STEMPA GUIDEBOOK

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Purpose

This guidebook supports practitioners managing multi-party project agreements under STEMPA. It is written for researchers, research administrators, legal teams, and contracts management professionals across participating public sector institutes, and is designed to be used as a practical reference throughout the alignment discussions.

It outlines structured frameworks for aligning project agreements, escalation protocols, and pre-aligned positions on key issues such as foreground intellectual property ownership, data ownership, and revenue sharing. Checklists, templates, and reference materials are provided to help teams navigate discussions more confidently, reduce delays, and complete project agreements within the mandated timeline.

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The STEMPA Initiative was formed at the direction of the Human Health and Potential (HHP) EXCO. Participating institutes may contact the STEMPA Secretariat at stempa_secretariat@stempa.sg.

INTRODUCTION

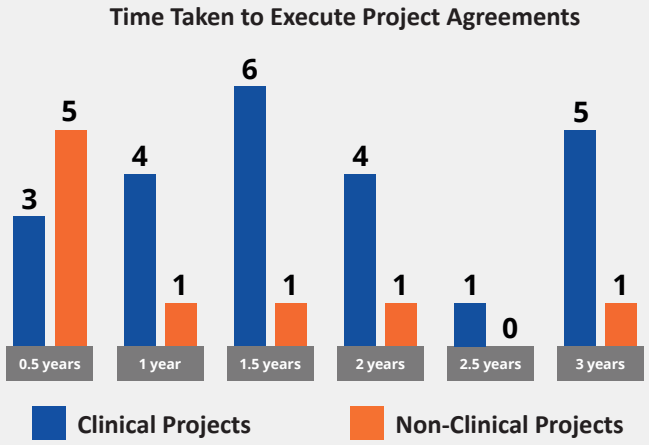
The Shorten Time to Execute Multi-party Project Agreements (STEMPA) initiative is an ecosystem-wide solution that simplifies negotiations, reduces delays, and establishes clear and consistent terms across participating institutes for major public grant-funded research programmes under the Human Health and Potential (HHP) domain.

1.1 Why STEMPA

Research collaborations in Singapore have often been slowed by prolonged negotiations, unclear governance, and misaligned expectations between participating institutes.

For researchers, this can delay project start dates and erode momentum. For operational and administrative colleagues, this results in repeated negotiation cycles and significant workload pressures.

An analysis of projects funded by the Research, Innovation and Enterprise (RIE) 2020 shows that more than half required over one year to execute project agreements (PAs). Clinical projects were particularly affected, taking approximately three times longer to complete agreement execution than non-clinical projects. Ten projects exceeded two years.



Distribution of time required to execute PAs for RIE2020-funded research projects, highlighting the significantly longer timelines for clinical projects.

58% of Research, Innovation and Enterprise (RIE) 2020 projects* took more than a year to execute a project agreement.

Clinical projects take **3 times longer** to finalise project agreements.

**Funded by the Open Fund – Large Collaborative Grant (OF-LCG) and Industry Alignment Fund – Pre-Positioning Programme (IAF-PP).*

Delays in finalising PAs lead to inefficiencies, wasted resources, and increased risks related to governance, intellectual property, and data management.

THE WASTAGE

Inefficiencies and Wasted Resources

- Most negotiations take years, wasting manpower and funds.
- Raise barriers to entry for research in Singapore.
- Higher project costs.

Lost Opportunities and Risks

- Industry partners require speed. Long timelines hinder future collaboration.
- Cutting-edge research risks becoming slowed down.
- Lack of governance raises risks around intellectual property (IP), data, and sample use.

Protracted negotiation timelines result in inefficiencies, wasted resources, lost opportunities, and risks.

1.2 What STEMPA Resolves

STEMPA achieves efficiency through mandated timelines and shared negotiation best practices. It also establishes pre-aligned positions on key issues across participating institutes. These are supported by governance mechanisms that enable timely resolution of contentious issues when alignment cannot be reached within the project team.

FASTER TURNAROUND

Mandated four-month timeline for submitting project agreements.

(See more in **Section 1.4**)

BEST PRACTICES TO STREAMLINE ALIGNMENT

Practical guidance for managing project agreements, including templates, checklists, and reference materials to streamline discussions. There is a Standing Escalation Committee for resolution of impasses.

(see more in **Chapter 2**)

ECOSYSTEM ALIGNMENT & GOVERNANCE

Ecosystem pre-aligned positions on IP, data, and revenue sharing.

(see more in **Chapter 3**)

STEMPA brings about three tangible benefits for participating institutes and their project teams.

1.3 The Team Behind STEMPA

The STEMPA Initiative was established under the direction of the Human Health and Potential (HHP) executive committee (EXCO).

It is the result of a collaboration across institutions in Singapore, including the three public healthcare clusters, institutes of higher learning, Agency for Science, Technology and Research (A*STAR) and Consortium for Clinical Research and Innovation, Singapore (CRIS) units. Representatives from research, legal, and contracts management functions across these institutions have worked together to identify the causes of PA delays and develop the recommendations set out in this guidebook.

Grantor agencies, including the National Medical Research Council (NMRC) and the Office of Grants Administration under A*STAR, have also been closely involved as observers of the STEMPA process.

All STEMPA recommendations have been endorsed by the HHP EXCO and senior leadership of Singapore's public sector institutions.

In summary, STEMPA represents a national commitment to shorten the time required to execute multi-party PAs for the public healthcare sector.

Co-Chairs

Prof Ranga Krishnan

Mr Suresh Sachi

Steering Committee & Work Group

NUHS National University Health System

NHG Health

NUS National University of Singapore

DukeNUS Medical School

SingHealth *Defining Tomorrow's Medicine*

Nanyang Technological University Singapore

Agency for Science, Technology and Research Singapore

CRIS Consortium for Clinical Research and Innovation Singapore

Observers

Ministry of Health Singapore

Ministry of Education Singapore

NMRC National Medical Research Council Singapore

Agency for Science, Technology and Research Singapore

NRF Singapore

Secretariat

BMS IPO Singapore

Singapore Clinical Research Institute

Governance and stakeholder groups involved in the development of STEMPA.

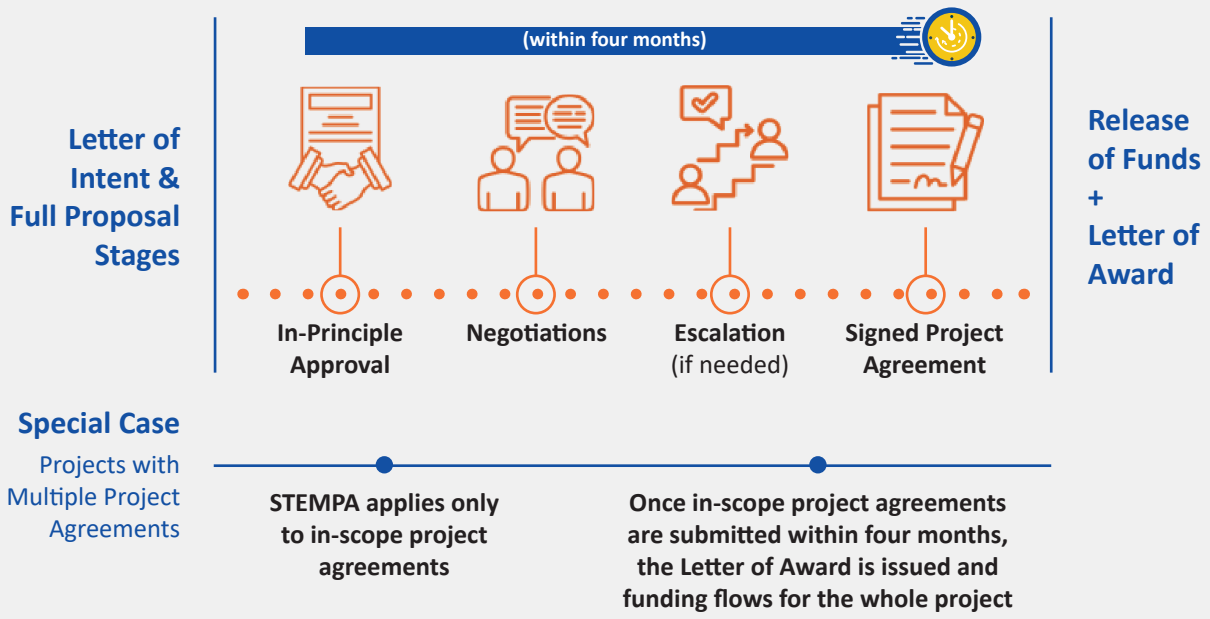
1.4 What Has Changed:

Clearer Workflow with a Four-Month Project Agreement Timeline

STEMPA sets out clear steps and timelines to guide projects from proposal to launch, with a clear requirement to submit in-scope PAs within **four months**. The timeline is necessary to support early alignment on project agreements, enabling timely issuance of the Letter of Award (LOA) and release of funds.

In conventional grant workflows, selected or approved proposals would receive a LOA and funding after the Letter of Intent and Full Proposal stages. There was no required deadline for submitting PAs.

STEMPA introduces a different approach. For major grants under the HHP domain, selected proposals will receive in-principle approvals instead of immediate LOAs. PA discussions will then begin at this stage and must be completed within four months. Once all in-scope PAs are submitted, the LOA is issued and funding is released. The four-month requirement for in-scope PAs applies even where a project includes additional out-of-scope agreements.



The STEMPA workflow showing in-principle approval, PA negotiations, and funding release after submission within four months, enabling a timely start to the project.

