Submission

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SUBMARINE INSTITUTE OF AUSTRALIA

SOVEREIGN NAVAL SHIPBUILDING

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EXECUTIVE SUMMARY

Sovereign Naval Shipbuilding Capability

The following points summarise this submission

- Wherever possible, work on future warships and submarines should be undertaken within Australia and that work should cover the design, manufacturing and sustainment of these future naval vessels.
- Sovereign production, sustainment and consequent operational capability are critically linked to national security and national interest – particularly in times of strategic uncertainty.
- The critical factor when defining Australian sovereignty is who retains commercial control over where technology is created, where jobs are created and where investment is made.
- Sovereign, operational capability is critical in achieving and sustaining regional superiority. If the design signatures of a submarine (acoustic, magnetic and radar cross section (RCS), etc) and operational capabilities are known by those with whom conflict is a possibility, the edge in fighting superiority during hostilities, is lost – this is an untenable situation.
- Many of the contractual and capability issues related to the Collins-class submarines (and other earlier shipbuilding programs) resulted from a lack of sovereign control – particularly the control of intellectual property.
- The execution of sovereignty means exercising the right to independently control the production, sustainment and capability of Australia's naval platforms.
- To achieve sovereign independence for future warships and submarines, the Australian Government must ensure Australia obtains a licence to all the intellectual property rights that are needed for the full life cycle of construction, operation, sustainment (which includes maintenance, modification – to rectify design issues – and modernisation), also ultimate disposal.
- Australian naval construction must take place in Australia by Australian companies with, not just consequential benefits for our defence industrial base, but also long-term strategic self-reliance and home-grown technical innovation to provide tactical advantage.
- Australia must be particularly conscious of the importance of having our own capability to upgrade our warships and submarine in a time of conflict.
- Foreign shipbuilders should still be able to tender to be the prime contractor in any shipbuilding program, but they should be required to sub-contract the entire build to an Australian-controlled shipbuilder that meets minimum experience and performance thresholds.
- The SIA understands that, under the Foreign Acquisitions and Takeovers Act (1975).- a company which has two or more foreigners (not Australian citizens) as directors and or where the foreign share-holding is 20% or greater is a foreign company

1. Background

The Submarine Institute of Australia Inc. (SIA) was formed in 1999 with the following Objective:

> *To promote informed discussion and research in the fields of submarine operations, engineering, history and commercial sub-sea engineering – otherwise known as submarine matters*.

The SIA has more than 400 financial members who include current and past submariners, government leaders and people who work in defence industry companies which are suppliers to the submarine capability.

SIA operations are the primary responsibility of an Executive Committee, which is made up entirely of volunteers.

SIA conferences, which are held every November, are leading Indo-Pacific fora on submarines and submarine matters.

The SIA has an abiding professional interest and views on sovereignty issues associated with all naval shipbuilding.

2. Introduction

2.1 Acknowledgments

The Submarine Institute of Australia welcomes the opportunity to provide a submission to be considered by the Committee as it undertakes its inquiry into the *Defence Amendment (Sovereign Naval Shipbuilding) Bill 2018.*

The SIA welcomes the significant investment by the Australian Government in 12 new Future Submarines as part of the what is arguably the most significant investment by government in Australia's national security since World War II.

2.2 Understanding Sovereignty

2.2.1 Definition of Sovereignty

The SIA considers sovereignty to be the full right and power of a governing (statutory) body over itself, without any interference from outside sources or bodies.

The SIA supports the following being included in a clear definition of Australian sovereignty:

- Independent – Australia must have ultimate control over its own destiny, which means retaining the ability to make major decisions relating to submarines (and other platforms) which are in the best interests of Australia's national security;
- The design, construction and sustainment of Australia's Future Submarines must not be conducted on the basis that Australia is beholden to some other country or company, including being subject to critical decisions being made by members of

an overseas board which directly and indirectly controls the approach in Australia; and

- Australian sovereignty means a shipbuilder having Australian control over its Australian operations.

