Strategic Development Group

Independent Review Report

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Acknowledgements

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Disclaimer

The opinions expressed are those of the review team, and do not necessarily reflect those of A4I. Responsibility for the opinions expressed in this report rests solely with the authors.

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Abbreviations

A4I	Aus4Innovation
AI	Artificial Intelligence
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTU	Can Tho University
DFAT	Department of Foreign Affairs and Trade
EoPO	End of Program Outcomes
GESI	Gender Equality and Social Inclusion
HSPI	Health Strategy Policy Institute
MEL	Monitoring, Evaluation and Learning
MoST	Ministry of Science and Technology
MPI	Ministry of Planning and Investment
NATEC	National Agency for Technology Entrepreneurship and Commercialisation Development
RIA3	Research institute for aquaculture No 3
RIMF	Research Institute of marine fisheries
SATI	State Agency of Technology Information
SCP	Science Commercialisation Program
TTO	Technology transfer office
VAAS	Vietnam Academy of Agricultural Sciences
VAST	Vietnam Academy of Science and Technology
VEES	Australia-Vietnam Enhanced Economic Engagement Strategy
VIETRAD	Breastscreen Reader Assessment Strategy (BREAST) for radiological diagnosis of breast cancer tailored to Vietnam
VNUA	Vietnam National University of Agriculture
VNU UET	Vietnam National University – University of Engineering Technology
VNU HCMUT	Vietnam National University – Ho Chi Minh University of Technology
USC	University of Sunshine Coast
USyd	University of Sydney
UTS	University of Technology, Sydney

Executive Summary

S1. This is the report of the Independent Review of the first phase of the Aus4Innovation (A4I) program. This review is commissioned by CSIRO and has been assigned to the Strategic Development Group. The review covers the period from the start of the A4I in 2018 to mid-2021.

S2. The main objectives of the review are to:

- Assess the progress of A4I under the four original program workstreams to determine the extent to which A4I is making progress towards its expected End of Program Outcomes (EoPOs); and

- Inform learning, and identify operational and thematic areas, to help shape the design of Phase 2 of A4I.

Methodology

S3. As befitting a review of this nature, which typically provides a formative perspective on matters of strategic importance, we ensured that our approach had a clear focus, providing both a retrospective and a forward-looking review of A4I. To fulfil this purpose the review employed a consultative qualitative process (largely remote), using key informant interviews (KIIs), supported by a review of extensive program documentation, and the analysis of relevant program data.

S4. The team interviewed 37 key informants and conducted a series of validation sessions/ presentations to test emerging findings. We also drew on evidence from other ongoing lesson learning activities that were happening in parallel to this review.

S5. Limitations faced during the review were primarily related to the ongoing COVID-19 pandemic, which prevented two of the review team from conducting any in-person visits to Vietnam. The review team mitigated these limitations using multiple approaches to data gathering, and by deploying a national consultant to conduct interviews with stakeholders within Vietnam.

Key findings

S6. In response to the first review question (**is A4I doing the right things?**) the review team found that whilst the design had responded pragmatically to a shortened design process this has created some long-lasting issues, particularly those relating to linkages between the different components of the program. More could also have been done at the outset to learn from other innovation programs already operating in Vietnam.

S7. The review found that A4I has not only successfully aligned to national priorities and strategies, it has also helped distribute key policies in Vietnam (such as the AI Development Strategy: 2021-2030). A4I has also contributed to efforts to support Vietnam's development goals. The strong focus on commercialisation driven by the SCP component aligns directly to policies related to, for instance, the development of the technology market. Moreover, the development and delivery of the *Commercialisation PLUS How-to-Guide* is a good example of A4I responsiveness and is also a good illustration of the way the program has collaborated with its partners to strengthen the relevance and quality of the program's outputs.

S8. The review also found that the modality used by A4I has been shown to be relevant to the context, and where it was found not to be a good fit the program adapted its approach accordingly. In practice this meant, for instance, adapting international best practice to the Vietnamese context by drawing on the expertise of Vietnamese partners, ensuring an approach that focused on both

individual and organisational capacity, implementing activities (such as through the grants) by building on existing relationships between Vietnamese and Australian partners, and by ensuring that A4I support is integrated into the scope and functions of the relevant government agencies the program was working with.

S9.   In response to the second review question (**is A4I doing things well?**) the review found that whilst inefficiencies do exist A4I has been working hard to address these. Examples of the types of inefficiencies that A4I has been grappling with include the patchwork design (such as components preceding down parallel paths but not always integrating initiatives which may have enhanced impact), the time and effort required to negotiate and build relationships with partners, the incompatibility between DFAT and CSIRO administrative systems, and the more fundamental issue of the nascent innovation eco-system in Vietnam which is not yet fit for purpose and may hinder the long-term sustainability of innovation solutions introduced by A4I.

S10.   Nevertheless, planned outputs within the intended timeframe have largely been met. Any delays encountered by A4I are primarily the result of the pandemic. A4I demonstrated an efficient pivot to respond to pandemic challenges. Cost-effectiveness has increased, and budgeting is paying attention to ensuring cost effective measures are maintained.

S11.   In response to the third review question (**is A4I working?**) the review found that A4I has largely overdelivered against its expected outputs, but progress towards its EoPOs is less clear. In just pure numbers the achievements of A4I have been impressive (for instance - 761 trainers participated in focused training events, of whom 252 were women, and two collaboration platforms have been established, one of which the Horticultural Innovation Club has more than 900 members). At the immediate outcome level there are numerous illustrations of where A4I has led to changes in awareness, behaviour, and practice.

S12.   Factors for the program's success include A4I's strong focus on building effective partnerships, the relevance and quality of the technology transferred, the strategic positioning of the program within MoST, the importance of CSIRO providing a conduit to Australia's National Innovation System, and the quality of the management team. Whilst A4I demonstrated flexibility and appropriate adaptation of programming because of the pandemic, an unintended consequence has been the emergence of far stronger ownership by Vietnamese stakeholders of different initiatives.

S13.   The program has been less successful with its approach to Monitoring, Evaluation and Learning (MEL) and Gender and Social Inclusion (GESI). Monitoring data and reporting is useful for operational management, but inadequate at whole-of-program level. Whilst A4I has been effective in its reporting, and over time has adjusted the nature of those reports to focus more on progress at outcome level, it is still nevertheless difficult to get a clear picture of performance. With respect to GESI, A4I's has made variable progress. For instance, SCP has developed an inclusive strategy, and the program recently ratified program wide GESI guidelines. Nevertheless, by its own admission, the program does recognise that it needs to prioritise both gender equality and social inclusion, and ensure, for instance, that programming is informed by more robust gender analysis.

Key Lessons for the future

S14.   A clear lesson running through this review are the challenges that have emerged as the result of a design logic that was not sufficiently explicit in how best to secure strong linkages between the different components of A4I. Correctly framing the task of innovation support and being clear on the implementation and impact logic that flows from this would have helped ensure a more integrated approach to implementation, with a stronger thematic focus.

S15. There has also been a growing realisation within A4I of the need to take a systems approach to promoting innovation in Vietnam. Such an approach needs to reach beyond the workstreams to strengthen the interconnected aspects of the innovation system, including giving more attention to the policy/ regulatory framework, the creation of platforms to enhance connections and networks, and engaging with other key groups and institutions, such as the private sector. However, there is also a realistic understanding that such an approach takes time and will likely only occur over multiple phases of A4I.

S16. Other key lessons learnt include the need to tailor activities more strongly to partners' context, that partnership is a vital vehicle for success, and that flexibility and adaptation of programming is required. Fostering local ownership, building meaningful partnerships, drawing on local expertise has not only increased the quality of deliverables by A4I but has also enhanced the likelihood of initiatives being sustained.

Conclusion

S17. The development need and value of A4I have been validated. Engagement with MoST remains strong, there is clear evidence of how A4I is aligned with Vietnam's priorities, and there is growing demand from key institutions within Vietnam for further engagement with A4I.

S18. The flexibility and responsiveness demonstrated by A4I are valued by the Government of Vietnam. Relationships and partnerships have been shown to be critical to the long-term success of A4I, and there are many instances where existing relationships have been leveraged to ensure further value of Australia's investment.

S19. Fragmentation has been a challenge for the program, and although A4I managed to address some aspects, the initial design logic meant the initiatives were never fully integrated during the 1st Phase. Despite many efforts to promote greater coherence, there is still a sense that different components act independently of each other, and that this has hindered lesson learning across the program and potentially weakened opportunities to build on early successes. Whilst the management team did a remarkable job in coordinating the program, it was severely understaffed. Moreover, for much of the first phase there was no structured mechanism for A4I to identify and act on bilateral priorities. There is also greater need for deeper engagement/ thematic focus, and greater engagement with the regulatory environment.

Recommendations

S20. Considering the findings of this review, the independent review makes six recommendations (see **Table 2** for the recommendations in full). Three of which are of a strategic nature aimed at enhancing the coherence of A4I, and three operational recommendations, which seek to reinforce the work A4I is doing in Vietnam. In combination these recommendations envision a clearly focused, integrated and effective A4I contribution in Vietnam in its next phase of implementation.