Illustrative Example

If a project receives in-principle approval on 1 January 2027, all in-scope PAs must be executed and submitted to the grantor by 30 April 2027. Once the in-scope PAs are submitted within this four-month timeline, the LOA will be issued and funding will flow, allowing the project to commence.

1.5 What is Covered

STEMPA applies to a defined set of public sector research grants under the HHP domain. The diagram below summarises what falls within STEMPA's scope, what is excluded, and how cases involving multiple PAs are handled.

When and where does STEMPA apply?

With effect from FY2026 (i.e. RIE2030), STEMPA applies to projects and programmes funded by:

- NMRC OF-LCG
- HHP MISSION Stream 1

What is in scope?

- PAs between Singapore public sector institutions

What is out of scope?

- PAs involving:
  - Private sector or industry partners
  - Foreign institutions or entities
- Clinical trials and clinical trial agreements

How does STEMPA work for projects with multiple PAs?

- STEMPA applies only to in-scope PAs
- All in-scope PAs must be submitted within four months

Once the in-scope PAs are submitted within the timeline:

- LOA is issued
- Funding flows for the entire project, including out-of-scope components

The scope of STEMPA.

The following case studies illustrate how STEMPA's scope applies in practice.

Illustrative Case Study 1

In a hypothetical HHP MISSION Stream 1 project, there is one PA to be signed among the participating Singapore public sector institutes.

As the PA falls within STEMPA's scope, it must be signed and submitted to the grantor within four months for funds to flow and the Letter of Award (LOA) to be issued.

Illustrative Case Study 2

In a hypothetical programme funded by the Open Fund – Large Collaborative Grant (OF-LCG), there are five thematic projects, each with a PA to be signed among relevant institutions.

The table below outlines the five thematic projects and whether they come under STEMPA.

Theme Number	Description	Institutions Involved In Signing PA	PA Within Stempa's Scope?
1	Multi-omics profiling of patient samples for biomarkers discovery	• A hospital or specialist centre under SingHealth • A hospital under National University Health System (NUHS) • A hospital under NHG Health • An A*STAR Research Institute (RI)	Yes.
2	AI and predictive modelling	• National University of Singapore (NUS) • Nanyang Technological University (NTU) • Duke-NUS • A*STAR RI	Yes.
3	Mechanistic study of regional microenvironmental determinants of drug resistance	• A hospital/specialist centre under SingHealth • XXX Medical College from another country • YYY University Hospital from another country	No, as it involves foreign institutes in execution of PA.
4	Development of novel platforms and therapeutics assets with clinical trial	• A SingHealth hospital • A diagnostics company • A biotech company • A pharmaceutical company	No, as it involves a clinical trial, as well as industry partners for execution of the PA.
5	Socioeconomic study and community outreach programmes development	Multiple hospitals across Singapore public sector institutions	Yes.

All in-scope PAs (i.e. from Themes 1, 2, and 5) must be submitted within the required four-month timeline for the LOA to be issued and funding to flow for the entire OF-LCG programme.

This example shows that only PAs involving Singapore public sector institutions and falling within STEMPA's scope are subject to the four-month timeline.

ALIGNING PROJECT AGREEMENTS UNDER STEMPA

This chapter sets out the structured collaboration framework under STEMPA for working out project agreements (PAs). The PAs typically come under the Public Sector Master Research Collaboration Agreement (PS MRCA). The chapter explains how participating institutes should work together to align PAs, manage timelines, and address issues constructively, so that PAs can be executed within the mandated timeframe.

2.1 Roles and Responsibilities

STEMPA clarifies the roles of the Host Institute, participating institutes, and Lead Negotiators. The clarity of roles supports coordinated discussions, timely decision-making, and effective issue resolution throughout the alignment process.

Host Institute

The Host Institute for each project is specified in the in-principle approval letter. It is the institute of the project's lead Principal Investigator (PI). The Host Institute leads the project agreement discussions, issues the term sheet, coordinates meeting schedules, and prepares the draft project agreement.

Participating Institute

The legal entity participating in the project.

Lead Negotiator

Each institute, whether the Host Institute or a participating institute, must appoint a Lead Negotiator. The Lead Negotiator is authorised to represent the institute's positions and is responsible for key aspects of the project, including project scope, data, intellectual property and commercialisation, and legal review.

Special Case

Duke-NUS will be considered a separate participating institute and will appoint its own Lead Negotiator, even though it is part of the National University of Singapore (NUS).

Roles and responsibilities of the Host Institute, participating institutes, and Lead Negotiators in aligning PAs under STEMPA.

2.2 Meeting Cadence

To support steady progress, meetings related to the PA should be scheduled upfront, at recommended intervals of two weeks. The Host Institute coordinates the scheduling of these meetings. This is to avoid delays caused by scheduling constraints.

The standard framework anticipates up to eight meetings within four months of the in-principle approval (IPA). Fewer meetings may be scheduled, but do note that substantive negotiations should ideally conclude within three months of the issuance of the IPA.

The fourth month should primarily be reserved as a period for the final drafting of the PA and, where necessary, the escalation of unresolved issues. No extension will be granted beyond four months except in exceptional circumstances.

2.3 Identify Potential Areas of Contention Early

Participating institutes are encouraged to surface their positions early, particularly on issues that commonly require more time to resolve.

Annex A provides a checklist of potential contentious issues. Practitioners may use this as a starting point to identify areas that may require further discussion or clarification.

STEMPA has established five pre-aligned positions on key issues to support alignment across participating institutes. These positions should be treated as standardised terms for in-scope grant schemes and need not be renegotiated. They are:

- **Foreground intellectual property ownership**
- **Revenue sharing from commercialisation of foreground intellectual property**
- **Foreground data ownership**
- **Data sharing governance and controls**
- **No data-related indemnities, warranties, and liability caps**

Refer to **Chapter 3** for details.

2.4 Parallel Discussions

Parallel discussion tracks should be established to address specialised issues, rather than handling them sequentially. This allows smaller teams to focus on specific technical or functional issues, supports more focused discussions, and helps to avoid delays caused by scheduling constraints. It also enables project teams to discuss and resolve issues in parallel.

In parallel discussions, each track should have its own meeting schedule. However, all tracks must aim to complete their discussions by the sixth meeting.

The Lead Negotiator remains accountable for alignment behalf of their participating institute, even where discussions are delegated to specialised teams.

Illustrative Case Study 1

Managing Parallel Discussions

In a hypothetical multi-party project, the participating institutes may hold different positions on three main issues: data security requirements, the breakdown of revenue sharing, and the treatment of indemnities and liability caps.

To support clearer and more focused discussions, the Host Institute could propose establishing parallel discussion tracks under the STEMPA framework:

Track 1 – Data Security

Technical representatives and data protection officers would meet separately to define the appropriate safeguards and align on the data classification and security measures required by each participating institute.

Track 2 – Revenue Sharing

Research office and finance representatives would work together to assess each participating institute's contributions, determine their relative weightage, and propose a fair revenue-sharing model.

Track 3 – Indemnities & Liability Caps

Legal and research governance representatives would align on operationalising this position through the project agreements, ensuring that roles and responsibilities across participating institutes are clearly defined in accordance with the Data Responsibilities Framework (Annex E), and supported by a structured incident resolution approach to enable accountability and governance-based risk management.

Each track would maintain its own meeting schedule, but all three groups would report their progress to the respective Lead Negotiators. This would enable technical, financial, and legal issues to advance simultaneously, while ensuring that accountability remains with the Lead Negotiators. This structured approach could help the project team reach alignment more efficiently.

2.5 Activating the Standing Escalation Committee

The Standing Escalation Committee (SEC) provides a structured and senior-level pathway for addressing issues that cannot be resolved through working-level discussions.

The SEC comprises senior leaders from each participating institute:

Agency for Science, Technology and Research SINGAPORE	CRIS Consortium for Clinical Research and Innovation Singapore	DukeNUS Medical School	NUHS National University Health System
Chief Executive Officer	**Chief Executive Officer**	**Dean**	**Chief Executive Officer**
NHG Health	SingHealth Defining Tomorrow's Medicine	Nanyang Technological University Singapore	NUS National University of Singapore
Group Chief Executive Officer	**Group Chief Executive Officer**	**Provost**	**Provost**

Illustrative Case Study 1

In a hypothetical Open Fund – Large Collaborative Grant (OF-LCG) project, the discussion may involve multiple participating institutes: Agency for Science, Technology and Research (A*STAR)'s Genome Institute of Singapore (GIS) and Bioinformatics Institute (BII), the Cardiovascular Disease National Collaborative Enterprise (CADENCE) under the Consortium for Clinical Research and Innovation, Singapore (CRIS), Duke-NUS Medical School, National University of Singapore (NUS), National Cancer Centre Singapore (NCCS), and Singapore General Hospital (SGH).

As the project could span participating institutes from A*STAR, CRIS, Duke-NUS Medical School, NUS and SingHealth, the following SEC members would be activated:

Agency for Science, Technology and Research SINGAPORE	CRIS Consortium for Clinical Research and Innovation Singapore	DukeNUS Medical School
Chief Executive Officer	**Chief Executive Officer**	**Dean**
NUS National University of Singapore	SingHealth Defining Tomorrow's Medicine	
Provost	**Group Chief Executive Officer**	

The Host Institute's Lead Negotiator would coordinate with these SEC members to convene an escalation meeting if the project team cannot reach alignment on key issues.

By only involving the SEC members from the participating institutes directly represented in the project, the escalation process remains focused, efficient, and aligned with STEMPA's principle of resolving issues at the appropriate senior level.

