S-Series Adoption Discussion Paper

1. Introduction

This discussion paper has been established to inform a debate about United Kingdom (UK) Ministry of Defence (MOD) Policy for the United States of America (US) Aerospace Industries Association (AIA) and the Aerospace, Security and Defence Industries Association of Europe (ASD) Integrated Product Support (IPS) S-Series suite of international specifications.

The paper has been established for two primary reasons.

1. To address a seeming stepping back by UK MOD representatives (at the Team Defence Information (TD-Info) IPS Community of Practice (CoP) meeting on 27th June 2024) from the position documented in the joint MOD and UK Defence industry Support Advantage Charter. See a link and extracts from the Support Advantage Charter in Section 3.

2. To address an issue with guidance for the S-Series specification in Defence Standard 00-600 Integrated Logistic Support (ILS) Requirements for MOD Projects (see Section 2 for details).

The countries involved with the S-Series include:

- Austria
- Australia
- Canada
- Denmark
- Finland
- France
- Germany
- Netherlands
- Norway
- Republic of Korea
- Spain
- Sweden
- Turkey
- United Kingdom
- United States
- Japan

Further information about the United States involvement and use of the S-Series is provided in Section 6.

AIA/ASD recently signed a Memorandum of Understanding with Japan, that joins the United States and Europe with Japan to co-produce and further develop the S-Series.

NATO are a key participant in the S-Series with an S-Series working group which includes UK and United States representatives.

The S-Series is also being applied in other sectors outside of aerospace and defence such as civil maritime, automotive and rail.

This paper has been written by Team Defence Information (TD-Info). TD-Info is a UK-based Trade Association which has been in existence for over 30 years with over 150 companies as members. This includes most of the large Defence companies such as BAE Systems, Airbus, Babcock, Boeing, Rolls-Royce, GE Aviation, General Dynamics, Leonardo, Lockheed Martin, MBDA and Thales, plus

many 'systems' level companies, IT companies and consultancies. Many of the members have personnel involved in the various working groups further developing the S-Series specifications.

Julian Dayment (TD-Info & Whitetree Group), a Support Subject Matter Expert (SME), performed the lead author role and was supported by a selected group of IPS SMEs from the TD-Info membership. This included other TD-Info personnel (Ciaran Dodd and Phil Williams) and TD-Info members including Mike Day Rolls-Royce Aeroengines, Luke Nolt Babcock, Pierre-Michael Delamotte AtkinsRealis, Mark Willis Pennant, Ryan Griffin CDS DS, Richard Clewer Collins Aerospace (and European Co-Chair for S6000T) and Sally Powling MBE Aquila Learning. Paper development has also been supported by Mike Turner and Andy Burden from MOD Strategic Command Defence Support.

2. Context

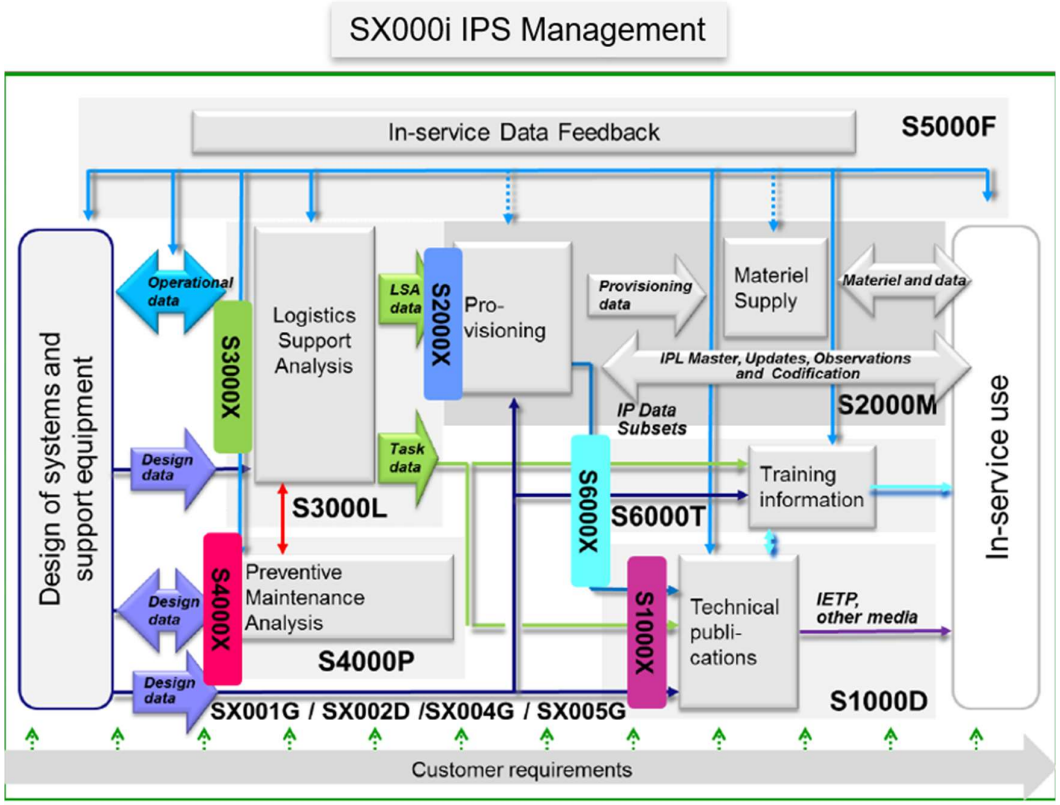

Figure 1 – S-Series Specifications Overview

As illustrated in Figure 1, the S-Series suite consists of seven primary IPS specifications which address IPS management and most of the IPS Elements. There are a further five specifications as listed below.