Introduction

Evaluation features

Purpose

1. To inform the design of Phase 2 of A4I by undertaking an independent assessment of what's worked well to date, highlighting factors that have contributed to this success, and to identify any lessons that will help shape future programming under A4I.

The Task

2. To undertake a rapid independent review of currently funded activities that A4I have been implementing since 2018. The key objectives of the review are to:

   - Assess the progress of A4I under the four original program workstreams (Digital Foresight, Science Commercialisation, Partnership Grants, and Policy Exchange) in order to determine the extent to which A4I is making progress towards its expected End of Program Outcomes (EoPOs); and
   - Inform learning, and identify operational and thematic areas, to help shape the design of Phase 2 of A4I.

3. In line with OECD-DAC evaluation criteria, the key evaluation questions the review examined:

   - **Relevance**: Is A4I doing the right things?
   - **Efficiency**: Is A4I doing things well?
   - **Effectiveness**: Is A4I working?

4. Bearing in mind the forward-looking nature of the review, the review also explored:

   - **Lessons learned**: Where to next for A4I?

Our approach

5. The review team conducted a consultative qualitative process (largely remotely), using key informant interviews (KIIs), supported by a review of extensive program documentation, and the analysis of relevant program data (a list of those we interviewed can be found in **Annex 1**).

6. The review team spoke to 37 key stakeholders, including:

   - General Director, International Development, MoST
   - DHOM, Hanoi
   - Global Director, CSIRO
   - Research Director, Sustainability, CSIRO
   - 12 Vietnamese Partners
   - 7 Australian Partners
   - A4I team

7. As part of the process the review team also conducted a series of validation sessions/presentations to test emerging findings with A4I program management (including presenting initial findings to the **8th Steering Committee meeting**, 15 December 2021), and we also drew on evidence from other ongoing lesson learning activities that were happening in parallel to this review. For instance, we met with the team conducting the study on *International Lessons-learnt and Insights*, and we drew on relevant findings that emerged during the Learning Event preparatory work (for instance,

the survey of Vietnamese partners has already been completed and we participated in the small group discussions with Vietnamese partners as a follow-on from this process).

8. Limitations faced during the review were primarily related to the ongoing COVID-19 pandemic, which prevented two members of the review team conducting any in-person visits to Vietnam. This meant that most interviews were done remotely, although our national consultant was able to conduct a few select meetings with key stakeholders in Hanoi.

9. The remote nature of the review was mitigated by using multiple approaches to gathering evidence (typically respondents had the opportunity to participate in an interview, complete a survey as part of the Learning Event exercise, and take part in small group discussions/ workshops). Whilst there were instances when respondents were not available for interviews, this did not happen very often. Most interviews were conducted as scheduled. With surprisingly few challenges in conducting consultations with all key partners, the limitations encountered were dealt with relatively effectively and the review team remain confident that the findings of the review are valid.

Country context

10. Over the past 30 years, Vietnam has transformed itself: it has reduced poverty, increased employment, income and GDP and in 2010, transitioned to middle-income country status. The most recent Global Innovation Index ranks Vietnam 44 out of 132 economies, ranked 1st amongst 34 lower-middle income economies, and 10th out of 17 East and Southeast Asian countries. Vietnam has a high level of public debt, at USD 152 billion or 64% of GDP, with little fiscal space for public capital or recurrent investments into innovation. While the Government of Vietnam invests heavily into science, technology, and innovation (annual spending is about 2% of the total annual national expenditure), including research, it has not, to date, translated into commercialised science and technology innovations at the rate hoped for from its investment.

11. However, Vietnam is ranked 3rd (behind Indonesia and Singapore) as the country with the most dynamic start up eco-system in South-East Asia. At the end of 2018 Vietnam had more than 3,000 innovative start-up companies, of which 3 are unicorns (valued more than USD$1 billion such as VNG, VNPAY, MOMO, and 11 valued more than USD$100 million). Start-ups are active in areas such as Fintech, E-commerce, Food & Beverage, Games and Blockchain. Despite the pandemic, investments for start-ups in 2021 was reportedly greater than USD$ 1.3 billion. It is currently estimated that there are 79 incubators and 40 business accelerators operating in the market in Vietnam, in addition to 140 universities actively involved in this process.

12. Vietnam aspires to be an innovation nation and it is well placed to seize the opportunities of an increasingly digital future, leveraging core strengths in science and technology. The landmark Vietnam 2035 report by the World Bank in 2016 highlighted the need to improve the country's innovation capacity to ensure continued economic growth, prosperity and competitiveness.[1] In the most recent World Bank and MoST report on Science, Technology and Innovation (officially published in 2020, but launched in 2021), the report noted the urgent need in Vietnam to address

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[1] World Bank Group and Ministry of Planning and Investment *Vietnam 2035: Toward Prosperity, Creativity, Equity, and Democracy*, 2016

supply, demand and linkage issues, underpinned by a more conducive framework for policy coordination and implementation.

13. In the new Socio-economic development strategy (SEDS) for 2021-2030 that was endorsed at the most recent XIII Party congress in 2021, STI is identified as one of the key drivers for development, with a strong emphasis on innovation to change the economic growth model. In many related official documents, the notion of national innovation system (NIS) development was repeatedly emphasised, especially the role of the private and strong research organisations in the system.

14. This commitment to innovation was also recently seen in the statement by the Prime Minister at the latest TechFest event, in which he spoke of the urgent need for Vietnam to ensure that innovation needs to:

- solve emerging problems for the economy and society such as climate change, shortage of natural resources, aging of population, green development, digital transformation;
- work on issues of healthcare, education, agriculture, enhancing policy and institutional framework, to make sure everybody can involve in the innovation; and
- focus on solutions such as increasing international cooperation for innovation, responding to supply and demand issues through the development of science, technology and innovation markets, , and promoting greater involvement in global value chains.

Subject being reviewed

15. Aus4Innovation (2018-22) is the flagship A$13.5 million investment under the Innovation Partnership with the Government of Vietnam (GoV). The program is co-funded by the country program and Innovation Exchange. It leverages a further investment from CSIRO of A$ 993,000. Delivery is managed through a partnership between the Vietnamese Ministry of Science and Technology (MoST) and CSIRO.

16. To strengthen Vietnam's innovation system, Aus4Innovation aims to:

- Assist Vietnam to further its innovation policy agenda;
- Co-develop and pilot models that advance Vietnam's innovation system;
- Build and strengthen science and technology capability aligned with emerging public and private sector needs; and,
- Deepen institutional relationships between Vietnam and Australia.

17. Four workstreams constituted the initial core program activities:

EOPO Capacity	1	Institutional and individual innovation capacity being used by participating agencies and organisations
EOPO Preparedness	2	Better strategic tools, data and models are being used for evidence-based policy – making
EOPO Partnership	3	Sustainable partnerships are being created that align with balanced growth objectives
EOPO Cohesion	4	Mechanisms have improved adaptability and responsiveness of the system to change

18. Activities were undertaken through four discrete components of A4I

Digital Foresighting *(completed, May 19)*

- Report by CSIRO Data61 & MoST.
- Scope covered the development of Vietnam's Future Digital Economy until 2045 and identified 4 possible future scenarios

Innovation Partnership Grants (2 rounds)

- Up to $1M per grant to support pre-existing AU and VN University and industry partnerships to deliver high impact projects to VN.

Science Commercialisation Partnerships (SCP)

- Commercialisation capacity building for Vietnamese researchers in the public sector.
- Building innovation clusters in Vietnam to connect R&D/Innovation to industry.
- Focused on commercialisation in the Food, and Agriculture sector

Policy Exchange (3 key interventions)

- Delivering reports to support Vietnamese government with policy development, e.g.,
    - *report to measure the impact of technological adoption and creation on economic growth.*
- Introducing innovation centre models from Australia to Vietnam.
- Introducing international best practices to support the development of the National STIS for 2021-2030

19. Although outside the scope of this review (as these activities are still progressing), A4I has already entered a transition phase. A key point to note about the transition phase is that the four discrete project elements of A4I have evolved into a themed approach, with activities occurring under two broad themes, namely Future Digital Economy, and Resilient Agriculture and Food Systems. Under these two themes several additional activities are being undertaken by A4I including:

- Round 3 of Innovation Partnership Grants focused on digital transformation.
- Extension of SCP work.
- Innovation Hub Model - aligning with CSIRO work in neighbouring regions, e.g. Marine Plastics Innovation Hub in Indonesia.
- Innovation Market Place - development of a digital platform to connect AI researcher and businesses in Vietnam.
- International Lessons & Insights - review of innovation programs across the globe.
- AI Initiative as a COVID response - seminars and forums to disseminate Vietnams National AI strategy.