2.5.1 Trigger

If issues remain unresolved during the third month or by Meetings 4 to 5, whichever is earlier, preparations for escalation should begin.

The Lead Negotiator of the Host Institute notifies all parties and initiates the involvement of the SEC.

2.5.2 Procedure

The Lead Negotiator of the Host Institute informs the other Lead Negotiators by Meeting 4 or by the start of the third month, whichever is earlier, that escalation will proceed if matters are unresolved by the next meeting.

To notify SEC, the Lead Negotiator should send an email to the relevant SEC members[1] with the subject tag "[STEMPA Standing Escalation Committee]". The email template is provided at **Annex B1**, and the issues summary template is at **Annex B2**. The relevant STEMPA Steering Committee Research representatives at **Annex B3** should be looped in (cc-ed) as well.

The Host Institute then schedules the escalation meeting with the Personal Assistants of the relevant SEC members. Lead Negotiators of each participating institute should give an in-depth briefing to their respective institute's SEC member before the escalation meeting.

2.5.3 Use of the Escalation Mechanism

The escalation pathway under STEMPA supports the timely resolution of issues that cannot be resolved through working-level discussions. By escalating such matters early and in a structured manner to the Standing Escalation Committee, project teams enable senior-level decisions to be made promptly, so that all participating institutes can meet the four-month project agreement submission timeline.

Where material issues remain outstanding but have not been escalated through the Standing Escalation Committee, grantors may view these circumstances unfavourably when considering any requests for extensions to the four-month timeline. Project teams are therefore encouraged to use the escalation mechanism to support timely alignment and project commencement.

[1] *Contact information for SEC members may be found here:* ***https://www.sgdi.gov.sg/search-results****.*

2.6 Summary of Workflow

STEP 1 Identification of Host Institute and Lead Negotiators

- Upon or even before in-principle approval (IPA), the Host Institute for the project must be identified.
- Lead Negotiators of each participating institute are to be identified.

STEP 2 Establish Cadence of Meetings

- Upon IPA, all meetings to discuss the project agreement should be scheduled upfront to drive discussions in a timely manner.
- Host Institute is to drive the organisation of meetings.
- Parallel discussions should be established if there are issues that require a different set of domain experts or decision makers.

STEP 3 Pre-Meeting Preparation

- Host Institute's Lead Negotiator should draft a Project Workplan, based on the grant proposal, to support discussion at Meeting 1.
- All Lead Negotiators should identify possible areas of contention and align within their respective participating institutes before Meeting 1.

(Refer to **Annex A** for a checklist of common contentious issues.)

STEP 4 Project Agreement Alignment Across Institutions

- Within three months of IPA issuance, substantive discussions should conclude. This includes finalisation and initiation of signing for execution.
- Pre-aligned positions and template clauses, as found in the project agreement template annexed in the grant IPA letter, may be used to support alignment and drafting.

STEP 5 Escalation to the Standing Escalation Committee (if required)

- Escalation to the STEMPA Standing Escalation Committee is not required for all project agreements. It is initiated only if unresolved issues remain after internal alignment efforts and structured discussions.
- If such issues persist by the third month after IPA, project parties should first exhaust their internal escalation pathways. The Host Institute's Lead Negotiator may then proceed to activate the Standing Escalation Committee, following the protocols outlined in Annexes **B1**, **B2**, and **B3**.

STEP 6 Project Agreement Execution and Submission

- After in-scope project agreements are submitted to the grantor within four months, the Letter of Award is issued and funding flows for the whole project.

PRE-ALIGNED POSITIONS

STEMPA simplifies discussions on project agreements through ecosystem-wide, pre-aligned positions on five key contractual and governance issues, as shown in the diagram below. These five positions are endorsed by all participating institutes. In particular, the following three out of five pre-aligned positions are mandated and integrated into grant conditions, and must be adopted in the PAs:

Foreground intellectual property ownership

Foreground data ownership

No data-related indemnities, warranties, and liability caps

By eliminating the requirement to renegotiate foundational terms for every project, STEMPA enables participating institutes to focus on project-specific issues. Standard clauses are provided to support consistent and immediate adoption.

The diagram below illustrates STEMPA's five pre-aligned positions, serving as a quick-reference guide for practitioners, while the following sections do a deeper dive into each of these positions.

FOREGROUND IP OWNERSHIP*

- Ownership based solely on inventive contribution
- Alignment with international and national principles
- The Public Sector Master Research Collaboration Agreement (PS MRCA) Factsheet at **Annex C** provides clarity on inventive and non-inventive contributions

REVENUE SHARING FROM COMMERCIALISATION OF FOREGROUND IP

- Both inventive and non-inventive contributions recognised for revenue sharing from commercialisation of Foreground IP

FOREGROUND DATA OWNERSHIP*

- Data belongs to those who collect, generate, and/or enhance it
- Non-owner contributors retain access rights
- The Data Collaboration Dictionary defines data-related actions that confer ownership based on collection, generation, or enhancement

DATA SHARING GOVERNANCE & CONTROLS

- The STEMPA Data Sharing Guidebook sets out agreed governance principles and operational controls for the secure sharing, management, and use of healthcare data
- The Data Sharing Guidebook also provides harmonised operational templates, such as Data/ Sample Request Forms and the Third-Party Access Terms and Conditions

NO DATA-RELATED INDEMNITIES, WARRANTIES, & LIABILITY CAPS*

- Delineates responsibilities with regard to data (e.g. contributors, custodian, and users)
- No inclusion of warranties, indemnities, and liability caps in project agreements
- Established pathway to resolve data breaches or other data-related incidents

**These terms and conditions will be mandated as part of the grant requirements.*

A summary of STEMPA's five pre-aligned positions.

3.1 Foreground Intellectual Property Ownership

STEMPA Pre-Aligned Position 1:
Foreground intellectual property ownership is determined solely by inventive contribution.

Following international guidelines, Singapore's National Intellectual Property (IP) Protocol, and the Public Sector Master Research Collaboration Agreement (PS MRCA), public sector institutions in Singapore have aligned on a core principle: **foreground IP (FIP) ownership is determined solely by inventive contribution.**

This FIP ownership position is mandated through the grant conditions of schemes under STEMPA. All projects funded under such schemes must adopt this position.

Non-inventive contributions, such as providing key data or samples, are recognised through revenue sharing. This clarity removes a major source of delays in project agreement discussions.

For guidance on what constitutes inventive and non-inventive contributions, refer to the PS MRCA Factsheet in Healthcare (**Annex C**), developed by the National IP Working Group (IPWG) secretariat and supporting agencies.

3.2 Revenue Sharing from Commercialisation of Foreground Intellectual Property

STEMPA Pre-Aligned Position 2:
All inventive and non-inventive contributors will be recognised through revenue sharing.

This pre-aligned position confirms that both inventive and non-inventive contributions should be recognised through revenue sharing of proceeds from commercialisation of FIP.

The ecosystem will reference the PS MRCA Factsheet in Healthcare (**Annex C**) to guide what qualifies, e.g. data, software, or facilities provided by institutions. These assets contribute significant value even if they do not generate new IP.

3.3 Foreground Data Ownership

STEMPA Pre-Aligned Position 3: Ownership of data by collection, generation, and/or enhancement. Non-owner contributors to the data will have access rights.[2]

For projects under STEMPA, the ecosystem-wide, pre-aligned position of ownership for data generated in multi-party research collaboration agreements in the public sector is as follows.

Ownership of Foreground Research Data by Collection, Generation, and/or Enhancement

Foreground Data[3] created from research projects under STEMPA shall be owned based on each participating institutes' activities in*:

a. **Collection** of new data; and/or

b. **Generation** of new data from **Background Data / Materials[4]**; and/or

c. **Enhancement** of **Background Data[4]**.

**Should there be a scenario where the ownership of data as defined under signed consent forms conflicts with the above principle, data shall be owned as stipulated by signed consent forms.*

3.3.1 Data Collaboration Dictionary

Building on the pre-aligned position on data ownership, STEMPA introduces a Data Collaboration Dictionary (**Annex D**). This is a practical tool to support the consistent real-world application of the STEMPA data ownership principle.

The dictionary provides a standardised vocabulary and common benchmark for discussions on research data ownership, which helps to:

- Reduce friction by clarifying terminology, roles, and expectations.
- Enable participating institutes to clearly define and apply ownership positions.
- Support structured discussions on whether specific data-related activities confer ownership or access rights.

[2] Further details on how access rights are operationalised are pending STEMPA Workgroup consensus and will be incorporated in a subsequent version of this Guidebook.

*[3] **Foreground Data***
"Foreground Data" refers to any new data created within the scope of the research collaboration through a meaningful contribution, including through the collection of new data, generation of new data from background data or materials, and/or enhancement of background data resulting in a new or enhanced dataset. Foreground data does not override pre-existing terms and conditions attached to background data; foreground datasets inherit applicable terms and conditions, unless expressly agreed otherwise.

*[4] **Background Data / Materials***
"Background Data/Materials" refers to any data or materials that are contributed or made available as inputs to a research activity, on which collection, generation, or enhancement is performed, regardless of whether such data was created prior to the collaboration or earlier within the same research project. Data created as foreground data at one stage of a project may subsequently constitute background data for later stages where it serves as the underlying input to further activities. Ownership of background data remains with the contributing party(ies).

