

AUCKLAND PDC MEETING A SUCCESS

How do you measure a meeting's success? Achievement of business objectives, new contacts resulting in more informed people better able to work effectively? Maybe just people enjoyed themselves.

By all of these measures the Auckland PDC meeting (20 - 22 April) was a success. Twenty-six delegates from seventeen member nations attended. This issue of "PASOLS Log" reports on what the PDC did, and how that will develop into the PASOLS XXVII programme.

PART I - The Work

Review of Action Items:

- ?? **Pacific Area Quality Assurance Forum:** A report on this meeting is on page 14. The PDC accepted the recommendation that the Forum concentrate on matters of direct practical value to members. It is planned to hold the next meeting in New Zealand in April 1999.
- ?? **Pacific Area Cataloguing System:** This Forum had not met since the last PDC, but has a meeting planned for June 1998.
- ?? **"PASOLS Log"** was endorsed as continuing to meet PASOLS' needs. More input from member nations is required.
- ?? **The PASOLS Homepage** is up and running. Member nations may wish to link it to their own national pages and other logistic information.
- ?? **The PACALS Initiatives** were discussed at length. A list is on Page 4 and an updated presentation will be given at PASOLS.
- ?? **Pacific Automated Logistic Management Systems:** PALMS and PACS met together in Australia in June. A report on this meeting is on page 18.
- ?? **Shared Maintenance Centre.** PDC delegates will present a list of potential activities in this area prior to PASOLS, so that they are better able to discuss it constructively at PASOLS XXVII.

PASOLS XXVII

A draft agenda was developed for PASOLS XXVII. The theme "*Joining Forces with Industry*" will be developed by speakers and discussion groups, using the following key themes:

- ?? Trends in using civilian contractors to support military operations.
- ?? Integration of civilian contractors into military organisations (contracting out)
- ?? Application of industry trends and best practice for military logistics.

NEXT YEAR AND BEYOND:

- ?? Fiji will host PASOLS XXVIII in 1999, with the theme **Logistic Co-operation: Developing and Developed Countries.**
- ?? Future hosts in order are Philippines, Australia, Korea, Singapore, Brunei, and provisionally Thailand in 2005.
- ?? New Zealand will continue to edit "PASOLS Log" next year. Canada will take over in 2000 for three years.

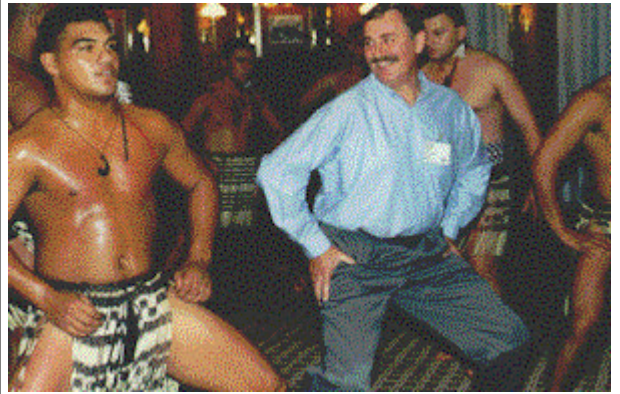
PART II - Social Calendar

The Reception at the Sheraton Hotel met all the requirements of a good social event - people ate and drank well, and met new friends and renewed old acquaintances.

At about the time people were starting to decide which group they would break into next, having met most of those present, the Royal New Zealand Navy cultural group appeared, to offer the kind of welcome that the first settlers to New Zealand would have received. The challenge (*do you have the courage to face up to us?*) must be met with absolute assurance. Group Captain Murray Heyrick must have passed because we were then welcomed to the *marae* (community) by the *wahine* (ladies) with song and dance. Guests were invited to participate and learn the movements. For the New Zealand hosts it was a joy to see them do so.



The other special experience was a trip around Auckland Harbour in two yachts. There was an opportunity to take the helm in the gentle wind, to sit on the deck to eat, drink and talk, and later share an excellent meal in the cabin.



The New Zealand Co-Chair demonstrates the *haka*



Colonel George Borowski in control, with the rest of the crew shown below





Mr Marty Ischinger learns the *poi*

PACALS INITIATIVES

The PDC reviewed the 22 PACALS Initiatives in preparation for an updated presentation to PASOLS XXVII.

#1. Sharing Long Range Acquisition Plans/Programmes. Nations may wish to share long range acquisition plan/programmes for non-sensitive systems to enable the identification of common acquisition plans. This could include major capital items or quartermaster items. Nations could then consider on a case-by-case basis the advantages of consolidating requirements or forming weapon system partnerships. Reduction in procurement costs through economies of scale and lowered acquisition overhead provides the potential for substantial savings.

#2 Out-of-Country Maintenance or Calibration. Nations may wish to contribute to a list of equipment that is "exported" for maintenance or calibration. A consolidated list may identify opportunities for co-operation. The list will also identify capabilities making nations more aware of potential options for countries seeking support in these areas.

#3 Cross-Servicing/Bartering Agreements. These agreements are designed to facilitate reciprocal logistics support, primarily during combined exercises, training deployments, operations or other co-operative efforts, and for unforeseen circumstances. Nations could benefit from the experience of agreements already in place and explore the potential for new agreements with suitable partners.

#4 Share Costs of Mobile Calibration Teams. Checking, adjustment and standardisation of critical defence equipment (calibration) is an important logistics function. Calibration capability can often require high investment and under utilisation of capability.

#5 Regional Stockpile of High Value/Low Density Repairables. A stockpile of such repairables has the potential to lower inventory investment and reduce maintenance lead times. Reduced procurement, accounting and warehousing costs will need to be traded off against additional costs through stockpiling arrangements eg, transportation costs.

#6 Jet Fuel and Oil Analysis Services. Co-operation in jet fuel and oil analysis services has potential for savings. Engine oil analysis, in particular, can provide early identification of unusual engine wear and help reduce overall maintenance costs. This specialised capability lends itself to co-operation, and should be investigated further to determine what savings could be realised by sharing experience, data and laboratory costs.

#7 Preservation Techniques. Preservation is an integral part of the logistics function. The strategic and economic costs resulting from inattention to appropriate preservation techniques and processes can be significant. Nations prepared to share investment and exchange information may be able to reduce costs and increase capability in this function.

#8 Spares for Commonly Held Equipment. Consolidating spares requirements for commonly held equipment could provide savings. In addition to economies of scale, consolidated buys would lower acquisition processing costs for the co-operating parties.

