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APIDTT Grant Agreement: 2022 End of Year Report

This end of year report provides information on each project in the 2022 grant agreement between the Asia Pacific Internet Development Trust (APIDTT, the Trust) and the APNIC Foundation. It reports on the progress of each project from 1 January 2022 to 31 December 2022, providing a summary of the year's activities.

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Financial Reports

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Abbreviations

ADDIE	analysis, design, development, implementation, evaluation
AI3	Asian Internet Interconnection Initiatives
AITAC	Advanced IT Architect Human Resource Development Council
APIE	Asia Pacific Internet Engineering Course
AINTEC	Asian Internet Engineering Conference
APNIC	Asia Pacific Network Information Centre
ARENA-PAC	Arterial Research and Educational Network in Asia-Pacific
BGP	border gateway protocol
CBR	community-based research
CERT	computer emergency response team
CT	community trainer
DFAT	Australian Department of Foreign Affairs and Trade
DNSSEC	domain name system security extension
EBA	evidence-based approach
EoI	expression of interest
F2F	face to face
GESI	gender equality and social inclusion
IP	Internet protocol
ISIF	Information Society Innovation Fund
IPv6	Internet Protocol version 6
Lao PDR	Lao People's Democratic Republic
M&E	monitoring and evaluation
NOG	network operator group
NTN	non-terrestrial network
PDP	professional development plan
Q	quarter
REN	research and education network
ROV	route origin validation
RPKI	resource public key infrastructure
SOI	School on Internet

Introduction

This 2022 end of year report is for the second grant submitted to the Foundation from the Trust after the first grant in 2021. The report covers the period from 1 January to 31 December 2022, updating the information provided in the interim report to 30 June.

The 11 projects funded by the 2022 grant are listed in Table 1. Five were managed by APNIC, five by the APNIC Foundation and one by Keio University: Asian Internet Interconnection Initiatives/School on Internet Asia (AI3/SOI Asia). Trust Discretionary Funding (referred to as ‘Sponsorships’ in the Interim Report) is an activity managed and implemented in coordination with the Trust. One additional project managed by APNIC, Curriculum Development for Non-technical Audiences, was added to the project list under a new project agreement.

Each project report provides details on the project’s individual objectives, benefits to the community and status as of December 31. Table 1 below provides a summary of the initial grant budgets, grant funds actually received, actual grant expenditure, grant funds remaining and overhead remaining with the Foundation as of 30 December.

Table 1: Project Expenditure Summary (USD)

Project #	2022 Grant Projects	Grant Budget	Grant Received	Grant Actual Expenditure	Grant Remaining	Overhead Remaining
2022-01	Training delivery & Community Trainers	1,378,000	1,044,163	1,044,164	(1)	(0)
2022-02	Research: Internet Measurement	250,000	165,387	165,387	0	0
2022-03	Cybersecurity HoneyNet	57,000	44,428	44,428	0	0
2022-04	Foundation Grants	250,000	187,700	187,700	0	0
2022-05	Afghanistan Training & Mentoring	240,000	159,440	159,369	71	11
2022-06	SEA Gender & Diversity	1,096,080	873,733	917,408	(43,675)	(8,735)
2021-01	ISIF Asia (incl. IPv6)	2,748,000	2,353,493	2,373,779	(20,286)	(4,057)
2021-02	M-Root Anycast Instance Deployment Support	1,366,000	318,510	318,510	(0)	(0)
2021-03	APNIC Academy Platform and Curriculum Development	1,170,000	523,229	523,229	(0)	(0)
2021-05	AI3 & SOI Asia	3,782,267	1,874,664	1,874,664	0	0
2021-06						
2021-07						
2021-08	Trust Discretionary Fund	250,000	79,474	79,474	0	0
2022 Grant Project Total		12,587,347	7,624,222	7,688,112	(63,890)	(12,782)

The project Curriculum Development for Non-technical Audiences started in 2021 and continued in 2022 with additional funding received under a new project agreement. Table 2 is a summary of this project in 2021–2022.

Table 2: Curriculum Development for Non-technical Audiences (New Project)

Project #	Curriculum development for non-technical audienc	Grant Budget	Grant Received	Project Actual Expenditure	Grant Remaining	Overhead Remaining
2021-04	2021 Activity	500,000	437,636	437,637	(1)	(0)
	2022 Activity	43,160	69,191	69,190	1	0
Total		543,160	506,827	506,827	0	(0)

Executive Summary and Analysis

The Trust’s 2022 grant to the Foundation supported five existing projects and six new projects; two projects from 2021, Training Delivery and Community Trainers, were combined into one new project under the name Training Delivery. The grant budget request for 2022 including overhead was \$14,357,603, up from \$9,162,745 in 2021.

The primary focus of the Trust's 2022 grant continued to be training and knowledge development, with 8 of the 11 projects either delivering training, developing knowledge products for training, or conducting research that produced new knowledge. A further focus was on Internet infrastructure (M-Root) with the AI3/SOI Asia project supporting training, curriculum development and satellite infrastructure. Importantly, the Trust also funded three new focus areas. One supported greater diversity through the SWITCH! SEA Gender and Diversity Project in six Southeast Asian economies. The other two new areas were research and cybersecurity.

Included in these projects were three other funding activities supported by the Trust: the Information Society Innovation Fund (ISIF) Asia grants program, Trust Discretionary Funding and — a new activity in 2022 — Foundation Grants. As detailed and explained in this report, these funding activities supported a wide range of activities across the Asia Pacific.

The funding of all these activities responded directly to the Trust's purpose to "fund Internet development initiatives in the Asia Pacific region, including technical skills development and capacity building, improvements to critical Internet infrastructure, supporting research and development, and improving the community's capability to build an open, global, stable and secure Internet."

The two largest programs and projects funded by the grant — [ISIF Asia](#) and [AI3/SOI Asia](#) — are both on track overall in terms of their activity plans and budgets. ISIF Asia is on track to disburse its 2022 grant portfolio as planned, extending its second disbursements into 2023. Funding for AI3/SOI Asia is provided to Keio University as a donation, so the reporting requirement is different to that of other Foundation projects. The project has successfully recovered from some initial underspending in the first half of the year and is on track to spend most its 2022 first tranche donation, noting that the Japanese financial year ends on 31 March). Keio continues to retain some funds from the Foundation's 2021 donation, but the project's budget for 2023 confirms plans to ensure that all funding should be spent as planned.