- SX001G - Glossary for the S-Series IPS specifications
- SX002D - Common data model for the S-Series IPS specifications
- SX003X - Interoperability matrix for the S-Series IPS Specifications
- SX004G - UML model reader's guidance
- SX005G - S-Series IPS specifications XML implementation guidance

The S-Series specifications are designed to generate an integrated set of IPS data. The S-Series includes a data model for each specification and an overarching data model for the complete set (in the SX002D document).

Each data specification has a set of attributes. The data models are used to develop software tools which enable development, management and use of the data attributes.

Typically, third party software vendors offer software tools which comply with the data models. The software tools can be used to perform and record the results of associated analysis work. It is typically not the case that the data models are used by industry to establish these software tools.

S1000D and S2000M have been in existence for over 40 years and have been used over this time by the UK MOD. It could be argued that S1000D has been underexploited in the Defence domain with a retention of paper or PDF or a simple HTML view.

However, some of the other S-Series specifications are not as mature and have not yet been used in the UK Defence domain. For this discussion paper, the focus is particularly on S3000L, S6000T, the data models associated with these specifications and the overarching S-Series data model. Work is also required to improve harmonisation of the specifications. The logic for the focus on these two specifications is because of the debate around the use of them, as opposed to other standards, which address the same or similar scope.

S-Series Value Proposition

The S-Series Value Proposition, which is documented in SX000i at paragraph 1.5, is copied below.

It is evident that the use of specifications provides added value. The S-Series IPS specifications are intended to bring value not only at individual specification level, but also through the combined application of the specifications.

The S-Series IPS specifications are globally accepted because:

- it is industry and customer driven, hence focused on results
- it includes a broad range of customer stakeholders to ensure suitability
- it is integrated and interoperable
- it is internationally developed by the US and Europe

It reduces the set-up costs of projects and associated IT tools by:

- minimizing project dependency by defining clear guidance and by avoiding the inclusion of project and national specific rules and constructs
- ensuring commonality between the IPS related specifications to support re-use across projects
- sharing a common core data model, which ensures the specifications' interoperability
- establishing well defined data exchange mechanisms between the different support disciplines/IPS elements based on ISO 10303-239 Product Life Cycle Support (PLCS)
- preventing tool lock-in and not requiring partners/customers to procure proprietary tools
- enabling the establishment of organic and Performance Based Logistics (PBL) and other support contracts

It is global and reduces project complexity by:

- covering all aspects of supportability over the entire life cycle of a Product.

- being the contractual baseline for industry and customers
- being a single solution for Product support data (buy in)
- providing a standard approach to Product Lifecycle data (repeatable)
- enabling seamless global knowledge exchange (collaboration)
- providing a common architecture and data model (common attributes/elements)
- supporting the common theme of Trust and Efficiency

It guarantees being future proof by:

- being up to date with the technical development and changes in support philosophy
- building on the ISO 10303-239 PLCS specification
- supporting the LOng-Term Archiving and Retrieval (LOTAR) strategy for long-term archiving
- not trying to "re-invent the wheel" but by collaborating with other standardization groups to ensure specification interoperability with other domains (e.g., engineering, manufacturing, trade, environmental policy, etc)

S3000L

It has been stated by various IPS SMEs that S3000L has been ‘written by industry for industry’ - which is largely correct. Although, more recently, there has been more involvement in the development of the specification from European MODs and US DoD representatives.

Additionally, S3000L has an aerospace connotation (i.e. it assumes, as this is the case in civil aerospace, industry will perform the maintenance and support operation rather than a ‘Customer’, military or otherwise).

The original approach within Logistic Support Analysis (LSA) standards was one where there was a process standard and a data management standard i.e. MIL-STD-1388-1A for the LSA process and MIL-STD-1388-2B for the Logistic Support Analysis Record (LSAR). Defence Standard 00-60 combined the process and data management activities in one standard. Compared to these standards, S3000L only addresses a part of the LSA process and the majority of LSAR equivalent, the LSA Database (LSAD). The LSA part of S3000L is focused mainly on the traditional 401 LSA task performing Maintenance Task Analysis (MTA) and development of a LSAD or LSAR. The S3000L LSAD is much the same in scope as an LSAR (as defined in a Defence Standard 00-60 to S-Series mapping activity conducted by Defence Equipment & Support (DE&S) in 2022). An LSAD can include the results of Failure Modes, Effects and Criticality Analysis (FMECA), Reliability and Maintainability predictions, Reliability Centered Maintenance (RCM) analysis, Level of Repair Analysis (LORA) and MTA. It is the bedrock and starting point for the other S-Series specifications and their associated work. S3000L however lacks content for a range of other LSA Tasks such as the 200 series. The reason for this is that it is intentionally focused solely on ‘Maintenance Planning’ and establishment of the LSAD.

The S3000L data model is used to establish an LSAD software tool which supportability engineers can use to populate the results of the MTA. There are a range of tools produced by third-party vendors on the market that meet the requirements of the S3000L data model. The availability of LSAD software tools is therefore not an issue.