2.2.2 Sovereign Rights in the Australian Shipbuilding Industry

In relation to sovereign rights in the Australian shipbuilding industry, the SIA considers that the following issues are relevant:

- The execution of sovereignty means exercising the right to independently control the production and capability of our naval platforms;

- To achieve sovereign independence, the Australian Government must ensure Australia obtains a licence to all the intellectual property rights that are needed for the full life cycle of construction, operation, sustainment (which includes maintenance, modification - to rectify design issues - and modernisation), also ultimate disposal (which might include sale of naval platforms to another country). This licence might not include the rights to export further units to the same design but could include the rights to derive/design a later generation;

- Sovereignty does not mean that the Australian Government has to control all aspects of the work – the focus is having unencumbered control (legally and commercially) of what is being undertaken.

2.2.3 Sovereign Industrial Capability

The Government's Defence Industrial Capability Plan (DICP), which was released in April 2018, defines Sovereign Industrial Capability as '*access to, or control over, the essential skills, technology, intellectual property, financial resources and infrastructure within our defence industrial base'.*

This position is similarly described in the UK Defence Industry Strategy and Defence White paper 2005: *'A Sovereign Defence Industry exists when technology is created in which the skills and the intellectual property reside; where jobs are created/sustained and where investment is made.'*

2.2.4 Commercial Reality in Relation to Industrial Capability

The critical factor lies with the commercial control over where the technology is created, where the jobs are created and where the investment is made. If that control resides in Australia, with full and total independence to make decisions which are in the best interest for Australia, then the industrial capability can be regarded as 'sovereign'.

If that control resides overseas, with decisions made in the best interest for overseas shareholders, then the industrial capability cannot be regarded as 'sovereign'.

The SIA understands that, under the Foreign Acquisitions and Takeovers Act (1975).a company which has two or more foreigners (not Australian citizens) as directors and or where the foreign share-holding is 20% or greater is a foreign company.

3. Discussion

3.1 Security and Sensitivity

A major facet of sovereignty is the capability edge achieved by the development and protection of sensitive technology.

3.1.1 Sensitive Technology

The most sensitive technology is developed in Australia for its own use or purchased from its closest allies. Access to this technology is very carefully protected, and there are situations where the Australian Government, or an Australian company, may have access to technology that cannot be released to an overseas company (other than perhaps one which is the same nationality as the technology).

3.1.2 Government to Government Considerations

An example of the impact of sovereign (in this case US) security on issues of contracting, occurred in Australia's Collins-class submarine program. The US Government required Australia to protect the combat system technology from the Swedish submarine platform designer. Under these circumstances, the Australian Government mandated that the prime contractor (Australian Submarine Corporation) let a sub-contract for the combat system to Rockwell Ship Systems, Australia. However, the sovereign security required by the US government of the Australian Government, denied access by the prime contractor to the specifications of the combat system, hence an inability to exercise sub-contractual control.

The subsequent early difficulties with the design, build and integration of the Collins combat system capability is a matter of public record. The SIA considers that contractual arrangements for forthcoming ship and submarine combat system integration should recognise the importance of sovereignty in avoiding any similar difficulties.

3.2 Future Strategic Uncertainty

Australia's uncertain strategic future has been the subject of recent public comment by strategic analysts from the Australian National University (Strategic & Defence Studies Centre), the Australian Naval Institute and the Australian Strategic Policy Institute. Much of this debate reflects on considerations for much greater measures of self-sufficiency as a Pacific naval power, supported by a sovereign naval shipbuilding and support sector.

The strategic arguments for self-sufficiency and sovereign capability make a strong case for unambiguous government shipbuilding policy. Australian naval construction must take place in Australia by Australian companies with, not just consequential benefits for our defence industrial base, but also long-term strategic self-reliance and home-grown technical innovation to provide tactical advantage.

Government strategic policy should carefully consider the retention and development of sovereign shipbuilding and support capabilities able to support a more self-reliant Royal Australian Navy in a strategic environment characterised by considerable uncertainty and the need for Australia to confidently exercise independent naval power in our immediate region.

3.2.1 Foreign Influence

If the technology and IP of future shipbuilding programs is not transferred to an Australian-controlled company (rather than a subsidiary company of a foreign entity), there will be ongoing exposure to foreign corporate risk in relation to naval construction projects of great importance to national security. Australia must be particularly conscious of the importance of having our own capability to upgrade our warships and submarine in a time of conflict.