#9 Consolidating Sources of Supply. Co-operating nations could establish a database of sources of supply for support of common systems. Enhanced source awareness and

increased competition may provide cost savings for nations prepared to utilise the competitive process.

#10 Acquisition of Ammunition. Co-operation could include consolidated procurement; test and evaluation; transportation from supplier into the user area; and other life cycle issues.

#11 Maintenance of Guns. A co-operative arrangement could entail: Consolidated spares procurement, configuration management, depot level management, support analysis, repairables, exchange of technical data, training and training support collaboration, pooling of support equipment or other related services in support of common artillery systems or other like weapons systems.

#12 Depot Maintenance Common Aircraft. Co-operation of depot maintenance could entail an entire airframe, engine, or selected sub-assembly or component. The C-130 aircraft has been specifically identified as a candidate but any aircraft type could offer potential. The concept could involve better use of existing depot capabilities.

#13 Share Medical/Dental Support Services. A co-operative arrangement could address shortfalls in health care services and assure access for emergency relief. Potential areas for a collective approach include acquiring and maintaining health care equipment, pharmaceuticals and consumables, personal training and medical laboratory services.

#14 Provide Lists of Excess Repair Parts MATLOGEX. This initiative is being planned to facilitate the exchange of information on surplus spare parts and support equipment. Members should continue to provide appropriate data inputs.

#15 Freight Transportation Schedules. Exchange of information on freight transportation schedules (ie, time, itinerary, availability of surplus cargo space) could offer more efficient collective approaches to day-to-day or special transportation needs.

#16 Provide Equipment Test Results. Exchange of equipment test results could lead to greater rationalisation, standardisation, and interoperability of equipment and above all save money. Weapon systems, sub-assemblies or individual components could be candidate items. Tyres, batteries, or engine performance for common systems are examples of where test data could be shared.

#17 Regional Technical Training Teams. The concept of regional technical training could offer potential resource saving for the participants. Maintenance, supply, or safety training offer examples of where a co-operative training team approach could be applied.

#18 Cross or Under-Licensing. Reciprocal licensing arrangements for repair, certifications, quality assurance, product standards and specifications could reduce duplication of effort and costs.

#19 Codification Cataloguing Standardisation. Develop and implement a Pacific Area Cataloguing System for use by PASOLS nations.

#20 Life Cycle Support. Promote the use of Computer-aided Acquisition and Life Cycle Support (CALC) as the underlying business strategy for PACALS projects and initiatives.

#21 Multilateral Agreement for Emergency Support. A Multilateral Logistics Support Agreement for use during emergency situations could provide a valuable source to quickly

alleviate initial shortfalls. Nations prepared to enter into such an agreement may access additional sources of logistical support under emergency conditions.

#22 Regional Maintenance Depot. A regional maintenance depot could provide more efficient, lower cost maintenance and repair in specialised areas by taking advantage of technological advances. Nations prepared to share and exchange information and investment in a regional maintenance center may share in such efficiencies and cost savings.

The Malaysian Armed Forces

Development of the Malaysian Armed Forces and its logistics functions

Between the 1930s and the late 1980s, the Armed Forces, comprising the Army, Navy and Air Force, were extensively engaged in counter-insurgency operations against the Communist Party of Malaya (CPM) and North Kalimantan Communist Party (NKCP), who wished to seize power by force. It was an internal operation, mainly handled by the Army with Navy and Air Force support. To carry out this role the Army was equipped with all required manpower, organisation and equipment to counter the CPM and NKCP, which operated from deep jungle hideouts. This resulted in an imbalance in development of the Armed Forces in favour of the Army.

Transformation Into A Conventional Force

The surrender of the CPM and NKCP in 1989 and 1990 respectively, removed the internal threat, allowing the Armed Forces to concentrate on its traditional role of defence against external aggression. The government recognises the need to modernise all Services, so they can operate as an integrated entity.

The Armed Forces has taken the first step in this direction by reorganising its headquarters. Better command, control and co-ordination of activities of the Services is achieved by having the Army, Navy and Air Force working alongside each other in a single, reorganised, headquarters.

The government has decided to reduce the strength of the Army while progressively increasing that of the Navy and Air Force. This should improve the balance between operational and development expenditure.

A crucial element in the transformation is the need to balance activity within each Service. For example, the Army need balance between combat units (infantry, armour and special forces), combat support units (artillery, engineers and signals) and Service support units (supply, transport, ordnance, medical and others). Efforts are being made by each Service to overcome the current imbalance. The acquisition of assets such as fighter aircraft, naval vessels, command - control - communication and intelligence systems, air defence systems, artillery systems and surveillance radar are examples of such efforts.

Roles

The Armed Forces roles can be categorised as:

- a. **Primary Role.** Defend the sovereignty, territorial integrity and strategic interests of the nation against external threats.
- b. **Secondary Roles:**
 - (1) assist civil authorities in combating internal threats;
 - (2) assist civil authorities in the restoration and maintenance of public order;
 - (3) assist in flood relief activities;
 - (4) assist in national disasters; and
 - (5) assist in national development.

c. **Supporting Role:** Complement the nation's foreign policy by participating in UN peacekeeping operations.

Operational Equipment And Number Of Personnel

Front Line jet combat a/c 55
 Light tanks 26
 Other armoured fighting vehicles 1,200 +
 Heavy artillery (155mm+) 15
 Naval anti-ship missile launchers 32
 Total Armed Forces 160,000 (including 30,000 reservists)

Meeting Future Challenges

The Armed Forces will continue to develop its capabilities for land, maritime and air operation. In this regard, the Armed Forces will emphasise the development of procedures and expertise to improve planning, co-ordination and conduct of joint operations. Greater efforts will also be made to enhance inter-service co-operation as well as expanding co-operation in training with the armed forces of other nations.

The shift in focus from counter-insurgency to conventional warfare will prepare the Armed Forces to fulfil its role of defending national sovereignty and integrity.

Responsibility

The ultimate responsibility for logistics support in the MAF lies with the Chief of Defence Force (CDF). To exercise this responsibility, the CDF co-ordinates single Service activities through the Chief of Staff (CS) and Assistant Chief of Staff Logistics (ACS LOG) of the three Services.

This co-ordination between the three Services is to ensure that logistics support is comprehensive; effective use is made of available resources; and no duplication exists between the Services. Each Service has its own logistic systems and capabilities and is responsible for its own logistics support.

