S-100 ICE PT

S-100 Infrastructure Centre Establishment Project Team

Summary of report and recommendations to HSSC-16, May 2023
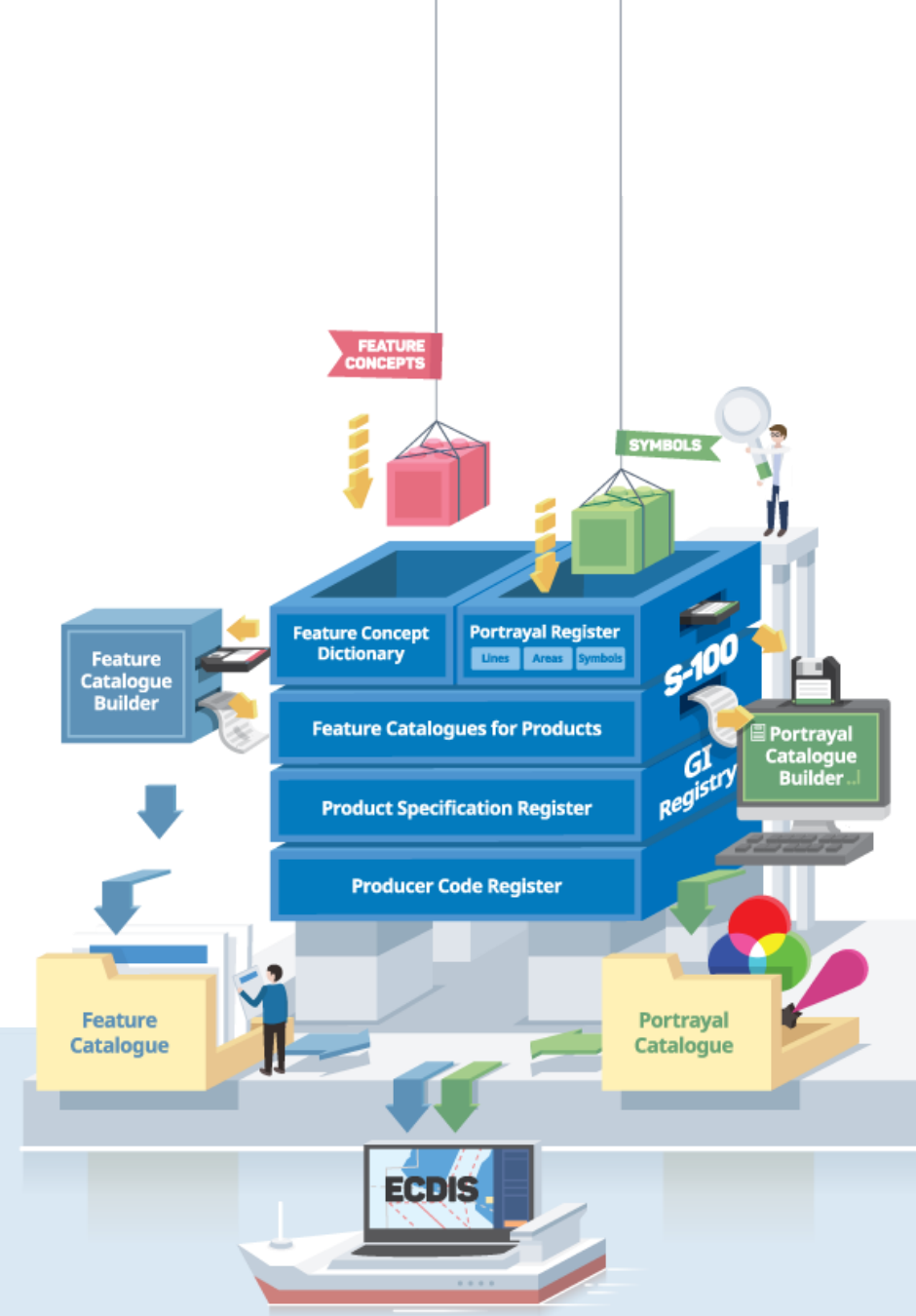
Examples of relevant "infrastructure" pieces
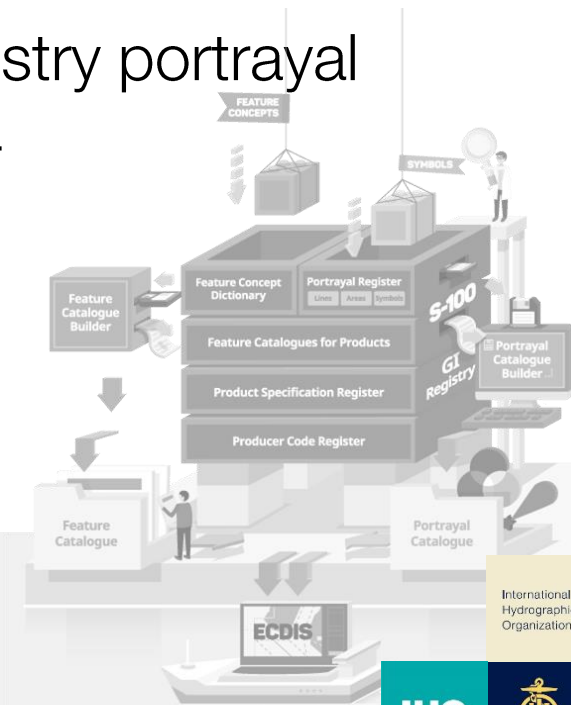
Technology

