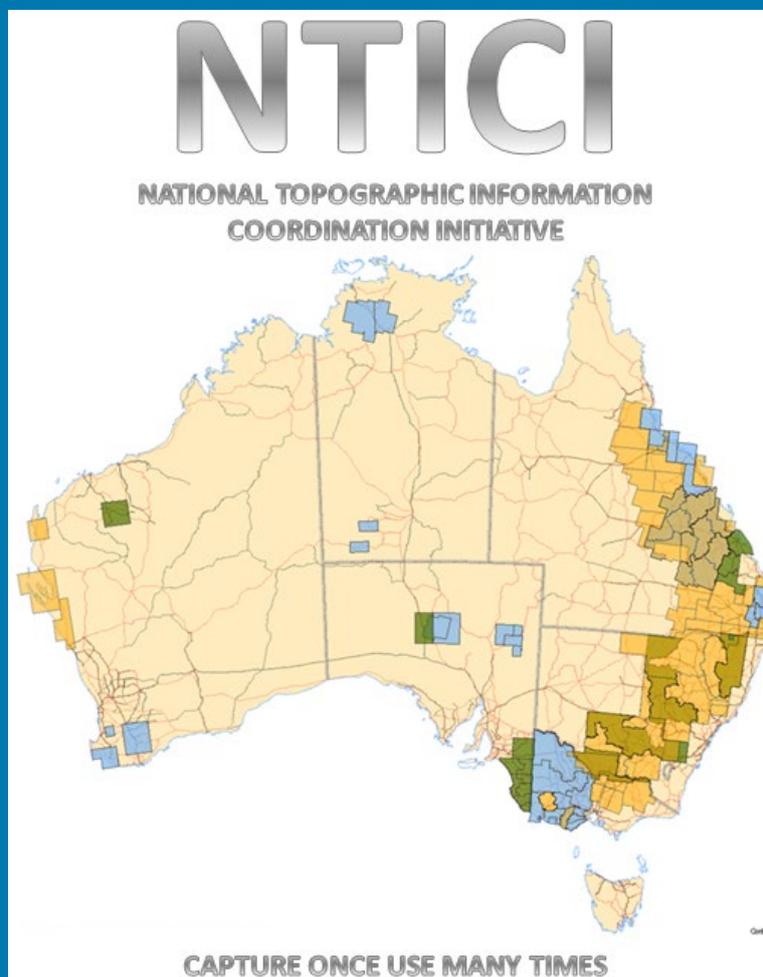


PERMANENT COMMITTEE ON TOPOGRAPHICAL INFORMATION



National Topographic Information Coordination Initiative (NTICI)

Execution Document

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NTICI

This document provides background on the National Topographic Information Coordination Initiative's history and the framework for collaboratively collecting topographic information between the Australian government mapping agencies. The document delivers the business case for the NTICI and highlights the associated governance, principals, processes, communication and execution requirements for NTICI projects.

Background

In 2004 the Permanent Committee on Topographic Information (PCTI)¹ developed a framework to facilitate a cooperative, cost effective and mutually beneficial approach to the collection of Australia's topographic² information – this initiative is referred to as Australia's National Topographic Information Coordination Initiative (NTICI).

NTICI was established to be a national collaborative mechanism to offset the on-going and increasing cost of topographic information data capture, revision and maintenance – effectively to achieve the common data management principle to: *'capture once and use many times'*.

NTICI recognises the different but complimentary roles and responsibilities mapping agencies play across all jurisdictions – Commonwealth, state and territory, and focuses on ensuring the data is managed by the appropriate and agreed data custodian. Derived national products may have national product custodianship responsibilities upholding relevant supplier data policies requirements.

Since its inception projects undertaken through NTICI have evolved due to changing government policies, business requirements and technology which have influenced the type of data captured and the methods used. Initially, projects focused on the acquisition of data for topographic mapping which at times were generalised to match cartographic specifications. Now, the key driver is the collection of rich information to support a range of user requirements such as:

- the capture and networking of surface water data for auditing and modelling water security
- the definition of Australia's coastline to determine maritime boundaries
- the acquisition and analysis of high resolution elevation data products for flood mitigation and natural hazard risk assessments
- the location of rural and remote buildings to better understand built environment exposure for natural hazard risk assessments and emergency management response and recovery

NTICI projects have been undertaken across all states and territories and have ranged from state-wide topographic feature revision to focussed regional updating of high priority man-made infrastructure. Projects have varied in length but are flexible and can respond to government priorities and drivers with short turnaround periods for execution to completion.