Grant Highlights

Foundation highlights of this end of year report are as follow:

1. The six new projects all commenced without major issues or delays, while the five ongoing projects — apart from AI3/Soi Asia and M-Root — transitioned from 2021 to 2022 without any problems. As explained in more detail below, AI3/SOI Asia and M-Root continue to report significant underspending of their budgets.
2. In terms of geographical reach, the spread and impact of the projects continue to expand, with grant funding reaching more organisations in more economies. In addition to a new project in Afghanistan, the new SWITCH! SEA Gender and Diversity Project is active in six new economies: Cambodia, the Lao People's Democratic Republic (Lao PDR), the Philippines, Thailand, Timor-Leste and Viet Nam. ISIF Asia funded organisations in 16 economies last year and is on track to further extend its geographical reach this year.
3. In terms of impact, the monitoring and evaluation (M&E) of each project continues to be developed and strengthened. M&E frameworks are being developed for each of the Foundation's thematic areas: Knowledge, Inclusion and Infrastructure. Under these frameworks, each of the grant projects is measured against a series of success indicators. Details are provided below.
4. Risk registers are being developed for each project.
5. In terms of finance, a quarterly review of each project's budget allows the Foundation to track project expenditure.

A variety of communication outputs were developed and shared publicly during the reporting period, relating directly or indirectly to projects funded by the Trust. These include the following:

Project Communications and Activities

Conference Activities:

The APNIC Foundation held a dedicated session during the APNIC 54 conference proceedings that highlighted the efforts of the Switch! project and ISIF Asia grant activities.



[YouTube recording of the event.](#)

In Singapore, the Foundation held an awards ceremony to recognize two ISIF Asia awardees: the University of Auckland and Swiss German University Indonesia. In addition to recognizing their contributions to the APNIC community, the event was an opportunity to meet potential funders and showcase Foundation work.



[Photographs of the event.](#)

Community consultation for the new project in Afghanistan was conducted in late July and early August.



APNIC Blog:

The following blogs tagged with the APNIC Foundation were produced in 2022.

1. A summary of Foundation-supported training activities: <https://blog.apnic.net/2022/01/12/apnic-academy-2021-in-review/>

2. The announcement of 2021 ISIF Asia grant recipients: <https://blog.apnic.net/2022/02/01/2021-isif-asia-grant-recipients-announced/>
3. ISIF Asia grantee Ulrich Speidel discusses the Tonga volcano eruption and its effect on the Internet: <https://blog.apnic.net/2022/03/01/when-volcanoes-go-bang-submarine-cables-do-what/>
4. The announcement of Maldives IXP initiative supported under Foundation grants: <https://blog.apnic.net/2022/03/02/new-maldives-ixp-marks-start-of-joint-initiative-to-support-asia-pacific-ixp-development/>
5. The opening of 2022 ISIF Asia grants: <https://blog.apnic.net/2022/03/16/2022-isif-asia-grants-now-open-for-applications/>
6. ISIF Asia grantee Ulrich Speidel discusses submarine cables in the Pacific: <https://blog.apnic.net/2022/04/20/rethinking-submarine-fibre-cable-projects-south-pacific/>
7. A discussion of the ISIF Asia grantee project OpenLI: <https://blog.apnic.net/2022/06/17/openli-an-open-source-alternative-for-meeting-lawful-interception-requirements/>
8. A summary of a discussion on disabilities and accessibility held at the APRIGF: <https://blog.apnic.net/2022/10/26/aprigrf-2022-inclusion-of-persons-with-disabilities-in-the-ict-job-sector/>
9. Background for an ISIF Asia award winner's research: <https://blog.apnic.net/2022/11/10/journeying-through-tunnels-the-story-behind-award-winning-satellite-link-research/>
10. Announcement of inaugural IPv6 deployment grant recipients: <https://blog.apnic.net/2022/11/24/inaugural-isif-asia-ipv6-deployment-grant-recipients-announced/>
11. The background to the deployment of a Maldives internet exchange point: <https://blog.apnic.net/2022/12/12/maldives-ixp-a-deployment-story/>

Project Highlights and Challenges

Highlights:

- ISIF Asia allocated its first-ever Internet Protocol version 6 (Ipv6) grants, as well as its first-ever Ian Peter Grants for Internet and the Environment. At least 50% of each of the ISIF Asia selection committees is now female. Additionally, the first ISIF Asia awards ceremony was conducted in Singapore along with a breakfast for all attending grant recipients.
- For Training Delivery, 141 instructor-led tutorials and workshops were conducted, many more than the annual target of 100. Importantly, a training survey rating of 4.3 exceeded the planned target of 4 out of 5, and all technical assistance requests were responded to within the planned 7 days.
- The project Technical Training and Mentoring Support to Internet Professionals in Afghanistan successfully conducted community consultations and recruited 34 participants. Recruitment entailed a challenging due diligence process for potential participants, which was carried out successfully.
- In the Switch! SEA Gender and Diversity Project, after just 6 months of implementation 94% of participants reported greater confidence in their ability to understand the technical subjects they had chosen for their professional development plans (PDPs). Meanwhile, 98% of the cohort reported completing their monthly PDP progress reports, up from 60% in phase 1 of the project.

Challenges:

- **Human resources:** Several projects faced human resource challenges, either losing key staff or suffering delays because of the time it took to hire staff. Inflation put pressure on salaries and therefore project budgets.

Response: The Foundation was well supported by the APNIC human resources team, who prioritized the hiring of project and other staff. Careful budget planning allowed the projects to offer competitive salaries to candidates with the right qualifications.

- **Sanctions:** The Afghanistan project and an ISIF Asia grant to Myanmar both faced funding challenges because of sanctions imposed on Afghanistan by the Australian government. Australian banks carefully monitor any transfer of funds to both economies.