20. Recognising the novelty of the intervention and the relationships, Aus4Innovation has been deliberately designed with flexibility as one of its guiding principles. The Strategic Partnership with CSIRO as an implementing partner is a key component of this approach. CSIRO is co-investing and has established a Program Office in the Australian Embassy in Hanoi. As 'Australia's innovation catalyst', CSIRO offers a conduit to Australia's National Innovation System, access to deep technical and innovation capabilities.

21. 2020-2021 presented significant challenges to the operation of the program. Programs were largely transitioned to remote delivery models and necessitated taking COVID response/recovery priorities into account.

Key Findings

22. The review findings and the evidence to substantiate them are presented below. They are structured as a response to each review question in turn.

Relevance: Is A4I doing the right things?

23. **Political pragmatism led to a responsive but shortened design process.** The flexible design of A4I evolved from an existing portfolio of Australian innovation investments in Vietnam. Whilst the design was therefore grounded on the experiences of existing Australian initiatives in Vietnam it does not appear to have consulted with several innovation programs implemented by development partners (such as Finland's IPP, World Bank's VIIP, UK's Newton Fund and so on), which is a missed opportunity as several have now ended[2]. A4I could have been more proactive in looking at experiences of other predecessor programs to learn lessons and adopt new practices when they all have similar purpose of supporting the innovation system of Vietnam. These other innovation programs had been in operation for many years prior to A4I, and to some extent were doing similar work (especially capacity strengthening), and had learned valuable lessons which could have helped shape the initial design of A4I, including helping to articulate a unique value proposition for A4I in order to demonstrate its uniqueness in what was then a fairly crowded space.

24. **A4I is not only aligned to national priorities, plans and strategies, but A4I is helping to shape key policies in Vietnam.** The extent to which there is alignment between the different components of A4I and Vietnamese policies varies, but this is understandable as policies are typically far broader than the narrow focus of an innovation program. **Table 1** below provides a snapshot of this alignment.

Table 1: Alignment of A4I to Vietnam's policies and priorities

A4I Component	Policy aspects to which A4I aligns	Example of specific policies
PE1	• Technological change in Vietnam • Digital technologies and transformation • Foster rapid and sustainable development based on science and technology, innovation • Science and Technology, and Research and Development policy	• National Strategy on the 4th Industrial Revolution towards 2030 • STI policies for investment in R&D, including the proposed National Science, Technology and Innovation Strategy for 2021 - 2030
PE2	• Supporting an Innovation Centre model	• Policy to develop National Innovation System • Establishment of Innovation Centres across Vietnam

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[2] The 2nd Phase of Finland's Innovation Partnership Program finished in 2018, the World Bank's Vietnam Inclusive Innovation Program also ended in 2018, and Belgium's Innovation and Development of Business Incubators Policy Project ended in 2020.

A4I Component	Policy aspects to which A4I aligns	Example of specific policies
PE3	• STI policies and strategy in general • increasing the absorption and diffusion of technology and improving the quality of human resources	• STI strategy 2021-2030
SCP	Commercialisation and entrepreneurship policy	• National Science and Technology Market Development Program 2021 - 2030 • National Start-up Ecosystem Development Program
AI	AI policy development	• AI development strategy 2021-2030
Grants	Related policies for agriculture, aquaculture, healthcare, training and education, R&D	• Policy for healthcare insurance; • Universal Healthcare Coverage/ Social Health Insurance • MARD Aquaculture Master Plan • National Targeted Program on New Rural Development

25. Under PE 1, Working with the State Agency for Technology Innovation (SATI), Data61 developed methodology, data, and two data processing models, that are required for assessing the impact of technology adoption on GDP growth and productivity improvement in Vietnam. By using these models, SATI will be able to produce high quality evidence base inputs for MoST agencies in innovation policy making. It is anticipated that this work will connect strongly to MoST's work on the National Science, Technology and Innovation Strategy, which in turn links up to with work being done under PE 3. PE 1 is based on key recommendations from the 2019 report "Vietnam's Future Digital Economy towards 2030 and 2045", including developing an index to measure the economic impact of innovation to advance Vietnam's innovation system in building adaptive capacity in responding to challenges and opportunities, like Industry 4.0.

26. Under PE2, A4I has been supporting MoST establish the Innovation Centre, which is seen as critical to efforts to strengthen the National Innovation System of Vietnam. A4I has been giving support to the Vietnam Institute for Science, Technology and Innovation (VISTI) in charge for the development of the centre. Under PE3 A4I has been supporting the drafting process for STI strategy 2021-2030 with the vision to 2045 by introducing international best practices on developing and selecting STI indicators and priorities.

Data61:
• Identified trends affecting Vietnam's macro-economic environment
• Developed a set of scenarios (foresighting) for Vietnamese economy for the next 10-20 years focused on varying rates of digital transformation
• Modelling informed Vietnam's planning for its next stage of development, in particular to inform strategies relating to Industry 4.0, the ICT sector, the energy sector and the broader digital economy.
• Two data processing models for assessing impact of technological adoption on GDP growth and productivity launched in October 2021

27. Under SCP, the **strong focus on commercialisation** aligns directly to policies related to, for instance, the development of the technology market. Moreover, the work of SCP is in direct response to government policy which is gradually reducing state funding for research, which in turn is creating an important driver for innovation commercialisation at research institutes. The development and delivery of the *Commercialisation PLUS How-to-Guide* is a good example of A4I responsiveness and also the manner in which the program has collaborated with its partners. In the case of the guide A4I is supporting the efforts of NATEC (who is responsible for drafting, implementing policy and strategy to develop technology market in Vietnam) to operationalise Vietnam's stated goals for 'science-driven development'. The ongoing collaboration with NATEC will fall under the recently approved National Program of Science Technology and Market Development, which outlines a framework for enabling technology into market and includes strategies to address both demand and supply of technology.

28. A4I's efforts to **support the development goals of Vietnam** can be seen in the work it has done to support AI initiatives. Although not initially planned in the program, the AI issue became a new necessity under the Covid situation. Support by the program helped disseminate the policy, such as assisting the High Technology Department (HD) under MoST to implement a Hackathon event in support of green COVID-19 recovery by identifying suitable AI-powered applications for SMEs in Vietnam. A4I's work under AI reflects not only the ability of the program to be responsive to the policy needs of the Vietnamese government, but also illustrates how A4I were influential in supporting efforts to demonstrate the policy in action.

Artificial Intelligence (AI):
- **Strategy** – A4I helped disseminate the *AI development strategy 2021-2030*
- **Accelerator** - delivered in collaboration with Hi-Tech Department under MOST, A4I and Vietnam Silicon Valley to enhance start-up development (the program has already selected a small group of start-ups from several hundred applicants, provided, coaching, mentoring and connected them to potential investors)

- **On-line Forums** – A4I hosted four discussion forums on AI infrastructure, human resource development for AI, R&D for AI, and AI application and businesses (> 500,000 views reported in total).

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29. Whilst the grant projects have not necessarily been formulated with a specific focus on policy, they too have nevertheless had some effect on the policy. For instance, the work done with HSPI, which is think-tank under MOH, is likely to have a strong influence on the policy making process in healthcare sector, especially now that HSPI has completed a policy paper advocating for the uptake of the VIETRAD initiative to improve early detection of breast cancer across Vietnam.

30. Whilst the first phase of A4I was strongly aligned to relevant Vietnamese policies, by its own admission **A4I could have done more to align with the strategic intent of Australia's policies** in Vietnam. At both the policy level and at the operational level, A4I could have done more to leverage and/or support Australian influence in Vietnam. For instance, despite A4I being involved in the formulation of the Australia-Vietnam Economic Engagement Strategy (which has since been updated - *Australia-Vietnam Enhanced Economic Engagement Strategy, VEEES),* and A4I being identified within the strategy to help drive innovation collaboration forward, A4I has not systematically engaged with efforts to implement the strategy. Similarly, at the operational level A4I did not, for instance, initially leverage innovation solutions and knowledge drawn from a wide-range of DFAT and CSIRO supported innovative initiatives across the region. It is only more recently

that A4I have begun to engage with, and support, initiatives such as the partnership with Boeing to gather satellite-derived earth observation data and images, and the Australia-Indonesian Plastics Innovation Hub. There is room for further engagement with these types of programs, including, for example with CSIRO's SME connect and so on. Further thought should be given to the extent that it is desirable that A4I plays a more proactive role in supporting Australia's public diplomacy role in Vietnam, especially the promotion of Australian science and innovation credentials, and connecting Australia's unique innovation capability to the rapidly growing Vietnamese markets.

31. Nevertheless, **A4I did provide opportunities for the government of Australia to enhance its standing in Vietnam**, especially in the current Covid19 context. For instance, A4I had direct relationships with COVID-19 task force in Vietnam, so could open doors for Australia, and connect DFAT to key government stakeholders which other parts of the Australian government could not access.