Given the sensitivity of the submarine capability (and the unique requirements of Australia) it is the view of the SIA that there would be very few occasions, if any, where the Australian Government would seek to export submarine capability (Canada might be an exception). Surface warships might warrant different considerations. Notwithstanding, without Australian corporate control, foreign entities would have the ability to exercise veto power over any export opportunities the Australian Government might wish to engage in.

Risk also exists via a foreign government placing sanctions on our naval capability, should Australian government strategic policy vary with that of the foreign government. In the case of the Collins project, the Australian government sought, and received, specific assurances from the Swedish government in relation to sovereign strategic control of the capability.

Foreign shipbuilders should still be able to tender to be the prime contractor in any shipbuilding program, but they should be required to sub-contract the entire build to an Australian-controlled shipbuilder that meets minimum experience and performance thresholds.

3.2.2 Commercial Benefits and Export Credibility

Australian corporate control will ensure that export customers understand that they have the confidence of the Australian Government.

Australian corporate control will facilitate detailed management of the shipbuilding workforce. Profits from Australian naval construction will remain in Australia.

3.3 Development of Contracts Relating to Issues of Sovereignty in Warship and Submarine Building

Naval warship and submarine construction contracts are largely long-term contracts. Contracts not only specify the technical or capability outcome(s) they are expected to deliver, they also (either intentionally or unintentionally) establish and significantly impact on the behaviour between the parties.

In Annex 2 of the submission the SIA identifies the relevant lessons from the Collins program, and recommends how those lessons might be applied to accommodate issues of sovereignty.

3.3.1 Contemporary Circumstances in Australia's Continuous Ship Building Program for Warships

The Australian Government saw the Australian Submarine Corporation as a critical element in the Australian Collins submarine capability and wished to retain it as a

sovereign Australian asset. Similar sovereignty/independence considerations should be a primary factor in current and future government warship building policy.

3.3.2 Australian Sovereignty in the Prime Contracting Entity

Whilst it is critical that ship and submarine designers should have a corporate stake in Australian warship building enterprises, the SIA considers that contractual independent commercial and legal control of the IP is paramount in providing sovereign control over those sensitive areas of capability critical to the provision of regional superiority for Australian warships.

Contractual arrangements between the Australian Government, the prime (Australian) shipbuilding contractor and the warship designer - as partners in the contract - must avoid the risk that, if the designer is also appointed as the prime build contractor, then there is a risk that issues with either the design, and/or the build, remain unresolved.

3.3.3 Overseas Examples of National Sovereignty in the Prime Contracting Entity

The United States Coast Guard's new Offshore Patrol Cutter (OPC) class vessels are being built in the US by the Eastern Shipbuilding Group (ESG). ESG has brought in British company Babcock International to provide platform engineering design for the design and construction phases. Under the contract, Babcock will deliver a whole ship 3D model, selected systems and production support as part of the new design work, including detailed design of auxiliary systems, structure, outfit and electrical systems. The delivered vessels will be of sovereign US construction and control.

The South Korean Navy commenced its submarine program in 1986. In 2000, it commenced local construction with Howaldtswerke-Deutsche Werft (HDW) as the designer and Hyundai Heavy Industries **(**HHI) as the sovereign shipbuilder. Today (2018), South Korea is capable of independently both designing and building its own submarines which has significantly enhanced its national security.

3.4 Design, Management and Implementation of Warship and Submarine Defence Procurement Projects in Australia

3.4.1 The Role of the Design Authority

It is the opinion of the SIA that the Design Authority (DA) is a critical role. In the construction phase, the warship designer is the platform DA while the Combat System (CS) House will be the CS DA – sovereignty should be maintained via oversight by the Australian Government and by the Prime (Australian) Contractor.

Once accepted into operational naval service (by Chief of Navy) sovereign operational control and maintenance responsibilities are passed to Navy. Sovereign control for upgrades and modernisation must remain in Australia via an Australian prime contractor, with direct links to the DA.