In a joint operation, each Service remains responsible for its own logistic support in addition to its responsibilities to the other Services. Unless otherwise directed by the Joint Force Commander (JFC), single Service commanders submit their logistics requirements through parent service channels. They report deficiencies in logistics support to the Parent Service and the JFC.

Broad Concept Of Logistics Support

In the single Service concept each Service must manage its own logistic requirements including common use goods and services. This means that each Service is responsible for management of logistics requirements from the very beginning until the end (ie, planning for budgeting, acquisition of equipment and up to the disposal of equipment following the 'cradle to grave' concept).

In areas where single Service management of items or services is not practical or economical, they are placed under a nominated manager.

Basically, logistical support in the MAF is divided into four lines, ranging from unit level, via the intermediate level and finally the base level. The four-tier support as well as logistics staff functions also operates at MINDEF level.

At MINDEF level, the staff logistics functions include setting up logistics plans, logistics policies, the logistics information centre and finally provide assistance in procurement exercises. In all these functions, integration of various Logistics Corps and several civilian departments would be co-ordinated through MAF Headquarters.

At 'ground' level, the various asset and service managers will undertake functions like forecasting, budgeting, ordering, storage, provisioning, and disposal of assets to support combat elements at their various formations. The base level assets and services functions are very static in character and therefore very suitable for privatisation.

MINDEF Civilian Procurement Departments

The functions of logistics in MINDEF involves both military and civilian departments and agencies. Civilian agencies involved are as follows:

- ?? Supply Division.
- ?? Finance Division.
- ?? Defence Science and Technology Centre.
- ?? Defence Industry Division.
- ?? Contract and Supply Division of the Federal Treasury.
- ?? Economic Planning Unit of Prime Ministry Treasury.

The most important role among these is that of Supply Division, which is the impetus for procurement of military equipment and services in MINDEF. This division is involved mainly in market research, source enquiry, tender evaluation, tender and contract process, inspection and post-contract evaluation.

Logistics Support System

Until 1989, the logistics support system for the MAF was under the common use concept managed by the Tri-Service LSS. From 1990 the single Service concept was introduced and individual Services managed their own logistics requirements.

The Army Logistics Support System. Army logistics is based on the push forward four-tier support system, namely fourth line support (at base), third and second line support (intermediate Brigades and Divisions) and first line (unit level). Command of all base installations is vested in the HQ Army Logistics Commands.

The Naval Logistics Support System. The logistics support for Navy units is effected through the Fleet Operational Command (FOC) and the Fleet Material Command (FMC). Third and second line support for the fleet will be provided through Fleet Supply Support Unit (FSSU) and Area Supply Support Units 1 and 2 (ASSU 1 and 2) which are under the command of FOC. The fourth line support consists of the following depots:

- ?? Central Naval Logistics Depot (CNLD);

- ?? Central Naval Supply Depot (CNSD); and
- ?? Central Ammunition and Explosive Depot (CAED).

The Air Force Logistics Support System. HQ Air Support Command is responsible for the organisation and co-ordination of field logistics support to all bases. Central to the field organisation is the Central RMAF Depot known as Air Material Centre which acts as the interface with industry and as a third line facility for support of all logistics requirements. The base logistics wing provides second line support for the base, the flying squadron's own material flight caters for all first line requirements.

The Joint Logistics Support System. In the event of a crisis requiring the establishment of a joint force organisation, HQ MAF DLD will form what is called the Joint Logistics Support Co-ordination Centre (JLSCC). JLSCC is headed by the Assistant Chief of Staff, Logistics in the HQ MAF. The main function of JLSCC is to co-ordinate the requirements of one Service to another for common use items or services. In addition, JLSCC also acts as an interface between the civilian agencies and the Services for their support in terms of other national resources.

PASOLS XXVII

Panel Discussion Guides

TOPIC #1: Trends in use of civilian contractors to support military operations.

Problem Statement/Background: The trend to reduce military budgets is resulting in reduced force structure. As a result, all aspects of support structures are targeted for reduction. Countries are now faced with looking for other cost effective methods to provide logistic support during operations. One option is sourcing out deployed support services to civilian contractors.

Discussion Points:

What are proven sources for contractor support?

What are member nations experiences?

What is the US experience?

- ?? Proven Contractor?
- ?? How is the contract implemented?
- ?? Guidelines/procedures
- ?? Legal Issues (eg, Geneva Convention)
- ?? Limitations

Conclusion: How can other PASOLS nations participate in use of this support during coalition operations?

TOPIC #2: Integrating Contractors into Military Structures.

Problem Statement/Background: When and how nations contract out work previously performed by the military.

- ?? Keep to core business
- ?? Eliminate or transfer activities to industry
- ?? May be government directed
- ?? Provide surge capacity
- ?? Release capital funds

Discussion Points:

- ?? Why do it?
- ?? What are the military critical activities?
- ?? How to control local or foreign contractors?
- ?? How to protect operational capacity?
- ?? How to ensure quality?
- ?? How to develop the statement of requirement?
- ?? How to measure performance?
- ?? How to determine quality of data?
- ?? Why not contract?
- ?? What is military threat?
- ?? What is industrial threat?

Conclusion: How can nations integrate civilian contractors into military structures?

TOPIC #3: Applicability of industry trends and best practices for military logistics.

Problem Statement/Background Economic realities are driving military organisations to do the same or more with less. Logistics is not immune. Current military practices are outdated.

- ?? Industry has been through downsizing, driven by a competitive environment.
- ?? Innovation has appeared in industry which is less bound by entrenched processes and tradition.
- ?? Modernisation of military organisations is an excellent opportunity to introduce new logistics concepts.
- ?? MILSPECS are disappearing.

Discussion Points:

- ?? What are industry trends?
- ?? What are some of industry's best practices and how applicable are these to your nation?
- ?? What sources are available to provide information on industry trends and practices?
- ?? Has your nation adopted any new commercial practices in your logistics system?
- ?? How does the military evaluate whether or not to adopt new techniques in:
 - ?? Transport
 - ?? Supply (warehousing and stock levels)
 - ?? Development
 - ?? Maintenance
- ?? How does the military evaluate risk in adopting new practices?
- ?? Is self-reliance affected by increased industrial practices?
- ?? Is interoperability affected by use of commercial practices/standards?

Conclusions

- ?? How does each nation determine what information it needs and who to ask for advice?
- ?? How can PASOLS help?