32. The **modality used by A4I has been shown to be relevant to the context**, and where it was found not to be a good fit the program adapted its approach accordingly. In practice this meant, for instance, adapting international best practice to the Vietnamese context (whilst time consuming) by drawing on the expertise of Vietnamese partners, ensuring an approach that focused on both individual and organisational capacity(e.g. SCP's support that led to the transformation of the role of the Technology Transfer Office within CTU), implementing activities (such as through the grants) by building on existing relationships between Vietnamese and Australian partners, and by ensuring that A4I support is integrated into the scope and functions of the relevant government agencies the program was working with. Other key features of the A4I approach include:

- A strong commitment to innovation commercialisation from participating organisations' management, which will help Vietnamese research organisations to establish new revenue streams by providing innovations to industries.
- Creation of a mechanism for building up commercialisation capacity for participating agencies, in which TTO has been appointed to oversee the provision of capacity support to the commercialisation of research.
- Development of commercialisation tools – the guide and other models are being developed for research institutes and universities.
- The identification, within training/ capacity building programs, of the various additional skills/knowledge required for training to ensure effective commercialisation of research (e.g. market study, industry engagement, marketing, and pitching for financing).

33. For A4I to stay relevant key stakeholders were of the view that the design of the 2nd phase needs to ensure:

- Strong alignment to sectoral priorities identified in draft Vietnam's Science, Technology and Innovation Strategy for 2021-2030 (still under review by the Prime Minister)
- Greater focus on the policy/regulatory framework in Vietnam
- Contribute to/ support efforts to enhance economic engagement between Vietnam and Australia as outlined in the VEEES
- Fostering better links with other CSIRO innovation programs/initiatives in the region
- Continue to cultivate links with other like-minded donors/programs - A4I are part of the Informal Innovation Donor Group working on innovation, and have been working very closely with UNDP to initiate this group. Unfortunately the activity of the group was hindered by the pandemic, and the lack of resources to enact the actions it had planned.
- Increasing participation of the private sector

Efficiency: Is A4I doing things well?

34. **Efficiency of A4I has been influenced by the initial 'patchwork design'**, especially at the outset. Components of the program have proceeded down parallel paths and were not always well integrated. As one respondent noted 'it was not necessarily that we have the wrong bits of the puzzle, but not putting them together the right way was problematic'. Moreover, a fundamental challenge to A4I implementation was the assumption at the outset that implementation would be able to begin promptly, which failed to consider the effort required to negotiate and build relationships with partners, and the need to familiarise program staff with the systems required to manage the program.

35. Despite these challenges at the outset **A4I has largely worked to address many of the inefficiencies it faced initially**, including investing time to ensure greater synergy between DFAT and CSIRO systems (which included addressing important cyber security concerns, different financial management systems and so on), and in promoting strong working relationships with key partners (enhanced by having Vietnamese speakers within the program team, which has enhanced cultural sensitivity within A4I). Nevertheless, challenges remain including the lack of alignment between the different components of the program, exacerbated by the geographic spread of the program (the pandemic has undoubtedly made it difficult for partners from Australia to travel to Vietnam) and the disconnect between different components of CSIRO (reporting lines are complex as they include reporting within business units, but also to the program as a whole).

36. **Planned outputs within the intended timeframe have largely been met**. Any delays encountered by A4I are primarily the result of the pandemic. A4I has demonstrated an efficient pivot to respond to pandemic challenges, such as for example its additional expenditure on the AI theme (such as assisting the High Technology Department (HD) under MoST to implement a Hackathon event in support of green COVID-19 recovery by identifying suitable AI-powered applications for SMEs in Vietnam) and its pragmatic approach to hybrid ways of working.

37. **Cost-effectiveness has increased**, and budgeting continues to pay attention to ensuring cost effective measures are maintained. For instance, despite additional amounts allocated to activities program staff levels remained the same.

38. **The program budget has been efficiently managed by an increasingly under-resourced staff**. The budget increased from $10m in the design to $13.45m, with an extension of 6 months added to the program due to delays in implementation related to COVID. Despite the increase in budget; support costs decreased by $1m. Program staffing remained the same, whilst support to MoST and communications were reduced. Of the additional $4.4m in program budget:

    a. 52% was allocated to the Grants program
    b. 40% was allocated to the Science Commercialisation program

39. These increases allowed additional activities to be undertaken, placing additional demands on staff with no corresponding increase in staffing budgets. Whilst successfully implementing the expanded program without a corresponding increase in staff represents an efficiency gain, it is not a sustainable approach with many respondents noting the high workloads and pressure that staff were under.

40. **Vietnamese partners would like to see greater transparency with regards to budget – especially at Grantee level**. There is a perception amongst some Vietnamese partners that major funding decisions are made from Australia, that the funding for grants is channelled through Australian partners, and that implementation of activities is largely led by Australian partners. There is also a view amongst some partners that funding available to Vietnamese partners is less than what Australian partners are receiving. Whilst these views are not widespread, several Vietnamese partners were very uncertain as to how the A4I budget is apportioned between different components of the program, and how the funding for grantees is actually disbursed.

41. Potential efficiency gains that A4I need to consider as it transitions into the next phase include:

- **Clarity of purpose**– clear impact statement to ensure everyone is working towards same goal/ narrower focus
- **Tighter coherence** – being clear about which sector(s) it wants to concentrate on would allow the program to test niche applications and then focus on scaling successful initiatives
- **Expanding program staff complement in Hanoi** – it is essential the program retains strong complement in Vietnam as a larger presence in-country is better for continuity and connection, enhances the visibility of the program and makes it easy for key stakeholders to access the program on a day-to-day basis.

42. Thought should also be given to ensuring a clear distinction between the Program manager and the Director of the program (this also speaks to need for clear roles and responsibilities, which needs to be shared with partners). If such a distinction were made, the Director would focus on strategy and influence (promoting bilateral opportunities, but also with the technical expertise of Australia's broader innovation capability), whilst the Program manager would focus on operation excellence (with subject matter expertise so that they can negotiate with key partners and explain what needs to happen).

Effectiveness: Is A4I working?

43. A4I has largely overdelivered against its expected outputs (i.e. the proposed targets, 2018 – 2022), but progress towards its EoPOs is less clear. Table 2 below illustrates the extent to which A4I has exceeded expected outputs.

Table 2: A4I progress against output indicators (source: A4I MEL data)

OUTPUT	INDICATOR & MEASUREMENT	Achieved in 2020	Achieved in 2021	Proposed Target (2018-22)
Output 1: Institutional, organisational and individual capacity enhanced	PEOPLE: # of participants	198 (M: 118, F: 85)	589	
	ORGANISATION: # of organisations participating in grant funded activities	60	82	5
	ORGANISATION: # of organisations participating in science commercialisation training activities	72	76	4

OUTPUT	INDICATOR & MEASUREMENT	Achieved in 2020	Achieved in 2021	Proposed Target (2018-22)
Output 2: Knowledge transferred and applied	ORGANISATION: # of actions for government in A4I produced reports which have been written into policy and strategy documents	3	3	3
	ORGANISATION: # of citations of A4I produced reports in policy documents, academic research, industry research, and business strategies	52	52	50
	ORGANISATION: # of media communication generated	37	122	10
Output 3: Partnerships supported and strengthened	PEOPLE: # of individuals participated in implementation of the partnership	5908 (M: 3281; F: 2916)	5964	100
	ORGANISATION: # of organisations involved in partnerships	367	381	10
	PARTNERSHIP: # of partnerships generated through A4I	41	44	10
Output 4: Networks enabled	PEOPLE: # of people participating in cohesion events	101,144 (*)	102,004 (*) (**)	1000
	ORGANISATION: # of agencies involved	683	832	3
	SYSTEM: # vehicles generated through A4I activates	6	8	3
	SYSTEM: # of new collaborations that graduate from A4I activities	2	2	3

(*) More than 100,000 views on the panel discussion on AI application as reported by the media service provider. Some 506 males and 228 females participated in the cohesion events (other than in the online AI discussion).

(**) An estimated 500,000 views in the AI discussion forum are not included

44. In addition, the achievements of A4I have in pure numbers has been impressive, for instance:

- As at June 2021 – 761 trainers participated in focused training events (of whom 252 were women)
- 34 governmental organisations agencies at central level been exposed to the value of evidence-based policy making
- 5500 people are users of water filtration system provided by the Rapido model project

45. However, quantitative data (whilst undoubtedly positive) only tells part of the story. For instance, two collaboration platforms (Horticulture Innovation Club with more than 900 members participating on the club's virtual communication platforms, and Central Highlands Innovation Cluster which will see A4I working with 5 provinces) have been established by SCP. In addition, two collaboration vehicles (AI Hackathon and Start-up Accelerator program) were also established. All of these have been proven to be effective mechanisms for promoting networks among actors in the innovation system and are being shown to be an effective mechanism for information-sharing. The development of two collaboration platforms demonstrates the willingness of key stakeholder groups to participate meaningfully in effective networks, and the likely benefit of such platforms.

For instance, using the Innovation Club as a vehicle for cooperatives/enterprises to raise issues and seek opportunities for cooperation with scientists on technological solutions to their production and post-harvest processing issues. In addition, the platforms have helped identify the necessary conditions to ensure the sustainability of these types of collaboration.

