) began to develop NATO Occupational Area Codes (NOC) to enable member Nations to assess the qualifications and background of their prospective fill against NATO post requirements.
- ✓ The NOC will help with the assignment of a fully qualified and trained body of personnel to NATO billets.



NATO Occupational Code -2

- ✓ The NOC has been developed through combining commercial and military standards for skill categorization using,
- ✓ UNESCO International Standard Classification of Education (ISCED) 1997,
- ✓ Fields of Education and Training Supplementary Manual 1999 (Statistical office of the European Communities-EUROSTAT) and Skills for the Information Age (SFIA) v3 2005.



NATO Occupational Code -3

- ✓ **Classified into ten main areas.**
 - ✓ **The first eight of these areas contain general skills and professions.**
 - ✓ **Ninth area is belonging to Information System Engineering and Maintenance.**
 - ✓ **Last area is devoted for Military and Defense.**
- General skills and professions are grouped as below**



NATO Occupational Code -4

- ✓ **Education**
- ✓ **Humanities and Arts**
- ✓ **Social Sciences Business Law**
- ✓ **Science Mathematics and Computing**
- ✓ **Engineering Manufacturing and Construction,**
- ✓ **Agriculture and Veterinary,**
- ✓ **Health and Warfare**
- ✓ **Services**



Primary NOC Skill Level and RankGrade (NOC-5)

Skill Level	Meaning	Military Rank	Civilian Grade
1	follow	OR-1/2/3	B-1/2; C-1/2/3/4
2	assist	OR-4/5/6	B-3/4; C-5/6
3	apply	OR-7/8/9	B-5/6
4	enable	OF-1/2; WO-1/2/3	A-1/2; LT-2
5	ensure, advise	OF-3; WO-4	A-3; LI-3/4; LT-3/4
6	initiate, influence	OF-4	A-4
7	set strategy, inspire, mobilise	OF-5	A-5
8	set vision, lead	≥ OF-6	≥ A-6



Conclusions -1

- ✓ RTG SAS-059 developed a generic framework model HRFRAM that identifies all of the important processes of HRM for military organisations instead of a specific detailed model.
- ✓ The group also derived generic inputs and outputs for the six main processes of HRM FRAM.
- ✓ It was decided to identify the data issues and considerations regarding the successful implementation of strategic and operational HRM instead of having a HRM data model.



Conclusions -2

- ✓ The main problem areas related with HRM data were identified
- ✓ We examined the facility of developing a common language based on occupational areas
- ✓ The development of an occupational code system compatible with NATO's range of mission that will help nations to nominate appropriate candidates for NATO positions



Recommendations -1

- ✓ Since defining NATO billets in details requires a huge study, it may not be possible to accomplish the study via task groups which are formed by temporary personnel, and work on part time basis.
- ✓ It is essential to form an official, permanent unit working on a fulltime basis in order to realize the study.
- ✓ NATO should lead the unit, and member nations should contribute representatives into the unit.
- ✓ The main objective of the unit must be to produce an occupational code system (OCS) compatible to NATO's scope of missions. (similar to O*NET or SFIA).



Recommendations -2

- ✓ The OCS needs to be negotiated by member nations, so that the study can end up with a common final OCS which is adoptable to member nations as well.
- ✓ In the end, the finalized OCS is expected to guarantee that member nations suggest right person for an open NATO position without further efforts.
- ✓ The OCS unit may later downsize to a core number of personnel adequate to update the system according to changing requirements.
- ✓ A NATO organisation must be responsible for life cycle management of NATO OCS.
- ✓ Further research on tools, models and methods for those specific issues is expected to provide mutual benefits for NATO and PfP nations.

Col.Dr. Altan OZKIL, TGS

E-mail : aozkil@atilim.edu.tr

Tel: 00 90 312 5868318



NATO HUMAN RESOURCES (MANPOWER) MANAGEMENT

1.0 INTRODUCTION

1.1 Background

At the May 2003 SAS Panel Business Meeting in Madrid, SPAIN, TURKEY invited NATO Nations and agencies to cooperate in a study on Human Resources Management. The SAS Panel decided to form the Exploratory Team SAS ET.AK on HRM and invited Turkey to submit the Terms Of Reference (TOR), the Technical Activity Proposal (TAP) and the Programme Of Work (POW). SAS ET.AK prepared the necessary documents and the SAS Panel endorsed the proposed RTO Task Group SAS-059 on Human Resources (Manpower) Management. Subsequently the RTB approved the new task group to be added to the RTO Technical Programme and Budget 2005. This was the first time a NATO SAS Panel has considered Human Resource Management (HRM). Canada, Germany, Sweden, Norway, Turkey, United Kingdom and NC3A have participated in this activity.

The group realized that many of the problems that currently exist in the HRM arena make it difficult for Nations and NATO HRM bodies to function efficiently and effectively. SAS-059 decided:

- To identify practices used in military organisations regarding strategic and operational HRM;
- To define best practice in HRM;
- To identify and define the data requirements necessary for successful implementation of strategic and operational HRM; and
- To improve transparency on HRM issues especially between NATO HRM bodies and NATO Nations.

1.2 What is Human Resources Management?

Human Resources Management includes all processes that enable, guide, execute and control the matching of personnel supply to the jobs required, i.e. “spaces vs. faces”. The issues involved in Human Resources Management can be split as operational and strategic HRM. As an example, operational deals with individuals, such as career planning, whilst strategic focuses on the system as a whole, i.e. “having the right numbers in the right places at the right time”.

Strategic HRM is a general approach to the management of human resources in accordance with the intentions of the organisation on the future direction it wants to take. It is concerned with longer-term people issues and macro-concerns about structure, quality, culture, values, commitment and matching resources to future need. Strategic HRM is the overall framework which determines the shape and delivery of the individual strategies.

Operational HRM activities are tactical in nature. Examples of activities are employment applications are processed, current openings are filled, supervisors are trained, safety problems are resolved and wages and salaries are administered. The operational HRM activities should be aligned with the overall HR strategies.

1.3 Intended Audience

The aim of SAS-059 is to recommend a good approach to Defence HRM to NATO bodies, NATO and Peace for Partnership Nations. The documents and output pertaining from SAS-059 will prove to be invaluable to individuals seeking an understanding and appreciation of:

- a) The main components of Defence HRM; and
- b) The relationships between those components.

NATO and Peace for Partnership Nations who have yet to build robust and effective HRM systems will particularly benefit from this COBP.

1.4 Content

The rest of this report considers:

- The current HRM practices in military and non-military organisations;
- The SAS-059 Panel's HRM FRAMework Model (HRM FRAM);
- HRM data issues;
- A review of occupational classification systems; and
- Conclusions and recommendations.

2.0 OVERVIEW OF HUMAN RESOURCES MANAGEMENT (HRM) PRACTICES IN NON-MILITARY ORGANISATIONS

2.1 HRM in Non-Military Organisations

Organisational views of personnel changed dramatically since 1980. Frederick Taylor's scientific management paradigm that perceives personnel as a fully controllable resource has shifted to a new dimension that treats personal issues such as working environment, welfare of personnel, their feelings, creative potential of personnel as high priority. Organisations begin to consider the "human equation" to maintain their position within marketplace, to introduce a new technology, to develop organisational knowledge, to improve customer service and product quality or to reduce product/service costs.

Restructuring of industries and organisations in the last part of 20th century, forced the organisations to become less hierarchical, more flexible, and decentralized. Moreover, participation and commitment of employees, greater reliance on self-discipline and development of more effective reward systems are becoming the valued concepts in the restructuring of organisations.

The intensification of international competition forced organisations to analyze their source of competitive advantage and demonstrated that investment in human and technical capacity was something that was required. As a result, human resource management policies started to be integrated with business strategies. The concepts of taking initiative, being energetic, independent, bold, self-reliant, and willingness to take risks were emphasized in enterprise culture.

Today human resource management in both large and small non-military organisations deals with a lot of functions. The most prominent are listed below:

- To conduct job analysis to specify different requirements of jobs in an organisation.
- To identify personnel requirements that led the organisation to achieve its objectives.
- To develop and implement a plan that meet personnel and job requirements.
- To recruit employees needed by the organisation in order to achieve its objectives.
- To select personnel in order to fill vacant positions within an organisation.
- To provide orientation and training to the employees.
- To design and implement management and organisational development programs.
- To design and implement performance appraisal systems to evaluate employee performance.
- To assist employees in developing career plans.

- To design and implement compensation systems for employees.
- To mediate the relationship between organisations and its units.
- To design systems for discipline and grievance handling.
- To develop employee communication systems.
- To develop employee health and safety programs.

2.2 The Variations in HRM Practices Between Military and Non-Military Organisations

In this section, some of the variations in HRM practices between military and non-military organisations are highlighted to provide readers the reasons why SAS-059 has developed a customized HRM framework for military organisations.

In military organisations the jobs are clearly defined in terms of rank which implicitly includes experiences and competencies. The job definitions are more stable in military organisations compared to non-military organisations. The jobs and job definitions in non-military organisations are open to external influences. Thus job definitions are more flexible in non-military organisations.