PRE FACILITATED CONTRACTS IN SUPPORT OF THE CANADIAN FORCES

By Monique Thibault and Hilary Curran-Allen

Introduction

The Canadian Department of National Defence (DND) has recently adopted "Pre-Facilitated Contracting" as a method of providing goods and services to the Canadian Forces. In the past, contracts were normally awarded for specific goods to be delivered to central warehouses when a minimum stock level was reached. Goods would be stored until they were issued to meet an end-user's requirement. In the case of services, companies were contracted to provide a specific service such as repair and overhaul, systems engineering or configuration management over a period of time, normally no more than two or three years. A pre-facilitated contract allows flexibility to ensure that the Canadian Forces receive the materiel support required in the manner that makes most sense.

From Design to Reality

A pre-facilitated contract is a multi-year, legally binding contract for groups or "bundles" of goods and/or services for direct delivery from supplier to customer, "as and when required", or to replenish stock for operational needs. Pre-facilitated contracting allows the DND Materiel Group to serve its customers (i.e., the Canadian Forces) more effectively while easing the workload created by downsizing.

This materiel management concept was developed in 1996 by a team of specialists seeking to redesign the way the DND handles equipment maintenance and spares. Although the initial concept was designed for the recurring procurement of spares, one of the pilot projects launched to test and evaluate the methodology applied the pre-facilitated contracting approach to total vendor support of an engine (e.g., spares, repair and overhaul, configuration management, etc). This approach, coupled with other successful initiatives, broadened the concept of bundles to include both goods and services.

Pre-facilitated contracting requires a tremendous amount of teamwork from all the disciplines involved in supporting equipment (logistics staff, engineering staff, operators, procurement, contracting and quality specialists).

Through consultation with the clients and based on past usage and performance of equipment, team members proactively plan and put together a multi-year contract to provide services to the client at the right time, the right place, for the right item or service and at the right price. The team's focus is on meeting customers' needs.

The Department of National Defence tested the concept on several pilot projects to validate and refine the design; confirm the expected benefits; consolidate lessons learned; and prepare for implementation. Senior management followed progress closely and

quickly realized that pre-facilitated contracts had potential for implementation sooner than expected because the concept "makes sense".

The pre-facilitated contract can cover "what ever makes sense."

For example:

- ?? a large grouping of commodities in one contract (250 line items). In the past, only 1-25 line items were normally provided under a single contract;
- ?? a mix of goods and services, eg system engineering, software support, configuration management, repair, overhaul and spares;
- ?? a total weapon system support contract (i.e., providing spares, repair and overhaul, configuration management, etc. to ensure that the Canadian Forces have serviceable equipment as and when required); or
- ?? a total acquisition and in-service support contract (i.e., buying a weapon system and future support from one contractor under one contract).

Pre-facilitated contracting provides many benefits to the DND including:

- ?? reduced workload. With multi-year bundling, only one contract is needed, eliminating repetitive procurement actions;
- ?? incentives and penalties are included in the contract to enforce performance;
- ?? responsive, direct delivery to end-users - usually within days of ordering;
- ?? significant inventory reductions through direct delivery to users, reducing material stock needs;
- ?? teamwork. Procurement, technical, quality and contracting authorities share expertise throughout the process (in consultation with end-users); and
- ?? proactive support to operations (the 10 or 20 contracts for goods and services related to a particular weapon system, for example, might be rationalized and regrouped under one contract for full in-service support of that system).

Conclusion

Pre-facilitated contract implementation will be considered complete when it becomes the normal way of materiel acquisition and in-service support to the Canadian Forces and when industry is sufficiently familiar with it to become a fully supportive team player.

Monique Thibault is a Pre-Facilitated Contract Coordinator, and

Hilary Curran-Allen is an analyst in the Director General International and Industry Programs, Canadian Department of National Defence.

QA Forum Meeting in Sydney

by Fraser Boyd, New Zealand Representative

The 2nd Pacific Area Quality Assurance Forum (PAQAF) meeting was held in Sydney, Australia from 15 - 17 April 1998. Australia, Canada, Japan, New Zealand, the Philippines and the United States attended. The low attendance stimulated examination of the Forum objectives and operations, and in depth consideration of how it could provide value to members.

The Programme

Australia had arranged a programme reporting experiences of members, current activities in QA, and what the future might look like, especially in regard to quality certification.

Presentations included:

- ?? **Quality Leadership.** *Andre Lagace* (Canada) noted that contractor evaluation requires leadership as much as direction. Stakeholders must work together for the common good.
- ?? **ISO 9000 in Commercialisation.** *Fraser Boyd* (New Zealand) outlined the effect of ISO 9000 certification on the commercialisation of a military unit. The quality system had reduced transition costs, and had value as a negotiating factor.
- ?? **Contract Administration Risk Assessment Tool.** *Mike Buchanan* (USA) described an interactive tool to establish the required level of contract surveillance .
- ?? **Commercial Support Programme.** *Col Clive Badelow* (Australia) reviewed CSP activities, and a way ahead for the programme under the Defence Reform Programme.
- ?? **Quality into the Next Millennium.** *Geoff Haslem* (Australia) described a risk based quality framework developed for a devolved service delivery environment.
- ?? **Quality Certification in Small Businesses.** *Jim Ramsay* (Australia) summarised a university thesis on the value of ISO 9000 certification to small businesses. Most businesses surveyed said that they obtained good value from the certification process, and would "do it again".
- ?? **Standards.** *Geoff Clarke* (Standards Australia) discussed likely future trends in the standards world, while *John Hulbert* (Joint Accreditation System of Australia and New Zealand) described ways to maximise the effectiveness of third party certification.

The Forum On the third day the Forum discussed the Terms of Reference developed at the previous meeting in Kuala Lumpur. Consensus was that the Terms of Reference were valid, but that emphasis should change. Future PAQAF meetings, and the ongoing work programme, will be less concerned with contractor assessment and GQA generally, and lean towards sharing ideas, knowledge and experience in quality regimes applicable to military organisations.

Hazardous Materials Management in Canadian Defence

By David Sitland

In this article, the term hazardous material (hazmat) means "*any material that, if handled improperly, can endanger human health and well-being or the environment or equipment*". This definition includes polychlorinated biphenyls (PCBs) and items containing PCBs, ammunition and explosives, radioactive material and dangerous goods i.e. poisonous, corrosive and toxic substances, compressed gases and flammable material.

Background

The Hazmat Information and Query System (HI-Q) was developed in 1996 by supply management staff at the Department of National Defence (DND) Headquarters. This development was in response to concerns with the difficulties and complexities of ensuring safe handling, transportation and storage of hazardous materials. HI-Q gathers together and links information produced by individual product manufacturers to the applicable legislation, to ensure the DND is acting in both a safe and legal manner.