- Feature Catalogue Builder code

- GI Registry system

- Part 15 Security admin software

- …

Processes

- Security Scheme key management etc.

- QA and secure delivery of S-100 catalogues

- …

Information

- S-164 catalogues

- GI Registry portrayal register

- …

The existing "interim S-100 infrastructure"

- Multitude of tools, services and procedures developed by several contributing organisations, mostly in-kind (see report Annex 2)

- The Republic of Korea has invested a lot into S-100 "operativeness" over the past decade.

- Today, a large part of the interim technical infrastructure is hosted and maintained by KHOA and other organisations in the Republic of Korea.

- Operations are driven mainly from Monaco (IHO Secretariat) and Member States

- Appreciate that without the generous support from the Republic of Korea, S-100 development would probably still be much less mature!

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Current personnel (approximate!)

ROLE	LOCATION	FULL TIME EQUIVALENTS	FINANCING
Technical Director	MC	10%	IHO
Assistant Director (ADDT)	MC	30%	IHO
Technical Standards Support Officer (TSSO)	MC	80%	IHO
IT Officer (ITO)	MC	35%	IHO
Tech specialists (several)	KR	300%	KR
Project officer	MC	30%	KR

Does not include some additional resources provided in-kind at other organisations

About five people full time

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Challenge

A sustainable long-term management structure is needed to maintain and further develop S-100 basic technology, processes and information.

This is a precondition for S-100 operations.

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ICE-PT work plan (part of HSSC work plan)

To develop the management documents and operating plan for the proposed S-100 Infrastructure Center, in particular:

A. Propose role, scope, function and governance of the S-100 Infrastructure Centre

B. Propose composition, identify financial considerations, and suggest working procedures

C. Propose location

D. Propose the timeline for the establishment of the Infrastructure Centre

E. **Support the HSSC with the creation of documents required to submit the proposal to the IHO Council**

F. Conduct the 2023 and 2024 meetings of the S-100 ICE PT

ICE PT work plan: Interpretation

Role	Work plan item A.1	Why? What are the desired results?	✓
Scope	Work plan item A.2	What? Which functions/services need to be supported?	✓
Function	Work plan item A.3	How? How should the support be structured?	✓
Governance	Work plan item A.4	Who decides, and how are decisions made? What management levels are needed? Who appoints the decision makers? What mandate do the decision makers have?	✓
Composition	Work plan item B.1	Who does what? Which key functions need to be staffed?	✓
Financial considerations	Work plan item B.2	Who pays for what? What estimated budget will be required? What financing sources could be appropriate?	✓
Working procedures	Work plan item B.3	How is the work carried out? How do management levels interact? Who is responsible for day-to-day operations?	✗
Location	Work plan item C	Where to place the operations?	✓
Timeline	Work plan item D	When needs to happen what? What steps need to happen and when?	✓

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A.1 ✔ Role proposal

Role

The role of the <u>IHO Infrastructure Centre</u> is to support the development, operation and management of IHO governed products and required/associated IHO services with a common base infrastructure.