3.4 Data Sharing Governance and Controls

STEMPA Pre-Aligned Position 4: Reference of the Data Sharing Guidebook for data sharing governance and controls

To support consistent and responsible data sharing across the ecosystem, a STEMPA Data Sharing Guidebook was developed. This guidebook articulates accepted governance principles and operational controls for secure sharing, management, and use of healthcare data. It clarifies Singapore's healthcare data-sharing requirements for multi-party research collaborators from both healthcare and non-healthcare institutions.

Healthcare data is subject to stringent legal, ethical, and institutional obligations (e.g. the Personal Data Protection Act, Ministry of Health (MOH)'s HealthTech Instruction Manual, Human Biomedical Research Act, and other healthcare-specific policies). These can create operational complexity for researchers and administrators working across multiple institutions. The Data Sharing Guidebook provides clear, practical guidance on how to meet these obligations in real-world research settings. Key features include guidance on:

- Using anonymised and de-identified data, including MOH-aligned standards and risk-mitigation approaches
- The role of Trusted Third Parties (TTPs) in supporting data treatment
- Data lifecycle controls, covering preparation, transfer, storage, retention, and secure disposal
- Access governance, including approval pathways
- Managing data incidents
- Compliance considerations when navigating applicable regulations, policies, and standards
- The general data sharing approval workflow adopted by public healthcare institutions

The Data Sharing Guidebook also provides harmonised operational templates, such as Data/Sample Request Forms and the Third-Party Access Terms and Conditions.

*The STEMPA Data Sharing Guidebook will be made available for download on the **STEMPA website** when it is finalised.*

3.5 No Data-Related Indemnities, Warranties, and Liability Caps

STEMPA Pre-Aligned Position 5: No contractual data-related indemnities, warranties, and liability caps. A formal pathway for resolving liabilities arising from data-related incidents is instituted.

The STEMPA position is that there should be **no contractual data-related indemnities, warranties, or liability caps governing multi-party public-sector research collaborations**.

This approach is grounded in governance rather than contractual risk transfer, and requires the establishment of:

- Clear and well-defined responsibilities of participating institutes involved in data collaborations; and
- A structured data incident resolution process to manage incidents consistently and fairly.

Accordingly, this section of the guidebook sets out:

1. A **Data Responsibilities Framework**, documenting the roles and responsibilities across the data lifecycle; and
2. A **Data Incident Resolution Pathway** that prioritises good-faith resolution among participating institutes based on documented responsibilities. Escalation to governance bodies (including the Standing Escalation Committee and HHP EXCO) happens only where consensus cannot be reached and material implications arise.

Together, these measures provide participating institutes with a clear, consistent, and principled mechanism for managing data incidents within the STEMPA framework, while supporting trust, accountability, and sustained collaboration across parties.

3.5.1 Data Responsibilities Framework

To operationalise this governance-based approach, a **Data Responsibilities Framework** (Annex E) is set out below to document, at a guiding level, the roles and responsibilities of participating institutes involved in data collaborations within the scope and duration of a multi-party research project among the public sector.

This framework identifies the responsibilities of key data management actors that handle, access, or oversee research data during the project period. The responsibilities outlined reflect good data governance practices across the typical data lifecycle of a multi-party research collaboration.

The framework supports participating institutes to:

- Clearly establish and document roles within a collaboration;
- Align expectations on accountability and good data governance practices; and
- Support consistent assessment of responsibilities in the event of a data incident arising within the scope of the project.

3.5.2 Data Incident Resolution Pathway

In line with the STEMPA position that **there shall be no contractual data-related indemnities**, **warranties**, **or liability caps**, participating institutes are expected to manage and resolve data-related incidents through **defined responsibilities and governance mechanisms**, rather than contractual risk-shifting.

Accordingly, this section sets out a **structured**, **tiered pathway** for resolving data incidents arising from multi-party research collaborations under STEMPA. The pathway prioritises **good-faith resolution among participating institutes**, with escalation mechanisms activated only where necessary.

This pathway:

- Provides clear, practical steps for participating institutes to follow when a data incident occurs; and
- Guides the design of research collaboration agreements and operational processes in line with STEMPA principles and practices.

Guiding Principles

- **Participating institutes should first work together to resolve data-related incidents**, by referring to the responsibilities set out in the project agreement and guided by the Data Responsibilities Framework (**Annex E**) set out in this guidebook.
- **If resolution cannot be reached, and there are material or monetary implications**, escalation beyond the participating institutes may be considered as a next step.

Note on Statutory and External Obligations

- Depending on the nature and classification of the data, and whether personal data is involved, a data incident may give rise to additional statutory or operational obligations. These obligations include notifying the Personal Data Protection Commission (PDPC) and/or Ministry of Health (MOH), contacting the affected individuals, engaging with the platform or service providers, or informing overseas authorities if the data is stored or transferred abroad.
- Participating institutes remain responsible for meeting their legal and regulatory requirements.

Step 1 – Incident Detection and Institute-Level Resolution (Primary Step)

When a data incident is identified, participating institutes should act promptly to contain the issue and work towards resolution at the institute level.

Immediate Actions

Any participating institute that becomes aware of a data breach, misuse, unauthorised access, loss of data, data integrity concern, or suspected re-identification must promptly inform the other affected participating institutes of the incident.

Participating institutes should then work together to:

A

Assess the incident, including whether the incident involves only de-identified data or may constitute a personal data breach* (e.g. inadvertent inclusion of personal data or attempted re-identification).

B

Determine responsibilities by referring to the roles established by the Data Responsibilities Framework (Annex E) and the project agreement.

C

Agree on immediate remedial and mitigating measures, including containment, corrective actions, and allocation of responsibilities to carry out these measures**.

Note:
****On Personal Data Breaches***
Where a data incident is assessed to constitute a personal data breach, the Data Contributor (i.e. the institute responsible for providing and de-identifying the data) takes the lead in reporting to the PDPC. Reporting should be carried out in accordance with requirements under the Personal Data Protection Act (PDPA), including the 72-hour notification timeline, where applicable. If a participating institute is not subject to the PDPA (e.g. a statutory board), reporting shall be undertaken by the relevant PDPA-regulated Data Contributor.

*****On Allocation of Responsibilities***
The allocation of responsibilities avoids ambiguities and delays. Participating institutes shall cooperate and provide timely assistance to support the reporting process and corrective actions.

Most data incidents are expected to be resolved at this level through cooperative engagement, supported by pre-agreed roles and responsibilities.

Step 2 – Activation of the Standing Escalation Committee (if required)

Triggered only if Step 1 does not result in resolution and there are material or monetary implications.

If the participating institutes are unable to reach consensus, and the incident has significant impact or cost implications, the matter may be escalated to the Standing Escalation Committee (SEC).

The Host Institute identified in the project agreement shall coordinate activation of the SEC by notifying the relevant senior executives from affected participating institutes. Any participating institute that considers the conditions for escalation to be met may request this by notifying the Host Institute in writing. Information on the SEC, including contacts and resources are in Section 2.5 of this guidebook.

Step 3 – Independent Review and Investigation (if required)

Where appropriate, the SEC may appoint an independent investigator or auditor to assess:

The cause and scope of the incident.

The data affected and potential consequences.

Whether responsibilities under the Data Responsibilities Framework (Annex E) were fulfilled.

The SEC shall determine the appropriate independent investigator or auditor based on the nature and scope of the incident, taking into account nominations or recommendations from affected participating institutes. This provides an objective basis for decision-making and supports trust across institutes.

Step 4 – Determination of Liabilities and Remedial Actions (if required)

Based on the investigation and any relevant supporting reports, the SEC will review the facts, determine responsibility by referring to documented roles and responsibilities, and assess any required damages, costs, or remedial actions.

Decisions at this stage are focused on accountability and remediation, rather than punitive outcomes, and aim to support the continued integrity of the collaboration ecosystem.

Step 5 – Further Escalation if Consensus Cannot Be Reached (if required)

If the SEC cannot reach consensus, the matter will be escalated to a higher authority, such as the Human Health and Potential EXCO (HHP EXCO) Co-Chairs, for final determination. This ensures that unresolved issues can be addressed decisively while preserving alignment among institutes and governance integrity.

SUPPORT AND CONTACTS

Each participating institute is its first point of contact for project agreement matters under STEMPA. You may approach your institute's research office, industry development or technology business office, or project managers if you need support. They will coordinate internally and escalate the issue to the STEMPA Secretariat if necessary.

For questions relating to the application or interpretation of STEMPA, you may also contact your appointed STEMPA Champions or Liaisons listed below.