What is HI-Q?

HI-Q is an information management system designed for safe handling, storage, transportation and disposal of hazmat. The menu-driven application permits users to link items in the database to a variety of instruction sets providing supplementary information on firefighting, emergency response, health, safety and environmental matters. HI-Q contains a comprehensive hazmat glossary and serves as an electronic MSDS repository.

Hazmat information is managed by actual products, identified by manufacturer and manufacturer's product number (see Figure 1). Hazmat users are usually concerned with specific products as opposed to the more generalized NATO Stock Number (NSN) or other generic catalogue number. While different products may be catalogued under the same NSN, there may be differences in product composition and differences in the nature of the hazard one product possesses in comparison to another.

The HI-Q application is published on CD-ROM and works well as a stand-alone product or on a network, however, its full capability is optimised by integrating it with an Open Database Connectivity compliant materiel information management system; a characteristic of most common databases in use today. In the Canadian Forces, HI-Q has been fully integrated into the Directorate of Supply, Materiel Information Management System; a client-server based suite of applications providing the tools for supply technicians, officers and managers at headquarters, bases and deployed units to work efficiently and effectively in an evolving supply/logistics environment. HI-Q is accessible at National, Base, Unit and Customer levels in static and operational/deployed environments.







Hazmat Products - View Mode (FMAS)						
Part Number	PSA529/SRC18			SILICONE RESIN IN TO		
List	Item Information	Ingredients	Characteristics	Fire & Health	Relations	Transport
Land		Air		Sea		
UN Code	UN1866	NAERG Number	127	Transport ID #	1598	
Shipping Name	Resin solution					
Technical Name						
Packing Group	II	Primary Class	3	Subsidiary Classes		
Supplimental Info						
Renseignements suppl.						
Max Qty Passanger Vehicle	5 L					
  						
  						

Fig 1: HI-Q Product Screen - Item Information held by Manufacturer's Part Number

Hazmat Management Principles

Hazmat management must meet or exceed the letter and spirit of applicable federal legislation and, where compatible, legislation, standards and guidelines of other levels of government. Hazmat must be managed in a manner that protects human life, the environment and equipment.

In the course of their action or duty, all individuals must maintain a reasonable standard of care for the environment and the health and safety of others. That standard of care is known as 'Due Diligence'.

In exercising Due Diligence, individuals have a duty to:

- Know and obey laws and regulations respecting the handling of hazmat;
- Exercise caution;
- Prepare for risks that a thoughtful and reasonable person would foresee; and
- Respond to risks and incidents as soon as practicable.

HI-Q is an essential element in our efforts to practise Due Diligence in the management of hazmat by providing tools to assist personnel having responsibilities in all phases of the life cycle management of the material:

- ?? **Initial Selection and Procurement:** Responsible selection and procurement of hazmat, based upon knowledge of regulatory requirements and the potential risks of using the material, will eliminate or mitigate many long-term difficulties involved in managing the material. HI-Q is an excellent tool for conducting a preliminary

assessment of the inherent risks of introducing a new product into the inventory or workplace. Comparison with similar products already in the database and investigation of the properties of chemicals contained in the new product will permit users to make informed decisions on whether it is advisable to procure. Additionally, HI-Q contains information on possible substitute products, which may be less hazardous than the one under consideration.

- ?? **Use:** HI-Q provides all the information users require to identify Personal Protective Equipment (PPE) suitable to safely use specific products or types of chemicals. The North American Emergency Response Guide is fully incorporated into HI-Q. This provides quick, easy access to instructions for initial spill response and more detailed instruction for Emergency Response Teams, firefighters and public security authorities. An important feature of HI-Q, when working with the Materiel Management Information System, is the hazmat inventory module. Accounts down to the user level can be established, permitting every base, unit or other organization to identify what is being held, where and in what quantity. Roll-ups of hazmat inventory are relatively straight-forward and auditing or inspection is greatly facilitated. This feature is especially useful for units preparing for deployed operations. It permits them to ensure they have all necessary safety equipment and documentation required to handle and care for their hazmat and properly package it for transportation.
- ?? **Transportation:** Portions of the Transportation of Dangerous Goods Regulations, International Air Transport Association (IATA), International Civil Aviation Organization (ICAO) and International Maritime Dangerous Goods (IMDG) regulations are embedded in HI-Q, permitting classification of hazmat for all modes of transportation. Information and instructions on correct UN Numbers, Proper Shipping Names, packaging, placard and labelling requirements are readily available (see Figure 2).
- ?? **Handling, Storage and Disposal:** As discussed earlier, instructions for the use of proper PPE and initial spill response are available on HI-Q. An important element of the application is the provision of information on hazmat storage compatibility. Instruction sets based on the National Fire Code of Canada provide direction on the correct storage and protection of hazmat as well as construction and fire protection information. HI-Q's hazardous waste module permits preparation of hazwaste manifests and documentation. Dropdown menus permit users to select the type of waste being dealt with so that all the correct UN coding and Proper Shipping Names are assigned to each container of waste.

Hazmat Products - View Mode (FMAS)			
Part Number	PSA529/SRC18		SILICONE RESIN IN TO
List	Item Information	Ingredients	Characteristics
			Fire & Health
			Relations
			Transport
			Regulatory
	Land	Air	Sea
UN Code	UN1866	NAERG Number	127
		Transport ID #	1598
Shipping Name	Resin solution		
Technical Name			
Packing Group	II	Primary Class	3
		Subsidiary Classes	
Supplimental Info			
Renseignements suppl.			
Max Qty Passanger Vehicle	5 L		

Fig 2: HI-Q Product Screen - Product Transport Information for "Land" Model

In today's world, concerns cannot be limited only to defence matters but must include management of risk, liability and compliance issues associated with health, safety and the environment. Personnel at all levels, especially the working level, require quick and easy access to information organised in a logical, simple format so that they can safely and effectively handle goods and material they are using or in their custody. HI-Q is an effective tool ensuring this type of information is available when and where it is needed.

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PACIFIC AREA AUTOMATED LOGISTICS MANAGEMENT SYSTEMS

Background

At PASOLS in Vancouver, panel discussions led to the conclusion that there was interest in developing a forum to address the development and lessons learned from establishment of a logistics information management system.