Response: The Foundation is working with APNIC legal counsel and its Australian bank to find a solution that will allow it to 8roject8ng to fund support to both economies. So far, the sanctions have not seriously impeded Foundation activities in either economy.

- **Project underspending:** Several projects continued to report substantial underspending of their initial grant request. The Foundation carefully monitored the impact of underspending on each project's planned activities to ensure they still met their objectives and other goals.

Response: The Foundation reported the actual budget spent on each project in its second tranche request. Each project's second tranche request aligned with its actual budget spending to ensure that the Foundation requested no unnecessary funding from the Trust.

Implementation

For the management and implementation of the grant, the Foundation continued its engagement with two partners. In the first engagement, the grant is funding six projects at APNIC Pty Ltd, which is implementing the projects as a subcontractor to the Foundation. For the second engagement, funding is provided as a donation to Keio University in Japan. Five projects are being managed and implemented by the Foundation. The details are as follow:

Projects Managed by APNIC

The following five projects are managed and implemented by APNIC (please note that these links are to internal project pages and are not viewable externally):

- [M-Root](#)
- [APNIC Academy](#)
- [Training Delivery \(including Community Trainers\)](#)
- [Research and Internet Measurement](#)
- [Cybersecurity: Honeynet and Threat Sharing](#)
- [Curriculum Development for Non-technical Audiences](#) (This project was added as a new project in the second half of the year, though it also received funding in 2021.)

To document the respective roles in project management and funding, the Foundation has signed an affirmation of commitments with APNIC (Appendix 5). The affirmation positions APNIC as a subcontractor to the Foundation, such that the Foundation provides funding to APNIC on a cost-recovery basis for each project's activities. APNIC invoices the Foundation monthly for its project costs.

Projects Managed by Keio University

The project managed by Keio University is [AI3/SOI Asia](#) (please note the link is to internal project pages and not viewable externally). Under the 2022 grant, the project was funded through a single tranche made as a donation to Keio University in April. The donation document can be seen in Appendix 3.

The AI3/SOI Asia project team is based at Keio University in Tokyo. They collaborate with and support several other Japanese agencies and organisations including WIDE and the Advanced IT Architect Human Resource Development Council (AITAC). Started in 2001, the project is well established in its operations and partnerships.

In 2022, SOI Asia launched the [Asia Pacific Internet Engineering \(APIE\) course](#) with the APNIC Academy as a collaborating partner. The APIE program helps university students and young people in the Asia Pacific looking to improve their employability potential and build network engineering and operational skills, especially for research and education networks (RENs).

The program consists of self-paced online learning components as well as hands-on and community-building opportunities in face-to-face (F2F) projects. It is designed to be completed one semester, after which graduates receive an APIE Program certificate.

Projects Managed by APNIC Foundation

The following are the five projects managed by the Foundation, with each project managed or coordinated by specific Foundation staff (please note that these links are to internal project pages and are not viewable externally):

- [ISIF Asia](#)
- [Trust Discretionary Funding](#)
- [Foundation Grants](#)
- [Switch!](#)
- [Technical Training and Mentoring Support for Internet Professionals in Afghanistan](#)

Risk Management

In 2022, work commenced to develop and manage a risk register for each project. While ensuring each register was easy for small project teams to manage, the aim was to allow each project to identify and mitigate the risks it faced, with special emphasis on identifying and mitigating very high risks.

The following charts summarise the situation overall. They show two very high risks at the beginning of the year, but they were successfully mitigated during the year such that the projects reported no very high risks by end of the year.

The two very high risks identified were in the areas of human resources and finances. They were mitigated through improved management and communication.

Risk Rating (January 2022)				
	Low	Medium	High	Very High
Total Existing Risks	11	42	12	2

Risk Rating (December 2022)				
	Low	Medium	High	Very High
Total Current Risks	24	26	2	0

Financial Summary

Under the terms of the grant agreement, total agreed funding was \$14,357,603, with \$12,587,347 for projects and \$1,770,256 for overhead. Under the payment schedule, the first tranche was 60% of grant funds, or \$8,614,562. This was transferred to the Foundation in April 2022. The second tranche invoice was issued to the Trust in February 2023 based on actual full year expenditure of grant activities to 31 December 2022. The final and full reconciliation of the 2022 grant is provided in the introduction to this report in Table 1.

Table 1 and the attached finance report documents show the spending of each project against the grant total, with \$7,688,112 spent by the 11 projects to 31 December 2022. Foundation operating expenses supported by grant overhead for the 12 months are expected to total \$1,412,400.

Based on the full year project report, the Foundation expects to request a final payment from the Trust of \$76,672 in addition to the first and second tranche payments. Full details of these calculations are in the attached financial report.

Several important points to note in the financial report are as follow:

- Because of significant underspending by several of the projects—AI3/SOI Asia, M-Root, and the APNIC Academy—relative to their initial grant budget request, the second tranche payment request to the Trust was reduced to align it with actual project spending.
- As of 31 December 2022, AI3/SOI Asia had a bank balance of \$890,149 in funds available. However, it should be noted that the Japanese financial year is to 31 March, and the project has spending commitments based on it, which will reduce this amount by \$100,000–\$200,000.
- While it is not documented in the financial report, there are intensifying challenges to funding work in Afghanistan and Myanmar because of sanctions.
- Budget reallocations were requested during the year as follows: (1) under the research project for a new activity entitled 3D XR Graph Visualisation, (2) Under ISIF Asia to increase grant funding available overall and (3) to support fellows at the APNIC 54 conference in Singapore.
- Under an agreed new project proposal, and as part of the second tranche, additional funding was requested for the continuing work of the project Curriculum Development for Non-technical Audiences (IPGO).

Project Reports

1. Training Delivery and Community Trainers

1.1. Background

Under APNIC Academy branding, the delivery of instructor-led training and technical assistance is an important part of APNIC training offerings to the community. Instructor-led training leverages the APNIC Academy product, which is composed of a platform, content and curriculum. Demand for such training is always very high, so to respond and scale up substantially, more full-time trainers need to be employed. To further expand the availability of APNIC training, the Community Trainers program has recruited in different economies and will continue to do so, to enable focused training in local languages. Training delivery modes can be online or hybrid F2F, depending on the situation.