HR in military organisations must focus on bottom up planning to meet both short- and long-term requirements. Military organisations can only recruit personnel at the entry levels, while non-military organisations can recruit at any level. The decisions taken in HR planning in military organisations in the short term may have long-term implications.

The personnel pool from which you recruit, select and promote is different for military and non-military organisations. In entry levels, military organisations rely on mainly external resources. For upper levels, military organisations must select or promote personnel from within the organisation. However non-military organisations can use both internal and external resources for any level.

In military organisations there is a requirement for some level of training before being able to carry out a job. This is not always the case in non-military organisations. Military organisations will have in house training while non-military organisations may not have this requirement.

The results from performance appraisal systems have different effects. While in military organisations one has to promote rank by rank and salary is linked directly to rank and years of service, promotion can include more than one level at one time and salary can be directly linked to performance in non-military organisations.

Military personnel particularly officers are required to undertake a series of different roles before they can be assigned to specific post. As a result they have to spend a short period of time in each assignment. Career planning should be carefully designed to ensure officers have the opportunities to gain the experience required in order to be assigned to a specific job or be promoted. This is not always the case in non-military organisations where you have the opportunity to recruit from external sources.

3.0 FRAMEWORK FOR HUMAN RESOURCES MANAGEMENT (HRM)

In this section, SAS-059's best practice framework model for HRM, generic input and output structure of proposed model and analytical models and methods that can support the framework are presented.

3.1 Best Practice HRM Framework Model

The SAS-059 HRM FRAMework Model (HRM FRAM) describes HRM related processes throughout an organisation. HRM roles, systems and resources are not considered in the model. The FRAM does not

represent a specific model currently in use in any particular country or organisation. It does, however, describe the processes, and the relationships between processes, of a successful personnel management organisation, as agreed on by the SAS-059 study members.

The output of all the functions mentioned in the model is the ‘Utilisation of Personnel’, i.e. the supply of skilled and educated personnel to the particular organisation. The functions mentioned in this model are not only relevant to HR departments, but to total personnel management systems.

The HRM FRAM does not aim to represent a rigid rule set mandating how a country should conduct its HRM planning and in what order. What it does aim to do, however, is to highlight the key generic processes that should be considered in order for a country to have a comprehensive, all encapsulating, efficient and dynamic system.

It is important to note that Nations should not just consider their future Armed Force needs in terms of absolute value requirements. Consideration should also be made concerning the ‘shape’ of the force, in order to retain the optimum balance between youth and experience. As such, retention is just as integral a process as recruitment.

3.1.1 Schematic Description

The HR FRAM considers processes at different levels. Some are strategic, others are operational or tactical. The FRAM depicts strategic processes at the top and operational processes at the bottom.

The FRAM also differentiates between levels via the use of colour. The blue boxes represent ‘main processes’, the orange boxes represent ‘sub-processes’, the yellow boxes represent ‘sub-processes of the sub-processes’, and the pink boxes represent ‘further sub-processes’.

3.1.2 Description of the Model

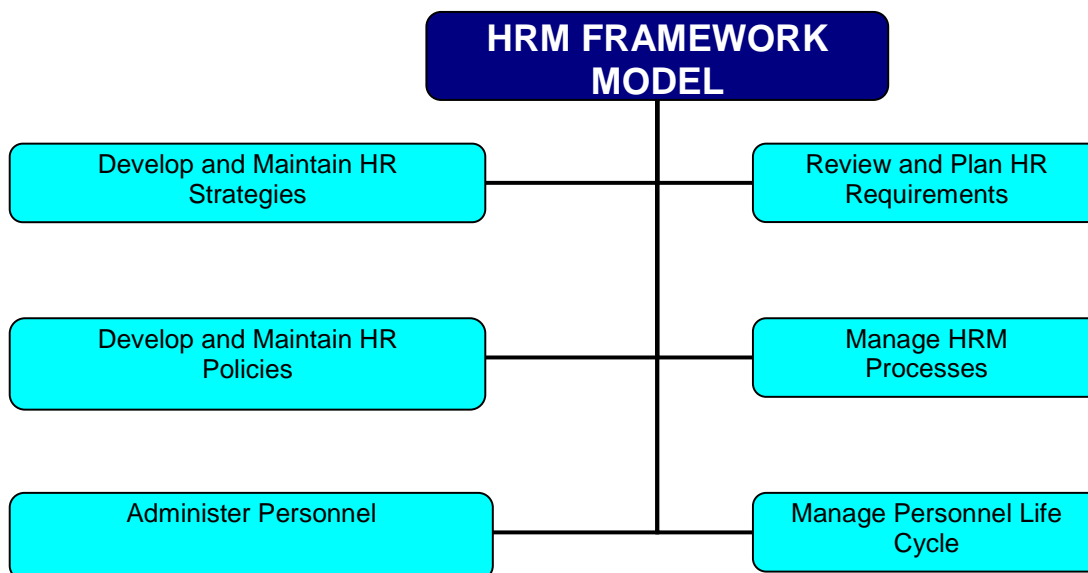


Figure 1: HRM Framework Model.

The main objective of the HRM FRAM is to create an organisation containing the ‘**right people, in the right posts, at the right time**’. All the processes and sub-processes in the model aim to achieve this objective. The FRAM considers ways of recruiting, retaining and discharging personnel.

To begin, the HRM FRAM considers six high-level processes. The ‘**Manage Personnel Life-cycle**’ and ‘**Administer Personnel**’ processes are operational, and the ‘**Review and Plan HR Requirements**’ and ‘**Develop and Maintain HR Strategies**’ processes are **strategic**. Although ‘**Managing HRM Processes**’ and ‘**Develop and Maintain HR Policies**’ are **both operational and strategic** level processes, they are considered to be as operational, since most of their sub-processes are more operational, than strategic.

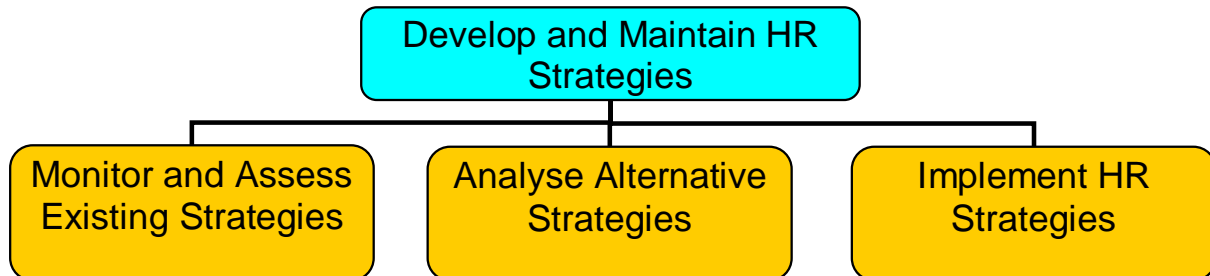


Figure 2: Develop and Maintain HR Strategies.

The ‘**Develop and Maintain HR Strategies**’ process has three steps:

- The first step is ‘Monitoring and Assessing Existing Strategies’. Analysis is required if existing strategies don’t fulfil strategic goals, or if there are any shortcomings.
- The second step is the analysing of alternative strategies. Alternative strategies may be developed by the organisation itself via HRM research and development studies. Analysing alternative strategies reveals how effectively the new strategy might be implemented within an organisation, and what would be the extra benefits to the organisation of implementing such a strategy.
- The third step concerns deciding upon the most effective alternative strategy.

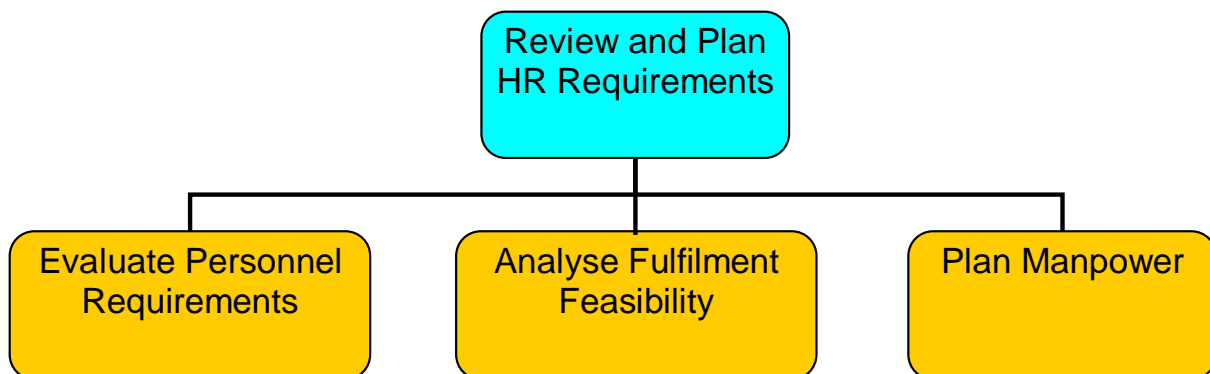


Figure 3: Review and Plan HR Requirements.