¹ The Permanent Committee on Topographic Information (PCTI) is a subcommittee of the Intergovernmental Committee on Surveying and Mapping (ICSM)

² Topographic information is detailed, accurate graphic representations of features that appear on the Earth's surface and can indicate relative positions, and elevations – it provides detailed and precise descriptions of a place or region.

Value proposition

Over the past decade NTICI has developed into the primary mechanism for enhanced collaboration between the Commonwealth, states and territories, on mutually beneficial projects in a time of tightening financial constraints.

During this time '*capture once use many times*' has been a guiding principle underpinning the value of this initiative. With the emphasis focussed on data acquisition at the highest possible resolution, all NTICI projects leveraged shared information, services and resources between the Commonwealth, states & territories. More specifically these included the provision of:

- high resolution base data
- best available orthophotography or satellite imagery
- co-investment in coordinated procurement panels for remote sensed data
- funding contract services for data compilation
- targeted field verification
- quality assurance
- project management and coordination

All agencies have acknowledged the increased efficiencies gained through the reduction in duplication of resources and an overall improved return on investment for topographic information acquisition. However, at the same time, all agencies have also acknowledged that more work needs to be done to maximise the value of future NTICI projects. This will be achieved by expanding the scope of future projects to target improvements to:

- streamlining the data integration processes
- development and implementation of standards
- formalisation of the governance framework
- accessibility and sharing of data
- coordination and facilitation of business requirements into a rolling program

Successfully addressing these areas in the future will contribute to maximising the collaborative resources of all agencies and in turn provide increased value to governments at the Commonwealth, state and territory levels. The resulting capability will be an improved and sustainable National Topographic Information Infrastructure that will not only contribute to the National Spatial Information Infrastructure (NSII) but will also form a consistent topographic information base for decision-making across all levels of government. NTICI's adaptive and flexible collaborative nature contributes to whole of government initiatives such as the Foundation Spatial Data Framework, ensuring prioritised information investment and duplication reduction.

Objectives

With the underlying principle of '*capture once use many times*', the PCTI members ultimate objective for NTICI is to maximise the efficient and effective management and use of topographic information by achieving the following objectives:

- The Commonwealth, states and territories will have access to the same baseline information for analysis and support of government programs and decision making
- Improve the availability and accessibility of up-to-date, fit for purpose topographic information to meet government program requirements

- Increase the efficiency and effectiveness of government expenditure on topographic information and related activities
- Develop and implement standards and strategies to promote interoperability and reduce existing inconsistencies in the national topographic framework
- Strengthen capability through sharing and open exchange of data, information, knowledge, skills and innovation.
- Strengthen capacity to collect, maintain and disseminate topographic information.

Outcomes

While efficiencies in data collection have been achieved the most significant and collective outcome for NTICI to date has been the establishment of good working relationships between PCTI members through the undertaking of collaborative projects. Using this as a foundation and working towards achieving the objectives described in the previous section, it is anticipated that the following outcomes will be realised:

- Improved availability of up-to-date, reliable and accessible topographic information to meet the needs of government, value-adders, distributors and public users
- Increased efficiency and effectiveness of government expenditure on topographic information and related activities through coordinated data management and governance
- Development and promulgation of standards and common processes to reduce inconsistencies in the national topographic information framework to promote interoperable access for users
- Resilient jurisdictional capacity through sharing and exchange of ideas, skills and knowledge
- Strengthened jurisdictional capability to sustain the collection, maintenance and dissemination of geographic information.
- Reduction of identified overheads in the data management business processes, eg; data integration

Principles of Collaboration

The following principles of collaboration should be understood when developing an NTICI project proposal. These principles underpin the common data management principle: 'capture once, use many times' whilst preferably meeting the scale and content business needs of multiple government users.