Its initial focus will be to get S-100 operational.

HSSC: Decide upon initial priorities. S-100 security scheme operations and validation/distribution of catalogues and S-164 are important and urgent.

HSSC: Propose decision level to change role. HSSC/Council/<u>Assembly</u>?

HSSC: Decide upon right name. We'll get back to that later.

IHO Convention Article V.(e).(xi): Assembly shall decide upon the IHO's operational services, unless this responsibility has been delegated to the Council.

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A.2 ✔ Scope proposal

Scope

The IHO Infrastructure Centre shall provide the following services:

1. *Support of Product Specifications lifecycle*

2. *Management and operation of IHO Geospatial Information Registry*

3. *Support of navigation system type approval*

4. *Management, maintenance and operation of the IHO S-100 Part 15 based Security Scheme*

All items include training and documentation in support of the respective target groups.

HSSC: Propose decision level to change scope. HSSC/<u>Council</u>/Assembly?

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A.3 ✔ Function proposal
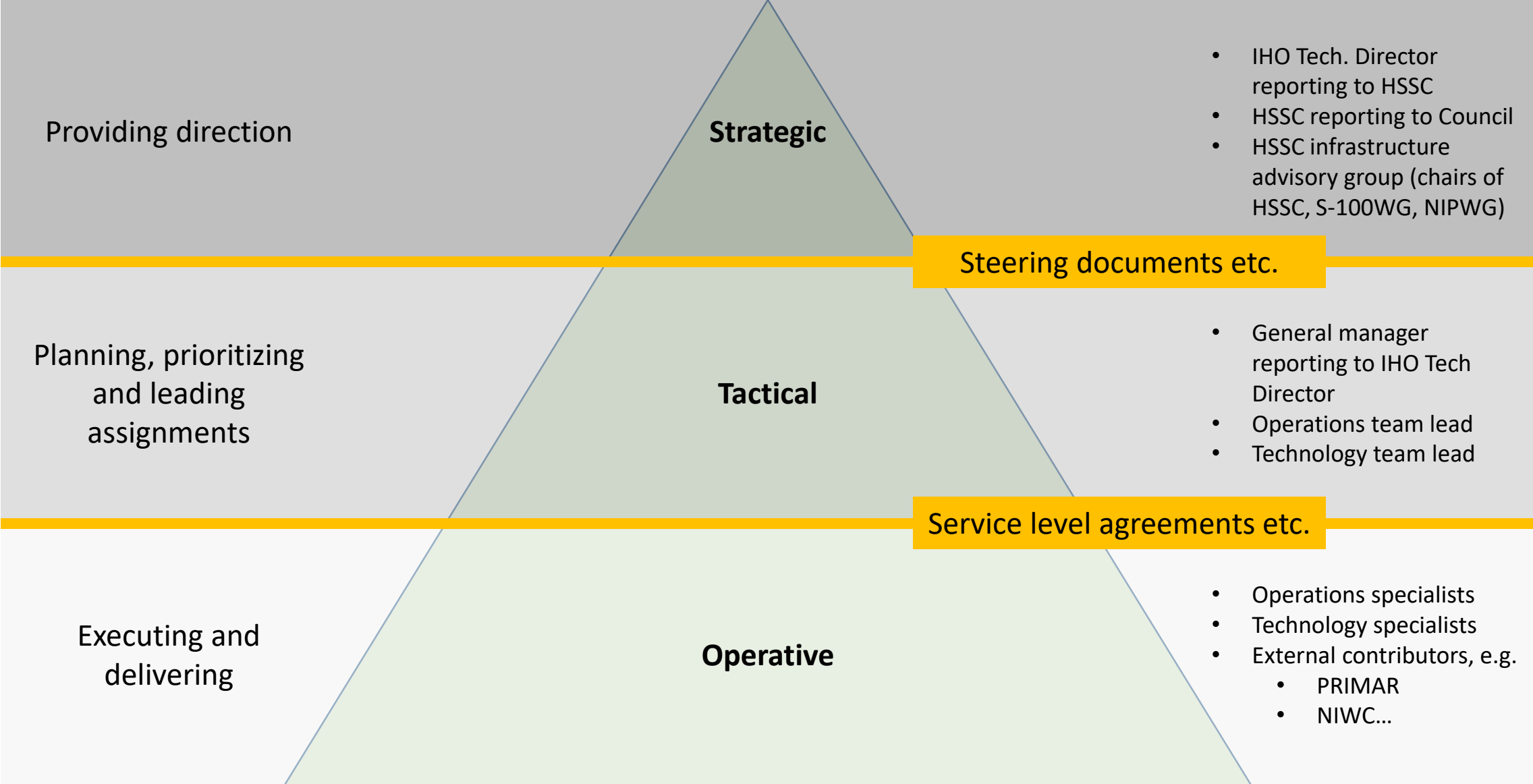
- How?
- How should the support be structured?