‘**Review and Plan HR Requirements**’ is a **strategic level process**. The highest-level functions of this process are ‘**Evaluating the Personnel Requirements**’, ‘**Analysing the Fulfilment Feasibility**’ and ‘**Planning Manpower**’. Personnel requirements need to be evaluated periodically, because of new strategic decisions such as the forming of new military establishments, reorganisation or downsizing. Due to various constraints, however, (fiscal, inability to recruit sufficient people), manpower requirements cannot always be met. This is why analysing the fulfilment feasibility is necessary.

‘**Planning Manpower**’ considers medium- and long-term financial planning, an assessment of the likely future training requirement and consideration of the future force and manpower structures.

NATO HUMAN RESOURCES (MANPOWER) MANAGEMENT

The ‘**Conducting Medium- and Long-Term Financial Planning**’ process sees the HR practitioners estimating the costs of future manpower, and planning resultant budgets. There is also the ‘**planning HR enablers**’ component, which concerns planning for future infrastructure requirements of HRM, such as expert systems, etc.

The ‘**Assessing Training Needs**’ process prevents personnel from being trained unnecessarily and it provides sufficient training to those who need it. It is a strategic level process and does not deal with a single person, but deals with the training needs of occupations and branches as a whole. It enables groups to fulfil their missions and achieve their strategic goals.

‘**Planning Manpower Structure**’ consists of planning the billet and hierarchical structure of future manpower. The manpower structure can be planned, based on a combination of:

- ‘**Planning the Occupational Structure**’, which determines the ratios of officers / petty officers / enlisted, etc., within the force;
- ‘**Planning the Age Structure**’, which determines the age limits of the ranks for different occupations;
- ‘**Planning the Rank Structure**’, which determines the ratios of ranks within occupations (the hierarchical pyramid); and
- ‘**Planning Social Representation**’, which determines the ratios of personnel in terms of gender, ethnicity and other factors. It also determines which branches are open to all and which are only open to certain groups (i.e. not allowing females submariners).

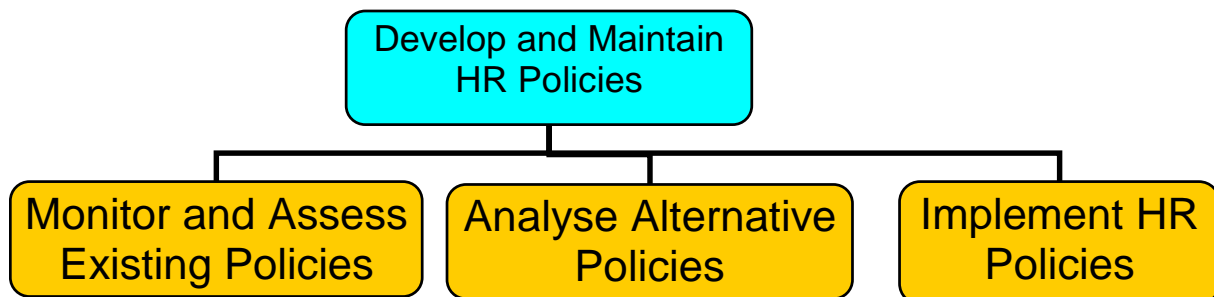


Figure 4: Develop and Maintain HR Policies.

The ‘**Develop and Maintain HR Policies**’ process is similar to the ‘**Develop and Maintain HR Strategies**’ process and has three steps:

- The first step is ‘**Monitoring and Assessing Existing Policies**’. Changes in the economy, technology, politics, population, etc., may result in the necessity to change existing policies. Questionnaires, surveys, enquiries and inspections provide the means by which to assess these existing policies.
- The second step is ‘**Analysing Alternative Policies**’. Alternative policies may be developed by the organisation itself via HRM research and development studies. Analysing alternative policies reveals how effectively the new policy might be implemented into the organisation, and what the benefits are likely to be of implementing such a policy.
- The third step considers the implementation of the (chosen) new policies. Implementing policies is done by promulgating orders, directives, manuals, etc.

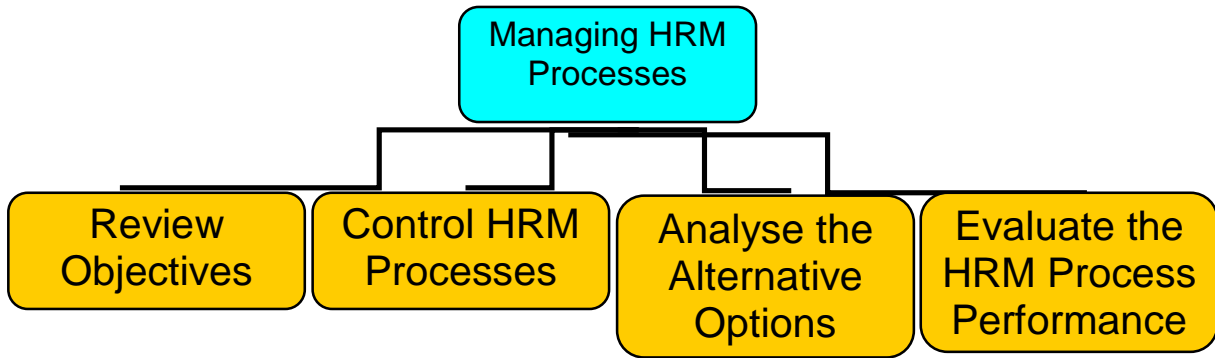


Figure 5: Managing HRM Processes.

‘Managing HRM Processes’ is a continuous function. It is a controlling process that ensures things are being done correctly. This quality control is achieved by:

- 1) The reviewing of objectives; and
- 2) The periodic evaluation of the HRM process(es).

Alternative options that may contribute to improving the current process(es) are examined and the most successful of these are implemented.

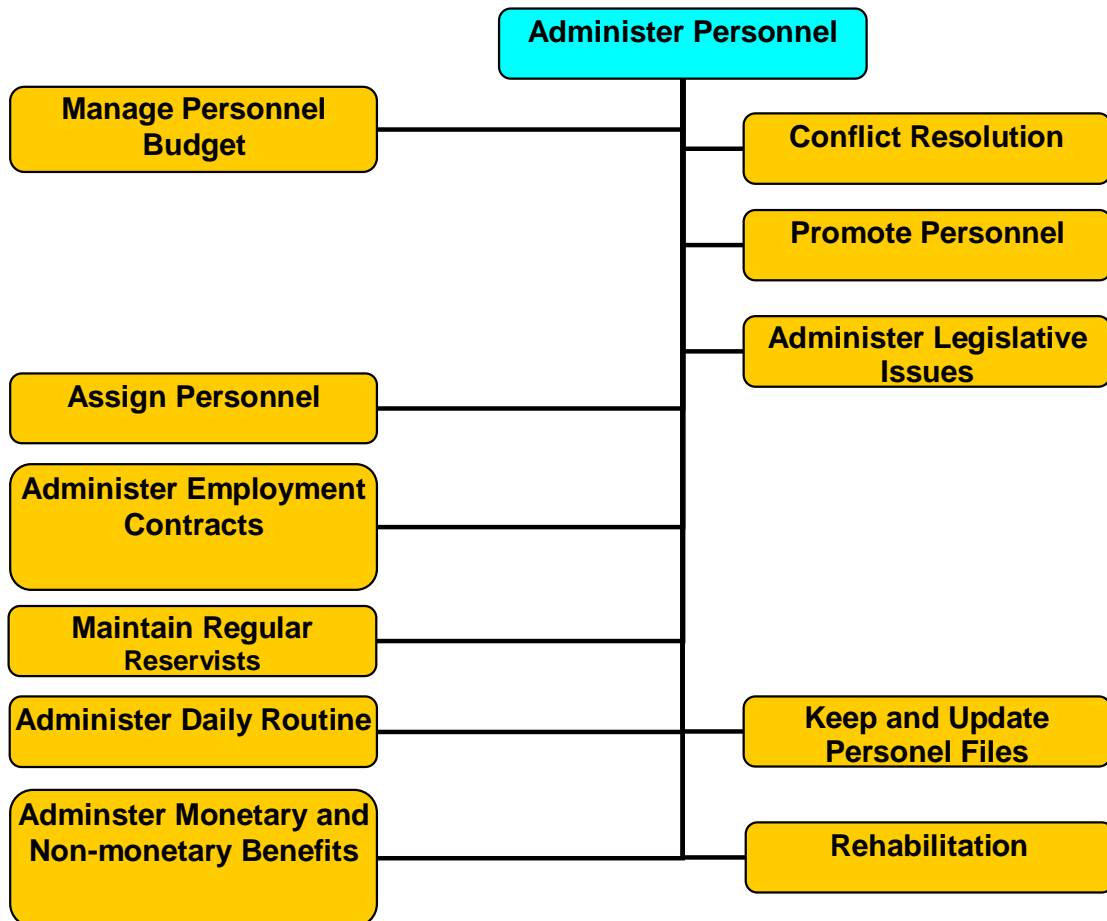


Figure 6: Administer Personnel.