Objectives

The project seeks to help the Asia Pacific Internet technical community operate and manage Internet infrastructure and services according to current industry best practice by offering the following:

- **Instructor-led training.** Increase operational knowledge and skills in the community by delivering in the APNIC region instructor-led training, either F2F, online or hybrid, on operational deployment and best practices.
- **Technical assistance.** Assist members with the adoption of best practices when implementing networking technologies after training.
- **Community trainers network.** Expand the reach, scope and effectiveness of APNIC Academy training to help meet increasing community demand for technical skill development by recruiting, retaining and developing more community trainers (CTs) locally to deliver training across the region. CTs are also supported to remain active in their local network operator groups (NOGs) and technical communities.
- **Resource public key infrastructure (RPKI) awareness and deployment support.** Increase the adoption of RPKI and routing security in the APNIC region by providing training and technical assistance on RPKI and route origin validation (ROV) deployment, raising awareness and sharing best practice through presentations at relevant events and online, including blog posts.
- **Ipv6 awareness and deployment support.** Encourage increased deployment of Ipv6 in the APNIC region by providing training and technical assistance and sharing Ipv6 best practices, information resources and case studies.

Benefits to the Community

- Meet the community’s high demand for technical capacity development.
- Assist with and support regional Internet development.

1.2. Status Update

Over the past 12 months, the Training Delivery and Community Trainers Project has met or exceeded most of its targets for the year. These include instructor-led training, in which 141 Instructor-led tutorials and workshops were conducted, much more than the annual target of 100, and 18 live webinars were held, on target.

Importantly, the training survey rating of 4.3 out of 5.0 exceeded the target of 4.0, and all technical assistance requests received responses within the planned 7 days. Thirty active CTs had volunteered across 15 economies by the end of 2022, exceeding the target of 10, and 20% of trainings were led by retained CTs, exceeding the target of 10%.

The number of retained CTs recruited was, at 6, below the target of 12 for lack of suitable candidates and resources available for recruitment. This will remain a priority activity for the first quarter (Q1) of 2023. Finally, RPKI and Ipv6 awareness and deployment support exceeded annual targets, with 26 instructor-led RPKI and/or ROV tutorials and workshops conducted, well above the planned 8, and 25 instructor-led Ipv6 deployment tutorials conducted, three times the 8 planned.

Project Milestone (Output)	Success Measure	Annual target	Annual actual	Current Status ¹	Variations to Planned Proposal
Instructor-led training: Relevant, best practice instructor-led technical training delivered to	# Instructor-led tutorials and workshops (APNIC, community or smaller enterprise)	100	141	Completed	
	# of live webinars (APNIC, community)	18	18	Completed	

¹ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual target	Annual actual	Current Status ¹	Variations to Planned Proposal
communities with a focus on deploying and operating Internet infrastructure technologies, in the local language where appropriate	or smaller enterprise)				
	Achieve average training survey rating of 4 out of 5	Achieve average training survey rating of 4 out of 5	4.3	Ongoing	
Technical assistance: Provide technical assistance and advice on the deployment and operations of Internet infrastructure technologies on an individual, operator and community basis	Respond to all technical assistance requests within 7 days	Respond to all technical assistance requests within 7 days	Responded to all technical assistance requests within 7 days	Ongoing	
Technical community support (sponsorships): Sponsor and participate in technical community activities	# of technical community events supported	30	30	Completed	
Sustainability and scalability (community trainers network): Develop and maintain a sustainable, scalable model to support the delivery of a hybrid, flexible training model	Sustainable and scalable business model developed for community trainers by 2022 for multiple economies in the region	N/A	N/A	N/A	This activity will not begin until 2023 for lack of resources.
	# of community trainers (CTs) volunteering	Recruit at least 10 new volunteer CTs annually	6, for a cumulative total of 30 active volunteer CTs in 15 economies	Completed	
	% of trainings led by retained CTs	10%	20%	Ongoing	
	# of retained CTs	Recruit at least 12 new retained CTs	6	Delayed	Lack of suitable candidates and available resources to recruit; activity remains a priority and is ongoing

Project Milestone (Output)	Success Measure	Annual target	Annual actual	Current Status ¹	Variations to Planned Proposal
RPKI awareness and deployment support: Increase adoption of RPKI and routing security in the APNIC region	Conduct at least two instructor led RPKI and/or ROV tutorials and workshops per sub-region.	8 Oceania – 2 East Asia – 2 Southeast Asia – 2 South Asia – 2	26 Oceania – 4 East Asia – 6 Southeast Asia – 14 South Asia – 2	Completed	
	Achieve at least 90% route origin authorization coverage for at least one additional economy per sub-region	2 sub-regions	2 sub-regions Oceania – 1 (Fiji) SE Asia – 1 (Cambodia)	Completed	
Ipv6 awareness and deployment support: Encourage increased deployment of Ipv6 in the APNIC region	Conduct at least two instructor-led Ipv6 deployment tutorials and/or workshops per sub-region.	8 Asia Pacific – 2 East Asia – 2 Southeast Asia – 2 South Asia – 2	25 Asia Pacific – 10 East Asia – 5 Southeast Asia – 3 South Asia – 7	Completed	Tutorials for the Asia Pacific were open and online, so not targeted to a specific economy or sub-region

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
Retained CT recruitment	The new Retained CT Program was launched this year and faced challenges in recruiting suitable candidates that met the 10-day commitment.	Continue recruitment and expand ways that the role is promoted with help from human resources.
Transition back to F2F training amid travel restrictions and uncertainties	Completed well above the target for instructor-led training, both online in Q1 and Q2 and F2F in Q3 and Q4.	Coordination with the travel team, BCP team, and local hosts regarding travel risks and COVID-19 safety rules.
Training delivery team structure and expansion	The split training delivery teams working this year in Southeast Asia, South Asia and Oceania faced some challenges to staff movement and recruitment.	Work with available team resources and the extended team of volunteer CTs, retained CTs and other APNIC staff, notably the security and services team.

