



JANUS: A PROPOSAL FOR THE RTA ALIGNMENT

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1. JANUS: A PROPOSAL FOR THE RTA ALIGNMENT



“Janus is the Roman god of gates and doors (*ianua*), beginnings and endings, and hence represented with a double-faced head, each looking in opposite directions.”¹

1.1 Introduction

This technical note is documenting a proposal made in the context of re-aligning DRDC’s Client Group system to meet the requirements of maximized impact, agility and flexibility, as expressed in the *Defence S&T Strategy 2006*. It is also intended to support the contribution of CORA’s management to this initiative. The model is inspired from the mythological figure of Janus, where DRDC’s DGs take a pivotal role in looking both at their clients and S&T areas of expertise, simultaneously. Hence, their role is to align the needs of their respective and prospective clients with their S&T areas of expertise, while not being restricted to serve any specific clients and able to maintain leading-edge scientific research programs. One of the key concepts underpinning the model is that of realigning the functions of scientific advisor to a client, and manager of S&T packages.

It is first proposed to look at DRDC’s Client Group system to identify its primary functions, and briefly explore how these functions relate to each other by illustrating the central role played by DRDC’s Director Generals (DGs). The informal relationships within the Client Group system are also briefly covered to illustrate their important role. Based on the above exploration of functions, internal role of DGs and informal relationships, a renewed Client Group system is proposed that could better meet the requirements expressed in the *Defence S&T Strategy 2006*.

¹ Micha F. Lindemans at <http://www.pantheon.org/articles/j/janus.html>.

1.2 Client Groups Dissected

It may be surprising for some, but DRDC does not appear to have a formal definition of Client Group. Informally, it can be said that the Client Group system overall aim is to: (1) regulate how DRDC relates with its various clients, and (2) how it applies its resources to serve them in the most efficient manner. After informally interviewing various stakeholders within DRDC, and reviewing some of key corporate documents, it is possible to distinguish three fundamental, but implicit, functions used to organize how relationships with clients are regulated and resources allocated to serve the clients. These functions essentially help to identify:

- (1) who is being supported by DRDC within the CF/DND community, i.e., the “**Client**”;
- (2) which S&T expertise is being applied to a Client’s need, i.e. the “**S&T package**”;
- and,
- (3) who within DRDC is providing the resources to apply the S&T package to a Client’s need, i.e., the “**Resource Manager**” in the person of a research centre’s DG.

The linkages between these three functions are relatively straightforward when applied to the older Client Groups 1, 2, and 3 (i.e., Maritime, Land, and Air). There is a clear connection between the Clients (i.e., the ECS), the S&T packages (each applied to specific needs of the Navy, Army, and Air Force), and a substantial part of the work being done in the research centre lead by the DG who is also Scientific Advisor (SA) for a given Client Group (i.e., Halifax for the Navy, Valcartier for the Army, and Toronto for the Air Force to a lesser extent). In other words, for those three groups, the client, S&T package, and the resource manager are relatively well identified.

The linkages for the newer Client Groups 0, 5, and 6 (Integrated Force Development, C4ISR, and Force Enabler) are less than straightforward. This situation is due to the fact that they have either a diffuse set of clients (e.g. C4ISR arguably spans the entire CF), and/or their S&T package is made of disparate disciplines (e.g. Force Enabler includes both biological and psychosocial sciences), and/or resources are actually spread over several research centres (e.g. Force Enabler includes among others CBRN research in Suffield, medical and psychological research in Toronto, and human resources research in CORA). Hence, it is more challenging to identify the Client, S&T package, and Resource Manager for these three Client Groups. The existing model is, therefore, problematic for these Groups. However, given that applied science and technology for defence is becoming increasingly multidisciplinary, the relatively effective structure that existed for the Client Groups 1, 2, and 3 is also expected to be less effective in the near future, creating possibly unnecessary duplications and missed opportunities for cross-fertilization of S&T capabilities.

In this context, the efficacy of the Client Group system is reduced. The key is, therefore, to propose a renewed Client Group system that allows for greater clarity.

Greater clarity would also provide more **accountability**, as no client would be at risk of “failing between the cracks” if its needs fall on no one particular area of responsibilities; and it would provide also more **coordinated flexibility**, as S&T packages and resources can be allocated where they are needed the most and thus avoid wastes created by “stovepipes”.

To achieve greater clarity, as well as greater accountability and better coordinated flexibility within the S&T Client Group system, it is proposed to formally realign the three main client group's functions as follows.