‘**Administering Personnel**’ mainly deals with the routine operational personnel processes. The sub-processes are:

- ‘**Manage Personnel Budget**’: this incorporates salary payments and other payments (from the personnel budget) to institutions such as universities, travel companies (for their personnel related services), etc.
- ‘**Conflict Resolution**’: conflicts among personnel are natural, especially within large organisations. Conflict resolution is a routine administrative process in an HRM system.
- ‘**Promote Personnel**’: this category deals with the daily routine procedures of a promotion process, such as writing orders for promoted personnel, informing the related agencies (i.e. military housing offices) that they will need to update their files, etc. This function does not incorporate promotion plans or the selection of individuals to be promoted.
- ‘**Assign Personnel**’: the ‘Assign Personnel’ function also only deals with the daily routine procedures such as: writing orders for the assigned personnel, informing the related agencies (i.e. military housing offices) that they will need to update their files, etc. This function does not incorporate assignment plans or the selection of individuals to be assigned specific duties.
- ‘**Administer Legislative Issues**’: this function is two-fold:
 - 1) It incorporates the ‘Control Document and Implement Legislative Changes about HRM’ process. It is a daily routine process and consists of the monitoring of legislative changes. Whenever a personnel-related legislative issue is changed, it is promulgated to the personnel and amendments are made to directives, manuals, etc.
 - 2) The other function is the ‘Execute Disciplinary and Other Legal Functions’. Disciplinary functions, in general, consist of crimes and punishments at different levels.
- ‘**Administer Employment Contracts**’: this function deals with contractors. The beginning and end of contracts and the eligibility (in terms of health, competence, etc.) of the personnel are the important factors in this process.
- ‘**Maintain Regular Reservists**’: Regular Reservists work under different conditions, and get different incomes and benefits, to other personnel. Since maintaining Regular Reservists involves different personnel management procedures, specific units within the personnel management systems usually conduct this process.
- ‘**Administer Daily Routine**’: this covers routine personnel issues, such as the issue of ID cards, leave forms, periodic health reports, etc.
- ‘**Keep and Update Personnel Files**’: since personnel related functions and issues cause continual changes (promotions, assignments, training, changes in marital status, etc.), the files kept in the computer systems should be continuously updated.
- ‘**Administer Monetary and Non-Monetary Benefits**’: Organisations provide their employees with benefits and perks additional to their salaries in order to increase motivation, increase the number of applicants, to compensate for the risks involved in more hazardous duties, etc. These benefits can be both monetary and non-monetary. This process concerns the administering of monetary benefits such as bonuses, compensation, etc., and the administering of non-monetary benefits such as family support services, military housing, etc.
- ‘**Rehabilitation**’: rehabilitation is a different administrative personnel process than the ones above. Many organisations maintain rehabilitation units in order to help their personnel in times of need.

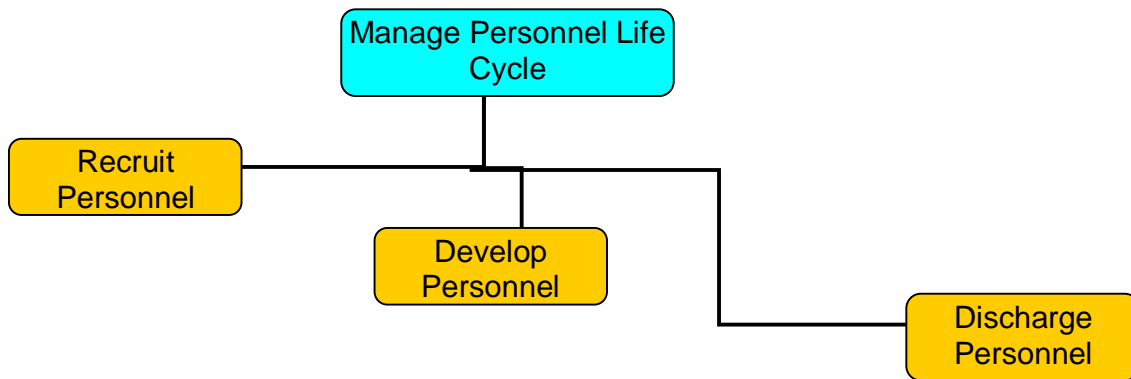


Figure 7: Manage Personnel Life Cycle.

The ‘**Managing Personnel Life Cycle**’ component is the focus of the SAS-059 work. ‘Managing Personnel Life Cycle’ is a continuous, operational process that covers the recruiting, developing and discharging of personnel. When considering a single AF employee, the process may not seem continuous, but since the HRM model is system and not individual based, then the processes of recruiting, developing and discharging personnel are in continuous form.

- The recruitment process deals with attracting the right personnel, selecting the right applicants and then carrying out the necessary employment procedures. The methods of attraction (i.e. advertising), selection (i.e. screening / fitness tests) and employment (i.e. delayed entry programs, boot camps) may differ between various organisations.
- ‘**Developing Personnel**’ covers the following:
 - The ‘**Planning Career Structure**’ process is where guidelines are provided regarding the career structures for differing branches and occupations. Career milestones, which are the prerequisites of further duty/higher rank within an occupation, are determined (these may involve further duties/training/study). Personal career preferences, abilities, potential and constraints (i.e. medical, social) are taken into consideration in tandem with the post requirements. Personnel may be reposted if necessary. Personnel are to have considerable flexibility and control in developing their own career paths. Finally, career structures may be modified according to policy changes and changes in missions.
 - ‘**Planning Duty and Training**’ does not deal with individuals, but with personnel as a whole. The process covers:
 - 1) Duty and training plans for branches/occupations (for different service years);
 - 2) Overall planning for each occupational group to determine at which rank or service year personnel may be assigned to special duties (i.e. commanding officer) or special training (i.e. staff college); and
 - 3) The total number of personnel at each rank or service year to be assigned specific duties and training.
 - The ‘**Educating and Training Personnel**’ process considers the different levels of training required for different ranks/branches/occupations. There are different kinds of training, i.e. basic training, ‘on the job’ training, specialised training (i.e. for submariners) and executive/leadership training. Some training is ‘refresher training’, whilst other training teaches personnel how to adapt to new assignments/challenges. The ‘Educating Personnel’ function includes postgraduate education, learning a new language, etc.
 - The ‘**Appraising Personnel**’ function is the evaluation of the performance and potential of personnel. It can be executed in varying ways (which are not considered in this model).

Through the appraisal process, the strengths and weaknesses of personnel are determined and this information is used as feedback for the individuals and the HR system as a whole. Individuals use the feedback for self development and HR management use the feedback to assess the future training needs of personnel and to select the correct people for promotion and postings.

- **‘Promoting Personnel’**, a sub-process of the **‘Manage Personnel Life-cycle’** process, is not concerned with the individual promotion process, but with determining how the promotion system, in general or within a particular occupational group, should take place. An organisation should:
 - 1) Determine the number of personnel from each occupation that will apply for promotion;
 - 2) Determine the number of promotion slots for each occupation; and
 - 3) Establish authorities that will determine which personnel will be promoted.

These criteria may change depending on each year’s requirements, but the basic promotion process will not change and will be familiar to personnel.

- **‘Motivating Personnel’** is another process of **‘Managing Personnel Life-Cycle’**. Motivation should be regularly accessed via tools such as questionnaires and actions should be taken if a problem/motivational issue is detected. An effective HRM system should: encourage self-development, reward and recognise exceptional performances, improve working conditions, improve morale and provide counsel/advice to personnel as and when is needed. The core principles for motivating personnel are: fairness, transparency and equal opportunities.
- The discharge process may be executed in a variety of different ways: **“Temporary discharge”** may be possible in special cases, allowing personnel to temporarily leave and then return to service. Another type of discharge is **‘premature voluntary release’**. This is where people choose to leave the forces before they have served their time (as stated in their contract). **‘Discharging personnel at the end of their contract’** is the most desired discharge process. In this instance, both the employees and organisations benefit from each other. **‘Expulsion’** is a mandatory discharge, initiated by the organisations based on legal/disciplinary factors. **‘Natural discharges’** (death, release due to ill health, etc.) are not included in the SAS-059 model, as this type of discharge is out of the control of both the personnel and the organisation.

3.2 Model Inputs and Outputs of the Main HRM Processes

The generic inputs and outputs of the six main HRM processes in HRM FRAM are listed in this section. The list for each process is not exhaustive. Thus list of inputs and outputs are to be considered as initial guidance.

3.2.1 Review and Plan HR Requirements

Each Nation has her Strategic Goal Plan and Acquisition Programme for developing her Future Force Structures Plan. There are some modernization projects in this plan and programme. This plan and programme are reviewed within a certain period of time. According to this plan and programme some HR requirements change.