In response, Australia proposed that:

- ?? PASOLS nations that are developing, redeveloping or considering automated logistics management systems form an interest group to share goal, experiences and lessons learned, leading to better solutions for all participants;
- ?? the proposal come under the Pacific Area Cooperative Acquisition and Logistics (PACALS) banner; and
- ?? the initiative be called PALMS (Pacific Area Automated Logistics Management Systems).

The PASOLS Project Development Committee (PDC) recommended that Australia proceed with sponsoring PALMS and conducting an initial PALMS Forum. The Logistics Steering Group (LSG) approved this action.

An attempt to conduct the first meeting in Brisbane in December 1997 was unsuccessful so it was decided to combine a meeting with the PACS Forum in the first week of June 1998, emphasising the importance of integrated systems.

Attendance

Invitations were sent to all PASOLS nations plus Indonesia. Eleven accepted (Australia, Brunei, Canada, China, Fiji, Indonesia, Malaysia, New Zealand, the Philippines, Tonga and the United States). Bangladesh, Japan, Korea, Papua New Guinea and Singapore sent apologies.

Purpose

The purpose of the initial meeting was to allow subject matter experts to determine whether there was sufficient interest and potential cost benefit in continuing with the initiative. If there was, what form should it take and how should it be sponsored and conducted?

Programme

The forum comprised a series of country presentations (by Brunei, Canada, New Zealand and the United States) followed by demonstrations and detailed discussion of relevant Australian experiences and lessons learned.

The forum was marked by very keen interest on the part of all delegates and agreement that there are many shared automated logistics management systems problems (but also

solutions) across PASOLS members. A number of joint sessions were held with the PACS Forum.

Outcomes

Attendees were unanimous in agreeing that PALMS should continue. The United States has graciously volunteered to be the next sponsor for this initiative.

LESSONS LEARNED FROM ALEXANDER THE GREAT

by Timothy Van Mieghem

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Editor's note: Armed services world wide are following "best business practice" This article suggests that there are some good military models for business to follow.

In 356 BC, a son and heir, who was to become one of history's greatest logisticians, was born to King Philip of Macedonia.

Unlike traditional kingdoms of the time, Macedonia had full-time troops, well-trained in maneuvers and armed with newly developed weapons. The troops were so important to the kingdom that they remained on duty even during harvest, when all manpower was normally required to work in the fields.

By age 16, Philip's son Alexander was a general in the select army. He was ravenous for conquest and led his troops to victory after victory. At age 20, a murderer's knife elevated Alexander to the throne. Quickly he built his reputation, striking fear into the hearts of those who opposed him. He ruled, conquered, and assimilated countries - including Greece, Persia, and India - into his domain for a short 13 years until his death in 323 BC.

Over the next 2,000 years, Alexander the Great would become a logistics legend, inspiring other great rulers, including Julius Caesar and Napoleon.

Alexander's success was not an accident. He was able to consistently defeat enemy armies and expand his kingdom through preparation and a logical approach to warfare. Key success factors were:

- ?? Inclusion of logistics in strategic planning.
- ?? Detailed knowledge of opposing armies, the surrounding terrain, and harvest calendars.
- ?? Innovative incorporation of new weapons technology.
- ?? Maintenance of a single point of control.

These same factors can make any organisation ferociously successful in today's business environment. Throughout history, armies and organisations that emulate Alexander's approach to warfare have shown dramatic results. There are many striking parallels between the ancient Macedonian Army and today's modern corporation doing battle in the marketplace. This article examines Alexander's logistics principles and their application to supply-chain management of organisations today.

Logistics and Supply-Chain Management

Alexander's 35,000 man army could carry only a 10-day supply of food when remote from sea transport.¹ Yet he and his troops marched thousands of miles at a rate of 19.5 miles in any one day.² In the process, Alexander conquered every nation and city on which he set his sights. At the most basic level, he could perform such feats because he included logistics and supply-chain management in his strategic plans.

King Philip had been murdered as he was preparing to travel to Thebes and Athens to quell threatened rebellions. When Alexander replaced his father, he took over the Macedonian army and personally led them in Philip's place. He timed his departure so the 30-day supply of rations, carried by sea transport, would last until 10 days after harvest at the first destination city. This provided rations until the conquered city could provide needed additional supplies. To avoid as much future bloodshed as possible, Alexander destroyed Thebes and its inhabitants, helping influence target cities to surrender instead of fight. This type of planning is consistently found throughout Alexander's campaigns.

In his book *Alexander the Great and the Logistics of the Macedonian Army*, Donald E Engels concludes that "..... when the climate, human geography, physical geography, available methods of transport and agricultural calendar of a given region are known, one can often determine what Alexander's next move will be."³

In addition to synchronizing actions with harvest cycles, Alexander used certain tactics to ensure an open supply chain throughout his campaigns:

- ?? He maximised swiftness of action and flexibility by eliminating the usual team of servants, wagons, and spouses from the army.
- ?? He developed alliances with conquered and friendly locals, which enabled his army to be constantly provided with provisions. (Inspired by Thebes, many cities surrendered to Alexander's army before fighting, and subsequently pledged their support and supplies to the Macedonian army.)
- ?? He marched along rivers to provide easy access to sea transport, which could deliver tons of supplies compared to 200 pounds per beast of burden.
- ?? He set up bases to provide shelter and supplies prior to the army's arrival. (Bases were supplied by surrendered cities, ships, or allies.)
- ?? He ordered forced, or double marches to conserve supplies in difficult circumstances. This reduced the time to complete the march as well as the need for additional supplies.

It may seem surprising today to consider that arguably the most effective organisation in history considered logistics and supply-chain management as integral parts of its strategic planning. But it's hard to argue with Alexander's success.

Ironically, despite today's complex business environment, most boardrooms do not give proper consideration to the logistics side of business, primarily because its function has traditionally been viewed only as a cost of business. Logistics professionals in many companies have failed to educate their executives on how logistics management can add value - a fact on which Alexander the Great based his achievements centuries ago. Alexander showed the world for all time that effective logistics management can be a weapon in itself.

Companies that incorporate logistics planning and management into long-term business strategies can achieve tremendous gains. Viewing logistics at the strategic level is the best and possibly only way to produce competitive advantages in purchasing and distribution. Given that many top executives today do not view logistics management as a strategic part of the company, it will be a daunting task to have logistics invited into the boardroom and obtain an investment in improving supply-chain efforts.