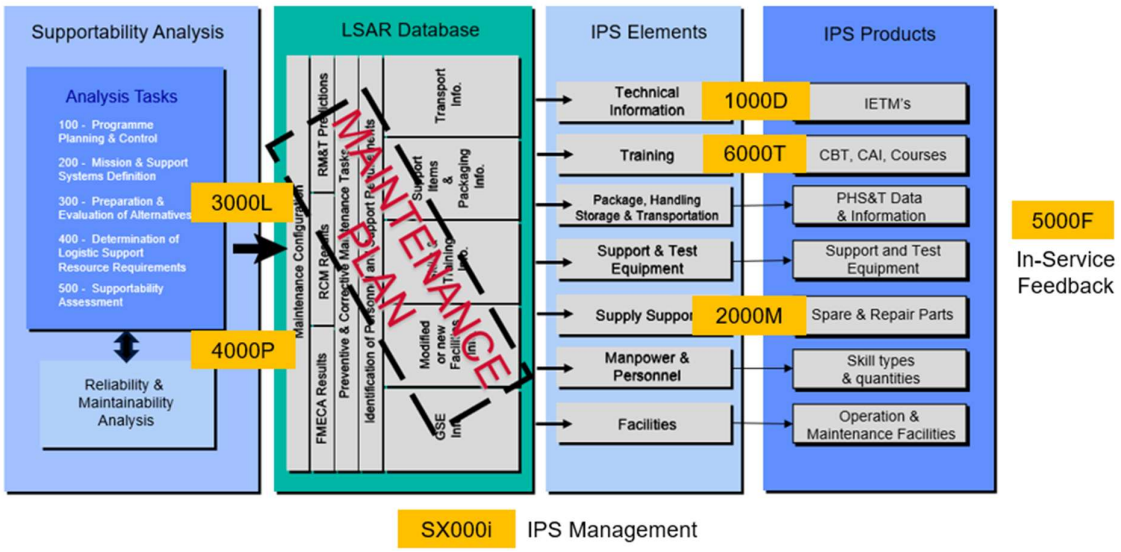

Figure 2 – LSA/LSAR Approach

The concept of using a LSAD or LSAR as a technical integration tool for containing a single and agreed maintenance plan for use by ILS[1] or IPS Elements is illustrated in Figure 2. This includes an overlay of S-Series specifications. As identified in Figure 2, the S-Series does not address all the 'traditional' ILS Elements.

The use of an LSAR is therefore to ensure the IPS products are consistent with each other reflecting a single and agreed maintenance plan. The development and use of an LSAR is therefore typically by Defence industry. This is due to Defence industry having detailed knowledge of their products and access to design data which will inform the analysis process which generates subsequent data for population of the LSAR/LSAD.

The use of an LSAR is not new and has been used on many projects in the past. Defence Standard 00-60 and JSP886, both of which were cancelled some years ago - due to the effort required to maintain them and a move to the Knowledge in Defence (KID) tool, provided detailed guidance on the LSA process and a UK version of the LSAR. Defence Standard 00-60 was replaced by Defence Standard 00-600 which consists of a lot less detail than its predecessor.

As illustrated in the left side of Figure 2, the LSA Tasks, for most LSA standards, are categorized into 5 areas, the 100, 200, 300, 400 and 500 series. Each series consists of several specific Tasks (15 tasks in total) each of which has a range of sub-tasks with 83 sub-tasks in total. In the LSA process standards there are details of 'what to do' to perform each of the tasks and sub-tasks.

[1] ILS is the traditional name for the management and technical process of support solution development. IPS is a relatively new term which has emerged via AIA/ASD to remove the logistic term as it was deemed to be misleading. NATO use Integrated Lifecycle Support for their definition of ILS.

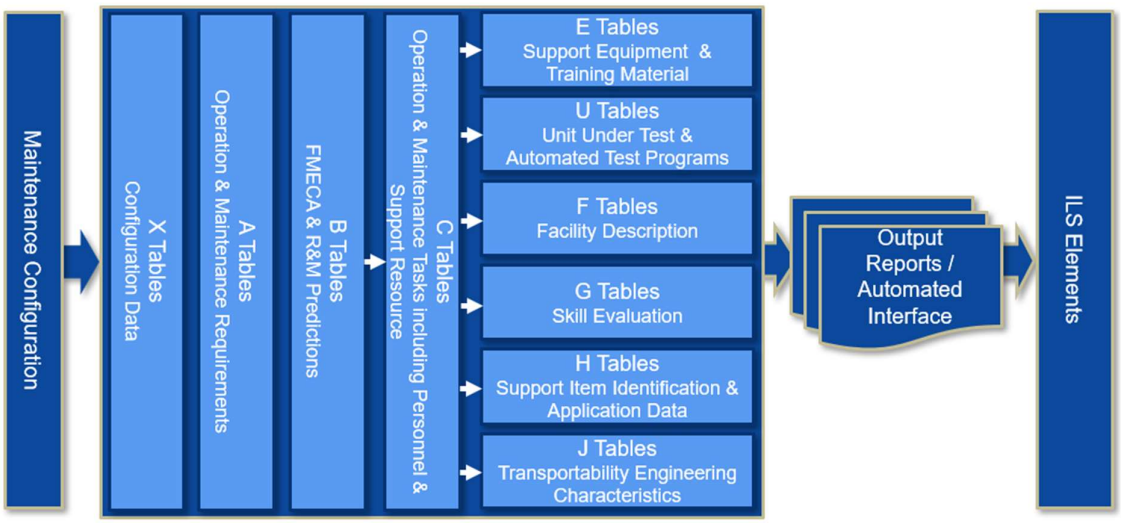

Figure 3 – LSAR Scope

Figure 3 provides a more detailed view of the scope of an LSAR in accordance with MIL-STD-1388-2B or Defence Standard 00-60. An S3000L LSAD has a similar scope to that of Figure 3.

As can be seen is Figure 3, the LSAR consists of a product maintenance configuration with details about the maintenance tasks (C tables) and required support resource (in the C tables and E to J tables) for each maintenance significant item[2].