HR Strategy, Budget, Laws/Regulations/Directives, Current Personnel Structure, Resources, Authorized Posts, Strategic Trends, Technological Trends, Short-Term Operational Trends are the generic inputs to the “Review and Plan HR Requirements” process.

HR Plan (including Recruitment Plan, Redundancy Plan, Personnel Structure Plan, Training and Education Plan, HR Budget Plan) and Review of Relevant Laws/Regulations/Directives are the generic outputs from the “Review and Plan HR Requirements” process.

3.2.2 Develop and Maintain HR Policies

A change in any Law/Regulation/Directive or Strategic Guidelines may affect our HR strategies in an expected or an unexpected way. External/Internal Research Results and Reviews of Relevant Laws/Regulations/Directives may also trigger a change in the HR strategies. Changes in the Force Structure Plan requirements may lead to HR strategy changes to meet organisation's requirements.

Existing HR Policies, Performance Measures/HR Scorecard, Surveys Results, Complaints/Proposal Forms, Inspection Reports, Force Structure Plan, Strategy Documents are generic inputs to the "Develop and Maintain HR Policies" process.

Some examples of the outputs of this process are Revised HR Strategy Document (the goals for performance measurement), Proposal for Changes in Laws/Regulations/Directives, New Directives, New Instructions and Revised HR Policies.

3.2.3 Develop and Maintain HR Strategies

Organisations must monitor and assess their existing strategies. New laws, changed overall objectives and strategic guidelines, new force structures and results from internal or external HRM research may lead to the development of new and improved ways to conduct business.

Strategic Guidelines, Laws/Regulations/Directives, External/Internal Research Results and Force Structure Plan are generic inputs to the "Develop and Maintain HR Strategies" process.

HR Strategy Document and Proposal for Changes in Laws/Regulations/Directives are generic outputs from the "Develop and Maintain HR Strategies" process.

3.2.4 Managing HRM Processes

Change and transformation driven by technology, environment, requirements and resource are inevitable for all organisations and processes. Thus all HRM processes should continuously be monitored and evaluated to accommodate change and new way of conducting business.

Inspection Feedback and Controlling Reports, Current HRM Objectives, Complaints and Requests, Changes in Laws/Regulations (e.g. Standardization Agreements) and Directives are generic inputs to the "Managing HRM" process.

Reviewed and/or new Directives to Correct Shortcomings, Process Performance Reports (e.g. Reviewed Balanced Scored Card Report) are generic outputs from the "Managing HRM" process.

3.2.5 Managing Personnel Life Cycle

The recruiting of sufficient personnel with the right potential is not enough to fill the billets. The development of personnel with respect to their career patterns is needed to meet the organisation's requirements.

Recruitment Plan, Training and Education Plan, Retirement Plan, Promotion Plan, Force Structure Plan and Career Patterns are generic inputs to the "Managing Personnel Life Cycle" process.

The generic outputs of the "Managing Personnel Life Cycle" process are recruited, trained, educated and discharged personnel.

3.2.6 Administer Personnel

The administrative procedures related to individuals are covered under the “Administer Personnel” process. As an example, while the recruited personnel are decided in the “Managing Personnel Life Cycle” process, finishing the paper work needed and issuing the assignment order will be accomplished under the “Administer Personnel” process.

The outputs of “Managing Personnel Life Cycle Process” are the main inputs to the “Administer Personnel” process.

Personnel Files, Contracts, Promotion Orders, Assignment Orders, Pay Checks, Bonuses, Awards, Disciplinary are generic outputs to the “Administer Personnel” process.

3.3 Models and Methods that Support HRM Framework Model

In this section, information on a set of analytical tools that has been used in participating Nations is provided to assist analysts. A questionnaire had been designed by SAS-059 to collect information on models and methods that support HRM systems. Questionnaire had been sent to NATO and NATO Nations.

Definitions of model and method are given below as they are used within the context of the questionnaire.

Model is a mathematical, logical or physical representation of a system, entity, relationship or process. Model is a generic term to denote every form of simplified representation designed to study the complex relations of the real world. However, here we focus on analytical and simulation models that are particularly used in Human (Manpower) Resources Management area.

Method is a particular way of doing something. It can be a procedure, plan of action, manner in which one conducts business, a technique or a systematic arrangement of actions.

The remainder of this section categorizes the models and methods according to the main processes of HRM framework model.

Table 1: Models and Methods for HRM.

HRM Process	Model/Method	Nation
Developing HRM Strategy and Processes	PROSAM (Promotion System Analysis Model)	TUR
	TEKS (Promotion-Based Manpower Evaluation System)	TUR
	Planning Personnel Provision and Training Model	TUR
Managing HRM Processes	PROSAM (Promotion System Analysis Model)	TUR
	Planning Personnel Provision and Training Model	TUR
	Armed Forces Compensation Scheme	GBR
	VA Financial Forecast Model. DASA P&P	GBR
	VA Workload Forecast	GBR
Maintaining HR Policies	PROSAM (Promotion System Analysis Model)	TUR
	Planning Personnel Provision and Training Model	TUR

HRM Process	Model/Method	Nation
Maintaining HR Policies (cont'd)	Non-Commissioned Officers Assignment Model	TUR
	Ethnic Model	GBR
Administering Personnel	Personnel Assignment Model for Turkish Land Forces	TUR
	TEMODSIM (Promotion Model Simulation)	TUR
	Planning Personnel Provision and Training Model	TUR
	Non-Commissioned Officers Assignment Model	TUR
	Demand Automated Estimation of Manpower	GBR
	Navy Short-Term Forecasting Model	GBR
	Army Short-Term Forecasting Model	GBR
	RAF Short-Term Forecasting Model	GBR
	Officer Strategic Planning Model	GBR
	Portsmouth Model	GBR
	Ground Airmen Untrained	GBR
	Ground Airmen and NCA Strength	GBR
	Officer Stochastic	GBR
	Quarterly Forecast Model	GBR
	Officer into Training Model	GBR
	Officer Forecast Trained Strength	GBR
	Soldier Deterministic and Steady State	GBR
Short-Term Forecast	GBR	
Officer Steady State	GBR	
Managing Personnel Life-Cycle	Personnel Assignment Model for Turkish Land Forces	TUR
	TEMODSIM (Promotion Model Simulation)	TUR
	Planning Personnel Provision and Training Model	TUR
	Non-Commissioned Officers Assignment Model	TUR
Other	Officer LE Model	GBR

4.0 HUMAN RESOURCES MANAGEMENT DATA ISSUES

4.1 Area of Research and Scope

Human Resource Management (HRM) is a very broad and complex area ranging from development of manpower required (skills, numbers and organisational models) to the distribution of the personnel authorized against the requirements. This is further complicated by the extensive and different parameters needed at the strategic operational and tactical levels. Currently, developers and analysts working in these areas attempt to build various models. One of the significant factors that hamper these efforts is the lack of data. Data here means any information about manpower, personnel, demographic factors, and also the sources related.

The list below shows many of the problems in terms of data that currently exist in the HRM arena that make it difficult for Nations' and NATO bodies HRM to function efficiently and effectively:

- Non-availability of data;
- Non-standardized data across Nations;
- Poor data quality;
- Difficulty in obtaining data;
- Lack of interoperability of data systems within and across NATO and Peace for Partnership Nations;
- Duplication of data; and
- Lack of normalization in data.

Because of the problems identified above, RTG SAS-059 proposed to identify the data requirements needed to successfully implement strategic and operational HRM. However RTG SAS-059 realized that the magnitude, complexity and varieties within Nations of this task far exceeded resources such as number of personnel, time of group members, etc. Additionally it was agreed that this task ideally would be completed by a permanent NATO group or a project group under a NATO organisation. Consequently TOR and POW of RTG SAS-059 were changed to identify the data issues and considerations regarding the successful implementation of strategic and operational HRM in its Terms of Reference.

4.2 HRM Data Issues

Human resource management, which has been executed for a long time by dealing only with personnel affairs, now encloses many processes such as personnel selection, evaluation, career management, performance management, reward and salary management, personnel motivation. As a necessity of this structure, human resource management includes various data sets and management of these data sets. The types and quantities of data in these data sets are increasing continually. The change and progress in the types of data limit the possibilities of using a whole data base which is unique to human resource management area. For that reason, it is imperative to use various data sets compiled in different areas.

When human resource management was considered as personnel management, a complete data base which includes personnel names, surnames, date of birth, date of enrolment, marital status, number children, etc. was satisfying all data demands. During those times, some basic statistical calculations such as finding the number of single personnel, number of employees who are 40 years old, figuring out the salaries of the employees out of work days and weeks, etc., were possible.

With the evolution of personnel management process into human resource management, in addition to the simple statistical calculations, the human resource managers in today's organisations are compelled to find out the answers of various complex questions regarding human resource management, and to make predictions and inferences out of models and simulations. For example, as it became more important to stay competitive in the market, answering the following questions became more difficult due to the interaction among the sub-processes of HRM.