1.3 Formal Realignment of Functions

To realign functions, one first needs to identify them clearly. Part of the solution is to highlight the key role that the DGs are playing, as they incorporate the three fundamental functions presented above.

1. *Identifying who is the client.* DGs are also known as “**Scientific Advisor**” (SA) when dealing with their CF/DND clients. Ideally, SAs should be, for a given set of major organizations, the single official point of entry in DRDC. In other words, a specific DG should be a manager of specific client relationships. There should be no client “falling between the crack”. That is one of the faces of Janus, the doorway in.
2. *Identifying which S&T expertise to apply.* DGs are also “**Portfolio Manager**” when dealing internally with DRDC. They should be responsible for specific areas of S&T packages or expertise, and provide the formal coordination of such expertise irrespective where such expertise is physically located. This is the second face of Janus, the doorway out.
3. *Identifying who within DRDC is providing the resources.* The DG is also a **Resource Manager** for a set of S&T capabilities belonging to a specific research centre. By being formally responsible for S&T capabilities not necessarily part of one DG's research program, this may provide additional guarantees against the formation of “stovepipes”.

By distinguishing functions this way, the following benefits can be identified:

1. Distinguishing the functions of SA from Portfolio Manager ensures that clients would always have someone clearly identified (i.e., the SA) within DRDC to help them with their S&T challenges, irrespective of the scientific nature of their request. Even if the SA in question might not be the one ultimately delivering the service, there is a greater degree of accountability. The SA remains the one ensuring that the client is satisfied, and the one who cultivates long term relationships with the specific clients. Good and close relationships with clients are a necessary ingredient to maximize the impact of S&T on defence, as described in the *Defence S&T Strategy 2006*.
2. Distinguishing the functions of Portfolio Manager from Resource Manager also helps to develop greater flexibility (as stated in the *Defence S&T Strategy 2006*). S&T expertise is expected to become increasingly multidisciplinary, so it is likely to be found in more than one research center. There are already a number of examples of multidisciplinary research centres. Hence, the acquisition of expertise will not be solely based on a DG's wishes, but in coordination with other DGs acting as Portfolio Managers based on their assessment of promising scientific areas for research. As well, separating these two functions has the potential to enhance the flexibility and agility of these current and future distributed programs.
3. Distinguishing the function of SA from a Resource Manager would also allow a better overall coordination of DRDC's resources and Clients' needs, based on long-term strategic commitments. This distinction will help DRDC to be more responsive to the

clients as the acquisition of resources in research centres will also be done in conjunction of SAs input, who are well informed of clients needs.

It must be noted, however, that many clients' requests would still be managed by the same DG, who would also be the appropriate SA, and the appropriate Portfolio Manager to deliver on the programme. Hence, the elements of the Client Group 1, 2, and 3 that are working well would not be affected in any significant way. This new Client Group system, given its greater flexibility in carrying its key functions, has the potential to provide better service for the Client Group 0, 5, and 6, as well as for multidimensional S&T programmes involving more than one research centre and/or more than one S&T package.

1.4 Protecting Informal Linkages

In order to remain agile and flexible, however, DRDC must do everything to maintain the existing informal linkages, be it through DSTs, DSs embedded with clients, the SMO network, etc. In order to not disrupt the “natural flows”, particularly for bottom-up initiatives, requests should be allowed to flow, but it would require that the appropriate DG, SA and Portfolio Manager be informed of any new activity/request. This would allow the ongoing coordination of efforts with the client on one side and within DRDC on the other side.

Example:

1. Formal Process Implied by the Model

The CLS requires research on improving some training systems. The SA to CLS (DG Valcartier) would be contacting the Social Science Portfolio Manager, who would negotiate some resources with DG CORA who owns most of the Social Sciences capabilities.

2. Actual Informal Process That Should Be Maintained

The Army Director of Training contacts DG Social Science, for help on training. DG Social Science finds the resources and informs DG Valcartier, and DG CORA to ensure that this effort is not duplicated, contradicting existing initiatives, or jeopardizing other priorities.