Operating concept:

Operations managed outside of the IHO Infrastructure Centre	IHO Infrastructure Centre			IT operations managed by "general IT provider"
	Operative components	**Tactical management of components**	**Technology components maintenance**	

Supported operations:
• Product Specification development and maintenance
• Navigation system type approval
	Lifecycle management of:
	• Operative *processes*
	   • Forms
	   • Templates
	   • Testing documentation
	• *Information* structure
	   • Data models
	• User support (process)
	Operations:
	• GI Registry operations
	• Security Scheme operations
	• Catalogue distribution
	• PS testcycle
		Implementation of directional strategic management provided through IHO Technical Director:
		• **Prioritisation**
		   • Short-term
		   • Long-term
		• **Plans**
		• **Requirements** management
			Lifecycle management of (dev/test/prod):
			• IT **Systems** Code
			• Software tools
			• User support (tech)
			• Systems security
				• IT infrastructure
				• Pure IT support

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What

Management Level

Who / Governance

Providing direction

Strategic

- IHO Tech. Director reporting to HSSC
- HSSC reporting to Council
- HSSC infrastructure advisory group (chairs of HSSC, S-100WG, NIPWG)

Steering documents etc.

Planning, prioritizing and leading assignments

Tactical

- General manager reporting to IHO Tech Director
- Operations team lead
- Technology team lead

Service level agreements etc.

Executing and delivering

Operative

- Operations specialists
- Technology specialists
- External contributors, e.g.
  - PRIMAR
  - NIWC…

A.3 ✓ Function proposal

Function

The IHO Infrastructure Centre's function should be structured to provide lifecycle management for operative and technological components needed to support the services that lie within the scope of the Centre.

Its tactical management should be capable to provide structured prioritisation, short and long-term planning as well as managing functional requirements.

The IHO Infrastructure Centre should also provide operation of the IHO GI Registry, the S-100 Security Scheme, S-100 Catalogue distribution as well as S-100 based Product Specification quality control and testing.

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A.4 ✓ Governance proposal

- Who decides, and how are decisions made?
- What management levels are needed?
- Who appoints the decision makers?
- What mandate and resources do the decision makers have?

Strategic functions

IHO Member States

IHO Secretary General

Reporting to HSSC

IHO infrastructure advisory board
Chairs of HSSC, S-100WG, NIPWG

IHO Technical Director

Tactical functions

IHO Infrastructure Centre (internal structure tbd., total workforce 5-10 people)

Operations team lead

General manager

Technology team lead

Coordinate external in-kind contributions

Operative functions

Operations specialists

Tech specialists

Tech specialists

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A.4 ✔ Governance proposal (1/4)

Governance

The IHO Infrastructure Centre should be an integral part of the IHO Secretariat. Its permanent staff should be employed by the IHO Secretariat. The IHO Infrastructure Centre should be led by the IHO Director responsible for IHO Work Programme 2 ("IHO Technical Director").

On a strategic level, the IHO Technical Director will be the link between IHO Member State fora, in particular HSSC, and the tactical management of the IHO Infrastructure Centre.

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A.4 ✔ Governance proposal (2/4)

Governance

…

In matters related to the scope and function of the IHO Infrastructure Centre, the IHO Technical Director should report to HSSC and will be advised by an IHO Infrastructure Advisory Board, which should consist of the chairs of HSSC, S-100WG and NIPWG.