Principles:

- NTICI projects will be conducted within the governing ICSM Collaborative Heads of Agreement (CHA)
- The PCTI will report to ICSM on NTICI activities. ICSM in turn reports NTICI activities to ANZLIC³
- All NTICI projects should be collaborative projects involving one or more of the jurisdictions under bilateral or multi-lateral written agreement in the form of an NTICI project agreement. These project agreements outline the deliverables, time-frames, resource inputs, risks and any variations
- All jurisdictions are to communicate their existing data acquisition and forward programs to the PCTI executive on an annual basis or when exceptions arise to assist in the identification and prioritisation of opportunities for bilateral and multilateral project development

³ ANZLIC – The Spatial Information Council

- For shared data use, custodial attribution will be in accordance to the agreed project agreement in appreciation of the Jurisdictional business models

NTICI Governance

Initiative Governance

A National Collaboration Framework (NCF)⁴ for undertaking collaborative projects was established in 2009 by the Intergovernmental Committee on Surveying and Mapping (ICSM). The Collaborative Head Agreement (CHA)⁵ establishes governing principles and is an agreement between ICSM member agencies across the Commonwealth, states and territories with the exception of the Department of Defence and the Government of New Zealand represented by Land Information NZ.

Using the NCF document tier structure NTICI projects are documented as project agreements and may have more detailed documentation such as project initiation documents or schedules associated with the project agreement (Figure 1).

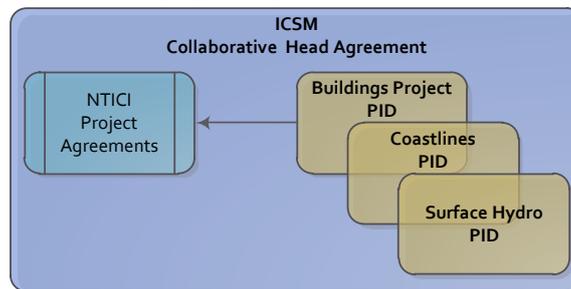


Figure 1. National Collaborative Framework Structure with relation to ICSM and NTICI projects

ICSM is accountable for ensuring projects governed by the CHA are adhering to the nature of the Collaborative framework and are providing value in enhancing the NSII. To achieve this, the PCTI are responsible for managing NTICI specific projects on behalf of the ICSM (Figure 2). Regular communication and reporting is undertaken via in-house meetings, emails, newsletters and or teleconferences.

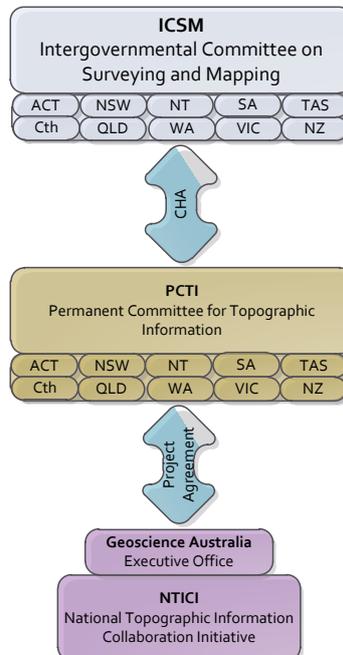


Figure 2. NTICI governed by the PCTI and associated ICSM CHA – NTICI project agreements.

⁴ <http://www.finance.gov.au/collaboration-services-skills/national-collaboration-framework/>

⁵ <http://www.icsm.gov.au/about/index.html>

Project Management Role Descriptions⁶

The NTICI has two tiers of governance. Tier one is for governance and coordination across all NTICI related projects. This is managed by the Commissioning Authority and Commissioning Authority. Tier two is to manage the endorsed NTICI projects. This structure is to ensure the collaborative principals within the NCF framework are being adhered to and projects achieve benefit to all jurisdictions involved as well as the NSII.

Figure 3 shows the two tiers of governance for the NTICI.