When mature, the LSAR provides a single source maintenance plan and associated data for use by each ILS/IPS Element. Each will use this data to inform the activities they perform to produce their ILS/IPS products. In this traditional MIL-STD-1388-2B/Defence Standard 00-60 LSAR approach the integration with ILS/IPS Elements is typically via paper-based LSAR Reports. There is a range of different LSAR Reports which have been designed for various purposes. Reports include the maintenance plan, parts provisioning list, Support & Test Equipment (S&TE) lists, facilities list, personnel list, etc.

Whist Figure 3 illustrates the provision of these reports to the ILS Elements, they can also be used to provide detailed information to underpin establishing the in-service phase support operation. The organisation responsible for the support operation can use this data to inform in-service maintenance planning and the in-service phase Support IT systems.

Use of a S3000L LSAD and other S-Series specifications, with their integrated data model and XML data interchange capability, would significantly reduce the level of paper-based interaction with the IPS Elements and the in-service phase Support operation owner.

S6000T

S6000T differs in scope and coverage from JSP822 (Defence Direction and Guidance for Training and Education). The key comparisons between S6000T and JSP822 are summarised below.

1. S6000T is written with a focus on product-based training. However, S6000T could be adapted to analyse and then design a curriculum for non-product-based training. JSP822 is written for

[2] An item which requires scheduled or unscheduled maintenance during the in-service phase of the lifecycle.

both product-based and non-product-based training (like leadership or equality and diversity training).

2. Chapter 7 of the S6000T specification describes the data model that underpins S6000T. The data model means that S6000T can import data from, and export data to, other specifications in the S-Series. For example, inputs from S3000L form part of the training analysis and S6000T can export data to S1000D. The data model means S6000T data can be structured, analysed and used to make informed decisions. Equally, S6000T can be used without the data model. JSP822 does not have a related data model and is a self-contained document.

3. S6000T is based upon the ADDIE (Analysis, Design, Development, Implementation and Evaluation) instructional design model but currently S6000T focuses on the first two stages: training analysis and design. JSP822 describes the Defence System Approach to Training (DSAT) that comprises the four elements of Analysis, Design, Delivery and Assurance (which essentially cover the same activities as ADDIE but use different language. It is possible to map the activities of the ADDIE model to JSP822.) JSP822 also includes the governance and management requirements, which together create a training system: "5.3.1 A Training System, therefore, comprises the analysis, design and delivery of training along with the governance, management and assurance activities. Put another way: DSAT 4 Elements + governance and management = Training System 5.3.2 When conducted correctly, the Training System delivers training that meets the DSAT QMS mandated by Defence." (17, Volume 1: Introduction V3.0 (Part of JSP 822 V7.0). Therefore, JSP822 is broader in scope than S6000T. However, there are discussions on the S6000T steering committee about how to include the rest of the ADDIE model (development, implementation and evaluation) in S6000T in the future. Another benefit of using S6000T is that as other defence organisations and NATO start to use the S-Specifications, a common language will be established to describe ILS/IPS activities.

4. The S6000T steering committee is also discussing how to describe the mandatory elements and discretionary aspects of the specification. JSP822 does this very clearly in two ways:

    a) First JSP822 has two sets of documents. There are the volumes that contain "Direction and Guidance: Policy Directives provide the Direction that must be followed in accordance with statute or policy mandated by Defence or on Defence by Central Government. Policy Guidance provides the Guidance and best practice that will assist the user to comply with the Directives." The second set of documents are the Defence Training Support Manuals (DTSMs) that have been developed to give additional guidance and examples so that practitioners can comply with the Policy Directives and Policy Guidance. (2, Volume 1: Introduction V3.0 (Part of JSP 822 V7.0).

    b) Second, JSP822 uses "…'must', 'should' and 'could' language as follows:
    Must: indicates that the policy direction is a legal or key policy requirement and is mandatory.
    Should: indicates the policy guidance is a recommendation. Although not compulsory, if a decision is made that any part of this policy cannot be complied

with, then the Senior Responsible Owner who is ultimately responsible for that decision must thereby own and manage the inherent risks that arises.
Could: indicates that the policy is good practice and encouraged." (2, Volume 1: Introduction V3.0 (Part of JSP 822 V7.0).

5. S6000T is one of the youngest of the S-Series of specifications and as points 3 and 4 illustrate, there are several ways in which S6000T can develop. Additionally, all the S-Series of specifications are developed by committees of people who develop the specifications voluntarily in addition to their normal work responsibilities. This method of development has obvious constraints, not only for developing S6000T but also for working with other specification steering committees to make sure that the S-Series of specifications are harmonised. To harmonise the specifications, all of the steering committees need to make sure that:
    1) all the specifications use common terminology, and
    2) where specifications interface, the interfacing specifications describe the interfaces consistently and clearly.

As a newer specification, S6000T has fewer users. By contrast, JSP822 has many users that provide regular inputs or improvements to the dedicated team that oversee and update JSP822 (currently at Policy: JSP 822 Defence Training and Education V7.0 (Feb 24)). Having a dedicated team for each S-Series specification would make their production and harmonisation quicker and easier that the current process allows.

Data Models & Software Tools

As stated above, the S-Series offers an integrated IPS data environment via a range of data models for each specification and an overarching data model for the entire series. Data models for S4000P, S5000F, S6000T and the overarching model are all still in development and not yet released. It is planned that these will be provided over the next 3 years with all complete by 2027.

There is a range of software tool vendors who have already established tools for some of the specifications such as S1000D, S2000M and S3000L. These vendors have development plans to provide software tools for the other specifications by 2027.