3.4.2 Contracting the Combat System House

For the new generations of surface combatants the Australian Government has (where appropriate) mandated the Swedish 9LV and the US Aegis combat systems – together

with the CEA Ceafar radar system. Each of these technologies have a different DA. Each surface combatant hull has its own DA.

In the case of the Future Submarine, the Australian Government has mandated the AN/BYG-1 combat system, with Lockheed Martin (LM) as the combat system Design Authority (DA).

Lessons learned from the Collins project suggest it would be prudent to clearly define the contractual relationship between the hull DA and the combat system DA.

3.4.3 Design, Construction and Acceptance into Naval Service

The design, construction, Acceptance Into Naval Service [AINS] and sustainment of naval ships and submarines is a recognised, proven process that is adapted to the specific requirements of the individual program.

In addition to any broader national outcomes desired by government, the most important reason to undertake the building of ships and submarines in Australia is to develop and sustain sovereign capability – the full capability not just the asset.

This requires a clear understanding of all nine Fundamental Inputs to Capability [FIC] – (Defence Capability Development Handbook) particularly Defence Industry as the ninth - and the role they play in underpinning sovereign ADF capability.

Understanding the design intent and complex nature of intellectual Property Rights (IPR) is crucial. Consequential access to all relevant IPR (material and digital) in which they are represented, along with establishment of local supply chains, is necessary to upgrade and enhance the capability to ensure we maintain a regionally superior, sovereign capability across the full life cycle of the asset class.

The critical role of design authority arrangements applies to the full service life of all warships across the domains (surface and sub-surface) and should be addressed in the contracting arrangements. In the case of the Future Submarine program, Naval Group is expected to be the DA for the future submarine platform: DA responsibilities for the combat system will lie with Lockheed Martin (Australia) (LMA).

It is the view of the SIA that a clear definition of the contractual relationship between hull construction DAs and the combat system DAs will be critical in ensuring sovereign capability is established and retained.

3.5 Utilisation of Local Content

Because of the geographic isolation of Australia, the length of supply chains to Original Equipment Manufacturers (OEMs) represents strategic risk in times of tension. Hence, as shipbuilding programs gather pace, the development of local manufacturers (and the establishment of the local industrial expertise required for sustainment of the ship or submarine through the approved service life) are most important facets of the national industrial base. The level of national independence associated with ‘local content’ IPR has come to be termed the "sovereign capability" to acquire and sustain warship capability over the life of the assets. It encompasses areas of design and manufacture; also, the critical capability areas of regional superiority and tactical advantage.

3.5.1 Determination of Service Life of Defence Assets

The service life is determined based on a variety of formal means of verification and validation of safety, efficiency and sustainability. However, it should be understood that the remaining service life of any asset, including defence assets, is subject to periodic survey and assessment of remaining cost of ownership including enhancement and modernisation, versus replacement costs. The know-how and know-why behind a warship's capability mean that local industry will be able to provide enduring support to such a complex asset over its life of type. This is particularly relevant in the case of both the Collins and Future Submarine because the RAN is the parent Navy for operating and maintaining these two classes.

3.6 Integration of Offshore Design Work and Supply Chains in Australia

In contrast to South Korea (para. 3.3.3 above), Australia has yet to acquire the full capability and the deep expertise for ab initio design and construction oversight of complex naval ships and submarines. We are therefore obliged to partner with overseas organisations possessing such expertise for the design and participation in construction.

The transfer of design insight (together with IPR legal authority) and competence from the ship building (and combat system) enterprise DA partners to the local workforce, must be a primary goal. The consequential growth in sovereign design capability needed for through-life sustainment – will enhance growth and expand resources in Australian shipbuilding skills. The SIA recognises that, with the acquisition and maintenance of such 'sovereign' expertise will come an overhead of increased costs.

Such partnerships require effective coordination, review and approval of work conducted overseas in the partner's offices with complementary work performed in Australia. With the advent of modern information and communications technologies [ICT] this is now more readily accomplished, while still requiring close oversight, knowledge transfer and effective governance. The broad term encompassing this approach is a digital shipyard, a system of systems that can create, share and track numerous elements of the design and build programs.