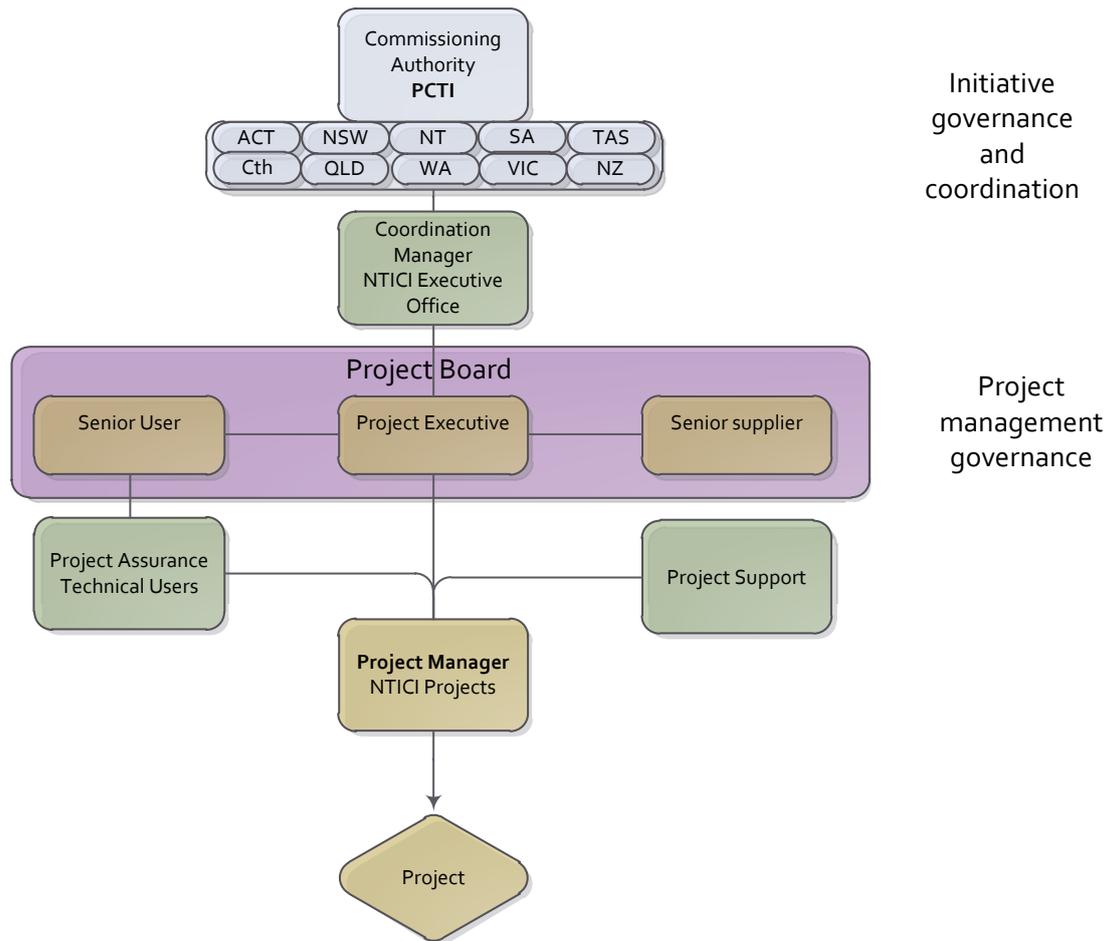


Figure 3. NTICI governance, coordination, and Project management

PCTI – Commissioning Authority

PCTI is the commissioning body which reviews, monitors and reports to ICSM on all NTICI projects. The authority contains one PCTI representative from each jurisdiction and ensures projects meet the NTICI selection criteria, principals, and priorities as identified within this document.

The Commissioning authority is to:

⁶ It is important to note NTICI is not designed to replace or impact negatively on existing jurisdictional spatial data infrastructures, however if mutually beneficial changes are recognised, change management programs may be implemented

- Review, and assure NTICI proposals meet the NTICI section criteria, principals and priorities before commencement
- Report on the effectiveness of NTICI projects
- Provide executive decisions on related projects when escalated from the project Board
- Discuss areas of opportunity for NTICI investment

Coordination Manager (Executive Office)

The coordination manager provides the executive support to the NTICI. Provision of this support is by Geoscience Australia (GA). Responsibilities of this position are:

- Facilitation and coordination of NTICI proposals and projects and national work programs
- Assist the commissioning authority in executing their responsibilities in relation to NTICI project approvals, decision making, governance and communication
- Project and initiative reporting to PCTI and or to ICSM (on behalf of the PCTI chair)
- Communication of the NTICI – emails, website, newsletters
- Ensure NTICI governance, documentation and agreements are endorsed
- Report on risks issues and opportunities to the commissioning authority
- Seek opportunity for the evolution of the NTICI to support the needs of the PCTI strategic plan and jurisdictional collaboration requirements