Therefore, in the short term, the whole S-Series data environment is not available. However, this does not stop use of the specifications for analytical purposes and planning for the use of the associated software tools when they become available.

Defence Standard 00-600

14.2 SA Requirements

14.2.1 The Contractor shall conduct agreed SA activities which influence the product design and activities that devise, supply and gather evidence that a suitable and sustainable cost optimised product and support system has been provided that meets all the requirements of the project. SA tailoring promotes productive and cost effective ILS and achieves Through Life support requirements by addressing the critical support cost drivers and risks. Tailoring shall be conducted jointly by the Authority and the Contractor, with agreement from all stakeholders, with the final decision made by the Authority and shall form part of the contract. The decisions that support the tailoring choices and/or the risks that this incurs shall be articulated within the Supportability Case. The depth and range to which SA is conducted to meet the requirements of the project and the product solution shall be justified to the Authority. The contractor shall conduct SA, in accordance with an MOD recognised SA standard. Examples of acceptable standards are listed below:

a) ASD S3000L

b) SAE-TA-STD-0017 (Product Support Analysis)

c) SAE-GEIA-STD-0007B (Logistics Product Data)

d) MIL-HDBK 502A (Product Support Analysis)

e) BS EN IEC 60300 Part 3-12 (Application Guide - Integrated Logistic Support)

Figure 4 – Extract from Defence Standard 00-600 Part 1

Defence Standard 00-600, the current UK MOD ILS standard, provides guidance for Supportability Analysis (SA) (equivalent to LSA) standards/specifications in Part 1 as copied in Figure 4.

As with the original MIL-STD-1388-1A (LSA process) and MIL-STD-1388-2B (LSAR), some of the SA standards listed in Defence Standard 00-600 address the LSA process and some the LSAR with S3000L (with its limitations for LSA) addressing both. There are however only two in the list which address an LSAR/LSAD. These are SEA-GEIA-STD-0007B (updates to 'C' in 2019) and S3000L.

Defence Standard 00-600 lists 17 SA tasks at paragraph 14.2.3 on pages 2-23 to 2-24, however there is little further detail about 'what to do' for these tasks. For guidance on performing the SA tasks it is therefore necessary to use another process standard such as those listed, i.e. SEA-TA-STD-0017, MIL-HHDBK-502A or BS EN OEC 60300 Part 3-12.

Whilst identifying S3000L at the top of the list in Figure 4, Defence Standard 00-600 does not refer to or offer guidance about the use of the S-Series in Part 1. It only addresses S2000M, S3000L and S6000T. Part 3 Section 3 of the standard does identify the S-Series and the data model but does not advocate its use or provide any details.

Defence Standard 00-600 does not therefore address the 'shortfall' S3000L has for the LSA process so does not offer guidance on this topic.

Other than the Support Advantage Charter, which is not a standard, projects have no guidance FROM Defence Standard 00-600 to consider and use the suite of S-Series specifications. Although S1000D and S2000M (only parts of) are typically used. There is guidance on the S-Series use in SX000i.

Selection of Standards

1.4.1 Defence and Security Public Contracts Regulations (DSPCR)

To enable interoperability requirements to be addressed, you shall implement appropriate promulgated UK ratified NATO STANAGs, Allied Standards and Five Eyes Standards in contracts when invoking the Defence and Security Public Contracts Regulations 2020[5]. When invoking these Regulations, you shall ensure that standards are selected and referenced in contracts in accordance with the following order of preference:

a. international treaty-based interoperability requirements.

b. European standards adopted by British Standards (BS EN <number>).

c. European technical assessments, mainly used for construction projects.

d. common technical specifications, drawn up to address a specific Defence procurement requirement.

e. international standards adopted by British Standards (BS ISO).

f. international standards, a civilian standard adopted by an international standards organization and made available to the public.

g. British Standards (BS) national standards.

h. Civilian technical specifications originated and recognised by industry.

i. UK Defence Standards or other nations' military standards. Use only where no other suitable technical specification exists.

Each reference in a contract to a technical specification made in accordance with these orders of preference shall be accompanied by the words 'or equivalent'.

Figure 5 – Extract from JSP920 Part 1

As identified in Figure 5, JSP920, to enable interoperability requirements, provides guidance to select international standards over other types of standards.

With the above Defence Standard 00-600 Figure 4 guidance, personnel who are responsible for determining ILS/LSA programmes, considering S3000L, are left with a conundrum. This is because S3000L does not address the whole LSA process so it typically cannot be selected as a single specification for SAs and LSAD/LSAR. It could however be selected for the LSAD.

Some projects are therefore combining other SA standards with S3000L so the whole of the LSA process can be used, notwithstanding the need to tailor the process according to project specific needs. This approach seems to be working.

S-Series Through-Life

The advantage an integrated set of IPS specifications (and associated software tools) offered by the S-Series, compared to a set of standalone disintegrated standards and software tools, is significant for the implementation and ongoing IPS function through-life. The S-Series therefore offers a much-improved capability to that which currently exists (see section 4 for further details).

As addressed above, the S-Series timeline for data models and software tools is relatively short.