In human resources related matters, {as well as financial matters,} *the IHO Technical Director should report to the Secretary General of the IHO.*

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A.4 ✓ Governance proposal (3/4)

Governance

…

On a tactical management level, the functions of a general manager, an operations team lead and a technical team lead would be required. Note that these functions would not necessarily require the manning of separate positions. Any external technical contributions delivered to the Centre, e.g. on an in-kind basis, would also be coordinated by the tactical management of the Centre.

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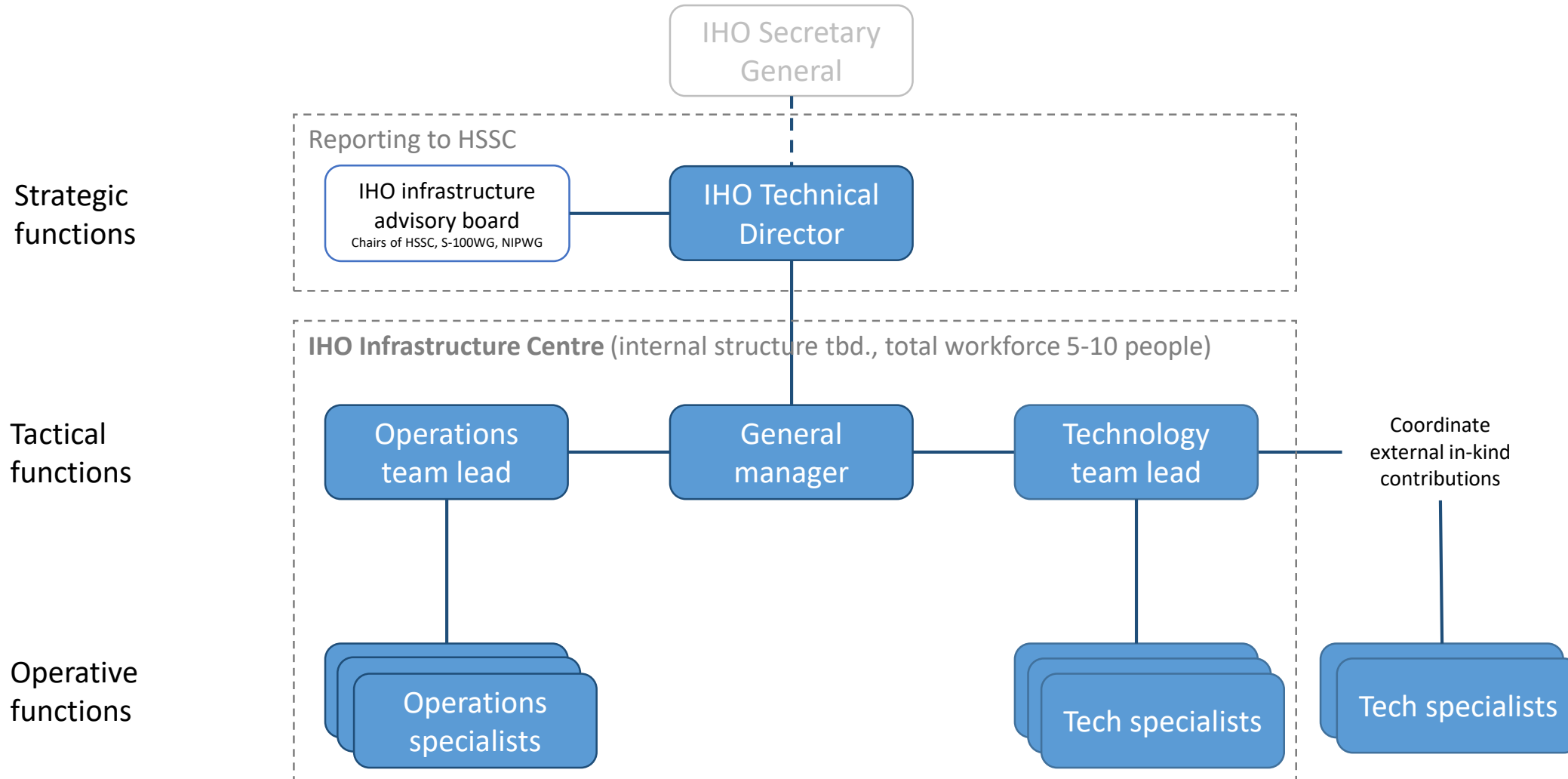# A.4 ✔ Governance proposal (4/4)

Governance

…

Changes to the role of the IHO Infrastructure Centre should be decided upon by the {Council|Assembly}.