1.5 Client Group Reformed

Below is a specific proposal to re-align Client Group based on the principles described above. The “natural flow” has been preserved as much as possible, or reinforced in some cases through some innovations. Workload has also been balanced in realigning some managerial resources to slightly different purposes. Although not revolutionary, this re-alignment would provide greater agility and impact. A chart of this flow is also provided on Figure 1.

| | SCIENTIFIC ADVISOR TO: | RESOURCE MANAGER & Support | S&T PORTFOLIO MANAGER FOR |
|-------|---|--|---|
| CG 0 | - CDS & SJS - CFD - ADM(Pol) | DG CORA DST (FD&S) | Integrated Force Development and Strategy |
| CG 1 | - CMS | DG Halifax DSTM + DST (OR&A) | Maritime Sciences |
| CG 2 | - CLS | DG Valcartier DSTL + DST (OR&A) | Land Forces Sciences |
| CG 3 | - CAS | DG Toronto DSTA + DST (OR&A) | Air Force Sciences |
| CG 4 | - CANCOM - CEFCOM - CANSOFCOM - CANOSCOM | Head of Support to Operations SMO network | <i>Conduit for Multidisciplinary Effort</i> |
| CG 5 | - ADM(IM) - CDI | DG Ottawa DST (C4ISR) / DST (J2STI) | C4ISR Sciences |
| CG 6a | - ADM(IE) - ADM(Mat) | DG Suffield DST(FP) | Biological Sciences |
| CG 6b | - CMP - ADM-HR(Civ) | DG Social Sciences | Social Sciences |
| CG 7 | - PSC | DG CSS | Security Sciences |

Figure 1.

Client Group 0 (Integrated Force Development & Strategy)

This group would be lead by DG CORA. As CORA is already involved with CFD and ADM(Pol), these are “natural” clients, and Force Development and Strategy are logical areas of S&T expertise for CORA. As well, given the strategic nature of the S&T expertise, the CDS and SJS should be added as clients. The creation of a DST (Force Development and Strategy) (FD&S) to support DG CORA is proposed.

Client Groups 1, 2, 3 (Maritime, Land and Air)

These groups should not be modified, as they are already functional. However, it is proposed that CORA Director MLA becomes a DST (Operational Research and Analysis) (OR&A) in support of these three client groups. The environments extensively use OR&A capabilities, and their efforts should be synchronized and coordinated with the rest of the S&T programmes in Client Groups 1, 2, and 3.

Client Group 4 (Support to Operations)

This new Client Group would serve the Operational Commands, as they are the ones leading operations. Given the short-term nature of most requests emerging from this group, it should be organized in a way that serves better “quick fixes” rather than longer term research programmes. It is proposed that a Head of Support to Operations, instead of a DG be used to lead this Client Group. A military person should be a better point of contact with the Commands, as their peer in the field are likely to be military personnel actively involved in operational matters. It would ensure better communications and trust with the military Commands. As well, the network of Senior Military Officers should support directly this Client Group. Lastly, the S&T package is in this case very diffuse and it is likely to require support from every research centers. Hence, the Head of Support to Operations should be considered as a conduit to S&T capabilities instead of a Portfolio Manager in charge of a specific area of expertise.

Client Group 5 (C4ISR)

Given the work it is doing, this client group would have ADM(IM) and CDI as “natural” clients. It is important that all S&T expertise regarding the wide and diffuse domain of C4ISR be coordinated by a single portfolio manager. To support the DRDC Ottawa DG, the CORA Director for J2STI would become DST (J2STI), particularly to coordinate matters relating to intelligence.

Client Group 6a (Force Protection)

Client Group 6 is made of two very distinct sets of discipline, namely Bio-medical sciences and Psycho-social sciences. It is proposed to split this Group along these disciplinary lines to provide better clarity and coherence in the management of programmes. Allegorically, one would be devoted to the human body while the other to the human mind. (Maybe it would be useful to fully distinguish them as separate Client Groups.) The first part would be renamed Client Group 6a (Force Protection) as it deals in large part with protecting human life, and covers the S&T portfolio of the Bio-medical science (which includes matters related to CBRN). The DG Suffield is the natural match. A “natural” client would be ADM(IE), particularly in its role in dealing with environmental pollution. ADM(Mat) is also proposed as being a client for this Client Group. Although ADM(Mat) has relationships with most, if not all, the DGs, the ergonomic and force protection aspects of materiel is probably the most common issue to

all. Hence, DG Suffield is probably better placed to coordinate the S&T support provided to ADM(Mat).

Client Group 6b (Social Sciences)

Social Sciences, being quite distinct as disciplines, would benefit from acquiring a greater degree of autonomy, so it can grow according to its own epistemological requirements, and thus would be more able to provide a stronger input into multidisciplinary projects. DRDC will create a new DG position solely dedicated to social science matters. At the present time, his/her resources belong to CORA. The natural clients are CMP, and ADM-HR(Civ). Additionally, given that there would be a clear portfolio manager for social sciences package, this would allow a greater coordination of efforts in the diffuse field of human factors.