3. Support Advantage Charter

The UK MOD Strategic Command Defence Support, working with Defence Industry (via TD-Info), issued the jointly developed Support Advantage Charter in 2022 (Support Advantage Charter - GOV.UK (www.gov.uk) which is based on five high level objectives drawn from their Support performance ambition:

1. Improved Support **capability** and **resilience** – by increasing Strategic Base agility.
2. Improved **availability** and **readiness** – through superior, assured, and **cost-effective** support services.
3. A more **environmentally sustainable** Defence Support Enterprise.
4. Exploitation of **data and technology** – through a step change in Support Innovation Research and Experimentation (IRE) enabled by a skilled Support workforce.
5. A culture of **interoperability** and **integration** – by enhancing visibility, transparency, and **collaboration.**

Within item 2 above, the charter includes the following:

- Using existing joint MOD/Industry organisations, create a clear and authoritative support policy that dictates implementation of support engineering in accordance with Defence Standard 00-600 on all complex Equipment Programmes.
- All acquisition phase complex equipment projects to perform support engineering in accordance with Defence Standard 00-600, the AIA/ASD S-Series Integrated Product Support specifications, the Support Solutions Envelope and use the Supportability Case.
- Supportability (reliability, maintainability, testability, etc.) requirements must be established by the MOD (at the appropriate time in the acquisition lifecycle) and be equal to or higher priority than other equipment requirements.

Defence industry input to the charter, despite understanding the immaturity of parts of the S-Series, was eager to include the S-Series for the longer-term benefits of an integrated set of IPS specifications and associated data models. This input was managed by Julian Dayment working with Defence Industry SMEs from TD-Info member companies which included some of the large prime contractors such as BAE Systems and Babcock.

Following the issue of the Support Advantage Charter, it was decided to pursue 6 priority actions to help implement Charter concepts. Priority action 4 was 'To Ensure the SSE appropriately supports Strategic Asset Management' and was jointly owned by Maj Gen Simon Hutchings from Defence Support and the TD-Info IPSCoP. This priority action was subsequently addressed by an ILS to IPS project led by Strategic Command Defence Support and within the Engineering Support Transformation (EST) project. This project made progress on the development of an IPS Framework but was closed when the EST project was stopped. This was a disappointment to Defence industry as it seemed to be making good progress with the ILS to IPS transition.

4. ILS/IPS – Support Operation Endgame

The ultimate outcome of the acquisition phase IPS programme is an in-service lifecycle phase where the Military Services and Defence industry joint support operation is underpinned by an effective and efficient Information and Knowledge Management (IKM) system which consists of a set of integrated Information Technology (IT) tools.

This IKM system, and the set of IT tools with associated data, will enable effective maintenance management which will benefit from efficient and clear visibility of support resources status required for maintenance planning and performance.

The IT tools could include a 'hot LSAR/LSAD'[3] which would support fault diagnostics, any subsequent investigations of maintenance arisings, associated modelling and implementation of modifications.

The set of IT tools would also underpin efficient Asset Management providing a digital environment and 'digital thread'/'digital twin'. An IKM system and effective Asset Management would aid asset availability management and support operation continuous improvement.

The lack of such a future IKM system will result in the current situation where asset and maintenance management are often difficult to execute due to a deficiency of appropriate IT solutions and related data.

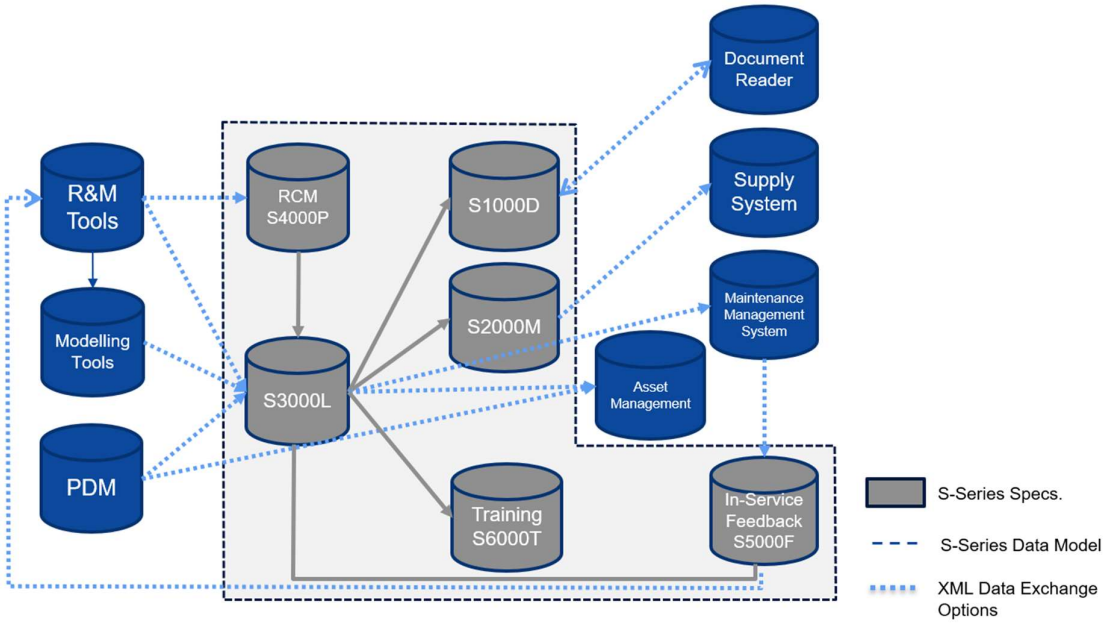

Figure 6 – IT Tools & Automated Integration

Figure 6 simplistically illustrates the potential range of IT tools and automated integration of data. This IT environment is appropriate to the 'endgame' discussed above. This includes potential integration with the Engineering function via Product Data Management (PDM) software tool(s) within a Product Lifecycle Management (PLM) environment.

As illustrated in Figure 6, the S-Series data model will offer automated integration, as appropriate, across all the S-Series specifications.

Whist not identified in Figure 6, such an environment may include a range of other tools which aid Collaborative Working such as the KRAKEN tool currently used by the Royal Navy and Defence industry.