{Major|Significant} changes to the scope of the IHO infrastructure services and/or the function of the IHO Infrastructure Centre should be decided upon by the {HSSC|Council|Assembly}.

B✔ Composition proposal

Strategic functions

Tactical functions

Operative functions

Reporting to HSSC

IHO Secretary General

IHO infrastructure advisory board
Chairs of HSSC, S-100WG, NIPWG

IHO Technical Director

IHO Infrastructure Centre (internal structure tbd., total workforce 5-10 people)

Operations team lead

General manager

Technology team lead

Coordinate external in-kind contributions

Operations specialists

Tech specialists

Tech specialists

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Anticipated personnel (approximate!)

ROLE	LOCATION	FULL TIME EQUIVALENTS	FINANCING
Technical Director	MC	30%	IHO
Assistant Director (ADDT)	MC	40%	IHO
IT Officer (ITO)	MC	25%	IHO
General Manager	Tbd.	100%	Tbd.
Technology team lead	Tbd.	100%	Tbd.
Technology specialists (several)	Tbd.	300%	Tbd.
Operations team lead	Tbd.	100%	Tbd
Operations specialist (TSSO)	MC	80%	IHO
Operations specialists (several)	Tbd.	200%	Tbd.
Project officer	MC	10%	KR

Does not include potential additional resources for security scheme (see SS PT's work)

New functions / increased or decreased work load

Almost ten people full time

B✓ Composition proposal

Composition

The IHO Infrastructure Centre should be an integral part of the IHO organization, i.e. organized under the Secretariat, irrespective of where actual work force may be located physically. It should be managed by the IHO Technical Director.

The positions staffed by the IHO Infrastructure Centre should initially cover the following functions: General Manager, Technology team lead, Technology specialists, Operations team lead, Operations specialists (possibly even including resources for the administration of the IHO S-100 Part 15 security scheme)

The details regarding the internal structure of the IHO Infrastructure Centre should fall under the responsibility of the IHO Technical Director, within the confinements of the IHO budget as decided upon by Assembly and Council.

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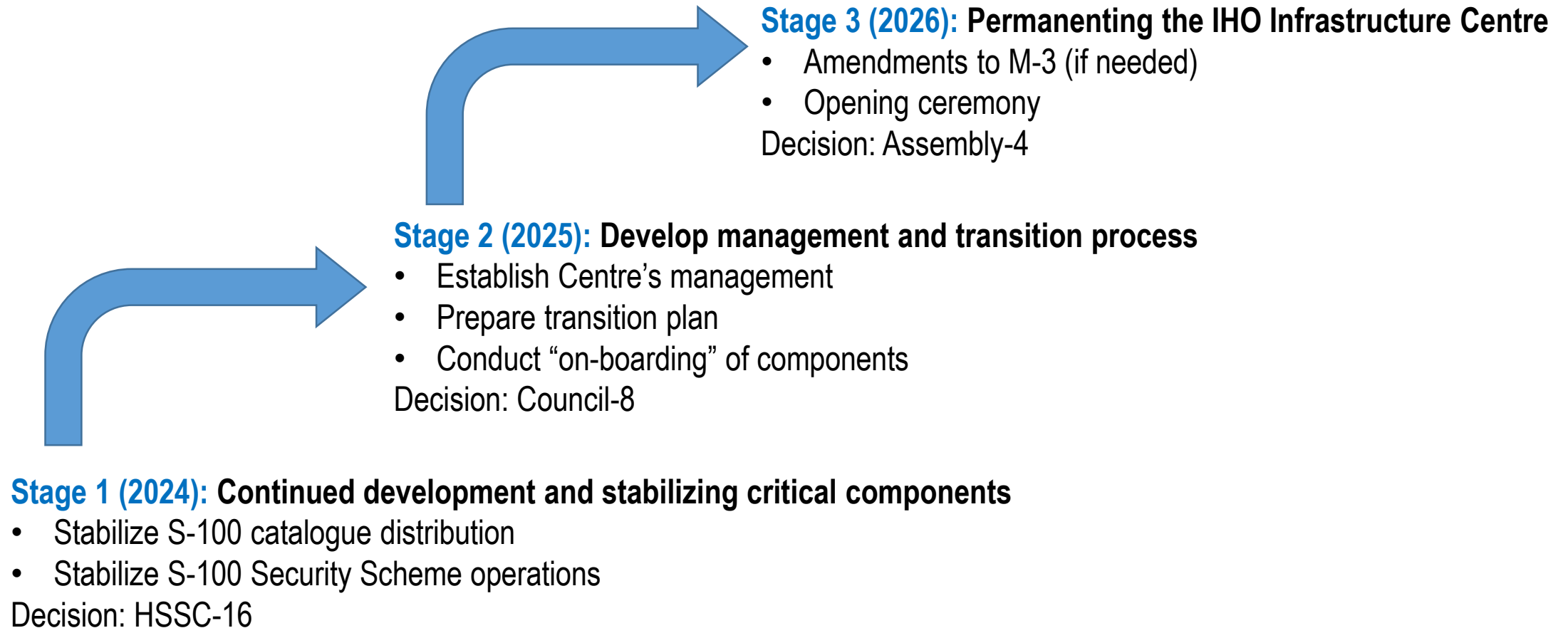Organization