Building commercialisation capacity through SCP support:
- VNUA signed five cooperation agreements with potential to generate revenue from its research in food processing, biotech waste management, plant varieties (quinoa and rice), and for dragon fruit wine.
- VAST's TTO brokered a commercialisation collaboration with the Vinh Hoan seafood company to improve value-add for catfish products

- Working with CTU to enhance Tech Transfer Officer's capacity for industry engagement and to build an externally facing online marketplace for technology and services across CTU.

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46. A4I activities have also been effective on building on early successes to achieve more noticeable successes, as the following example illustrates:

- **In 2019:** A4I SCP workstream selects seven technologies from CTU, VAST, VNUA, and VCCI / /NATEC to support to commercialise

- **In 2020:** an additional two technologies from CTU and VAST are supported to commercialise

    o Of the nine technologies - four followed the spin-out path to market, three followed the licencing path to market and one is exploring a combination of multiple paths to market

- **In 2021**: two of licencing path to market pilots participated in the VCCI connect match making program and connected with potential clients interested in the technology and broader value proposition. In addition, A4I have now brokered an opportunity for three of the spin out companies to pitch to an Australian based impact investor.

47. At the immediate outcome level there are many illustrations where A4I has led to changes in awareness, behaviour, and practice, as we show in **Table 3**.

Table 3: A4I Performance: Immediate Outcomes

Immediate Outcomes	Examples
Awareness raising	- Value of partnership between Vietnam & Australia - Enhancing relationships - Australia seen at the forefront of innovation - Quality of relationships - eg NATEC has developed a strong, trusting relationship with A4I. - Value of collaboration to develop solutions - Showcasing of replicable solutions - Value of private sector's role to scale up solutions - People-to-people network expanding exponentially
Behavioural changes	- Initiation of multiple actions for improving commercialisation/industry engagement - Informed/evidence-based policy making - Increased literacy around innovation across government departments and between Australia and Vietnam - Horticultural Innovation Club
Strong Leadership engagement/ support for innovative solutions	Senior leadership from Vietnamese partners are engaging more often, in a systematic manner

Sustainable Innovative Solutions (such as up scaling of innovative solutions)	• Foresighting • Data processing models • Commercialisation + How to Guide • Rapido Model • Vietrad • HIC
Developed additional tools/ mechanisms	• Tools to assess the current situation and impacts of technological progress and innovation on Vietnam's economic growth • NATEC's creation of a national database • CTU's Marketplace platform • VAST/VNUA – developing Innovation Centre • Vietnam – Australia AI Cooperation Network
Responsive/ adaptation	• AI work to support MOST • Workplan pivot because of COVID-19

Factors contributing to success

48. **Factors for success include A4I's strong focus on building effective partnerships, the relevance and quality of the technology transferred, the strategic positioning of the program within MoST, the importance of CSIRO providing a conduit to Australia's National Innovation System, and the quality of the management team**.

49. **Effective partnerships and collaboration/ strong relationships** are seen to be critical to the success of A4I. In some instances, these relationships have been built from scratch, and although time consuming, respondents were equivocal in noting that these relationships have not only made implementation more effective but has added value to the quality of the outputs. In other instances, relationships already existed, such as with the grants. All grantees were working with existing partners. Some had worked with partners before on other Australian government funded projects while one Australian university has a presence in Vietnam and is co-located with its partner for the grant. The importance of these existing relationships was critical for the success of the program for two reasons:

- COVID impacts on international travel meant much more work had to be done by partners on the ground, with communications mainly via teleconferences. Establishing relationships remotely is difficult – having worked together before makes the transition much easier.

- The short timeframe of the projects meant that there was no time to learn how to work together – it was critical that a good working relationship existed prior to the start of the project to allow activities to begin immediately.

> - **Tech Transfer - Dragon Fruit**:
>
> - The innovative technology introduced by VNUA helps farmers to utilise all of the dragon fruit harvest, including high- and low-grade fruit, fruit that would normally have been discarded due to defects, and the skin of the fruit. The harvest is used to make a variety of different dragon fruit products to respond to market demand, including wine, fermented juice, and organic compost.

50. The most recent bi-annual MEL report (p.15, June 2021) notes four characteristics of the A4I partnership model, highlighting the flexible approach of adapting to the needs of specific partners:

- Enhancing existing relationships between Vietnamese and Australian partners (Grant projects are all based on existing relationships),

- Customizing an innovation that had already proven to be successful in Australia to the Vietnamese context, by drawing on Vietnamese expertise to help modify the technology (Data61 work),

- The Vietnamese partner is a prominent research institution, capable of implementing the innovative solution, drawing on Australian expertise when needed (monitoring sea water, supply of white teat fist for aquaculture sector, and new techniques for improving breast cancer diagnostics for Vietnamese women)

- A more collaborative model where the two partners develop the project and share risks

> **Rapido Model**:
> - Successful technology-transfer model
> - University of Technology Sydney collaborated with two partners under Vietnam National Universities
> - Installed real-time sea water monitoring system in Xuan Dai Bay and water purification system
> - Built on an established relationship, Vietnamese institutions implement innovative Australian solution, supported by local government, and sustained through local industry maintaining and marketing the systems.
> - Benefits nearly 6,000 people (from more than 360 households, 12 commune water filters in 326 households, and 37 commune facilities (childcare centres, schools, health stations, cultural houses, and temples) in 13 rural and mountainous communes.

51. **Strategically positioned within MoST** has enabled A4I to respond and adapt to Vietnam's priorities (AI being a good example of this), and work through MoST to access other key partners both within key technology fields, but also more broadly with respect to innovative solutions introduced by A4I into agriculture and health sectors (such as the potential innovation pilots with the Ministry of Agriculture and Rural Development on pork biosecurity, and bio-waste in aquaculture). Additional noticeable benefits include:

- Enhanced relationships between Vietnam and Australia – Australia is seen at the forefront of innovation.

- Increased literacy around innovation across government departments – through joint work (in addition to capacity building initiatives and mentoring support) with MoST and its partners there is a noticeable difference within these agencies as to what innovation entails

- Raising the capacity of universities and other institutions around commercialisation plus will have a long, enduring legacy

- Quality of relationships – interviews with key Vietnamese informants found very high levels of trust and respect for A4I

52. The **relevance of the type of technology transferred** (as illustrated in the text boxes) is seen to be highly relevant to Vietnam. The quality of the partners involved in the transfer accelerated the success of the tech transfer. Technical support from Australian partners is highly valued and well recognised by local partners which helps to consolidate mutual trust between Australian and Vietnamese partners. A4I's collaborative approach to implementation also ensured meaningful inputs from Vietnamese partners, which ensures deliverables were better tailored to context, and enhances the likelihood of greater sustainability.

53. **Stakeholders hold A4I in high regard**. Despite the management team being severely understaffed, stakeholders recognised the effectiveness of the A4I management team. For instance, often unprompted during consultations they would note how important, and timely, the support provided by the program office in Hanoi had been. Words used to describe the program office include

- 'fantastic… great enthusiasm'
- 'helpful… useful….lovely'
- 'involved in a very nice way'
- 'team in Hanoi has been good'
- 'very supportive and flexible'

- *'The project was successful beyond expectations. It is the most successful project, in 12-months – that I have been involved in'* – experienced academic from Australian partner organisation

54. **The importance of CSIRO providing a conduit to Australia's National Innovation System cannot be overstated.** Vietnamese partners view the role of CSIRO as critical to the success of A4I, not just because CSIRO provide access to significant technical and innovation capabilities within Australia but also because CSIRO is seen to have international standing and provides a legitimacy to conversations on innovation. CSIRO is viewed as having a strong reputation re commercialisation and technology for impact, it is known for its scientific rigour, and it has shown to provide an effective bridge between government and research agencies. Vietnamese partners also spoke of CSIRO providing a useful example of how to drive 'innovation uplift' through State owned entities and Ministries. Moreover, as Vietnamese partners see A4I as very much a government-to-government strategic partnership they believe it is important that CSIRO (a Federally funded government agency) is driving the process from the Australian side.

55. Familiarising A4I staff with CSIRO systems initially took some time, and there were early hiccups with system integration/operability between DFAT systems and those of CSIRO. With the first program director being from outside CSIRO (and spending very little time with the organisation prior to deployment in Vietnam) there was very little opportunity at the outset for the team to familiarise themselves with CSIRO systems and broader capabilities which meant the program struggled to harmonise effectively with CSIRO. Whilst the situation improved over time, there is a need to ensure stronger links between A4I and CSIRO run innovation programs elsewhere, to better reflect on the distinct features and unique strengths of CSIRO that can add value to A4I (and which needs to be emphasised and made more visible), and to ensure there are much stronger and closer links between CSIRO's governance role within A4I and CSIRO's role in creatively generating, developing, and communicating innovative ideas and solutions.