Client Group 7 (Security Sciences)

This newly formed Client Group is essentially organized around the work done by the Centre for Security Sciences (CSS), with PSC and its various agencies such as CSIS, RCMP, etc., as obvious clients. The nature and scope of this client group remains to be defined more clearly by DRDC and PSC. However, matters involving infrastructure protection, counter-terrorism, and domestic inter-agency cooperation have been identified as key research areas. This client group is likely to be working by leveraging expertise found in other DRDC's research centres beyond CSS, but the nature of these relationships remain to establish by DRDC.

Each DG should also be supported by one or more DST (Director Science & Technology), particularly to help them managing their respective S&T packages. This would probably require that DSTs have more line authority on research vectors, maybe through controlling directly some funding. This leverages an already existing structure that would be extended to most Client Groups.

1.6 Conclusion

This technical note proposes a model for the realignment of DRDC's Client Group system. It does not constitute a complete analysis of DRDC's corporate policies, but it offers some leads for discussion. The metaphor of Janus highlights the importance for DRDC to be actively engaged with its clients to provide a maximized impact of S&T on defence while engaging its S&T capabilities in an agile and flexible way. Whatever DRDC's decision about the final model to be used to realign its Client Group system, it is unlikely to be entirely octagonal. There will be exceptions to the model dictated by operational imperatives; informal linkages will remain active; trade-offs while coordinating activities will also remain a fixture. Also, given that it is the first time that DRDC has a formally stated corporate strategy, there will be some necessary trial and error. In the end, to be useful any model should be considered as a series guidelines rather than a series of strict rules to adhere to.

1.7 List of Acronyms

| | |
|-------------|---|
| ADM-HR(Civ) | Assistant Deputy Minister – Human Resources (Civilian) |
| ADM(IE) | Assistant Deputy Minister – Infrastructure and Environment |
| ADM(IM) | Assistant Deputy Minister – Information Management |
| ADM(Mat) | Assistant Deputy Minister – Materiel |
| ADM(Pol) | Assistant Deputy Minister – Policy |
| C4ISR | Command, Control, Coordination, Communication, Intelligence, Surveillance, and Reconnaissance |
| CAS | Chief of Air Staff |
| CANCOM | Canada Command |
| CANSOFCOM | Canadian Special Operation Forces Command |
| CANOSCOM | Canadian Operational Support Command |
| CBRN | Chemical, Biological, Radiological, and Nuclear |
| CDI | Chief of Defence Intelligence |
| CDS | Chief of Defence Staff |
| CEFCOM | Canadian Expeditionary Forces Command |
| CFD | Chief of Force Development |
| CF | Canadian Forces |
| CLS | Chief of Land Staff |
| CMP | Chief of Military Personnel |
| CMS | Chief of Maritime Staff |
| CORA | Centre for Operational Research and Analysis |
| CSIS | Canadian Security Intelligence Service |
| CSS | Centre for Security Sciences |
| DG | Director General |
| DND | Department of National Defence |
| DRDC | Defence Research and Development Canada |
| DS | Defence Scientist |
| DST | Director of Science and Technology |
| DSTA | Director of Science and Technology – Air |
| DSTL | Director of Science and Technology – Land |
| DSTM | Director of Science and Technology – Maritime |
| DST(FD&S) | Director of Science and Technology – Force Development and Strategy |
| DST(FP) | Director of Science and Technology – Force Protection |
| ECS | Environment Chief of Staff |
| J2STI | Joint Staff Office for Science and Technology Intelligence |
| MLA | Maritime, Land, Air |
| OR&A | Operational Research and Analysis |
| PSC | Public Safety Canada |
| RCMP | Royal Canadian Mounted Police |
| SA | Scientific Advisor |
| SJS | Strategic Joint Staff |
| SMO | Senior Military Officer |
| S&T | Science and Technology |

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This paper proposes a model to re-align DRDC's Client Group system to meet the requirement of maximized impact, agility and flexibility, as expressed in the *Defence S&T Strategy 2006*. This proposed model has been developed in the context of DRDC's initiative to rethink how its relationships with its clients should be articulated. As well, it is also intended to support the contribution of CORA's management to this initiative. The model is inspired from the mythological figure of Janus, where DRDC's DGs take a pivotal role in looking both at their clients and S&T areas of expertise, simultaneously.

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