3.6.1 Importance of Data Networking Across Multiple Sites and Agencies

It is important to ensure proper data flow between stakeholders and configuration management/data management is conducted efficiently, effectively and securely. The growing use of digital shipyard technology, which cross international and national boundaries, are increasingly important in this space. These ship design and construction enterprises, in common with other complex engineering domains, employ a comprehensive ICT architecture and environment for the creation, networking, review, construction, integration, verification and sustainment of engineering structures and dynamic systems. Secure control of such data flow is critical to the protection and sustainment of capability and must be controlled by Australia.

This is especially powerful when some of the resources are located overseas, when there may be issues of access and application of national security information, commercial intellectual property and export restrictions. Different languages and cultures may also apply.

3.7 Related Matters

3.7.1 The Role of ASC and Other Australian Shipbuilding Entities

The SIA strongly supports the Prime Minister's statement of 20th December 2016 that the purpose of SEA 1000 and the Future Submarine program is:

"to develop a cutting-edge sovereign submarine capability".

The SIA considers that the sentiments behind this statement might be considered to encompass:

“to develop a cutting-edge sovereign warship-building and sustainment capability”

Australia’s warship-building enterprises are long-term programs that will continue for many years. The long-term vision should include the export of military vessels, maritime systems and system components.

With these principles in mind, the SIA submits there are important issues to be considered in the ongoing evolution of the corporate structure of the Australian shipbuilding industry.

Australia has invested significant resources over the past 30 years to develop an Australian shipbuilding manufacturing and sustainment capabilities. The need now is for Australian companies, with the warship construction knowledge and commercial substance, to be the prime contractor and lead these programs.

According to the Government announcement of 29 June 2018, ASC Shipbuilding will play a major role with BAE Systems in the build program of the Hunter-class Future Frigates. This is a strong endorsement of sovereign shipbuilding.

Noting that ASC has a profound legacy in construction and final assembly of submarines within Australia, a similar build strategy in which ASC is fully engaged with Naval Group for the Future Submarines would further endorse the principles of sovereignty and would have the potential to reduce levels of risk. Such involvement by ASC would enhance opportunities to expand the existing sovereign capabilities and experience already existing within ASC.

3.7.2 Transfer of Collins Class Sustainment Skills to FSM Build Skills

An important question is how to sustain the current Australian sovereign submarine capability and ensure that it delivers the capability effect required by Government. This will require significant effort to establish the production program for the Future Submarine, while at the same time ensuring Collins availability is maintained at current levels.

This program is likely to stretch the availability of suitably qualified and experienced people. To exclude the capability that exists in ASC workforce and business processes from full and significant participation in all aspects of the ongoing development of Australia's sovereign submarine capability will introduce unnecessary risk. If ASC is responsible for sustainment, then there is a compelling argument for it to be closely involved in the build also. The current Collins sustainment program involved the cutting and welding of hull sections to remove and upgrade/refurbish major submarine systems. The skills required are directly transferrable to building new design hulls and systems.

3.7.3 Retaining and Training the Workforce – A Critical Factor

With Collins and AWD lessons learned about production quality from subcontractors, even with professed experience in shipbuilding, the most sensible solution is to use as many experienced people from ASC as is practically possible to receive some 'train the trainer' experience knowledge which can then be applied to train newcomers.

An important issue is that of managing the trained (and training) workforce between Collins maintenance and the FSM build program. The critical factor is the people who will be building the future submarines and many of these people will come from ASC. Even with the help of experts from Naval Group, the task to train a new workforce inexperienced in submarine building to be able to build a submarine safely and successfully within schedule and budget will be challenging.

Of note, a one-way street between the old and the new warships/submarine should be avoided. There needs to be a healthy exchange of personnel, both civilian and military during the transition, whilst recognising to continuity of too great a frequency of personnel movement.

Finally, naval ship and submarine building in Australia is vitally affected by the available skilled workforce which takes several years to develop, maintain and expand.[1] The recent announcement of the closure of Australia's only school of naval architecture at UNSW augurs poorly for the expansion envisaged in various planning vision statements.