Lessons Learned and Recommendations

What lessons for the future can be learned from the project? They may include technical or social lessons, or lessons about such crosscutting issues as sustainability, access and inclusion regardless of gender, disability or ethnicity. The following are planning recommendations for next year:

- Flexibility and resilience have been key factors as the training delivery and coordination teams underwent restructuring while still meeting increasing demand for training from the community.
- CTs are valuable to the training program. It is important to keep them engaged by providing opportunities, such as attending APNIC conferences.
- As we transition back to F2F, having a pool of CTs on the ground helps handle expected surges in training requests during busy months.

2. Research and Internet Measurement

2.1. Background

The project operates a large-scale Internet measurement laboratory. The objective is to measure the properties of the network in the same manner as users see the network, by measuring the behaviour of clients of network-hosted services. This is one of the larger measurement systems on the Internet today, if not the largest. The project gathers some 18 million measurement sets per day from all parts of the network.

The measurement infrastructure consists of two parts: The first is a set of advertising campaigns using Google AdWords. These campaigns are configured to get placement as broad as possible across the Internet user base. The ad material contains an HTML5 script that performs a set of URL object fetches. The second part is a set of servers that are in several regional centres that act as targets for the measurement scripts.

Objectives

The project measures the properties of the network in the same manner as users see the network, by measuring the behaviour of clients of network-hosted services. The project uses the following infrastructure to perform both one-off measurements and long baseline measurements:

1. measurement of the use of Ipv6 on the Internet,
2. measurement of the use of domain name system security extension (DNSSEC) validation,
3. the use of open domain name system (DNS) resolvers, and
4. deployment of ROV.

One-off measurements include the viability of Ipv6 header extensions, the behaviour of Internet protocol (IP) packet fragmentation and the use of various DNSSEC encryption algorithms.

The purpose of these measurements is to inform the community on the capability and state of Internet infrastructure. The data has been used by policy makers in Addressing Policy communities, Internet Corporation for Assigned Names and Numbers (ICANN) communities, Organisation for Economic Co-operation and Development (OECD) studies, and several national regulatory environments, including those of Canada, Sweden and the United Kingdom.

Benefits to the Internet Community

The benefits to the community are up-to-date, factual measurements concerning the state of Internet infrastructure, continuing existing measurements and expanding them in detail. As noted above, the measurements include Ipv6 capability, Ipv6 performance, Ipv6 fragmentation behaviour including extension header handling, DNSSEC validation, DNS recursive resolver use, and the use and stability of RPKI ROV. The overall object is to inform the community and policy makers on the state of Internet infrastructure and its evolutionary trends.

2.2. Status Update

Over the past 12 months, the Research and Internet Measurement project has exceeded all planned activity targets. Significant highlights include a 4.55 star rating from 36 blogs in 2022 and 37 research presentations and 36 articles developed on topics including DNS, DoH and DoT (DNS over transport layer security [TLS] versus DNS over HTTP over TLS), Ipv6, the QUIC general-purpose transport layer network protocol, DNSSEC and border gateway protocol (BGP).

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ²	Variations to Planned Proposal
Accurate measurements of Ipv6 uptake, Ipv6 performance, Ipv6 fragmentation, DNSSEC validation, DNS resolver use, use and stability of RPKI route origin validation (ROV)	<p>Uptake of Ipv6 across the Internet</p> <p>Relative speed of Ipv6 against Ipv4</p> <p>Packet drop rate for fragmented Ipv6 packets</p> <p>Packet drop rate for Ipv6 packets that have extension headers of various sizes and various extension header types</p> <p>Use of QUIC to fetch web objects</p> <p>Extent to which users' DNS resolvers perform DNSSEC validation of DNS responses</p> <p>Profile of recursive resolvers used to perform DNS name resolution</p> <p>Use of DNS over HTTPS and DNS over TLS by DNS stub resolvers</p> <p>Use of route origin authorization to guide the acceptance or rejection of BGP route advertisements</p>	N/A	<p>Articles on Ipv6 uptake, the use of QUIC, DNSSEC validation of DNS responses and route origin authorization for BGP acceptance can be found on https://www.potaroo.net/</p>	N/A	
Positive community feedback and citation of published measurements	Positive blog analytics	Rated 4 stars out of 5	<p>4.55 star rating</p> <p>36 blogs in 2022:</p> <p>https://blog.apnic.net/author/geoff-huston/</p>	Completed	
Reference to these measurements in policy-making forums	# of presentations made	11	<p>37 research presentations made:</p> <p>https://labs.apnic.net/presentations/</p> <p>36 articles developed:</p> <p>https://labs.apnic.net/</p>	Completed	

² On track, delayed, completed or ongoing.

3. Cybersecurity: Honeynet and Threat Sharing

3.1. Background

The [APNIC Community Honeynet Project](#) was initiated in 2019. The project collects threat data such as suspicious traffic and malware samples from honeypot sensors. The project hosts and maintains backend infrastructure for data collection, analysis and sharing with partners, actively providing daily feeds to Dashboard for Autonomous System Health (DASH). Various security engagement activities are also carried out based on observations from the data collected.

Objectives

The project seeks to collect threat data such as suspicious traffic and malware samples from honeypot sensors by hosting and maintaining backend infrastructure for data collection, analysis and sharing with partners. This will be achieved through the following:

- **Sensor deployments.** Build and deploy honeypot sensors and maintain a scalable infrastructure of honeypot sensor network.
- **Processing and analysis.** Collect and process the data collected, including logs and malware samples.

Benefits to the Internet Community

- Provide cybersecurity knowledge to the community and facilitate collaboration to help ensure a secure Internet.

3.2. Status Update

Over the past 12 months the Cybersecurity: Honeynet and Threat Sharing Project has completed all planned activities. Significant highlights include providing continuous feeds and insights into [DASH coverage](#), increasing the current number of active sensors from 60 to 100, increasing the current number of partners from 15 to 20, and conducting quarterly threat-sharing session with the security community to share observations and facilitate collaboration.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ³	Variations to Planned Proposal
Informed community	Provide continuous feeds and insights to DASH coverage	Ongoing	Ongoing	Ongoing	
Coverage	Increase the current number of active sensors from 60 to 100 by the end of 2022	100	100	Completed	
Engagement	Increase the current number of partners from 15 to 20 by the end of 2022	20	20	Completed	
	Quarterly threat-sharing session with the security community to share observations and facilitate collaboration	4	4	Completed	

Successes and Challenges

³ On track, delayed, completed or ongoing.