The most effective ways to convince top management to invest the dollars and time necessary to address logistics and make them an integral part of strategic planning include:

- ?? Quantify opportunities to reduce costs, cycle times, and service failures. The key is "quantify". Many companies know there are such opportunities, but do not know how much they can save. CEOs will not invest money or make changes without a specific benefit in mind.
- ?? Tie specific opportunities to options that will enable growth in sales, a reduction of overhead, and/or the ability to differentiate the company from competitors.
- ?? Prepare and preview presentations with a cross-functional team to overcome internal objections and garner support prior to high-level strategy meetings.
- ?? End the strategy meeting with a specific request that the CEO can approve. In other words, strike while the iron is hot and close the sale.

While these steps require significant effort and successes to prove fruitful in the long run, there are modern-day examples where logistics has breached the boardroom and created real value for the company.

Two Successful Examples

Through careful logistics planning, Nalco Chemical Company developed a method of delivering product to customers previously having problems with packaging and experiencing chemical spills during delivery.

Traditionally, Nalco's products were shipped in drums, which were spill-prone and required extensive, expensive, and dangerous handling to transfer the chemical to the place of final application, where they then had to be stored or destroyed.

Nalco's engineers studied the problem and developed a returnable stainless steel container that completely changed the manner in which chemicals were delivered. Called Porta-Feed, the container eliminated dangerous and time-consuming handling by the customer, and the costs of waste disposal.

In the early 1980s Nalco invested significant resources in developing a large fleet of self-contained chemical storage and delivery units, something its competitors could not do. This was a good example of top management taking a leap of faith and making a clear-cut decision based on the knowledge of the product it had to market.

Nalco had no payback period in mind, no pattern of success to follow, and no clear justification for its investment. Nalco's executives had to balance their doubts against the vision that presented itself. They had to act with a degree of well-based intuition, and agreed to logistics in strategic and resource planning. Although the decision to market was made without quantification, the end result was a strong competitive advantage and return on investment.

Another example, which demonstrates how a modern organisation created competitive advantage through value-added services, is Sears Logistics Services (SLS), the logistic arm of Sears, Roebuck and Company.

According to Bill Kenney, vice president of strategic planning for SLS, Sears decided at board level to make logistics a part of strategic planning. Following investments in human resources and advanced logistics technologies, SLS distribution centres were able to deliver goods to any store in its system shelf-ready. This not only saves time and money, but allows these outlets to leverage promotional expertise originating from the corporate level.

In addition to adding value for its customer, in this case Sears itself, SLS provides a competitive advantage through differentiation. For example, in many cases, a washing machine ordered by 3 pm can be delivered and installed the following day.⁴

Knowledge is Power

In 333 BC, Alexander entered the city of Tarsus, contracted malaria, and was incapacitated for two months. During this time, Darius, the King of Persia and enemy of Alexander, decided to take advantage of the situation and marshaled his 160,000-man army to march toward Tarsus. Alexander's intelligence organisation, however, alerted the recovering king so he could respond.

Alexander knew Darius would need to fight in the nearby Amuq Plain, which would provide ample space to maneuver his large army. Although Darius was well-supplied, his supplies were limited because his staging area was landlocked.

Alexander decided to mock the Persian army by holding military games, celebrations, and religious activities, even though an army four times larger was camped nearby. Intuitively, Alexander felt that this mockery and Darius' dwindling supplies would force the Persians to leave the spacious Plain and advance, replacing the tactical advantage of the large plain with the reality of marching through narrow passages and swamps, favouring Alexander. In the following days Alexander defeated the Persians in the narrow valleys into which Darius led his men.

This story shows the importance of advance knowledge in both war and business. Alexander knew all about his competition (Darius and his army), its strength (160,000 men), its weaknesses (limited supplies), the industry (the terrain), and best practices (how to exploit the situation to his advantage).

Thus, Alexander learned 2,300 years ago what some companies are just learning today - that benchmarking, training, education, constant monitoring of customer needs, and cross-functional information sharing provide useful business results.

In benchmarking, Alexander was in many ways best in class. He could not always follow a similar organisation's pattern of success, but could rely on his knowledge-based intuition. Benchmarking, while a good tool, is limited when developing innovative solutions. Modern organisations must continually challenge their view to meet changing demands.

Alexander did not rely solely on process knowledge (the art of war, for example), or on technical knowledge about his competition or the terrain, but combined both to develop a strategy for a specific need. He rarely, if ever, lost a battle. Both SLS and Nalco are modern corporations taking the same approach.

Innovatively Incorporating Technology

In a military scenario devoid of computer tools and mechanised weapons, technology primarily refers to weapons. Alexander's father, King Philip, invented a new weapon called a sarissa, essentially a 20-foot lance. Alexander used this new technology to his advantage. The men in the army's rear rows wielded the sarissas, protecting the front rows of the infantry.

Tradition holds that at a battle near Troy, Alexander's army, defeated a combined Persian and Greek army of 40,000 men and only lost 110 soldiers in the process. Because of this success, Alexander did not have to fight through the rest of Asia Minor, as every state in his path surrendered.⁵ Clearly, using technology effectively was critical to Alexander's victories.

Unfortunately, today many companies use current weapons (business tools) to their detriment. The complex and rapidly changing business environment provides many options among technological tools and services. Any of them can drain a company's financial and mental resources if not properly utilised. Today's challenge is to prudently choose weapons and fully exploit them to meet specific logistics requirements.

One mistake often made is to buy technology without exploring how best to utilise that already installed. Today, manual just-in-time systems have saved companies millions of dollars through inventory reduction, while many multi million-dollar computerised inventory systems have provided no clear benefit.

A logistics organisation has significant opportunities in this area. Instead of trying to manage the supply chain by investing in state-of-the-art systems or new robotic warehouse features, companies can focus on fully exploiting available resources. Among the commonly underexploited resources are supplier assets. Many companies today could benefit by using a carrier's distribution network for cross docking, zone skipping, pooled distribution, or dedicated asset management and control programmes. Or a supplier's business tools such as just-in-time could be used. Companies can enjoy dramatic improvements in logistics management, without significant investment, through partnerships with logistics experts.

Today, most supplier-customer relationships are transactional in nature. A transactional relationship focuses on processing orders, shipping products, and negotiating the lowest price. Unfortunately, this can prove an ineffective way to do business because the purchase price is only one cost factor. It does not address the logistic provider's concerns and costs, which can add significantly to the cost of doing business.

Within transactional relationships, suppliers constantly feel the pressure of competition and have no assurance that they will keep the business for an extended period. The logistics provider is thus prevented from investing significant money or resources in the customer because there is no promise of a return on that investment.