4. Summary

The Submarine Institute of Australia welcomes the opportunity to comment on issues of sovereignty associated with warship and submarine production in Australia.

The SIA has approached this opportunity to make a submission to the Senate FAD & T Reference Committee Inquiry into the Defence Amendment (Sovereign Naval Shipbuilding) Bill 2018 through the lens of sustaining and developing Australia's naval maritime capability and ensuring that Australia's naval ships are able to deliver the strategic effect required by Government.

Sovereign production, sustainment and consequent operational capability should be accepted as critically linked to national security and national interest – particularly future strategic uncertainty.

The protection of sensitive design technology and intellectual property (IP) - with foreground IP to be owned by the Australian Government – should be accepted as of critical importance to the nation.

5. Recommendations

Australia has previously made significant investments to achieve its current naval (particularly submarine) capability. Recommendations derived therefrom include the following:

[1] Experience relating to welding on the Collins program is just one example.

1. Prime Contractors should be Australian companies. The experience of the Collins program shows that complex prime contracting arrangements require very significant effort from the companies and the Australian Government to be made to work and increase the risk of cost and schedule overruns.

2. The platform designer and combat system supplier should be sub-contractors to the Prime Contractor. If they are not, the Australian Government is drawn into the project management of the activity and distracted from its governance and acceptance roles (it also opens the possibility for the prime Contractor to diffuse responsibility).

3. The Australian Government must ensure unrestricted access to all relevant IP and related technical data, at least by way of full licensing if not full ownership.

4. Stakeholders who disagree with the SIA on the need for such a model might wish to consider under which circumstances the above considerations are invalid.

5. Australian ownership and protection of IP must remain throughout the design, build, sustainment, upgrades and operational life of Australian naval ships and submarines.

6. Issues of IP protection must also be important considerations in export programs and disposal sales to third parties.

7. Australian sovereign, operational capability, is critical in achieving and sustaining regional superiority. (If – particularly for submarines - the design signatures, stealth and operational capabilities are known elsewhere, the edge in fighting superiority, during hostilities, is lost. This is untenable).

The life-of type is a complex function involving changing threat, technology, and cost of ownership including modernisation and cost and lead time for replacement. This needs to be kept under review for the program and at a more granular level, for each asset individually.

ASC (and its sub-contractors) represent a significant long-term investment in Australia's sovereign ship building capability, which should have a major role in the detailed design and construction phases of the future shipbuilding programs. This capability should ultimately sustain these ships throughout their operational lives.

The nature of information management architecture, data networking and environment will be absolutely critical.

A.1. ANNEX A. - GLOSSARY OF TERMS USED

Abbreviation	Full description	Comment
ADF	Australian Defence Force	
AIDC	Australian Industry Development Corporation	
AINS	Acceptance into naval service	
ASC	(Former) Australian Submarine Corporation	
AWD	Air Warfare Destroyer	Three ships built by ASC
CBI	Chicago Bridge and Iron Corporation	
CCSM	Collins Class Submarine	
DA	Design Authority	
NAVAL GROUP	Formerly Directions des Construction Navales	A French company
DSMR	Directorate of Submarine Maintenance & Repair	
ERC	(The Senate) Economics Review Committee	
FIC	Fundamental input to capability	
FMS	Foreign Military Sales	
FMV	Försvaretsmaterielverk	Swedish government agency
FOC	First of class	
FPR	First Principles Review	
FSP	Future Submarine Program	
GBE	Government business enterprise	
GFI/GFE	Government furnished information/equipment	
HDW	Howaldtswerke-Deutsche Werft	
HMAS	Her Majesty's Australian Ship	
ICT	Information & communications technology	
IGA	Inter-Government Agreement	
IP	Intellectual property (rights)	
IPDE	Integrated Product Development Environment	
KAB	Kockums AB, a Swedish company	
LMA	Lockheed Martin Australia	
NPB	Naval Project Brief	
O-boats	Oberon class submarines of the RAN	
RAN	Royal Australian Navy	
RDT&E	Research, development, test & evaluation	
SIA	Submarine Institute of Australia	
SWSC	Submarine Warfare Systems Centre	Within HMAS WATSON
SWUP	Submarine Weapons Upgrade Program	
UUV	Unmanned underwater vehicle	

A.2. EXPERIENCE FROM THE COLLINS SUBMARINE PROGRAM

Sovereignty and Submarine Capability

Because of the critical nature of stealth (and the related technology), the submarine capability can only be a sovereign capability. There are many aspects of surface warship capability that similarly demand sovereign control. In this context the contractual legal control and ownership of platform capability - produced and delivered by the Prime Contractor - is a critical element.