[3] The concept of a hot LSAR/LSAD is a data repository which is maintained throughout the lifecycle of a programme. The original intent of an LSAR is to be only used during the acquisition phase of the lifecycle.

Whist it is possible to use other standards for the LSAR (such as SAE-GIEA-0007B/C) they would not enable automated integration and data exchange in the same way as the S-Series with its intentionally designed integrated data model and subsequent set of software tools.

5. Business Modernisation for Support

The UK MOD Strategic Command Defence Support has a Business Modernisation for Support (BMfS) project which is looking at a range of MOD IT tools to determine improvements. This includes asset management, maintenance management and spares management tools. Part of this work is considering the S-Series specifications and other standards relevant to Support operation.

BMfS is likely to influence the update of the Support IKM environment and the effective sharing of data across an integrated set of IT tools. Automated data exchange is a key aspect of a future IKM environment hence the ability to conform to XML capability is a relevant capability to an LSAR/LSAD standard/specification selection decision. S3000L software tools are XML compatible as are those supporting SAE-GIEA-0007B/C.

6. United States S-Series Perspective

The United States Senate, with the aim of S-Series adoption, have conducted an 'Assessment of Commercial Sustainment Standard for Defense Applications'. The approach and outcome of this assessment is summarised in two slide packs (available on request to supplement this document). A couple of slides, which capture the key points, are provided below in Figures 7 and 8.