Institution	Support and Contacts
A*STAR	**Project Agreement Support** Industry development or technology business teams, or project managers **STEMPA Implementation** ***STEMPA Champion*** Dr Lisa Ooi Assistant Chief Executive, BMRC ***STEMPA Liaisons*** Ms Ng Meijia, Director, BMRC Heng Wangxing, Assistant General Counsel, Legal Division
CRIS	**Project Agreement Support** Business development, business operations, or admin representative. **STEMPA Implementation** SCRI Email: ncb@scri.cris.sg ***STEMPA Champion*** Dr Eugene Gan Senior Director for Operations, SCRI ***STEMPA Liaison*** Ms Lim Chew Gin, Assistant Director, National Coordinating Office, SCRI
Duke-NUS	**Project Agreement Support** Departmental Business Managers or the Contracts and Industry Engagement Team Email: contracts@duke-nus.edu.sg **STEMPA Implementation** ***STEMPA Champion*** Dr Sumita Anant Associate Dean, Research Administration ***STEMPA Liaison*** Mr Teh Hoe Leng, Director, Sponsored Research
NHG Health	**Project Agreement Support** Institutional Research Offices **STEMPA Implementation** Translational Research Office at NHG Group Research & Innovation Email: nhggroup.tro@nhghealth.com.sg ***STEMPA Champion*** A/Prof Jimmy Lee Group Chief Research & Innovation Officer ***STEMPA Liaison*** Ms Heiny Tan, Deputy Director, Translational Research Office, Group Research & Innovation

NTU	**Project Agreement Support** School or College research administrators Additional contracting resources are available on NTU ServiceNow under LSOnline: Templates. **STEMPA Implementation** ***STEMPA Champion*** Prof Lim Kah Leong Associate Vice President, Biomedical and Life Sciences Email: assocvp-bls@ntu.edu.sg ***STEMPA Liaison*** Dr Willie Koh, Director, Research Integrity & Ethics Office Email: D-RIEO@ntu.edu.sg
NUHS	**Project Agreement Support** Institutional Research Offices, or NUH Partnership and Contract Office Email: partnership@nuhs.edu.sg **STEMPA Implementation** ***STEMPA Champion*** A/Prof David Tan Group Director, Partnerships and Innovation NUHS Research & Innovation Office ***STEMPA Liaison*** Mr Dennis Koh, Senior Assistant Director, Research Office
NUS	**Project Agreement Support** Central Research Office Email: iep-admin@nus.edu.sg **STEMPA Implementation** ***STEMPA Champion*** Mr George Loh Associate Vice President of Strategic Partnership ***STEMPA Liaison*** Ms Madelyn Ho, Deputy Director, Industry Engagement & Partnership
SingHealth	**Project Agreement Support** Institutional Research Admin Offices **STEMPA Implementation** The Institutional Research Admin Office may reach out to SingHealth Office of Research's Research Collaboration team. Email: res.collab@singhealth.com.sg ***STEMPA Champion*** Prof Gemmy Cheung Director, Translational Clinical Research Singapore Eye Research Institute ***STEMPA Liaison*** Dr Lye Whye Kei, Director, SingHealth Intellectual Property Ms Josephine Ng, Deputy Director, SingHealth Office of Research

To learn more about STEMPA, visit our website at ***www.stempa.sg***.

For matters requiring escalation to the STEMPA Secretariat, please reach us at stempa_secretariat@stempa.sg.

FREQUENTLY ASKED QUESTIONS

A. Scope and Applicability

Q1 Does STEMPA apply to non-research programmes or other innovation grants?

No. STEMPA currently applies only to projects funded under the Open Fund – Large Collaborative Grant (OF-LCG) and HHP MISSION Stream 1 under Research, Innovation and Enterprise (RIE) 2030.

Other programmes may choose to adopt STEMPA positions voluntarily, but there are currently no plans to extend STEMPA to other grant schemes.

Any future expansion will be reviewed based on implementation experience and stakeholder feedback.

Q2 Does STEMPA cover research collaboration agreements with industry or foreign academic institutions? What about clinical trials, including investigator-initiated trials or industry-sponsored trials?

No. STEMPA does not apply to agreements involving industry partners, non-Singapore academic institutions, or clinical trial agreements.

The acceleration of clinical trial agreements is being addressed separately under Singapore Clinical Research Infrastructure.

Only project agreements involving Singapore public sector institutions under applicable STEMPA grant schemes are subject to the four-month timeline and pre-aligned positions.

Q3 Is STEMPA applicable to institutions listed in the Public Sector Master Research Collaboration Agreement (PS MRCA)?

In general, yes. Institutions covered under the PS MRCA (Schedule 1) typically fall within the public sector institutions to which STEMPA applies.

Q4 Will STEMPA timelines apply retroactively? For example, if negotiations began in September 2025 and STEMPA takes effect in April 2026, when must the project agreement be concluded?

No, STEMPA does not apply retroactively. It applies only to projects awarded under grant calls from FY2026 onwards, i.e. projects awarded on or after 1 April 2026.

Projects awarded before FY2026 may continue negotiations under existing frameworks, with no mandated deadline for conclusion.

B. Workflow and Timelines

Q1 What happens if the four-month deadline is missed?

Funding release is contingent on the submission of all signed in-scope project agreements within four months. Failure to meet the deadline may result in loss of funding. Exceptions will be considered only where strong justification is provided and best efforts have demonstrably been exhausted, such as escalation to the Standing Escalation Committee, or in exceptional circumstances such as a pandemic. All exception requests are subject to stringent review and approval at the grantor's discretion.

Q2 Is the four-month timeline part of the grant period?

No. The four-month timeline applies to the period between In-Principle Approval and the issuance of the Letter of Award.

Q3 **How does STEMPA integrate with ethics or Institutional Review Board timelines?**

STEMPA governs project agreement execution and runs in parallel with ethics or Institutional Review Board (IRB) approvals. While these processes are separate, early initiation of both is strongly encouraged to avoid delays. Agreements linked to clinical trials may fall outside STEMPA's scope. In multi-project programmes, funding may proceed once all in-scope project agreements are submitted within the deadline, even if a clinical trial agreement remains pending IRB approval.

Q4 **Who monitors adherence to the four-month timeline?**

All participating institutes, including their Lead Negotiators, are jointly responsible for adhering to the timeline. Grantor agencies will monitor compliance for the purposes of Letter of Award issuance and funding disbursement, e.g. the National Medical Research Council for Open Fund – Large Collaborative Grant (OF-LCG) projects.

Q5 **What benefits do clinicians and Principal Investigators gain from the four-month timeline?**

The timeline reduces delays to funding access and project commencement. **It** also ensures that governance risks associated with unresolved agreements are addressed before project execution begins.

Q6 **How are participating institutes affected if they are not the Host Institute or lead Principal Investigator?**

The four-month deadline applies to the entire project, regardless of host status.

Participating institutes should engage early with the Host Institute's Lead Negotiator, respond promptly to alignment requests, and activate internal escalation channels where necessary.

C. Templates and Clauses

Q1 **Are project agreement templates provided?**

Yes. Clauses supporting STEMPA's pre-aligned positions are provided. These may be issued together with the In-Principle Approval letter or made available through grantors.

Q2 **Were legal teams across institutions involved in developing the pre-aligned positions and clauses?**

Yes. Legal representatives from all three public healthcare clusters, institutes of higher learning, and the Agency for Science, Technology and Research (A*STAR) are part of the STEMPA Steering Committee and working groups. Other supporting resources were similarly developed through cross-institutional consultation.

Q3 **How do STEMPA's pre-aligned positions differ from the Public Sector Master Research Collaboration Agreement?**

The Public Sector Master Research Collaboration Agreement (PS MRCA) remains the baseline agreement template for public sector collaborations.

While some positions, such as foreground intellectual property ownership, are consistent with the PS MRCA, STEMPA introduces additional mandated positions, including data ownership, based on analysis of common negotiation bottlenecks.

Unlike the PS MRCA, which is non-binding and may be varied on a case-by-case basis, selected STEMPA positions are mandated through grant conditions for applicable schemes.

The four-month deadline helps to ensure timely alignment and project execution.

Q4 **Will the Public Sector Master Research Collaboration Agreement clauses be updated to incorporate STEMPA positions?**

At this stage, STEMPA clauses apply only to Open Fund – Large Collaborative Grant (OF-LCG) and HHP MISSION Stream 1 projects. Incorporation into the Public Sector Master Research Collaboration Agreement (PS MRCA) will be considered separately, as the PS MRCA applies across multiple technology domains beyond healthcare and biomedical research.

Acknowledgements

The STEMPA Secretariat extends its appreciation to the many organisations and committees whose contributions supported the development of the STEMPA Guidebook.

We wish to record our thanks to the following groups for their collective expertise and guidance:

STEMPA Steering Committee, STEMPA Workgroups, and Observers from the Grantor Agencies

For their direction, insights, and recommendations, which shaped the pre-aligned positions and informed the implementation framework under STEMPA.

IP Working Group Secretariat and supporting agencies

For granting permission to reference and incorporate the Public Sector Master Research Collaboration Agreement Factsheet in Healthcare, and for their continued collaboration on matters relating to intellectual property principles and ecosystem alignment.

STEMPA Champions and Liaisons, and supporting offices

For supporting STEMPA communication efforts to prepare the ecosystem for adoption.

STEMPA Early Access Exercise participants

For providing ground-level perspectives and practical feedback that contributed to refining STEMPA resources.

Partner agencies across Singapore's public research, healthcare, and innovation ecosystem

For their ongoing support in advancing the alignment and implementation efforts that underpin the STEMPA initiative.

Annexes

Annex A

Checklist for Potential Contentious Issues

This checklist is meant to identify frequently encountered areas of contention and should not be taken as exhaustive. Participating institutes should also flag any other substantive points that may face disagreement, so that these can be identified early and addressed as potential areas of contention.

1. **Your Institute's position on IP ownership:**
   - ☐ Ownership solely by inventorship. (Default/mandated pre-aligned position)
   - ☐ Other (please elaborate)

2. **Your Institute's position on data ownership:**
   - ☐ Ownership by collection, generation and/or enhancement. Non-owner contributors to the data to have access rights. (Default/mandated pre-aligned position)
   - ☐ Other (please elaborate)

3. **Your Institute's position on revenue sharing:**
   - ☐ All inventive and non-inventive contributors to be recognised through revenue sharing. (Default/mandated pre-aligned position)
   - ☐ Other (please elaborate)

4. **Your Institute's position on the breakdown of revenue sharing:**
   - ☐ Breakdown of revenue sharing to be determined later on.
   - ☐ Other (please elaborate)

5. **For Data Providers: What is the sensitivity classification of the data that you will be sharing?**
   - ☐ Unrestricted
   - ☐ Other (please elaborate)

6. **For Data Providers: What are the technical or procedural security requirements that Data Recipients will need to abide by?**
   (Please elaborate.)