- In the personnel selection and evaluation process, which candidate should I select for the vacant post, and how?
- What kind of problems will the company be tackling with in the future as a result of continuing to implement the current personnel acquisition and employment policies?
- What is the efficiency of personnel selection and evaluation process based on the personnel's adaptation to his/her its post?
- For a vacant post, which personnel should I promote?
- How should I find out the personnel with the best performance records while arranging the promotion list for a higher post?

- What will be the effects of changes in the market on the employee's salaries and how will I adjust the results of the changes for the whole personnel?

To reach the best solutions for the organisations to the above mentioned questions, various data sets are needed. As an example, the issue of personnel selection for a vacant post must be defined taking into consideration various features such as staff requirements, minimum and maximum age requirements, gender, work experience, education and expertise, basic technical and managerial qualifications, etc. This requires the detailed work analysis and transforms the staff requirements into a dynamic structure.

To be able to discuss the accuracy of the implemented human resource policies or to figure out the possible outcomes of the policy changes also requires the compilation of various HR data sets. One of the basic problem areas confronted in the human resource data base management is to collect and update the information needed in these data bases. This information is needed not only for the human resource management area but also for other areas. If the same information is gathered in different areas, then data needs to be standardized. All personnel have attributes which define them in HR database of the organisation. As these attributes change, the HR database must include these changes. The human resource management data sets should also be accessible from other data sets.

It is possible to classify the data sets used in human resource management in two ways; the first one is mostly managerial and related with personnel affairs, the second one is analytic HR data sets for controlling HR system.

As the time passes, the characteristic of human resource management systems is becoming more and more dependent on historical data sets. As a result, this tendency enforces automation of management systems. In parallel with this requirement, various automation systems are being developed. Most of these studies are enclosed in the Enterprise Resource Planning (ERP) packages. These commercial application packages are being adopted by some companies with slight changes, and by some companies with major modifications. In most of medium scaled organisations, there is a wide-spread use of unique systems developed by the institution or company itself.

From the Armed Forces' point of view, some of the data needed for human resource management must be compatible among NATO bodies and the Nations. The harmonization of the data sets even among the services of an individual Nation can be quite difficult. One of the reasons of this difficulty is the absence of a common terminology within the field of data sets. At the moment the only common terminology in human resource management within NATO is the rank. Contemporary HRM practice requires definitions of posts based on qualifications in addition to rank.

Some part of human resource management data sets are accepted as confidential and categorized as 'personal'. Storage of these private data sets, maintaining their security and preventing unauthorized access is of crucial importance. Ensuring the data security involves two main dimensions; one technical and the other is judicial. For this purpose, many technical solutions are applied. Educating the assigned personnel in the field of human resource management on the subject of "confidentiality" is highly important.

Last but not the least, to identify, collect, and evaluate the specific data sets is of great importance in the field of human resource management.

5.0 OCCUPATIONAL CLASSIFICATION SYSTEMS

5.1 Area of Research and Scope

Human Resources Management includes all processes that enable, guide, execute and control the matching of personnel supply to the jobs required, i.e. "spaces vs. faces". The matching of personnel to the jobs

requires having detailed information on job specifications and the personnel attributes, such as knowledge, skills, abilities, qualifications, experiences, etc. This is a corner stone of military organisations in each Nation. Each Nation has developed and maintains its own unique occupational classification and personnel assignment systems. These two systems are core sub-systems in military HR system. These unique classification systems create problems when NATO asks NATO Nations to fill positions. These classification problems are based on lack of common language based on occupational areas and result in skill mismatch and incorrect categorisation of ranks and grades.

Because of these reasons, RTG SAS-059 decided to include in the Terms of Reference the task of developing a common language based on occupational areas to permit the categorisation of the skills and competencies required. The aim was to develop a table based on occupational areas, such as Administration, Intelligence, Operations, Logistics, etc., that categorise the manpower skills and associated competencies required. The Technical Team had planned to use the current NATO Occupational Area Codes as the starting point to develop this catalogue.

However RTG SAS-059 realized that the magnitude of this task far exceeded the resources such as number of personnel, time, academic background of group members, etc. Additionally, it was realized that NATO RTG is not the appropriate organisation to undertake this type of work. It was agreed that this task ideally would be completed by a permanent NATO group or a project group under a NATO organisation. Consequently TOR and POW of SAS-059 were changed to reflect the following task related to occupational classification.

- To examine the feasibility of developing a common language based on occupational areas to categorise the skills and competencies required.
- To conduct a literature search to identify similar work that may have been conducted by other countries and other multi-national organisations.

5.2 Review of Occupational Classification Systems

5.2.1 Introduction to Occupational Classification Systems

An occupational classification system identifies the nature of the work required and then advises on the knowledge and skills necessary to perform that work [1]. Occupational classification systems can be used to perform a multitude of tasks.

There are a variety of reasons for developing an occupational classification system. The taxonomy imposed by a classification system allows

- a) Workers to work more efficiently; and
- b) Work to be managed more efficiently.

Classification enables us to identify the similarities and differences between work functions, which ensure that functions that should be grouped together are grouped together.

Each occupational classification system has its own features and limitations. Since each classification scheme is developed for a specific purpose, there can be no single overall best method [2]. Successful future organisations will be the ones which define return on investment not only in terms of profit and loss but also in terms of the development and aggregation of human and intellectual capital [3]. Occupational classification is a tool to help use human capital effectively. The Standard Occupational Classification (SOC) system, Holland's Hexagon, the World of Work Map (WWM), the North American Industry Classification System (NAICS), the Minnesota Occupational Classification System (MOCS III), Occupational Information Network (O*NET) system and Skills Framework for the Information Age (SFIA) are examples of different

classification systems. Gore and Hitch (2005) [4] and Brown [2] (2003) provide a through discussion on Occupational Classification Systems. Interested readers are referred to Pollac et al. [5] for a detailed explanation of the development and applications of the occupational classification systems.

The U.S. Department of Labour introduced the O*NET as a replacement for the long established Dictionary of Occupational Tables in 1998. The O*NET is a nationwide comprehensive system for organising, describing, distributing and collecting data on occupations and the workforce [6].

The Skills Framework for the Information Age (SFIA) [7] is an occupational classification system which specifically focuses on Information and Communication Technology (ICT) skills. This is an example of one set of skills that could be useful in a business environment.

O*NET is an example of a general occupational classification system and SFIA is an example of a specialized occupation classification system. We provide detailed information on O*NET and SFIA systems below.

NATO has launched a project to develop an occupational classification, namely NATO Occupational Classification (NOC) system, in order to define billets and to manage available manpower more efficiently. In the last part of this section, information on staff requirements, aims, scope and status of NOC studies will also be presented.

5.2.2 O*NET Occupational Information Network [8]

O*NET is being developed as an easy-to-use resource that supports public and private sector efforts to identify and develop the skills of the American workforce. It provides a common language for defining and describing occupations. The O*NET database contains information about Knowledge, Skills and Abilities (KSAs), interests, General Work Activities (GWAs), and work context. The content model of O*NET is shown below.

The Content Model Forming the Foundation of O*NET

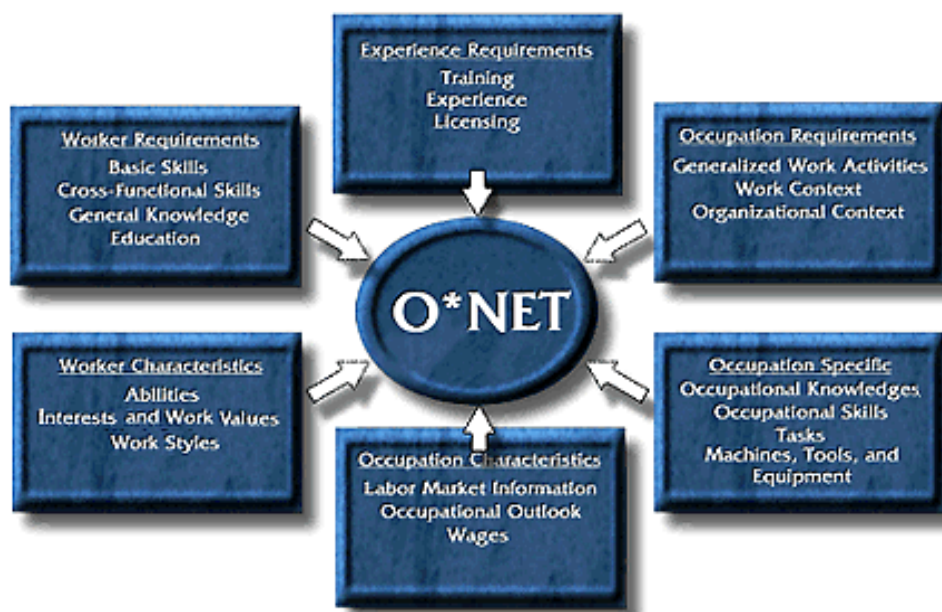


Figure 8: O*NET (Source: <http://www.onetcenter.org/> Last Accessed: 18 September 2006).