Successes & Challenges	Effect on Project	Actions Taken
<p>Success:</p> <p>APNIC is providing interesting insights to APNIC members regarding potentially malicious activity on their networks.</p>	<p>This provides an opportunity for future engagement and encourage future training opportunities.</p>	
<p>Success:</p> <p>Real data is available for our training and workshops.</p>	<p>Using data from honeynet allows us to translate it into training materials for participants. Rather than rehashing old theory, we can provide real-time data useful for generating discussion and engagement.</p>	
<p>Challenge:</p> <p>Having the time to analyse all the datasets. Some datasets are simple to analyse, but other data require in-depth analysis.</p>	<p>There is real potential for lost insights within the community at large for lack of data analysis.</p>	<p>Engaged with partners to analyse data, but this has not been widespread. Quarterly updates with partners have been the forum to raise the issue in connection with analysis of data sets. A priority is to get more help to analyse datasets from partners in a voluntary capacity or through students conducting research, including in universities in Malaysia and Bhutan. These options still need further discussion.</p>

Lessons Learned and Recommendations

- Designing honeynets well in advance is needed to handle large datasets.

4. Foundation Grants

4.1. Background

The Asia Pacific technical community is active in many areas: the operation of Internet exchange points (IXPs), community group development involving network operator groups (NOGs) and computer emergency response teams (CERTs), and providing connectivity support in times of disaster. These activities have specific needs for timely funding because of their unique and sometimes less structured or predictable requirements.

Objectives

Targeted support for a range of projects and activities that in various ways improve the technical community’s capability to build an open, global, stable and secure Internet.

Benefits to the Internet Community

Discretionary grants can play an important role in the sustainable success of these activities.

4.2. Status Update

Over the past 12 months, the Foundation Grants Project has completed most of its planned activities. Grant management processes were successfully implemented in the grant management system Fluxx, and the report module was developed in August. Seven grants were processed under the 2022 grant budget, with three organizations reporting publicly about the support received. A survey to measure the how effectively grants have helped organisations operate and stay sustainable is planned for Q1 2023, depending on the completion dates of the projects supported. (For additional specific information on Foundation Grants, see Appendix 2: Foundation Grantees.)

Project Milestone (Output)	Success Measure	Annual target	Annual Actual	Current Status ⁴	Variations to Planned Proposal
Project development	Online application forms and associated processes designed and implemented, and due diligence and reporting mechanisms defined	Complete three grant processes: form, due diligence and reporting	Grant management processes successfully implemented in Fluxx; report module developed in August; integration with NetSuite in progress	Completed	
Application and selection	At least three small grants provided in 2022 in response to technical community requests	Three grants allocated	Seven grants were processed under the 2022 budget.	Completed	
Project implementation	Supported projects confirm that the grant made a difference to their operations and helped ensure their success and ongoing sustainability.	Target not for a 12-month calendar period but for project support	As the projects have not yet submitted final reports, no survey was planned for 2022 to measure the difference grants made to operations and their ongoing sustainability.	N/A	Survey will be conducted in Q1 2023.
Engagement	Brief reports from supported organizations are made available to the community.	Regular coverage	Three organizations shared reports publicly about the support received, and the links were shared by the Foundation. Four grants are still in progress, so reports will be made available upon completion of activities.	Ongoing	

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
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⁴ On track, delayed, completed or ongoing.

<p>Challenge:</p> <p>Delays by funding recipients in relation with contract signing and/or bank information expanded the time frame.</p>	<p>Project start dates moved to 2023, which meant that budget committed for 2022 was not fully utilized.</p>	<p>Several reminders were sent, but unfortunately recipients' internal review processes took a very long time. There is not much we could do to change that, as it is outside our area of expertise.</p>
<p>Success:</p> <p>Completed. All reporting modules now in Fluxx, and full process laid in Jira cards, so carrying on with grants processes should be easier once funding recipients are identified.</p>	<p>Timely management of funding requests against reporting commitments</p>	<p>Easy tracking of status in Jira and Confluence</p>

Lessons Learned and Recommendations

- **Lesson.** To adopt and use the Foundation metrics to capture impact, funding recipients will need help to understand the tool and identify their project metrics for reporting.
- **Recommendation.** Identify ways to incorporate qualitative information as part of the impact reporting.
- **Recommendation.** Get input from the M&E lead on project indicators and how they relate to Foundation metrics.
- **Recommendation.** Impose more structure on how project activities are promoted by the Foundation as part of the communications strategy.

5. Technical Training and Mentoring Support for Internet Professionals in Afghanistan

5.1. Background

This project strengthens the technical skills of Internet network engineers and security professionals as well as others working in technical areas of Internet development and operations who are based in Afghanistan or else among the Afghan diaspora.

The project leverages existing virtual platforms that APNIC has developed to help project participants connect, build relationships, complete online courses, access learning resources, and join mentoring sessions. The project works with diverse stakeholders to strengthen the capacity development ecosystem in the region.

While such programs can incidentally help some individuals, this project is much more focused and intends to directly help the Internet community in Afghanistan and to advance their skills, competencies and opportunities.

Objective

The project seeks to create and strengthen an online mentoring network for Afghanistan’s Internet network engineers, security professionals and people working in or studying Internet development and operations.

The project has four overarching strategies to achieve this objective:

- community organizing to enhance collaboration among community members and increase their participation in discussions about adoption and the development of Internet technologies;
- enhancing access to education, training, resources and mentoring;
- creating locally relevant technical content and online platforms; and
- promoting a culture of mentoring, knowledge sharing, partnership and collaboration.

Benefits to the Internet Community

This project addresses barriers and crosscutting vulnerabilities that still hamper the empowerment of network engineers and security professionals in Afghanistan. It also addresses several issues confronting the community in the country, including lack of access to learning and knowledge resources. Limits on access to these services have significant impacts on local community members’ ability to participate in Internet activities and in society in a meaningful way, leaving them feeling isolated and disempowered.