56. The **importance of having Vietnamese speakers in the Australian-based partner** was also highlighted as an important contributing factor for A4I's success. It allowed for detailed, nuanced conversations with a wider range of partner staff in Vietnam, as well as providing greater depth of understanding of Vietnamese culture among Australian partners.

Sustainability – Sea Cucumber:
The achievement of the USC/RIA3 partnership has great potential for replication in other coastal provinces in Vietnam.

The program approach also enhances the likelihood of sustainability, as it draws on the priorities and capabilities of Vietnamese partners in the innovation sector and relies on a partnership approach to foster collaboration and engagement in activities of the program.

57. **Monitoring data and reporting useful for operational management, but inadequate at whole-of-program level.** Whilst A4I has been effective in its reporting, and over time has adjusted the nature of those reports to focus more on progress at outcome level, it is still nevertheless difficult to get a clear picture of performance. In part this is due to the lack of integration between the different components of A4I (i.e. activities are not always clearly aligned so it is difficult to aggregate results), and in part because applying linear change models to complex contexts is very difficult. An important feature of complex change, especially for a program driving innovation with multiple stakeholders operating across many different contexts, is the relationship between cause and effect (and hence inputs and outcomes) is difficult to predict. Research undertaken by the A4I team on '*International insights from innovation support programmes*' found that innovation programs struggled to create, or did not possess, mechanisms to capture the true impact of these programs; and that because building an effective and impactful innovation system takes time this does require a new way of measuring and evaluating program performance:

> *'the evaluation of these programme's remains a significant challenge because of the intangibility of capacity strengthening outcomes, the long-time frames involved in achieving impacts, and the difficulty of establishing a clear line of sight between programme activities and eventual impacts'.*

58. Whilst the design of the next phase will need to determine with more precision what such an approach to M&E is needed, it is important that A4I's M&E approach provides the evidence that allows the program to adapt strategy, favours flexibility, and gathers rigorous evidence to which success can be attributed. Any MEL system put in place needs be more about program learning rather than just tracking progress. Such a system needs to also make sure the lessons are disseminated across the program. In practice such an approach will need to be clear about:

- A4I's strategic intent, and what success will look like (i.e. being clear about what impact/ benefit A4I is likely to achieve over the next 5 years);

- How A4I activities are intended to achieve impact (e.g. be clear about the expected changes that are likely to occur as a result of increased capacity, changes in expertise and knowledge, shifts in understanding and so on);

- What are appropriate tools to diagnose and support decision making within A4I (e.g. selecting indicators that capture nuanced changes in problem framing, understanding or minds sets); and

- What the essential features are of an M&E system that supports the essential behaviours of adaptative management (e.g. to what extent can the M&E system enhance collaboration and partnerships, and what are the necessary actions required to ensure effective learning amongst diverse users within A4I).

59. **Communication has been effective** within different components (traffic to website, for instance has been high, and the AI work received > 500,000 hits) but there has been insufficient story-telling, especially in an accessible way. For instance, some noticeable success has been achieved within the

grants with respect to inclusive economic empowerment. Whilst the program gets good media coverage in Vietnam the same does not seem to be the case in Australia. There is a need to do more in-depth briefings with key stakeholders in order that they advocate for greater support for the program. This would also include engaging more with the private sector to help raise awareness of the opportunities that A4I provides (e.g. raising awareness of a potential challenge fund and other investment opportunities).

Socio-economic benefits of A4I:
Cool-bot: delivering significant economic benefits to local farmers (many of whom are women drawn from ethnic minority groups) in the Son La province through the use of affordable cooling storage and transportation of fresh produce.
Labour-saving technology for shrimp processing: contributes to improved work-life quality and productivity for female workers in fishery factories in the Mekong Delta region through the application of de-heading machines in shrimp processing.

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60. A4I had made **variable progress on Gender and Social Inclusion, but its approach needs to be more deliberate**. SCP developed a Socially Inclusive Strategy for its activities (Q3,2020) and does now routinely report against the strategy (see for instance its July 2021 GESI report). A4I has followed with the recent development of GESI guidelines. In addition, a Gender Specialist has been working with A4I to ensure gender action plans for the Partnership Grants workstream and the development of a unified GESI strategy at the program level.

61. At the output level, A4I has reached several of its gender and socially inclusive targets such as:

    - 198 people participated in SCPs Commercialisation PLUS Bootcamps between 2019 and 2020, of whom 48% were women

    - Four of the seven technology transfer pilots supported by SCP were led by women

    - 519 participants have participated in policy engagement workshops, of whom 31.2% were women.

    - A4I is currently developing a scope of work within the **Central Highlands Innovation Cluster**, with the stated aim of strengthening the application of science and technology and innovation to the production and processing of pepper, fruit, and coffee. The objective of this intervention is to improve incomes and livelihoods of farmers, many of whom are women.

62. Moreover, the Commercialisation PLUS manual, which is underpinned by the principle of social inclusion, also highlights the importance of ensuring that any assessment and consideration of impact, an essential step among nine commercialisation steps that researchers are advised to follow, is underpinned by meaningful gender and social analysis. We also note (as illustrated in the text box) economic, social & health benefits for women are being realised in grant programs.

63. Whilst A4I demonstrated flexibility and appropriate adaptation of programming as a result of the pandemic, an **unintended consequence has been the emergence of far stronger ownership by Vietnamese stakeholders of different initiatives**, such as the Horticultural Club (effectively being run solely by Vietnamese partners) and day-to-day management of grants (COVID-19 meant Australian partners could not travel and this has meant Vietnamese partners have been running the projects with mentoring support provided by Australian partners). The external push provided

by the pandemic has led to more control being given to the Vietnamese side, which has in turn empowered and enhanced ownership

Areas for Improvement

64. By its own admission, the program does recognise that it **needs to prioritise both gender equality and social inclusion**. This would ensure that programming is informed by gender and social analysis, that it pays greater attention to safeguarding (in line with DFAT's 'Do no harm' strategy), and that it improves its MEL reporting on both gender and social inclusion (this includes making sure that GESI lesson learning is being systematically documented and shared across the program). To successfully mainstream gender and social inclusion within the next phase, the management team will need to deliberately focus on 4 distinct aspects, namely:

- **Resources** – i.e. making sure there is sufficient time and resources provided to support initiatives to enhance gender and social inclusion across the program.

- **Training** – to ensure A4I have sufficient competence and commitment to enhance gender and social inclusion.

- **Climate** –leadership of A4I drives an inclusive culture within A4I to ensure greater recognition of gender and social inclusion.

- **Organisation** – a whole-of-program approach is taken to enhancing gender and social inclusion efforts, underpinned by a GESI strategy.

65. Other areas for improvement, according to key informants, included the following suggestions:

- Enhancing skills/capacity of Vietnamese institutions to enable them to seek investments
- Enhance investment opportunities and provide greater exposure to the private sector
- Tackle the restrictive regulatory framework which is seen as a barrier to successful innovation in Vietnam
- Better sharing of lesson learning from successful innovations, not only internally but also externally
- Stronger leadership/ buy in required, which will require training and building capacity of senior managers in relevant institutions within Vietnam)

66. Interviews with the grantees raised several issues which the grantees believe would make the program more effective, including the need to extend the grant period, to identify clear pathways for successful grants, and to make more of the public diplomacy opportunities that successful grants provide.

67. Each grant was given for 12 months. All grantees stated that this timeframe is too short. Despite the differences in the types of projects being completed – water quality measuring systems, sea cucumber spawning technology, cool chain solution for agriculture – all noted that they needed longer to complete the program. It was noted by several grantees that flexibility in grant length that better reflected the technical difficulty of the project and other factors, may be more appropriate. Most projects were granted extensions of time. Whilst some of the time pressure may have been the result of COVID impacts, respondents suggested that they would have needed extensions regardless.

68. One grantee noted that transferring the technology was relatively straightforward but changing behaviour of users to ensure the new technology is used correctly – through ongoing training and

monitoring – takes a long time. Another noted that there is a gap between proving that something can be commercialised and it actually being commercialised. An additional grant for successful projects or strengthened pathways for commercialisation (see next point) may help remedy this issue.

69. Several grantees noted the lack of pathways for successful projects. It was noted that the transfer of technology takes a significant amount of the 12-month grant period, ensuring that it is fit for purpose in the local context. This leaves little to no time to test that it is working correctly and consider commercialisation options. It was noted by one grantee that as there is no follow-on phase it felt as if '90% of the benefits were being left unrealised' as projects were ending at the point where they were proving themselves.

70. One grantee suggested a second phase for successful projects on 12 months – covering salaries only - to continue mentoring local partners and provide ongoing technical advice as required. It was noted a lack of integration with the commercialisation element of the program was a missed opportunity.

71. A number of grantees noted that Australia was missing significant soft power opportunities by not providing a mechanism for some sort of ongoing engagement with local partners and further support for commercialisation of projects. At the most basic level, site visits to effective, functioning projects are more likely later in the grant. Increasing the window for these opportunities to display Australia's contribution are being constrained by the short time frame of the projects.