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The Content Model is organised into six major domains. These are:

- Worker Characteristics;
- Worker Requirements;
- Experience Requirements;
- Occupation Requirements;
- Occupational Characteristics; and
- Occupation-Specific Information.

Worker Characteristics are enduring characteristics that might influence both performance and the capacities to acquire the knowledge and skills required for effective work performance. Worker characteristics comprise enduring qualities of individuals that may influence how they approach tasks and how they acquire work-relevant knowledge and skills.

Worker Requirements are descriptors referring to work-related attributes acquired and/or developed through experience and education. Worker requirements represent developed or acquired attributes of an individual that may be related to performance. Knowledge represents the acquisition of facts and principles about a domain of information. Experience lays the foundation for establishing procedures to work with given knowledge. This set of procedures is more commonly known as skills. Skills may be further divided into basic skills (skills, such as reading, that facilitate the acquisition of new knowledge) and cross-functional skills (skills, such as problem solving, that extend across several domains of activities).

Experience Requirements are related to previous activities; explicitly linked to certain types of work activities. This domain will include information about the typical experiential backgrounds of workers in an occupation or group of occupations. Certification, licensure and training data also will be available.

Occupational Characteristics define and describe the general characteristics of occupations that may influence occupational requirements. O*NET provides this information by linking descriptive occupational information to statistical labor market information. This includes compensation and wage data, employment outlook, and industry size information.

Occupational Requirements are a comprehensive set of variables or detailed elements that describe what various occupations require. This domain includes information about typical activities required across occupations. Task information is often too specific to describe an occupation or occupational group. The O*NET approach is to identify dimensions that summarize the kinds of tasks that may be performed within multiple occupations. Using this framework, it is possible to use a single set of descriptors to describe many occupations.

Occupation-Specific Information reflects variables or other content model elements in terms of selected or specific occupations. This domain parallels other content model domains in that it includes requirements such as knowledge, skills, tasks and machines, tools, and equipment. Similarly, labour market information defined by industry or occupation is also provided here. This domain is particularly important when developing specific applications of O*NET information. For example, to specify training, develop position descriptions, or redesign jobs, it is necessary to refer to occupation-specific.

5.2.2.1 *Skill Categories and Experiences Level*

Skills are repeatable behaviour sequences performed in response to prescribed tasks. Skills vary in terms of: the context of the task, the difficulty of the task, the time needed to do the task (speed), and the effort expended on the task, amongst others [9].

Basic skills consist of a few groups: sensory and perceptual skills, cognitive and affective skills, and motor and physical skills. Higher order skills involve different combinations of basic skills.

Jobs are typically defined in terms of the work tasks that need to be performed. Because task performance requires skills, jobs can be described in terms of the skills required to perform the job [9]. In the following section, we explain the taxonomy on skill and experience used in the O*NET system.

5.2.2.2 *Worker (Skill) Requirements*

- Basic Skills – developed capacities that facilitate learning and information acquisition.
- Content Skills – fundamental skills needed to work with or acquire more specific skills:
 - Reading Comprehension;
 - Active Listening;
 - Writing;
 - Speaking;
 - Mathematics; and
 - Science.
- Process Skills – procedures that contribute to the more rapid acquisition of knowledge and skill:
 - Critical Thinking;
 - Active Learning;
 - Learning Strategies; and
 - Monitoring.
- Cross-Functional Skills – developed capacities that facilitate performance of activities that occur across jobs.
- Social Skills – developed capacities used to work with people to achieve goals:
 - Social Perceptiveness;
 - Coordination;
 - Persuasion;
 - Negotiation;
 - Instructing; and
 - Service Orientation.
- Complex Problem-Solving Skills – developed capacities used to solve novel, ill-defined problems in complex, real-world settings.
- Technical Skills – developed capacities used to design, set up, operate, and correct malfunctions involving application of machines or technological systems:
 - Operations Analysis;
 - Technology Design;
 - Equipment Selection;
 - Installation;
 - Programming;
 - Operation Monitoring;
 - Operation and Control;
 - Equipment Maintenance;

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- Troubleshooting;
- Repairing; and
- Quality Control Analysis.
- Systems Skills – developed capacities used to understand, monitor and improve socio-technical systems:
 - Judgment and Decision-Making;
 - Systems Analysis; and
 - Systems Evaluation.
- Resource Management Skills – developed capacities used to allocate resources efficiently:
 - Time Management;
 - Management of Financial Resources;
 - Management of Material Resources; and
 - Management of Personnel Resources.
- Knowledge – organised sets of principles and facts applying in general domains:
 - Business and Management;
 - Manufacturing and Production;
 - Engineering and Technology;
 - Mathematics and Science;
 - Health Services;
 - Education and Training;
 - Arts and Humanities;
 - Law and Public Safety;
 - Communications; and
 - Transportation.
- Education – prior educational experience required to perform a job:
 - Level of Education.

5.2.2.3 *Experience (Skill) Requirements*

Experience requirements include:

- Basic experience required for occupational readiness; and
- Licensing, i.e. licenses, certificates, or registration awarded to show that a job holder has gained certain skills; includes requirements for obtaining these credentials, and the organisation or agency requiring their possession.

The table below depicts the related work experience levels used in O*NET.

Table 2: Experience Requirements.

Element ID	Element Name	Scale ID	Category	Category Description
3.A.1	Related Work Experience	RW	1	None
3.A.1	Related Work Experience	RW	2	Up to and including 1 month
3.A.1	Related Work Experience	RW	3	Over 1 month, up to and including 3 months
3.A.1	Related Work Experience	RW	4	Over 3 months, up to and including 6 months
3.A.1	Related Work Experience	RW	5	Over 6 months, up to and including 1 year
3.A.1	Related Work Experience	RW	6	Over 1 year, up to and including 2 years
3.A.1	Related Work Experience	RW	7	Over 2 years, up to and including 4 years
3.A.1	Related Work Experience	RW	8	Over 4 years, up to and including 6 years
3.A.1	Related Work Experience	RW	9	Over 6 years, up to and including 8 years
3.A.1	Related Work Experience	RW	10	Over 8 years, up to and including 10 years
3.A.1	Related Work Experience	RW	11	Over 10 years

Source: “Data Dictionary, O*NET 9.0 Database”, National Center for O*NET Development, Raleigh, North Carolina 27611, USA, p. 61.

5.2.3 The Skills Framework for the Information Age (SFIA) [10]

Skill categories and experience levels are useful for having the right person at the right place. A skill framework is useful for training designers. Skill categories give individuals a chance to see their way ahead in an organisation and useful for career plans. One example of such a framework is The Skills Framework for the Information Age (SFIA) which provides a common reference model for the identification of the skills needed to develop effective Information Systems (IS) making use of Information and Communication Technology (ICT).

SFIA help organisations match the skills of the workforce to the needs of the business. SFIA enables employers of IT professionals to carry out a range of HR activities against a common framework of reference – including skill audit, planning future skill requirements, development programmes, standardization of job titles and functions, and resource allocation.

SFIA is needed to:

- Give employers a framework which they can use to measure the skills they have against the skills they need and identify skill gaps;
- Allows ICT practitioners and users to benchmark which skills they need for particular jobs or career paths;
- Gather labor market intelligence coherently and consistently;
- Quantify the skill requirements of the ICT market;
- Identify skills which are in short supply, or report on how short the supply is;
- Set national education and training targets for the IT community; and
- Tell education and training providers what the job market wants.

It is a simple and logical two-dimensional framework consisting of areas of work on one axis and levels of responsibility on the other. It uses a common language and a sensible, logical structure that can be adapted to the training and development needs of a very wide range of businesses.

Skills – One axis divides the whole of ICT into “skills”. At the heart of the Framework are a set of skills – currently, 54 “practitioner” skills and 3 “user” skills – which together aim to describe all the abilities that

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are needed to deliver and exploit effective information systems. Skills are grouped for convenience into sub-categories or “business roles”. Sub-categories are grouped into six categories or work areas – strategy and planning, management and administration, development and implementation, service delivery, sales and marketing, and use. The SFIA structure allows a consistent approach to ICT skills across the organisation and is not limited to a specialist department.

The sub-category is a way of grouping work activities, sufficiently broad but self-contained to enable staff to be positioned within the overall framework. Some individuals will only carry out some of the activities within one sub-category, others may perform them all and some will work across more than one sub-category.

Levels – The other axis defines the level of responsibility and accountability exercised by ICT practitioners and users. People exercise skills at different levels. The first axis in the Framework is the division of roles into seven levels, reflecting the:

- Autonomy;
- Influence;
- Complexity; and
- Business skills which are typical of someone at that level.

Each of seven levels – from new entrant to strategist level – is defined in terms of autonomy, influence, complexity and business skills.

Each level is summarized in a word or two to give a flavour:

- Follow;
- Assist;
- Apply;
- Enable;
- Ensure, advise;
- Initiate, influence; and
- Set strategy, envision.

The levels range from 1 at basic entry to 7 at a very senior level, normally in a large organisation.