5.2. Status Update

Over the past 12 months, the Technical Training and Mentoring Support to Internet Professionals in Afghanistan Project has successfully completed all planned activities. Significant highlights include the successful approval of project initiation documents, including the project proposal, charter and risk register, and conducting research and community consultations toward the development of two reports that provided the bases for selecting project participants. Thirty-four participants were recruited and have successfully enrolled in online training courses and certification programs as per professional development plans.

During these 6 months, collaboration across projects has provided additional support to the Afghanistan project. Sanctions imposed on Afghanistan required the project to use due diligence to identify project participants following a consistent mechanism that the Foundation follows for funding recipients. The project has collaborated with the Switch! project team to develop a tailored professional development plan data-collection system. This brought lessons learned from the Switch! project to the Afghanistan project and facilitated consistent data collection across projects, which is beneficial for the Foundation as a whole.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁵	Variations to Planned Proposal
Project initiation	Project initiation documents developed and approved	The following documents were completed in Q4 2021 : - Project concept paper - Project proposal And by the end of Q1 2022: - Project scope baseline - Project charter	Annual target achieved as planned; project initiation documents developed and approved	Completed	

⁵ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁵	Variations to Planned Proposal
		- Project schedule			
Project development, phase 1 in 2022 and phase II in 2023	Project phase 1: revised project schedule, team allocation, project terms of reference, project risk management plan, and objectives and key results developed	By end of Q3 2022: - Revise project schedule - Develop project terms of reference - Create project objectives and key results - Create and maintain project risk register, operationalized by the end of Q3 2022	Annual target achieved as planned; all project planning documents in place	Completed	
	Project phase 2: project proposal 2023 completed	By end of Q4 2022: - Project proposal 2023 developed and submitted - Funding approved and grant agreement in place for 2023	Annual target achieved in Q4 as planned; all documents in place	Completed	
Research and community consultation	Desk research	By the end of Q2 2022: - Summary report titled <i>Afghanistan Telecom Industry Outlook</i> completed - Comparison table of mentoring programs completed	Annual target achieved as planned	Completed	
	Community consultation design	By the end of Q2: - Community consultation plan, including methodology, in place - Consultation tools pre-tested internally - Respondent list drawn up, including APNIC members	Annual target achieved as planned	Completed	
	Community consultation outreach, inviting respondents to participate	By the end Q3 2022: Community consultation online questionnaire developed using Survey Monkey Community outreach conducted and informed about the project and the consultation process	Annual target achieved, exceeding expectations	Completed	
	Community consultation data collection	By the end of Q3 2022: - Complete community consultation data collection through online	Annual target achieved, exceeding expectations	Completed	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁵	Variations to Planned Proposal
		questionnaires from 70 respondents residing in the economy or in the diaspora	with 251 responses		
	Community consultation data analysis and report writing	By mid-Q4 2022: - Process and manage the data collected through community consultation - Complete data analysis, visualize data, and write report and recommendations	Annual target achieved as planned	Completed	
Mentoring portal development and delivery of training and mentoring	Mentoring portal initial requirement developed	By the end of Q3 2022: - Draft the mentoring portal requirements through a consultative process with the APNIC Academy team	Annual target achieved as planned	Completed	
	Mentoring project fact sheet and web content developed in English and Pashto and/or Dari	By the end of Q3 2022: - Create and revise web content in English and Pashto and/or Dari - Create and revise project information and fact sheet in English and Pashto and/or Dari	Annual target achieved as planned	Completed	
	Website prototype and mock-up ready	By the end of Q2 2022: - Website mock-up and prototype completed	Annual target achieved as planned	Completed	
	Website developed	By mid-Q4 2022: - Minimum viable product of the mentoring portal developed, tested and published in English and Pashto and/Dari)	Website development postponed	Cancelled after scope change	Due to resource limitations, the scope changed from creating own mentoring portal to using existing external platforms.
Training and mentoring delivery	List of potential trainees finalized	By the end Q3 2022: - Create training participant, or trainee, selection criteria - List of potential trainees completed based on agreed criteria	Annual target achieved as planned; 64 individuals identified as potential trainees	Completed	
	All selected trainees	By mid-Q4 2022:	Annual target achieved as planned; 51	Completed	Scope change: this requirement

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁵	Variations to Planned Proposal
	undergo due diligence	<ul style="list-style-type: none"> - Define the due diligence process, including a due diligence form, and invite all selected trainees to complete it - Selected participants completed and passed the due diligence. 	invited participants responded and completed the due diligence process		and activity was added to the project scope during the execution phase.
	External platforms and providers for training and mentoring identified	<p>By the end of Q4 2022:</p> <ul style="list-style-type: none"> - Identify at least 10 online training and mentoring platforms and providers that can be used by the project - Get familiar with packages and training topics from each platform and provider. - Order courses and subscriptions from selected platforms and providers 	<p>Annual target achieved as planned</p> <ul style="list-style-type: none"> - Over 50 training providers and platforms identified and shared with participants <p>200+ topics selected by participants for enrolment</p>	Completed	This requirement and activity was added to the project scope during the execution phase.
	Learning goals set and professional development plans completed by participants	<p>By mid-Q4 2022:</p> <ul style="list-style-type: none"> - At least 25 participants who passed the due diligence process set their learning goal and professional development plans. <p>All professional development plans reviewed, and relevant courses requested by the participants approved</p>	Annual target achieved, exceeding expectations, with 34 participants completing their learning plans	Completed	
Participant recruitment	Participants enrolled in training courses and certification programs	<p>By the end of Q4 2022:</p> <ul style="list-style-type: none"> - Most of the online courses and exam vouchers demanded by participants procured - All 34 selected participants placed in relevant courses and certification programs - A few courses and certification exams deferred to 2023 under budget and other constraints 	Annual target achieved, exceeding the planned number of enrolments	Enrolment completed for 2022; training ongoing	<p>Courses were ordered for all participants, but some participants were scheduled for placement in Jan and Feb 2023 to avoid overload.</p> <p>Some of the courses and certification exams were deferred to 2023 because of budget</p>

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁵	Variations to Planned Proposal
					limitations or inability to develop partnerships or get discounts at the time.