7. **For Data Providers: Have you received approval from all relevant authorities within your Institute to share the data? If the data is from an existing registry, have all necessary approvals to share this data been obtained?**
   - ☐ Yes ☐ No

8. **For Data Providers: Does a risk assessment need to be done on the sharing of data for the project?**
   - ☐ Yes ☐ No

9. **What are the indemnities and liabilities/liability caps that should be established for this project?**
   - ☐ No contractual data-related indemnities, warranties, and liability caps. A formal pathway for resolving liabilities arising from data-related incidents is instituted. (Default/mandated pre-aligned position)
   - ☐ Other (please elaborate)

10. **Have the necessary offices/officers relevant to this project agreement been notified (e.g. Research Office, Legal, Data Protection/Privacy, Cybersecurity, and/or Finance)?**
    - ☐ Yes ☐ No

Annex B

Resources for Escalating Issues to the Standing Escalation Committee

Annex B1 – Email Template

Subject: [STEMPA Standing Escalation Committee] <Project Title>

To: <Relevant SEC members>

Cc: <Lead negotiators of all participating institutes>

Dear members,

I am writing to activate the Standing Escalation Committee for the following project and to request that an escalation meeting be convened.

Project Details

Project Title

<enter>

Grant Type

<enter, e.g. OF-LCG>

Host Institute

<enter>

Participating Institutes

<list all institutes participating as legal entities>

Issues for Escalation

A summary of the issues that we would like to escalate is attached.

Upcoming Meeting

We will keep you informed of the date, time and venue when the meeting details have been confirmed.

Thank you.

<Name>

Lead Negotiator, <Host Institute>

Annex B2 – Template for Summary of Issues for Escalation

This template is to be inserted into the email or attached as a Word document when writing to the SEC.

Summary of Issues for Escalation Sample

S/N	Issue	Position		
		Institute A	Institute B	Institute C
1	Indemnification of data providers by data recipients.	Data recipients to fully indemnify data providers.	Data recipients to be responsible for any failure on their part to follow stated security protocols only.	No indemnifications.
2	Liability caps.	Enter text.	Enter text.	Enter text.

Summary of Issues for Escalation Template to use

S/N	Issue	Position		
		Institute A	Institute B	Institute C

Lead Negotiators

Institute	Name and Designation	Email Address
(Host Institute should be listed first.)		

Annex B3 – Standing Escalation Committee and Institutional Steering Committee Research Representatives

S/N	Standing Escalation Committee Members	Steering Committee Research Representatives
1	CEO | A*STAR	Lisa Ooi (Lisa_Ooi@a-star.edu.sg)
2	CEO | CRIS	Eugene Gan (eugene.gan@scri.cris.sg)
3	Dean | Duke-NUS	Patrick Tan (gmstanp@duke-nus.edu.sg) Teh Hoe Leng (hoeleng.teh@duke-nus.edu.sg)
4	Group CEO | NHG Health	Benjamin Seet (ben.seet@nhghealth.com.sg)
5	Provost | NTU	Ernst Kuipers (ernst.kuipers@ntu.edu.sg) Lim Kah Leong (kahleong.lim@ntu.edu.sg)
6	CEO | NUHS	Chng Wee Joo (mcdccwj@nus.edu.sg)
7	Provost | NUS	Chng Wee Joo (mcdccwj@nus.edu.sg)
8	Group CEO | SingHealth	Lim Soon Thye (lim.soon.thye@singhealth.com.sg) Enny Kiesworo (enny.k@singhealth.com.sg)

Relevant SEC members would be the SEC members from participating institutes that are involved in the project agreement under negotiation. For example, if the project involves A*STAR, NHG Health and NUS, only the SEC members of these institutes would be activated.

The contact information for SEC members and their Personal Assistants can be found at **https://www.sgdi.gov.sg/search-results**.

Annex C

Public Sector Master Research Collaboration Agreement Factsheet in Healthcare

Collaborating Better Together in Healthcare: The Singapore Public Sector Organisations Master Research Collaboration Agreement

Published by IP Working Group Secretariat and Supporting Agencies June 2023

IP Working Group Secretariat

The IP Working Group was formed at the direction of the Research, Innovation and Enterprise Strategy Committee to support the implementation of the National IP Protocol. Public agencies may reach out to the IP Working Group via the Secretariat at ipwg@ipos.gov.sg

A. Introduction

The Singapore Public Sector Organisations Master Research Collaboration Agreement (MRCA), issued by the Ministry of Finance under the Finance Circular Minute M6/2018, allows public-sector organisations to initiate research collaborations on pre-agreed terms with less hassle.

This Factsheet has been developed to help the public healthcare community understand the following applications of the MRCA:

a. The MRCA ensures that your existing Intellectual Property* (Background IP) and other in-kind contributions in research collaboration projects remain yours and continue to be protected;

b. The MRCA also recognises your technical guidance and expertise as an inventive contribution; and

c. The MRCA allows you to share the commercialisation revenue in return for your contributions to these research projects.

**Intellectual Property (IP) refers to creations of the mind which can be protected by law through patents, trade marks, designs, copyright and other IP rights.*

B. Your Background IP and Other Contributions Remain Yours and are Protected

Any party can contribute in various ways to a research collaboration project. These contributions may include Background IP and other in-kind contributions such as tissue samples, facilities, equipment, manpower, etc.

Under the MRCA, each party remains the owner of its Background IP and its in-kind contributions to a research collaboration project. The other parties involved in the project only receive a limited right to use a party's Background IP and in-kind contributions to conduct the research collaboration project. A party's Background IP and its in-kind contributions are protected and the other parties cannot use them for any other purpose without the contributor's agreement.

C. Your Technical Guidance and Expertise can be Recognised as an Inventive Contribution

Under the MRCA, the default position is that IP created in the course of a research collaboration project (Foreground IP) is owned according to each party's inventive contributions.

Foreground IP that is created by the inventive contributions of:

- *only one* Project Party would belong to that Project Party *solely*
- *several* Project Parties would belong to those Project Parties *jointly*

Project Parties may expressly agree otherwise in the applicable Project Agreement on how the ownership of Foreground IP should be determined, if so required by the special circumstances of the research project. However, it is advisable to maintain the position provided in the MRCA as explained above, since the purpose of the MRCA is to streamline and accelerate research collaborations amongst public agencies with minimal need for further negotiations.

> *Inventive Contribution is defined in the MRCA as any intellectual contribution which brings about the creation of IP, whether patentable or not, made or to be made by a Project Party in a Project in accordance with the relevant Project Agreement. Inventive Contributions in the MRCA can include contributions such as technical guidance and expertise provided by any Project Party depending on the degree and extent of such technical guidance and expertise furnished and shall be agreed between the Project Parties.*

Intellectual input that shapes the creation of the Foreground IP such as to identify important patterns in the data or discount noise within the data can be recognised as "technical guidance and expertise". These contributions, which are more than a mere transfer of data or tissue samples, could be recognised as inventive contributions and translate into ownership of the Foreground IP. As an illustration from patent law, technical guidance and expertise that conceives the invention claimed in the patent would also result in the contributor being named as an inventor.

D. Your Contributions are also Recognised When Commercialisation Revenue is Shared

In addition, all parties that contribute towards a research collaboration project, regardless of the form of contribution, are entitled to a share in the commercialisation revenue attributable to Foreground IP that arises from that research project, in proportion with their respective contributions.

This recognises all forms of contributions, even non-inventive contributions, as the Foreground IP may not have been created without all these contributions.

Case Study

A*STAR's Institute for Infocomm Research (I2R) and National Healthcare Group's National Skin Centre (NSC) entered into a research collaboration in September 2020.

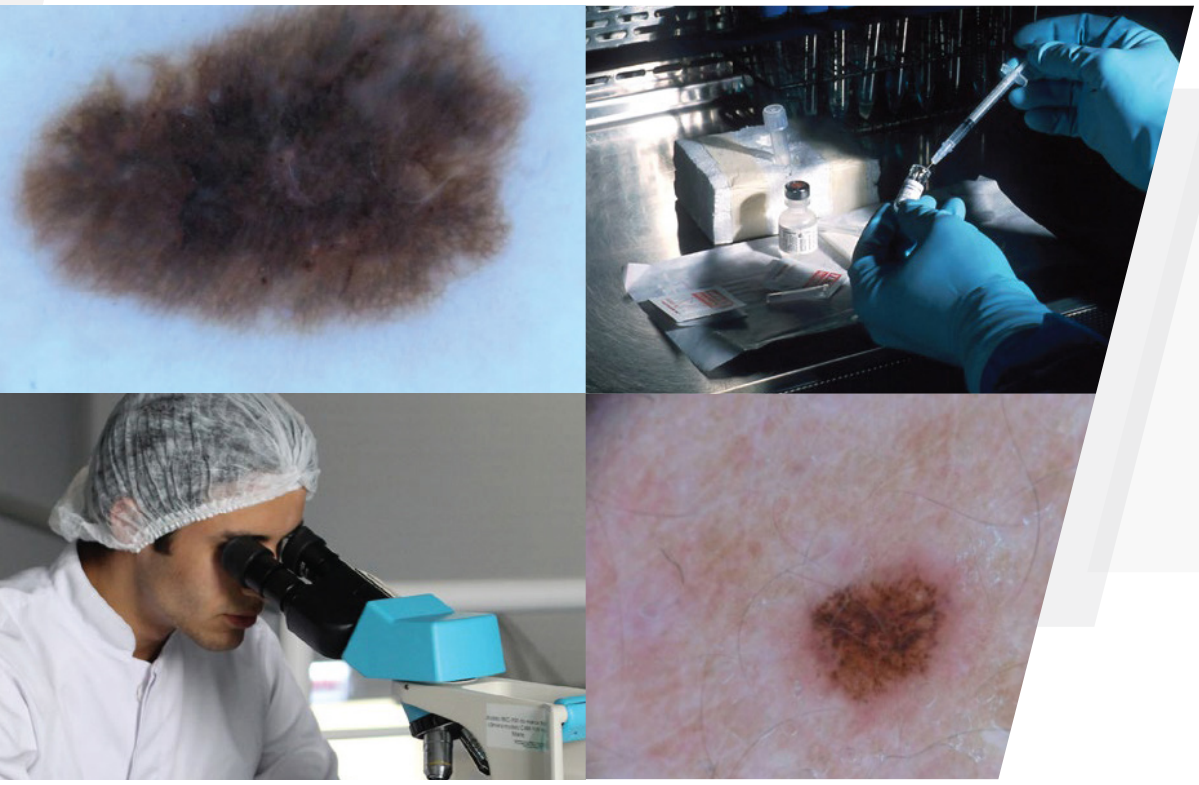
They leveraged the MRCA's project agreement template and concluded the agreement without requiring any changes to the template's IP provisions. The project was to jointly develop an artificial intelligence software platform to aid in the diagnosis of melanoma (a type of skin cancer) through real-time analysis of suspicious skin lesions.