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B✖ Working procedures

Not yet started. Could be left to internal organisation and management during establishment phase 2.

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C✓ Location proposal

- Location ≠ organisational placement

- Present technical knowledge: Republic of Korea & Monaco

- Significant contributions past and future: Republic of Korea

Therefore, the ICE PT suggests the Republic of Korea as the potential host country

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D✓ Timeline proposal

Stage 3 (2026): **Permanenting the IHO Infrastructure Centre**
- Amendments to M-3 (if needed)
- Opening ceremony

Decision: Assembly-4

Stage 2 (2025): **Develop management and transition process**
- Establish Centre's management
- Prepare transition plan
- Conduct "on-boarding" of components

Decision: Council-8

Stage 1 (2024): **Continued development and stabilizing critical components**
- Stabilize S-100 catalogue distribution
- Stabilize S-100 Security Scheme operations

Decision: HSSC-16

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A.1 ✔ Role proposal revisited

What's in a name?

Name

IHO *S-100*	*Infrastructure Centre*	A-3, C-7, HSSC-15
IHO _____	*Infrastructure Centre*	ICE PT preference
IHO *Technical*	*Infrastructure Centre*	
IHO *Operational and Technical*	*Infrastructure Centre*	} Alternatives
IHO *Support*	*Infrastructure Centre*	

…

HSSC: Please pick one (or come up with another one)

The HSSC is invited to:

a) Note the report.

b) Consider the recommendations given by the ICE PT and propose establishing a permanent IHO Infrastructure Centre (official name to be discussed) to the Council. [details on next slide]

c) Consider *quality control and secure delivery of S-100 catalogues and S-164 test datasets* as well as *operative processes for the S-100 Part 15 security scheme* as particularly critical infrastructure components and prioritize their development and management accordingly.

d) Task the ICE PT with supervising the establishment of the IHO Infrastructure Centre, if so decided by Council-8.

e) Task the ICE PT with analysing the IHO Resolutions M-3, in order to propose amendments covering the IHO Infrastructure Centre to HSSC-17 for endorsement, and eventually Council 9 and Assembly-4 for any decisions to amend the IHO Resolutions.

f) Agree upon the proposed new ICE PT work plan, see Annex 4, also adjusting the name of the PT to "IHO Infrastructure Centre Project Team", if applicable.

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The HSSC is invited to:

b) Consider the recommendations given by the ICE PT and propose establishing a permanent IHO Infrastructure Centre (official name to be discussed) to the Council.

Proposal	Summary	Report
Name		6.2
Role	Support development, operation and management of IHO standardized products and associated IHO services	6.2
Scope	PS support, GI Registry, type approval support, Part 15 security	6.3
Function	Lifecycle management for technology, information and processes	6.4
Governance	Part of IHO Sec.; tech director reporting to advisory board	6.5
Composition	General manager, technology team, operations team	6.6
Financial considerations		6.7
Location		6.8
Timeline	Three stages: 2024 (HSSC-16) – 2025 (C-8) – 2026 (A-4)	6.9

Thank you!

ICE PT composition/membership: See report Annex 3