NTICI – Project Board

The NTICI project board is to ensure a transparent and accountable project management framework for specific NTICI projects. Representation is from each jurisdiction involved with the specific project. Responsibilities of the Project Board include the oversight and accountability for:

Identification and allocation of:

- Project executive – The project executive is to be the main project decision maker.
- Senior user – The Senior user ensures the project is fit for purpose
- Senior supplier – The Senior Supplier ensures resourcing is available to undertake the project
- Project Manager – The project manager is responsible managing the project with the following supporting documentation; Project Brief and Project Initiation Documentation (PID) which include;
 - Project business case highlighting the benefits, risks and issues for the project
 - Project plan – highlighting how the project is going to be undertaken
 - Resource requirement and allocation
 - Reporting (Highlight and stage reporting)
 - Project completion coordination
 - Reporting to the Commissioning Authority via the NTICI coordination manager

Jurisdictions (State / Territories / Commonwealth)

The state and territory mapping agencies carry out data collection, management and delivery of topographic information specific to the priorities of the economic development and resource management of their own jurisdiction.

Geoscience Australia (GA) facilitates and provides coordination of national topographic information collection, advice and leadership in support of Australian Government policy, priorities and decision making requirements. GA provides the Coordination Manager (Executive Office) for the NTICI.

Each agency represents the primary custodian of this information for their jurisdiction.

Jurisdictions will:

- Assist the NTICI executive office in communicating NTICI proposals, key drivers and work program decision making
- Raising awareness to senior executives and decision makers on the NTICI and its capabilities
- Manage contracts tendered through existing Jurisdiction panels or arrangements as required. Where panels do not exist, projects will be managed by GA and tendered through the Optical, Geospatial, Radar & Elevation panel (OGRE)
- Report progress of activities to the Coordination Manager
- Project and financial management where projects are managed by the project initiation documentation
- Form the project board for NTICI projects
- Project manage jurisdiction activities for data update and revision and data integration
- Represent other jurisdictional agencies and facilitate NTICI related projects on their behalf
- Prepare and coordinate NTICI project agreement approvals within jurisdiction

Project engagement, evaluation and approval

The PCTI collectively discuss jurisdictional business models, data coverage and methods to enhance the NSII. Through NTICI, continuous consultation enables the committee to discuss areas of opportunity for investment for data collection or building of capability.

Jurisdictions annually provide the PCTI their forward mapping programs and discuss opportunities for collaborative projects. NTICI is endeavouring to publish a forward work program; however, the initiative is flexible to receive project proposals at any time throughout the year.

Project Engagement

NTICI projects are proposed using the following process:

1. Submission of project template to the NTICI coordination Manager (Appendix A)
2. NTICI coordination manager receives the project proposal and ensure principals are in alignment to the NTICI principals and objectives. 1 week turnaround
3. NTICI executive coordinates the approval for the project to proceed from the commissioning authority. 2 weeks
 - This may occur via face-to-face meeting, email or teleconference. The objective is to ensure the NTICI principals are met and enable other jurisdictions the opportunity to partake.
4. NTICI executive office prepares official documentation (NTICI project agreement amendment). 2 weeks
5. Project Board execute the project in accordance to the associated Project Initiation Document (PID)

Selection criteria

The criteria used as a guide for selecting NTICI projects are outlined below. It is expected that a number be satisfied when initiating projects.

- Will be mutually advantageous to two or more of the jurisdictions
- Intended outputs will have practical application and have a life which will justify that effort

- Will add value to the national topographic framework by way of new data, new concepts or improved practices
- Have significant economic value
- Contribute to economic, social and environmental sustainability
- Themes impacted by high degree of change
- Enable standards, data integration and governance

Priority matrix for NTICI projects

The purpose of the NTICI priority matrix is to assist in the decision making process where there are multiple projects and limited funding or resource available.