72. At a more strategic level, in some cases Australia's contribution is potentially lost if local partners continue to refine process and commercialisation is achieved. The success of the project is great outcome for the program, but the potential lack of recognition of the Australian contribution at the outset is a missed opportunity.

73. Reputational risk was another issue raised by grantees. This is mainly related to relatively short time frames. It was noted that in instances where physical technology is being transferred, such as water filtration systems and other prominent pieces of infrastructure, if local capacity for maintenance isn't built within the project timeframe, a risk exists that the equipment falls into disrepair and becomes something of a white elephant, potentially with Australian branding on it. Some of this technology is based in government offices, others out in community centres and schools. If these do fall into disrepair because they are not maintained, or they are not used or used incorrectly because sufficient time has not been allowed for changed behaviours to become a normal way of life, they are very public failures of the Australian aid program. This has the potential to have a negative impact on Australia's reputation.

74. One grantee suggested a more tailored approach to the training required to be completed to receive a grant. This grantee had received several grants from Australian government agencies and felt that the gender training in particular was time intensive given the level it was pitched at. The grantee recognised the need for the training, but given the project was almost a continuation of another government project, they would have benefited more from some initial gender support that specifically looked at their project rather than a generic introductory gender training program.

Conclusions, lessons learned and recommendations

75. Based on the findings presented in the previous section, an overall assessment of A4I is provided below, we then list key lessons for the next phase of A4I, and then this is followed by six recommendations of how A4I can take action to build on our findings and the lessons learned.

Overall conclusions

76. The development need and value of A4I have been validated. Engagement with MoST remains strong, there is clear evidence of how A4I is aligned with Vietnam's priorities, and there is growing demand from key institutions within Vietnam for further engagement with A4I.

77. Factors for A4I's success include the programs strong focus on building effective partnerships, the relevance and quality of the technology transferred, the strategic positioning of the program within MoST, the importance of CSIRO providing a conduit to Australia's National Innovation System, and the quality of the management team.

78. The flexibility and responsiveness demonstrated by A4I are valued by the Government of Vietnam. A4I demonstrated it was truly responsive and adaptive when circumstances presented itself (this can be seen in the way A4I adapted to the pandemic, for instance, and also its effective response to support AI initiatives in Vietnam). The role of CSIRO is also seen by Vietnam as of great importance, and the value it brings through its unique position as a convenor of innovation expertise, and who can provide rapid, flexible responses to policy challenges. The ability to convene expert teams on applied policy priorities (such as contributions to Vietnam's STI Strategy and the work done on AI) are recognised by VISTI as a new and helpful approach. The way A4I has collaborated with Vietnamese partners has also enhanced its standing, and also ensured that the quality of its outputs met the needs and requirements of local context.

79. Relationships and partnerships have been shown to be critical to the long-term success of A4I, and there are many instances where existing relationships have been leveraged to ensure further value of Australia's investment (such as SCP's strong relationship with major research institutions in Vietnam, DATA61's foresight work, and the partnership grants which are all helping to build deeper connections between Australian institutions and Vietnamese partners).

80. Fragmentation has been a challenge for the program, and although A4I managed to address some aspects, the basic design logic meant the initiatives were never fully integrated during the 1st Phase. Despite many efforts to promote greater coherence, there is still a sense that different components act independently of each other, and that this has hindered lesson learning across the program and potentially weakened opportunities to build on early successes.

81. Whilst the management team did a remarkable job in coordinating the program, it was severely understaffed. Moreover, for much of the first phase there was no structured mechanism for A4I to

identify and act on bilateral priorities (i.e. aligned to priorities identified by both Vietnam and Australia), nor systematically gather intelligence on future programming priorities and/or other like-minded initiatives which A4I could work with and create synergy to enhance its efforts. Whilst not always in a position to provide resources to initiatives, fully engaged Vietnamese partners did help steer the program which enhanced the quality of outputs and strengthened ownership.

82. The MEL system provided useful information at the operational level, but it never truly provided a systematic approach to tracking progress against the desired outcomes (which were not properly framed in the design logic), nor did the system share knowledge in a meaningful way to inform future programming (i.e. MEL needs to also be about program learning and not just tracking progress). Communication at the operational level has been very effective (the website, for instance, receives many hits, and the newsletters and other communication vehicles have proven to have a high footprint) but, linked to the related point about MEL, there is room for improvement in communicating the lessons learnt, ensuring these results are disseminated to a broader audience to enhance greater engagement with the program and also to help support active business engagement and stimulate potential commercial/investment opportunities.

83. Policy exchange, partnership grants and SCP each include relatively small, but "high-touch", activities, but the fragmented nature of the program has made it difficult to determine the extent of the impact achieved. Whilst A4I has undoubtedly been of tremendous value within the A4I context, there is also a recognition that additional time and investment is required to realise the ambitions of a program such as A4I. Moreover, there is also an acknowledgement that there was insufficient attention paid to the policy regulatory framework (understandably as this takes considerable time, and the program has only been operating for 3 years) within which the innovative solutions are being introduced. Nevertheless, with A4I having now established a solid foundation it is likely that with more time and resources, with additional person power to manage it, a deeper engagement with a thematic focus, and greater focus on the policy environment, a 2nd phase of A4I will achieve greater impact.

Key Lessons for the future

84. A clear lesson running through this review are the challenges that have emerged as the result of **design logic that was not sufficiently explicit** in how best to secure strong linkages between the different components of A4I. Correctly framing the task of innovation support and being clear on the implementation and impact logic that flows from this would have helped ensure a more integrated approach to implementation. Selecting the right thematic focus, based on wider consultation may have helped deepen the understanding of the Vietnamese context at the outset. Moreover, A4I would have benefitted from learning from other innovation programs in Vietnam, in part to ensure that A4I did not have to engage in similar learning, and in part to ensure that A4I could clearly articulate its unique offering. A coherent design, which clearly mapped out the synergy between different components of A4I, would also have enhanced integration.

85. Program partners have recognised the need to reach beyond the workstreams to share learning and create networks that strengthen the **interconnected aspects of the innovation system**.

Throughout the 1st phase there has been a growing realisation within A4I of the need to take a systems approach to promoting innovation in Vietnam. Such an approach needs to reach beyond the workstreams to strengthen the interconnected aspects of the innovation system, including giving more attention to the policy/ regulatory framework, the creation of platforms to enhance connections and networks, and engaging with other key groups and institutions, such as the private sector. However, there is also a realistic understanding that such an approach takes time and will likely only occur over multiple phases of A4I. It is therefore important to be pragmatic about the likely changes that will occur in the first instance.

86. **Activities needs to be tailored to partners' context**. A4I struggled initially with tailoring deep theoretical knowledge/international experiences to the local context. Nevertheless, a more nuanced approach evolved as A4I established that partners have different capacities, interests, and strategies with regards to promoting and facilitating innovation. Linked to this lesson, is the finding that **matching interventions to the capacity of partners is also key**. For instance, the train the trainers not as successful as envisaged, and it did not follow its original plan or meet the initial goals of the program. However, A4I realised this and adapted accordingly. Adjusting its response to the capacity of the system (i.e. taking into account capacity within individuals, partner organisations, other actors in the system and so on) A4I pivoted to focus on what was needed more, building the capacity of Technology Transfer Officers to enhance innovation capacity strengthening initiatives.

87. **Partnership is a vital vehicle for innovation** but takes time to build and requires sustained effort. Established relationships with partners were critical to project success, and there are many examples (such as the grants) that illustrate where existing relationships have benefitted successful implementation. In addition, cooperation and consultation with Vietnamese partners has strengthened the relevance and quality of outputs. The program has also created new relationships which over time have enhanced the sustainability of A4I's efforts. Furthermore, a key lesson learnt from SCP's support to the three key partner organisations (CTU, VNUA, VAST) is that the different organisational settings reveal different needs in terms of intervention and policy support in relation to commercialisation, and that the nature of the commercialisation that emerges will look different in each of these settings. Working with these three key partners also illustrates that there are different ways to build relationships with institutions and industry. This all points to A4I continuing to take a more nuanced approach to providing targeted support that reflects the diversity of organisational needs of research organisations and research and the context within which they operate.

88. For a program that is introducing complex concepts such as commercialisation and innovation to Vietnam, **flexibility and adaptation of programming are required**. Flexibility, process driven, adaptive management approaches are critical, as the process of innovation capacity building is neither linear nor predictable.

89. As a result of pandemic – the program has recognised that a **hybrid approach to working is of value** and can improve efficiency (e.g. online meetings and show case events have ensured greater participation as participants could dial in rather than travel specifically to Hanoi for events), but it has also created challenges for the program. Several initiatives were delayed because of the pandemic. For instance, DATA 61's Australian experts could not travel to Vietnam to conduct

technical training on the data processing models. This has led to delays in the adoption of the models, and also made it challenging to provide technical follow up support. An unintended consequence of the hybrid approach to working has seen Vietnamese partners taking stronger ownership of different initiatives (such as the Horticultural Club) and the day-to-day management of grants, which has enhanced local ownership and the likelihood of these initiatives being sustained. This also points to the need in the next phase of A4I being more deliberate about fostering local ownership by giving Vietnamese partners greater agency in A4I initiatives, including the grants.