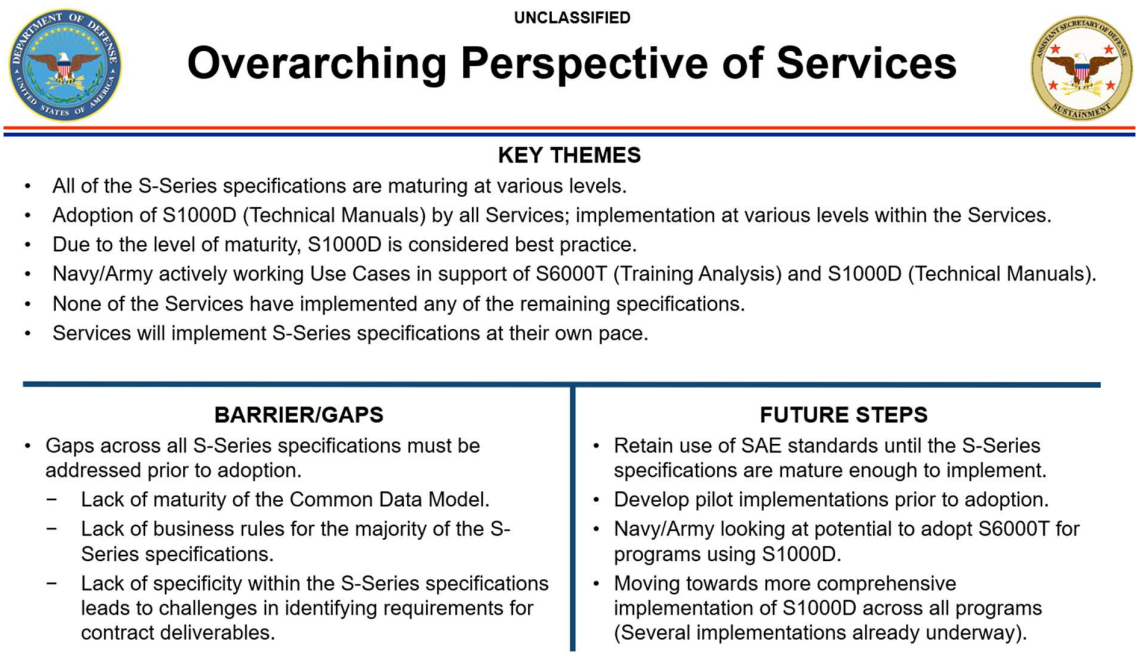

Figure 7 – Overarching Perspective Slide

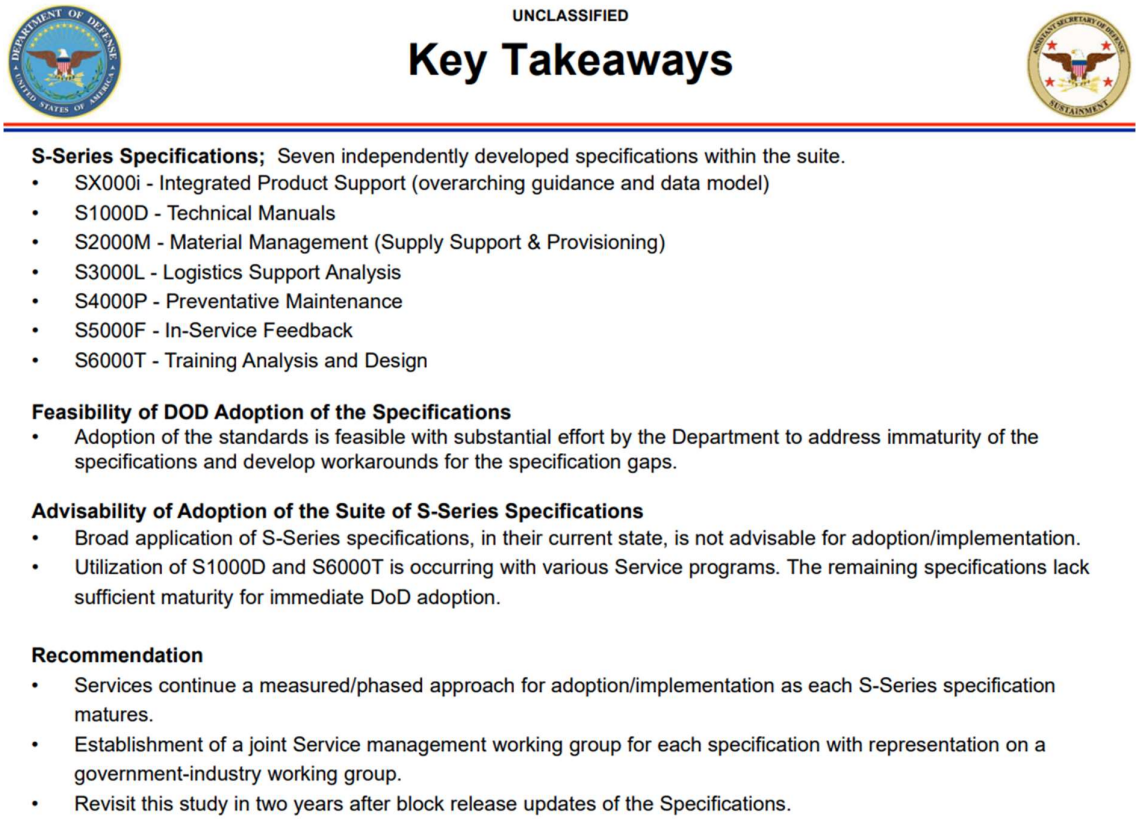

Figure 8 – Key Takeaways Slide

As can be seen in Figures 7 and 8, there is a clear position to continue with the use of S1000D and adopt S6000T. For the rest of the specifications and data models, US representatives are now involved in further development and maturing of these artefacts. As an example, United States DoD are now co-chairs of the IPS Council Defence Interest Group (DIG).

7. The Issues

Differing from other NATO European nations and the United States, current UK MOD ILS/IPS policy and guidance in Defence Standard 00-600 lacks a clear 'direction of travel' for adoption of the S-Series as a set of international specifications for ILS/IPS in the UK. This direction of travel was an ambition of UK Defence industry input to the Support Advantage Charter in 2021.

Whilst accepting there is a need for SA standards options (so all project types can be appropriately addressed), combined with an MOD ILS/IPS Suitably Qualified and Experienced Personnel (SQEP) challenge, personnel within projects are struggling to deal with the current guidance provided by Defence Standard 00-600 for ILS/IPS, SA and the S-Series. **This leads to confusion and wasted time and effort assessing and debating what to do regarding the potential use of the S-Series specifications or other standards.**

The current S3000L shortfall in the traditional scope of the LSA process, may or may not affect a given project, subject to the requirement for LSA/SA tasks that are not addressed by S3000L, i.e. would a project benefit from these missing tasks (some of the 200 & 300 series tasks) or is there only a need for maintenance planning, MTA and an LSAR/LSAD. Many projects are Commercial Off The Shelf (COTS) or modified COTS so there is no or very limited opportunity for supportability design

influence and performing the 200 and some of the 300 series SA tasks. Where there is a requirement for a broader LSA/SA range of activity than that addressed by S3000L, another LSA/SA standard which details the LSA tasks, such as SEA-TA-STD-0017, can be or is used in conjunction with S3000L.

As stated above, S3000L (and some of the other S-Series specifications), have been written by industry for industry. This may be appropriate to some types of Defence support arrangements, such as Capability contracts, as industry will own and perform the support operation. Where this is not the case, the LSAD can still be used in the same way as an LSAR to aid production of IPS Element products which may be for Military Services or industry use. The scope of these products will differ depending on the end user being military or industry personnel.

JSP822 is broader in scope than S6000T. However, there are discussions on the S6000T steering committee about how to include the rest of the ADDIE model (development, implementation and evaluation) in S6000T in the future. Another benefit of using S6000T is that as other defence organisations and NATO start to use the S-Specifications, a common language will be established to describe ILS/IPS activities.

The S6000T data model enables training data to be structured, analysed and used to make informed decisions. Equally, S6000T can be used without the data model. JSP822 does not have a related data model and is a self-contained document.

It is therefore a case of determining the scope of a training programme to assess if JSP822 would be better suited that S6000T for addressing the training design, development and implementation needs.

8. Potential Next Steps

To address the issues summarised above, there are several potential actions.

1. To agree MOD policy should identify the S-Series as the ‘direction of travel’ in its ILS/IPS guidance documents - which includes Defence Standard 00-600.
2. Subject to the above, to amend Defence Standard 00-600 to detail and recommend use of the S-Series - where appropriate.
3. To amend Defence Standard 00-600 to provide more detailed information about the use of LSA Process standards to address the current potential shortfall in S3000L.
4. To be clear in Defence Standard 00-600 about the scope and potential use of S3000L for both SA and LSAD.
5. To assess in detail the scope differences between an S3000L LSAD and a SEA-GEIA-STD-0007C LSAR.
6. To amend Defence Standard 00-600 to provide details about the scope differences between S3000L and SEA-GEIA-STD-0007C.
7. To assess, in detail, the scope differences between S6000T and JSP822 and to subsequently become more involved in the S6000T further development activities.
8. To amend Defence Standard 00-600 to provide details about the scope differences between S6000T and JSP822.
9. To contribute to a potential UK Defence industry initiative, via TD-Info, to become more involved in the further development of the S-Series specifications. This includes S3000L and the possibility to develop the specification to include the LSA Tasks that are not currently addressed. Also to potentially add effort to the development of the individual and overarching data models to speed up completion so the related IT tools would be available sooner for use in the UK Defence domain.