HIGH IMPORTANCE LOW URGENCY	HIGH IMPORTANCE HIGH URGENCY
<p>III STRATEGIC</p> <ul style="list-style-type: none"> Contributes to social, economic and environmental well being Conservation of valuable resources Constitutional role of government Generates significant business reform and long term benefits Forms part of a natural disaster mitigation strategy 	<p>I CRISES / POLITICAL</p> <ul style="list-style-type: none"> Has legal ramifications Enables emergency response Where public safety is at risk Areas at high risk to natural disaster Forms part of a disaster recovery mission/state of crisis Ministerial request
<p>IV HOUSE KEEPING</p> <ul style="list-style-type: none"> Alignment to standards Contributes to process improvement Spatial upgrade Annual maintenance program Backlog Routine data quality improvement 	<p>II UNEXPECTED</p> <ul style="list-style-type: none"> Unscheduled critical deadline Change to project scope Data theme subject to a abnormal change Economic opportunity Potential innovation
LOW IMPORTANCE LOW URGENCY	LOW IMPORTANCE HIGH URGENCY

Figure 5 NTICI project priority matrix

Funding and resourcing

Funding for the NTICI program has largely been through appropriated Commonwealth funds and staff resources with in-kind support from the states and territories in the form of imagery and/or data as well as some co-contributions. As such the amount of funding and level of staff resources varies from year to year subject to government policies and priorities as well as the number and scope of projects in progress.

Therefore overall funding and in-kind support for each project is negotiated on an individual basis subject to these constraints.

In addition, funding and in-kind support from non-PCTI member agencies may be facilitated and sponsored by PCTI project proponents without the requirement for the external agency to be signatory under the ICSM CHA.

Risk

Risk Management for NTICI projects will be a standing agenda item at both the Project board and Commissioning Authority meetings. The continuing effectiveness of mitigation strategies will be assessed and any new risks identified, analysed, documented, and remediated.

Initiative Risk:

NTICI projects are discussed at each PCTI and ICSM meeting to ensure the projects are providing value back to the project jurisdictions and to the development of the National Spatial Information Infrastructure.

The significant risk to the Initiative is the de-commissioning of the ICSM CHA. This provides the overarching governance and framework which NTICI projects are governed. If the ICSM CHA is to be decommissioned, the NTICI has the flexibility to sit within another National Collaboration Framework.

Decline in funding and resources for NTICI projects. This is not a significant risk to enhancing the NSII, however jurisdictions may need to align work programmes to collaboratively resource projects or seek new opportunities.

Project Risk:

Project risk is to be identified within each of the individual project briefs and managed by the NTICI project manager and project board.

Communication

The NTICI is known as a successful and functioning mechanism enabling jurisdictional mapping agencies to collaboratively work together. Communicating the NTICI in the past has been unclear or non-existent creating confusion around the purpose. The NTICI executive will resolve this understanding through the following methods:

- NTICI newsletter quarterly
 - The NTICI newsletter will be prepared by the executive office to provide all jurisdictional members an update on current and future collaborative projects. The intended audience is PCTI members and related jurisdictional staffing
- Face to face meetings (alignment with the PCTI bi-annual meetings)
 - Discussions between the project board and the PCTI on recent, scheduled and future projects to ensure the projects are providing value back to the jurisdictions
- Email and teleconference
 - May be used for project execution or to discuss any significant risks or issues for NTICI related projects
- Web Site of existing programs, pre-captured areas of interest and proposals
 - The ICSM hosts a NTICI webpage. The intent is to communicate current and future projects. This portal will align to the National Topographic Data Inventory providing a framework in which users can see what information is available and seek areas of opportunity.
- PCTI membership internal jurisdiction promotion. The NTICI should be promoted as a functioning mechanism to implement project change between multiple jurisdictions.

Reporting

All jurisdictions will report on any projects in scope or in planning to the NTICI executive office to enable possible collaboration with multiple parties. This will be recorded in a National Topographic work plan linked to the ICSM National Topographic Information Inventory (to be undertaken).

NTICI project status and proposals will be discussed at PCTI meetings and the PCTI Chair will inform the ICSM CHA management committee of any undertakings.

The PCTI will report the status of NTICI projects to ICSM. ICSM reports same to ANZLIC. Reporting will include status, risks, issues and future proposals.

Appendix A

National Topographic Coordination Initiative (NTICI) proposal

Department:

Officer

Date:

Proposal (description on the proposal)

Estimated contributions from all parties involved \$, Imagery, Base Data, Staff, Panel capability

Benefits to all jurisdictions involved and or the National Spatial Information Infrastructure

Project Board

Executive:

User:

Supplier:

Project Manager:

Area of Interest (please attach spatial file)

Upon completion please forward to the NTICI Coordination Manager for consideration by the NTICI commissioning authority.