In the project, clinicians from NSC not only contributed anonymised images of skin lesions to the project, they also contributed valuable clinical knowledge on asymmetry, colour features and annotation of all the images which trained the AI algorithm developed by I2R to analyse the likelihood of melanoma being present based on images of suspicious skin lesions. These technical guidance and expertise from NSC were recognised as NSC's inventive contributions, and both NSC and I2R jointly-owned the Foreground IP.

The project was completed within 12 months. The IP and commercialisation lead appointed at the end of the project and NSC (via Centre for Medical Technologies and Innovations (CMTi) which is the technology transfer arm of NHG) managed to clinch a deal with an industry party to license the Foreground IP about seven months after the completion of the project, benefitting both I2R and NSC, and the public through a potential new healthcare product.

The ownership of clinical knowledge and anonymised annotated images of skin lesions continues to belong to NSC while the base AI algorithm developed by I2R continues to belong to I2R.

However, the specific AI software platform for the diagnosis of melanoma is jointly owned by I2R and NSC and licensing proceeds are shared by both joint owners.



E. Key Takeaways

The MRCA recognises different types of contributions in the manner summarised below.

Types of Contribution	**Inventive Contribution** This refers to any intellectual contribution which brings about the creation of IP including technical guidance and expertise	**Non-Inventive Contribution**
Examples	• Creating an invention • Writing new software code • Devising a new algorithm • Identifying relevant data or tissue samples and discounting noise in the data and samples in the project • Identifying patterns in data • Training software to interpret the data	• Cash • Facilities • Data • Software • Tissue samples ***Note:*** *A contributing party will continue to own its non-inventive contribution and will not lose its ownership.*
Means of Recognition	• Ownership of Foreground IP • Share in the commercialisation proceeds	• Share in the commercialisation proceeds

To find out more about the MRCA, public agencies may refer to **Instruction Manuals - Singapore National Intellectual Property (IP) Protocol For Publicly Funded R&D (https://go.gov.sg/im-snipp)**.

Alternatively, public agencies may contact the IP Working Group via the Secretariat at **ipwg@ipos.gov.sg**.

Annex D

Data Collaboration Dictionary

The Data Collaboration Dictionary sets out a **common**, **pre-aligned framework across STEMPA institutes** for assessing **data ownership in multi-party research collaborations**. It identifies ownership positions for datasets resulting from commonly encountered data-related activities, based on positions agreed among participating institutes.

The activities listed in the tables, and the corresponding ownership positions, serve as the **default reference point** for determining ownership of research data arising from collaboration activities.

Applying the Dictionary in Practice

The dictionary facilitates the application of the ownership positions across common data-related activities encountered in research collaborations. Accordingly:

- Activities identified as conferring (or not conferring) ownership reflect agreed institute positions and should be applied as the starting point for ownership assessment; and
- The dictionary is non-exhaustive and does not anticipate every scenario.

Usage Assumptions and Boundaries

- **Scope of Application:** The dictionary applies to multi-party clinical research projects within STEMPA's scope. It provides illustrative examples of commonly encountered data-related activities to support consistent and transparent recognition of contributions by participating institutes.

- **Application of Ownership Principles:** The dictionary must be read together with, and applied consistently with, the data ownership principles and clarifications set out in **Section 3.3**.

- **Non-Exhaustive Reference:** The activities and examples set out in the dictionary are illustrative and non-exhaustive. They are intended to guide assessment of the nature and significance of contributions in a given collaboration, and do not replace the need for project-specific consideration.

- **Service Provider Rule:** Where a data-related activity is performed by a paid service provider engaged by a participating institute, the service provider does not acquire ownership of any data, enhancements, or derivative data arising from that activity. For the avoidance of doubt, ownership of the resulting data vests in the participating institute that has entered into a contractual relationship with the service provider, unless otherwise expressly agreed in writing. Mere engagement, communication with, instruction to, or operational interaction with the service provider – without a contractual relationship – does not confer ownership rights.

- **Commercialisation is Out of Scope:** The dictionary does not prescribe commercialisation arrangements, revenue-sharing mechanisms, or downstream exploitation terms. These matters remain subject to separate agreements and applicable institutional policies.

Table 1: Data-Related Activities that Confer Ownership

Activities that Confer Ownership	Specific Activities (Descriptions and Examples in Table 3 below)	Remarks on Ownership
Collection	1. **"First-level" data creation** – Collection of any new data that did not previously exist and are gathered specifically for the research collaboration.	Ownership of new datasets or biological samples vests **solely in the participating institutes performing the collection**.
Generation	2. **Data generation** – Generation of new data derived from contributed data ("first-level" or pre-existing data) or materials such as biological samples or raw images.	Ownership of data generated from contributed data or materials vests **solely in the participating institutes that generated the new data**. Participating institutes that contribute data or materials but are not involved in the generation of new data do not own the newly generated dataset; however, they will be granted access to it, and the underlying ownership of the original data and materials remains preserved.
Enhancement **Applying creativity, ingenuity, and intellectual effort to the data curation in ways that increase the value of the data.**	3. **Data analysis** 4. **Data enrichment** 5. **Data mining** 6. **Data generated by predictive modelling**	Ownership of enhancements or derivative datasets vests **solely in the participating institutes performing the enhancement**. Participating institutes that contribute data but are not involved in the enhancement do not own the newly generated dataset; however, they will be granted access to it, and the underlying ownership of the original data and materials remains preserved.

Table 2: Data-Related Activities that Do Not Confer Ownership

	Specific Activities (Descriptions & Examples in Table 3 below)	Remarks on Ownership
Activities that DO NOT Confer Ownership	7. **Data merging/integration** 8. **Data labelling/tagging** 9. **Data conversion** 10. **Data cleaning** 11. **Data validation** 12. **Data sorting** 13. **Data storage/hosting** 14. **Data transfer** 15. **Data deletion/destruction**	**Ownership should not be conferred to the participating institutes** that perform any of these activities, instead, ownership continues to reside with the original data source provider(s).

Table 3: Descriptions & Examples of Data-Related Activities

The activities set out below guide the determination of foreground data ownership positions. In applying them, users should assess whether the relevant activity involves a meaningful intellectual or creative contribution to the creation of a dataset, rather than applying the activities mechanistically.

No.	Activity	Description	Examples of Activity (Non-Exhaustive)
		Activities that Confer Ownership	
1	**"First-level" data creation**	"First-level" data creation refers to the initial collection or recording of raw data that is "close to source" within the context of a research project or collaboration. It is the foundational step where new, original data is generated for the first time directly from research subjects, experiments, or clinical activities through the execution of a research protocol. Such data arises as the primary output of study procedures, assessments, interventions, or measurements carried out specifically for the project, and is not derived, transformed, or processed from pre-existing datasets.	*Collecting laboratory test results generated from patient samples (e.g. blood, urine, tissue) taken specifically for the research protocol.* *Recording clinical measurements or observations obtained during study visits (e.g. vital signs, imaging scans, physiological readings) that are newly produced for the project.* *Capturing assessment or outcome data arising directly from study interventions or procedures (e.g. questionnaire responses, functional tests, clinical scores) conducted as part of the collaboration.*
2	**Data generation**	Data generation refers to any process that creates new datasets using "first-level" or pre-existing data with a significant level of originality to make it sufficiently different from the original data set (i.e. such data is not merely cleaned, classified, etc).	*Deriving structured feature datasets from raw inputs (e.g. converting raw imaging files, waveforms, or biosignals into newly constructed feature tables intended for downstream research use).* *Generating simulated or synthetic datasets based on contributed data or samples (e.g. creating statistically representative synthetic patient datasets to support method development or validation).* *Producing derived biological or molecular datasets from contributed samples (e.g. generating transcriptomic, proteomic, or metabolomic datasets from contributed biological samples where the resulting dataset did not previously exist).*
3	**Data analysis**	Data analysis refers to: (i) any direct interpretation of data using the Performer's knowledge and expertise, or (ii) the application of any statistical, computational, and/or machine learning techniques, using the Performer's knowledge and expertise, in order to draw new insights, trends and/or conclusions from data.	*Creating novel visualisations or illustrations derived from one or more datasets, where the visualisation reflects the Performer's analytical choices, interpretation, or expert insight.* *This excludes outputs that can be automatically reproduced using standard, widely-available data analysis or visualisation tools without requiring meaningful intellectual effort, specialised modelling, or methodological innovation.*