Each level within each role is made up of a different combination of skills, but all roles at the same level have similar degrees of autonomy, influence and complexity, and practitioners will normally need the same kinds of business skills.

For example a senior practitioner (Level 5) in software development will have different skills from a senior practitioner in user support, but they will demonstrate similar approaches and abilities.

Descriptors – The matrix shows the complete set of skills used by ICT practitioners and users. For each skill at each level, “descriptors” provide examples of typical tasks undertaken.

For example a typical task for systems design at level 5 is “review others’ system design to ensure selection of appropriate technology, efficient use of resources, and integration of multiple systems and technology”.

The matrix is not fully populated, as most roles do not require people at every level of responsibility. Implementing SFIA can take two years from start to finish. The most difficult part of the process is often mapping out the job roles within the organisation and defining its structure.

SFIA is tracked on a grid, with the columns representing the relevant skills for each job function arranged under categories ranging from development and implementation to sales and marketing. Personal skills could include factors such as the ability of a person to work without supervision or their ability to communicate.

Business skills vary from role to role, but a systems developer, for instance, might be expected to have skills in business analysis, data analysis, systems design, database design and software development. The rows represent levels of competence, ranging from the ability to follow instructions at the bottom to the ability to set strategy, inspire and mobilize at the top. Managers can use the framework to assess the skills of their staff through interviews and discussions and to work out what further training or project work they need to progress to the next level.

For instance under Human factors sub-category the skills are listed as Systems ergonomics, Content creation, Non-functional needs analysis, Usability evaluation and Human factors integration.

There are three levels under Human factors integration which is achievement of optimum levels of product or service usability, by ensuring that project and enterprise activities take account of the user experience.

These levels and descriptions are:

- Level 5 (Ensure, advise) – Advises on achievement of usability (including health and safety and accessibility) for IT products and services.
- Level 6 (Initiate, influence) – Is responsible for organisational commitment to high standards in all aspects of the interaction between users and deployed technology – the user experience.
- Level 7 (Set strategy, envision) – Acts to influence the perception of the enterprise, in relation to ergonomics and the user experience of deployed IT products and systems, and to ensure that this is addressed in future design.

5.2.4 NATO Occupational Area Codes (NOC) Studies

NATO had no consistent skill categorization system across the Nations. Thus the NATO Consultation Command and Control Agency (NC3A) began to develop NATO Occupational Area Codes (NOC) to enable member Nations to assess the qualifications and background of their prospective fill against NATO post requirements. The NOC will help with the assignment of a fully qualified and trained body of personnel to NATO billets.

The NOC has been developed through combining commercial and military standards for skill categorization using, UNESCO International Standard Classification of Education (ISCED) 1997, Fields of Education and Training Supplementary Manual 1999 (Statistical office of the European Communities-EUROSTAT) and Skills for the Information Age (SFIA) v3 2005.

NATO Occupational Codes are classified into ten main areas. The first eight of these areas contain general skills and professions. Ninth area is belonging to Information System Engineering and Maintenance. Last area is devoted for Military and Defence. General skills and professions are grouped as below:

- Education;
- Humanities and Arts;
- Social Sciences Business Law;
- Science Mathematics and Computing;
- Engineering Manufacturing and Construction;
- Agriculture and Veterinary;

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- Health and Warfare; and
- Services.

Each of the general skills and professions are divided into sub-categories. For example, “Science Mathematics and Computing” consists of sub-sections named as “Life Science”, “Physical Science” and “Mathematics and Statistics”. Mathematics and Statistic section includes “Mathematics”, “Operations Research”, “Statistics and Survey Design”. Each of these sub-sections covers the following information in order to explain the occupations in detail. These are:

- Source.
- Original Code.
- Description.
- Notes.
- Related Disciplines.
- Typically Associated With Organisational Functional Code.
- Suggested Functional Titles.
- Skill Levels: One example for Operations Research is listed below:

461G Operations Research

Source: UNESCO ISCED 1997 Original Code: 461

Description: No description. If available, system will use description of parent NOC and present this NOC as a specialisation

Notes: For the specialisation of Military Operational Analysis use MDF

Ed Discpl: operations research, statistics or similar numerate discipline, mathematics, computer science

Typically Assoc with Org Function Code: A, F, G, K, M, P, R

Suggested Functional Titles (if selected as Primary NOC):

OF: SO (Operations Research)

OR: Staff Assistant (Operations Research)

A: Operations Researcher

B: Assistant (Operations Research)

Skill Levels: System will present the generic Skill Level descriptions

Each NOC can be associated with a Skill Level. The NOC use eight Skill Levels, from new entrant to command level. The levels of responsibility suggested by the Skill Levels do not necessarily relate directly to rank or grade; however, there is a broad correlation due to the incremental increase in responsibility indicated by each level. Following table depicts approximate relationship between Primary NOC Skill Level and Rank/Grade.

Table 3: NATO Occupational Code.

Skill Level	Meaning	Military Rank	Civilian Grade
1	follow	OR-1/2/3	B-1/2; C-1/2/3/4
2	assist	OR-4/5/6	B-3/4; C-5/6
3	apply	OR-7/8/9	B-5/6
4	enable	OF-1/2; WO-1/2/3	A-1/2; LT-2
5	ensure, advise	OF-3; WO-4	A-3; LI-3/4; LT-3/4
6	initiate, influence	OF-4	A-4
7	set strategy, inspire, mobilise	OF-5	A-5
8	set vision, lead	≥ OF-6	≥ A-6

While NOC can be associated with an educational discipline based upon the rank/grade requirement for the position, not all NOC have been provided with an educational discipline. Additionally, each NOC is also associated with a set of Functional Job Titles.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The original SAS-059 study proposed to identify the best practice, the data requirements, the current HRM models and methods across NATO bodies, NATO and PfP Nations for HRM in military organisations. A common language based on occupational areas to categorise the skills and competencies were to be developed as well.

The group identified that there are some variations between HRM in military and non military organisations. There are also differences in HRM practices in military organisations within the NATO and PfP Nations. Some differences were also recognized within the services of the individual Nations. As a result, RTG SAS-059 developed a generic framework model HRFRAM that identifies all of the important processes of HRM for military organisations instead of a specific detailed model. The group also derived generic inputs and outputs for the six main processes of HRM FRAM.

RTG SAS-059 realized that the magnitude, complexity and varieties within Nations of HRM data model that goes with HRM FRAM far exceeded resources such as number of personnel, time of group members, etc. It was decided to identify the data issues and considerations regarding the successful implementation of strategic and operational HRM instead of having a HRM data model.

Non-availability of HR data, non-standardized data across NATO and Partnership for Peace Nations, poor data quality, difficulty in obtaining data, lack of interoperability of data systems within and across NATO and Partnership for Peace Nations, duplication of data and lack of normalization in data have been identified as the main problem areas related with HRM data.

An occupational classification system identifies the nature of the work required and then advises on the knowledge and skills necessary to perform that work. Classification enables us to identify the similarities and differences between work functions, which ensure that functions that should be grouped together are grouped together. Each Nation has developed and maintains its own unique occupational classification system. These unique classification systems create problems for NATO because of a lack of common language based on occupational areas and result in skill mismatch and incorrect categorisation of ranks and grades.

SAS-059 aimed to develop an occupational classification system by using the current NATO Occupational Area Codes study. However RTG SAS-059 realized that the magnitude of this task far exceeded resources such as number of personnel, time, academic background of group members, etc. It was decided to examine the feasibility of developing a common language based on occupational areas to categorise the skills and competencies required.

6.2 Recommendations

The group reviewed occupational classification systems such as O*NET, SFIA, NOC. It was concluded that skill categories and experience levels are required for having the right personnel at the right place at the right time. To develop an Occupational Code System (OCS) compatible with NATO's range of missions that will help Nations to nominate appropriate candidates for a NATO position, the followings are recommended:

- Since defining NATO billets in details requires a huge study, it may not be possible to accomplish the study via task groups which are formed by temporary personnel, and work on part time basis.
- It is essential to form an official, permanent unit working on a fulltime basis in order to realize the study.
- NATO should lead the unit, and Member Nations should contribute representatives into the unit.
- The main objective of the unit must be to produce an Occupational Code System (OCS) compatible to NATO's scope of missions (similar to O*NET or SFIA).
- The OCS needs to be negotiated by Member Nations, so that the study can end up with a common final OCS which is adoptable to Member Nations as well.
- In the end, the finalized OCS is expected to guarantee that Member Nations suggest right person for an open NATO position without further efforts.
- The OCS unit may later downsize to a core number of personnel adequate to update the system according to changing requirements.
- A NATO organisation must be responsible for life cycle management of NATO OCS.

As a result, RTG SAS-059 proposed a generic framework HRM that will help to develop a common understanding of the overarching HRM practices for NATO and PfP Nations. Although there may be variations among the Nations on the implementation of HRM system, the underlying issues such as recruitment, assignment, promotion, appraisal, etc., are common to all Nations. Further research on tools, models and methods for those specific issues is expected to provide mutual benefits for NATO and PfP Nations.

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