90. For there to be **meaningful engagement with the private sector**, there needs to be a common understanding within A4I on what private sector engagement means, when is it appropriate to bring the private sector into initiatives, and what this means in practice bearing in mind that A4I is currently funded by ODA.

91. **Focussed themes for Grants is necessary**, to ensure better connections/alignment with other components of A4I as opposed to isolated interventions. Whilst the grants have largely been successful, stakeholders did nevertheless highlight several related lessons, including that the time frame for grants is too short, that there is a Lack of clear pathway for successful grants, and that the grants have been a missed opportunity for public diplomacy.

92. **Much greater focus needed on the MEL process and function, especially at the outcome level.** This will require a more systematic, whole-of-program approach to MEL, that is underpinned by a common understanding of the expected changes A4I will contribute to and how this can be measured (in a way that captures change in a nuanced but meaningful manner to demonstrate A4I performance and inform lesson learning). Coupled to this is the need to improve the communication of lessons learnt, so that lessons can be used to adapt programming and enhance engagement with both existing and prospective partners.

Recommendations

93. Considering the findings of this review, and the lessons learned, we make the following six recommendations (**Table 4**). Three of which are of a strategic nature at enhancing the coherence of A4I, and three operational recommendations which seek to reinforce the work A4I is doing in Vietnam. In combination these recommendations envision a clearly focused, integrated and effective A4I contribution in Vietnam in its next phase of implementation.

Table 4: Recommendations

	Recommendation	Type	Who	Level of Prioritisation[3]	By When

1	**Ensure a rigorous, purposeful design for 2nd phase**
	• The design should endeavour to
	  o Articulate a clear strategic vision
	  o Meet DFAT design requirements, including participatory process to develop clear objectives for Phase 2, consensus on EoPOs, clear linkages between components
	  o Provide a better-informed stakeholder analysis to determine who to work with
	  o Build on a better understanding of context and enhanced/closer cooperation with Vietnamese partners to further strengthen joint steer of the program and ownership
	  o Incorporate a better understanding of Australia's priorities, and identify possible linkages with other Australian investments to enhance synergy, thereby strengthening Australia's influence in Vietnam
		Strategic	A4I management team	High	April

2	A4I could **be more proactive and systematic in supporting Australia's public diplomacy role in Vietnam,** through a deliberate, structured process.
	
	The process would be informed by annual bilateral consultations to determine innovation priorities that A4I can support, not only to Vietnam's priorities, but also aligned with Australia's comparative advantage and priorities (as identified in AVEEES, the *Vietnam-Australia Joint Statement on Commitment to Practical Climate Action*, the *Partnerships for Recovery Strategy* and so on), to ensure that A4I is:
	  o Promoting Australian science and innovation credentials,
	  o Connecting Australia's unique innovation capability to the rapidly growing Vietnamese markets,
	  o Fostering better links with other CSIRO innovation programs/initiatives (e.g. SME Connect team), and
	  o Cultivating links with other like-minded donors/programs
	  o e.g. through the Informal Innovation Donor Group, and with The FCDO funded Newton Program in Vietnam
		Strategic	A4I management team & DFAT, in close consultation with MoST	Medium	Start of next phase

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[3] By level of prioritisation, we mean the relative importance or urgency of the recommendation proposed. **High** prioritisation signals that the recommendation should be addressed in the short term (ideally steps should be taken before the start of the next phase), **Medium** prioritisation signals the recommendation should happen within the short-medium term (in this case at the start of the next phase), and **Low** prioritisation would signal that the recommendation should happen within the long term (i.e. before the next phase is completed).

	Recommendation	Type	Who	Level of Prioritisation[3]	By When

3	**Gender and social inclusion strategy for A4I needs to be developed**
	• A strategy will ensure that A4I has a 'whole-of-program' approach to mainstreaming gender and social inclusion across the program in order to ensure that its approach is deliberate, coordinated and consistent across its activities. Key features of the strategy would include:
	  ○ Clarity on equality objectives A4I can feasibly achieve over a 4 year period
	  ○ The type of support structure the program will have in place to support gender and social inclusion efforts
	  ○ A description of the approach the program will take to mainstreaming gender and social inclusion across the different components of A4I (drawing on the existing GESI guidelines)
	  ○ The steps to be taken to strengthen the commitment of stakeholders within the program to A4I's gender and social inclusion objectives
	  ○ A description of how gender and social inclusion will be monitored, and how lessons will be shared to help steer A4I to meet its gender and social inclusion objectives
	  ○ A costed budget that spells out the resources that will be allocated to enhance gender and social inclusion
		Strategic	A4I management team	High	As soon as is feasible

4	**Expand management structure in Hanoi**
	• It is essential that the program retains a strong complement in Vietnam to ensure continuity and connection, to enhance the visibility of the program and to make it easy for key stakeholders to access the program on a day-to-day basis. An expanded structure could include:
	  ○ Director – who focuses on strategy and influence
	  ○ Program Manager – who focuses on operational excellence
	  ○ Component/thematic leaders – strategic thinkers for each theme/component with innovation management experience and subject matter expertise.
	  ○ GESI/MEL coordinator – responsible for overseeing both the implementation of the GESI strategy and MEL (especially to ensure a systematic approach to program learning)
		Operational	A4I management team	High	Start of next phase

5	**Ensure A4I communication activities, products and materials systematically promote the objectives of A4I** • It is important that that communication activities, products and materials are: ○ Generating interest and awareness of A4I,	Operational	A4I management team	Medium	Start of next phase

	Recommendation	Type	Who	Level of Prioritisation[3]	By When
	o Attracting participation in/engagement with A4I o Raising the profile of the distinctive and unique features of CSIRO, o Providing specific updates on the progress the program is making towards its efforts to enhance gender and social inclusion, and o Telling the story of A4I so that its successes (such as its impact on the Vietnamese innovation system, partnerships created between Australia and Vietnam, and so on) are accessible to a wider audience (not only in Vietnam but also in Australia). • Communication activities, products and materials should be developed that: o Support A4I in its efforts to promote marketing discoveries and learning, and packaging innovative solutions as commercial opportunities, and o Enable A4I to provide in-depth briefings to key stakeholders so that they will continue to advocate for greater support of the program.				
6	**A4I needs to pay greater attention the MEL process and the learning function it plays within program implementation** • Key steps include: o Appropriate M&E system needs to be developed, with improved software, as early as possible to collect information and measure successes o Revitalise the program logic to ensure its better at tracking the performance of A4I o Identify a mix of metrics that will ensure uncover new information and provide a nuanced picture of what is changing in the operating context, to allow adaptation in real-time. o Maximise learning, so that the system is not only focussed on tracking progress, by taking a portfolio approach (emphasis on multi-methods/MEL embedded within activities as part of implementation plan).	Operational	A4I management team in consultation with MEL team	High	Start of next phase

Annex 1: List of Key Participants

Organisation	Name
MoST	Ms Tran Thu Huong, General Director, International Cooperation Department, MOST
DFAT	DHOM – Mark Tattersall Dave Gottlieb
CSIRO	Michael Battaglia Liza Noonan
A4I Team	Ha Nguyen Tom Wood Kim Wimbush Cuong Vien Bich-Ngoc Vu Adam Speers
SCP/RAF Team	Jennifer Kelly Workshop with SCP/RAF team: • Jennifer Kelly • Michaela Cosijn, • Monica Van Weenveen, • Andy Hall, • Minh Nguyen • Vu Huong Mai
Data61	Lucy Cameron Hien Pham
AI	Chu Thang Ly Hoang Tung, Deputy Director, High Tech Department
Vietnamese Partners	Le Nguyen Doan Khoi, Director, Centre for Technology Transfer and Services, CTU Mr Pham Duc Nghiem, Deputy Director, NATEC Tran Thi Dinh, Head of Department of Processing Technology, VNUA Nguyen Duc Hoang, Deputy General Director, SATI Tran Mai Oanh and Ong The Due, Director/senior staff, HSPI, Ministry of Health Tran Vu Tuan Phan, VISTI Tran Truc Mai, Deputy Head of Networking and Computer, Communication Department, University of Engineering and Technology, VNU Hanoi Hoang Viet Anh, Director, GFD Nguyen Dinh Quang Duy, RIA 3

Australian Partners	UTS - (Rapido Model) – Professor Eryk Dutkiewicz
	University of Sydney - (breast cancer detection) – Professor Patrick Brennan
	GRAFT - (Beanstalk) Justin Ahmed
	University of Queensland - AQUAM - Dr Sang Pham
	University of Sunshine Coast - Sea Cucumber – Professor Abigail Elizur
	Applied Horticultural Research - Coolbot – Dr Gordon Rogers
	Cameron Johns - General Manager – Capacity Building
	Impact Innovation Group