4	**Data enrichment**	Data enrichment refers to any process of transforming existing datasets using additional information from: (i) other sources, or (ii) machine-generated data, which results in a material increase in utility, accuracy, interpretability, or research value in such datasets.	*Synthetic data generation.* *Ontology mapping.*
5	**Data mining**	Data mining refers to the extraction of usable data and identification of patterns or relationships from large datasets, where new and non-obvious knowledge from the source dataset is generated.	*Identifying gene-disease associations from genomic datasets.* *Predicting patient outcomes based on electronic health records (EHRs).* *Discovering biomarkers for early disease detection.*
6	**Data generation by predictive modelling**	Data generation by predictive modelling refers to the creation of new datasets (such as forecasts, risk scores, or predicted outcomes) produced as outputs of predictive models applied to existing data.	*Producing risk stratification datasets from existing clinical or administrative data.* *Using predictive or statistical models to generate datasets of predicted probabilities for clinical or biological outcomes (e.g. likelihood of disease progression, treatment response, or adverse events).* *Computing predictive scores or indices from multi-variable input datasets.*
	Activities that DO NOT Confer Ownership		
7	**Data merging/integration**	Data merging/integration refers to any process of combining data from existing datasets without adding additional data to the source datasets.	*Integrating Electronic Health Records across hospitals.*
8	**Data labelling/tagging**	Data labelling/tagging refers to grouping or categorising data by assigning labels or tags to data.	*Medical data labelling – simple categorisation.*
9	**Data conversion**	Data conversion refers to changing the format, file type, or encoding of data without altering its content, combining it with other data, or adding new information.	*Converting DICOM files to other formats.*
10	**Data cleaning**	Data cleaning refers to any process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset.	*Removing incorrect or duplicate data.* *Filling in missing data.* *Converting or harmonising data formats.* *Resolving data inconsistencies.*
11	**Data validation**	Data validation refers to the process of checking data for accuracy, completeness, and/or compliance with predefined rules or formats, and making adjustments to data from one or more sources to align the datasets with each other.	*Validating that specimen IDs entered into a database match the barcodes on physical samples.*

12	**Data sorting**	Data sorting involves the straightforward arrangement of data into an order that allows easier understanding or analysis, without generating significant new knowledge from the source data.	*Sorting patient records by age or diagnosis date.* *Ordering gene expression values for visualisation.* *Organising clinical trial results by treatment group.*
13	**Data storage/hosting**	Data storage/hosting refers to providing infrastructure for the secure retention, access, and delivery of data without modifying, analysing, or processing the data.	*Hosting data on local or cloud servers.*
14	**Data transfer**	Data transfer refers to transferring data between storage systems without: (i) modifying its content or structure; or (ii) interpreting such data.	*Transferring raw sequencing data from a sequencing facility to a research lab's storage server.*
15	**Data deletion/destruction**	Data deletion/destruction refers to the permanent removal or destruction of data from a system or storage medium.	*Software deletion of (unusable or expired) datasets (e.g. secure erasure software, data overwriting, cryptographic erasure).* *Degaussing* *Physical destruction of storage devices.*

Annex E

Data Responsibilities Framework

This annex sets out the Data Responsibilities Framework introduced in Section 3.5. The framework serves as a guiding, non-prescriptive reference for **multi-party research collaborations in the public sector**. It provides a structured baseline to support participating institutes in defining, documenting, and allocating data management roles and responsibilities which may be adapted to suit the needs of each specific project.

This framework identifies the responsibilities of key data management actors that handle, access, or oversee research data during the project period. The responsibilities outlined reflect good data governance practices for typical scenarios in multi-party research collaborations.

Usage and Scope

- This framework is **non-exhaustive** and is intended to serve as a **guiding reference**, rather than a prescriptive or definitive allocation of responsibilities.
- Participating insitutes should use this framework to **identify, contextualise, and document relevant roles and responsibilities** for their specific collaboration, taking into account the nature of the project, data flows, and working arrangements.
- The framework is intended to inform and support the **formal documentation of roles and responsibilities**, including through project agreements (PAs) for the research collaboration.
- Where appropriate, participating institutes may adapt, refine, or supplement the responsibilities set out below, as long as such arrangements remain consistent with the STEMPA data ownership and governance principles.

Table 1: Data Responsibilities Framework

The table below supports participating institutes to:

- Clearly establish and document roles;
- Align expectations regarding accountability and good data governance practices; and
- Support the consistent assessment of responsibilities in the event of a data incident.

Not all roles will apply to every collaboration. Institutes should identify and document the applicable roles in the PA at project inception.

All participating institutes have the following responsibilities:

1. Review data risk periodically for the stipulated data lifecycle.
2. Ensure strict access controls to data only for authorised persons.

Note that these are roles assigned to institutes and not to individuals. All roles will be stated in the PA.

Role/ Activities	Definition	Key Responsibilities	Non-Exhaustive Examples of Failures in Accountability in Data Incidence
Data Contributor	Participating institute that supplies or shares background data for the research project.	• Conduct lawful collection, generation, enhancement, or obtaining and providing data through other means (e.g. in-licensing, or having existing rights to the data). • Obtain necessary approvals (including assessment of data classification and associated security requirements, and risk assessment) for data sharing and transfer. • Apply appropriate de-identification and labelling before transfer. • Maintain data quality and integrity. • Perform due diligence to ensure proper transference and verify credentials of recipient(s). • Provide data-related requirements that the User/Custodian must comply with. • Where a data incident is assessed to constitute a personal data breach, take the lead in regulatory reporting (e.g. to PDPC), with support from other participating institutes.	• Failure to de-identify prior to sharing. • Incorrect assessment of data classification. • Poor data transfer protocol without risk assessment. • Incorrect assessment of data classification.
Data User	Participating institute that accesses, receives, and/or uses the data for approved research purposes. Data Users may be involved in the following activities as part of the research: • Data analysis • Data enrichment • Data mining • Data generation by predictive modelling • Data merging/ integration • Data labelling/ tagging • Data conversion • Data cleaning • Data validation • Data sorting • Data deletion/ destruction Refer to activities in the Data Collaboration Dictionary (Chapter on Data Ownership) at **Annex D**.	• Use data strictly for purposes stipulated in the PA or Research Collaboration Agreement. • Follow best practices and standardised protocols in handling data. • Prevent onward sharing without written consent from the data owner(s). • Notify the Data Contributor or Custodian promptly in case of breach or suspected misuse. • Ensure that personnel accessing data have completed relevant data protection and ethics training and are subject to confidentiality obligations. • Apply appropriate and reasonable local security controls (e.g. encrypted storage and controlled access).	• Using data beyond agreed scope. • Sharing with third parties without approval. • Lack of comparable safeguards leading to data leakage. • Attempting to re-identify anonymised datasets.

Data Custodian[4]	The participating institute responsible for maintaining data systems and ensuring the safe custody, transfer, storage, and controlled access of data. It acts on behalf of Data Contributors and in compliance with applicable legal, ethical, and policy requirements.[4] Consistent with the Bioethics Advisory Committee's position that research institutes should act as Data Custodians, this role operates at the institute-level. Within an institute, designated individuals or teams carry out data custodianship responsibilities on the institute's behalf. If a Data Custodian takes on additional functions (e.g. aggregating datasets from multiple contributors, operating as a central repository, or serving as a federated node), the relevant responsibilities should be identified and documented in the project agreement. ***Note:*** *A Data Custodian may also perform Data User activities (e.g. data cleaning, merging, and deletion/ destruction) where this is necessary to fulfil its custodial responsibilities.*	• Provide secure storage and encryption. • Manage user access rights according to the requirements of Data Contributors and approved uses. • Maintain audit logs of data use. • Ensure compliance to data protection and management guidelines throughout data lifecycle and ensure data integrity and quality during data sharing. • Notify the Data Contributor promptly in case of breach or suspected misuse. • Ensure that personnel accessing data have completed relevant data protection and ethics training and are subject to confidentiality obligations. • Apply appropriate and reasonable local security controls (e.g. encrypted storage, controlled access). • Carry out data cataloguing and version control. • If necessary, destroy data in compliance with contractual or statutory requirements.	• Breach due to poor access control. • Loss of data due to inadequate backup. • Increasing data risk due to the lack of plan for data lifecycle. • IT system error or lack of cyber protection, even if it is the vendor's oversight.

[4] This definition of "Data Custodian" is adapted from the Bioethics Advisory Committee. (2025, February). Bioethics and Data Integrity in Healthcare and Research. Retrieved from ***https://www.bioethics-singapore.gov.sg/bioethics-resource/publications/bac-bdai-2025/****. The report notes that data custodianship includes the maintenance of data systems and the safe custody, transfer, storage, and use of data. It also states that research parties should act as data custodians.*

The STEMPA Manifesto

Accelerating Research. Empowering Progress.

STEMPA is our commitment to making public sector research in Singapore faster, clearer, and more impactful.

Through standardised frameworks and strong support, STEMPA empowers teams to focus on what truly matters: solving real-world problems.

This is a collective step forward and we invite all partners to support and champion its implementation.

If you have any questions or need further clarification, please contact the STEMPA Secretariat.

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