In the Collins program the Australian Government always maintained that the Prime Contractor should be a company under Australian control.

Earlier Ownership of the Australian Submarine Corporation Pty Ltd (now ASC)

The Collins contract specified ownership arrangements considered necessary to ensure that Australia was establishing a "sovereign" capability. NPB 1114 (which became the Collins program) required that the Australian Submarine Corporation Pty Ltd (now ASC) be 51% (or more) Australian owned.

The initial shareholding in the Submarine Corporation was four companies:

a. Kockums AB (a Swedish company) with 29%,

b. Chicago Bridge & Iron (CBI) (a US Company) with 20%,

c. Wormald (an Australian company) with 25.5%, and

d. Australian Industry Development Corporation (an Australian merchant Bank) with 25.5%.[2]

Kockums chaired the Board of the Australian Submarine Corporation.

The world economic conditions from 1987 to 1991 caused significant changes in the ownership of ASC.

CBI quickly became dissatisfied with Kockums' approach to project management and offered to buy the Kockums shares. The Australian Government maintained its view that the submarine designer must be a shareholder and have influence (chair) in the company, and as a consequence CBI exited the ASC.

In the same period, the Malaysian business man, Lee Ming Tee, acquired Wormald. This was not a successful venture and Wormald also sold its shareholding in the ASC .

The resulting shareholding in the ASC was:

a. Kockums 49%

b. AIDC 48.5%, and

[2] A Australian Government statutory corporation established by the *Australian Industry Development Corporation Act 1970* (Cwth) – the AIDC Act.

c. RCI (a subsidiary of James Hardie Industries) 2.5%.

Kockums continued in the role of chairman of the ASC until it was nationalised in 2001.

This arrangement continued until the late 1990s, when Kockums advised that it wished to sell its shares in the Australian Submarine Corporation to Howaldtswerke-Deutsche Werft (HDW), the German submarine builder. The Australian Government, through AIDC, chose to exercise its pre-emptive right to buy Kockums shares, and as a result became the 100% owner of the Australian Submarine Corporation.

When AIDC was dissolved, ownership of the ASC was initially exercised by the Australian Government department responsible for Industry and later the Department of Finance. The Government of the day envisaged that the Australian Submarine Corporation might be sold to the private sector, and in the AIDC Sale Act 1997 directs in relation to the Australian Submarine Corporation, that the owner of the asset (ASC*):"…. must not subsequently sell or transfer those interests to a foreign person (within the meaning of the Foreign Acquisitions and Takeovers Act 1975) …*[3]*".*

Design Authority Issues In the Collins Class Contract

Some public observations by DR H J Ohff - former Managing Director of ASC (the Australian Prime), on the Collins build:

ASC controlled the physical and knowledge-based intellectual property, i.e. the IPR that resided in the heads, minds and bodies of the people who designed and built the Collins, and, after a lot of hackling with FMV - to a lesser extent with KAB - the Australian Government became the legal owner of the fore and background IPR for the Type 471 (Collins class) design.[4]

ASC remained the design authority (DA) for the Collins submarine platform.

The primary reason for being the owner of back and foreground IPR must be to undertake unimpeded modifications to the submarines or… develop an evolved or new FSP

The DA of the FS brings with it considerable responsibilities, it requires a high standard of continued submarine design capabilities. The submarine design house should maintain equity in the DA.

[3] AIDC Sale Act 1997 Clause 33KA sub clause 3.

[4] FMV or Försvaretsmaterielverk is the Swedish Defence Materiel Administration, the equivalent of the previous Australian Defence Materiel Organisation (DMO), the present Capability and Sustainment Group (CASG).