A more mutually beneficial relationship between customer and logistics providers is a strategic relationship. Working together to solve supply-chain problems provides third-party entrenchment and enables the logistics provider to invest assets and technology in the customer. In a strategic relationship, the customer awards a specific part of the business to the supplier and agrees to continue doing so as long as the supplier adheres to the quality, service, and cost standards established during negotiation. This is how SLS has enjoyed its success.

In addition, the logistics provider and the customer share proprietary information, enabling better supply-chain management. With this type of partnership, a service provider can plan for an extended payback period and has enough information to evaluate logistics opportunities in order to add value with existing resources. Companies like SLS use a core group of expert third-party service providers to reduce annual costs by as much as \$50 million.

Since more than half of a typical manufacturing company's budget is spent purchasing materials, services, and distribution, it should be clear to management that this area offers the most opportunity for a company to improve. Too many companies do not strategically consider all logistics options.

Alexander shows us that alliances with service providers are critical to the success of an effective organisation. He understood he would not be able to leave the coast unless he could obtain supplies from cities and nations along his path.⁶ Developing and implementing such alliances is a significant undertaking and requires the following if they are to be successful:

- ?? Total information sharing (forecasts, costs, strategic plans, etc) between partners, along with trust which must first exist between parties.
- ?? Cross-functional implementation of strategically planned logistics
- ?? Regular operational and performance reviews
- ?? A commitment of supply-chain assets and resources
- ?? Involvement in strategic plans and integrated logistics
- ?? A fair sharing of partnership benefits

Whether the weapon is a sarissa or the latest inventory control technique, effective integration of information technology is critical to success. In addition, to be as effective as Alexander the Great, the resources of allies must be used.

A Single Point of Control

Like Alexander, most great logisticians understand that while knowledge-based decision making and empowerment can be delegated up to a point, there ultimately must be a single point of control, a place where the buck stops, a CEO, who is held accountable.

Alexander made the decisions for his army. He was the central point, managed the logistics system, and incorporated it into the strategic plan. While modern CEOs should not personally run the logistics function, they should appoint someone to run this critical area. This person should think like and report to the CEO.

A modern-day military example of this occurred during the Gulf War. Colin Powell, chairman of the Joint Chiefs of Staff, was the highest ranking military officer and primarily served as liaison between the Army and President Bush. Gen. Norman Schwarzkopf planned specific battles and had final field responsibility for the implementation of the policy developed by Powell and Bush.

Together, Bush, Powell, and Schwarzkopf developed an immense strategic plan. It required so many troops and so much equipment that the equivalent of all of Alaska's inhabitants and their personal effects had to be prepared for deployment and transported to the Middle East.

The man responsible for executing the logistic part of the plan - the single point of control - was Lt. Gen. Pagonis. Following the quick victory, Powell gave much of the credit for the successful logistics management to Pagonis. In an interview, Pagonis, who now heads up the logistics function for SLS, described the logistics plan he developed for the Gulf War as based, in part, on the approaches of Field Marshal Erwin Rommel, who led the German Panzer divisions to success during World War II, and Alexander the Great.⁷

Pagonis' logistics plan was a significant departure from tactics used in most wars for the last 1,000 years. Schwarzkopf's staff was very skeptical of the plan. The fact that they outranked Pagonis could have made it impossible for Pagonis to carry out his plan. Schwarzkopf, however, liked the plan and Pagonis' enthusiasm and did the one thing that would allow him to implement the plan. He promoted Pagonis and gave him complete responsibility for all logistics.

Using this new authority, Pagonis was able to get the right troops and equipment to the right places at the right time in the right working order. With this single point of control, the land operations portion of the Gulf War lasted 100 hours, and the rest is history.

Putting this logistics success in perspective, Gen. J H Binford Peay, Vice Chief of Staff, US Army stated "We need to understand that the Gulf War did not take 100 hours to win. It took 20 years.⁸ In the previous 19 years and 361 days, the army prepared through weapons development, training, intelligence gathering, and more training. And Gus Pagonis prepared by developing his approach to logistics."⁹

The point to remember is that without complete authority for all aspects of the logistic process, Pagonis would not have been able to implement the creative and effective supply-chain solutions necessary for winning the war so dramatically. In addition to the ability to effectively marshal forces, a leader with authority over all aspects of logistics can help a company avoid the disjointed style of operation that leads many organisations to mediocrity.

Today, more than ever, a single point of control is necessary for a logistic organisation to maintain a clear vision. For example, many widely accepted business practices today, such as total quality management, process management, and ISO 9000 registration, optimise portions of a company's existing operations while implementing ways to improve upon them.

Too often, however, the optimisation of one task or sub-function is completed at the expense of another. In one case a company decided to reduce inventory by asking the supplier to deliver daily and maintain local warehouses. Although the company's financial ratios improved, costs were only shifted within the supply chain.

To achieve real improvement, the company should have developed a means for inventory to be reduced throughout the supply chain, possibly through forecast sharing or multi-tier communications. If separate groups in an organisation work individually on improvement, this type of suboptimisation will occur. A single point of control to co-ordinate effort allows true operational and administrative improvement to occur.

Although Alexander personally led his logistics organisation, and included it in strategic planning, logistics did not operate in a functional silo. Rather, like today's advanced company, Alexander's decision-making involved cross-functional information sharing.

Consider the example of Alexander vs. Darius. Alexander, weakened by malaria, had to rely on other decision makers in his organisation to provide him with critical data so he, the single point of control, could make the final decision. He could not have done so if differing groups monitored, and kept to themselves, enemy locations, terrain, harvest cycles, locations, strengths, weaknesses, and strategic planning. Not sharing this information through Alexander would have led to defeat. Clearly, a major component of Alexander's success was sharing critical information with the final decision maker. In Alexander's kingdom, individual divisions did not exist.

Like the Macedonian Army, a modern corporation cannot be fully effective if pieces of its infrastructure are managed by people with disparate philosophies and no shared culture or central point of control. Effective logistics management today is largely sharing cross-functional information to a single point of control.

In organisations where purchasing, shipping, receiving, traffic, production planning, forecasting, and customer service do not report to one person responsible for supply-chain management, opportunities for improving cost and service efficiencies will be lost.

Alexander the Great was so named, not because of his physical stature, but because of his philosophies, strategic planning and accomplishments. His unification of much of the civilised world provided an example of organisational excellence for millennia - right up to the recent Gulf War. Alexander's Macedonian Army stands - 2,300 years later - as one of history's most effective organisations.

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