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
<p>Success: Project initiation and community awareness and consultation</p> <p>Challenge: Project scope needed to be revised</p>	<p>The project started off well, but it was necessary to review and revise some of the initial scope after internal consultations with APNIC and considering the resources available. That delayed community engagement, participant recruitment and the delivery of training and mentoring.</p>	<p>Project scope was quickly revised, with management approval and corrective measures taken. Instead of creating a dedicated portal, various existing platforms were used more efficiently to help project participants take training and achieve certification.</p>
<p>Success: Participant engagement and recruitment</p> <p>Challenge: Number of dropouts</p>	<p>The number of participants invited to participate decreased; 51 of 64 responded to the due diligence questionnaire, but only 34 completed their goal setting and professional development plans. However, the project still achieved a higher target than the 25 participants that was initially planned.</p>	<p>A higher number of participants were invited to complete the due diligence and the successive professional development planning processes. This helped the project achieve a higher recruitment rate than the target.</p>
<p>Success: Professional development planning, training procurement and participant placement</p> <p>Challenge: The professional development planning process started off late in November and completed in the first week of December, allowing the project team little time to properly guide participants in effective professional development planning.</p>	<p>Due to added scope elements, participants were left with only a short time to search for their preferred topics and courses. Some of the plans were not properly done and thus required a number of revisions.</p> <p>The project team had only a short time to identify and build partnerships with the training and professional development providers that were not already Foundation partners.</p>	<p>Assistance from the Switch! SEA Gender and Diversity Project and ational oordinators was sought, and tapping Switch! project experience contributed to the professional development planning process. To make it more effective, the existing provider list was shortened, and improvements to the system were implemented.</p> <p>Guide documents were written and shared with the participants to assist with professional development planning. In addition, Zoom calls, pre-recorded videos, emails and other communication channels were used to help participants enhance their plans and select training and certifications and their providers.</p> <p>Data from the community consultation report were used to predefine project focus areas in terms of the key topics and professional development needs of community members.</p>

Lessons Learned and Recommendations

Project planning, management and oversight. Predefine the steps for informing, recruiting and enrolling participants in a training project. Reducing the number of steps will increase efficiency and smooth execution. Separate expressions of interest (Eols) from community consultation in the future. Start the Eol and due diligence processes concurrently and early on. Information about participants' preferred courses should be collected as part of the Eol process. Surveys and knowledge checks both during and after project execution should be used to evaluate the project's progress, and the training program should be adjusted and improved as it progresses.

Training and professional development. Demand-driven training lasting 6–12 months will help participants complete their certifications and specializations. Along with the training provided on external platforms, the project should incorporate the APNIC Academy program to enable participants to become familiar with APNIC and the academy.

Awareness creation. To increase knowledge of APNIC and its services in the technical community in Afghanistan, the project should develop in the next phase a communication strategy in partnership with other APNIC activities. Allowing for time constraints and limited resources, various organizational units could work together to increase engagement with the community in Afghanistan. The Orbit platform, weekly tips, information sessions, and member spotlights may be effective engagement and awareness-raising tools. Special outreach for women's groups provided benefits in the 2022 phase of the project, achieving about 30% women's participation in the project. Thus, the project should continue to identify and connect with women-led and focused technology groups, as well as collaborate with intergovernmental organizations such as UN Women.

- **Partnerships with training providers.** Continue to build partnerships with external training providers to receive discounts and other benefits. While retaining the focus of the project, align and partner with existing support projects that have a technical focus, as well as with organizations, for resource sharing and enhancing the reach, effectiveness and impact of the project.
- **Community building and engagement.** To increase participation from other network operators such as banks, Internet service providers, multinational organisations and academia, future outreach should expand. This will enhance knowledge-sharing across stakeholder groups with a technical focus. To achieve this, the salesforce will be used to gather the contact details of key network operators and local engineers, both in the economy and in the diaspora. The project should help other relevant Internet initiatives, such as the Afghanistan Network Operators Group (AFNOG), Internet Governance Forum Afghanistan (IGFA), Afghanistan School on Internet Governance (AFSIG), Youth IGF, and women's information and communication technology groups to stay active and vibrant. In addition, it is important to maintain active relations with nongovernment players and, even more importantly, with APNIC members and their associations and groups. Working with locally active NOGs and Internet governance groups will not only raise awareness of APNIC and possibilities for membership, partnership and participation, but also further Internet development in the economy.

6. Switch! SEA Gender and Diversity Project

6.1. Background

In May 2020, the [APNIC Foundation received AUD 500,000 from the Australian Government](#) to improve the knowledge, skills and confidence of women and LGBTQI+ technical staff working on Internet network management and operations in Cambodia, the Philippines, Thailand and Viet Nam (with the Lao PDR and Timor-Leste added later). The project was designed to have individual participants define their own learning and professional development goals and keep track of their progress. The project supported 74 participants across a variety of industries and stakeholder groups, comprising 69 women and 4 gender-diverse people, including 10 in Cambodia, 25 in the Philippines, 19 in Thailand and 20 in Viet Nam.

This Trust-funded project continues and expands this project with name updated to [SWITCH!](#). The project commenced on 1 January as per the Trust agreement but on 1 March when using the date on contracts with senior national coordinators.

Objectives

The project seeks to improve the technical knowledge, skills and confidence of women and LGBTQI+ technical staff working on Internet network operations and security in Cambodia, the Lao PDR, the Philippines, Thailand, Timor-Leste and Viet Nam to

- acquire and validate much-needed professional certifications in network operations and security areas;
- improve their research, management and public speaking capabilities;
- share their technical knowledge, operational expertise and advice with the technical community at local, regional and international events and publications; and
- protect the open, free and secure Internet in their areas.

Benefits to the Community

- A more equitable and inclusive work force engaged in the development and adoption of the Internet in the APAC region.
- Increased representation of women and LGBTQI+ technical staff as keynote and other speakers at technical conferences, publishing their own research papers, articles and reports.
- Higher participation in policy development from women and LGBTQI+ technical staff.

6.2. Status Update

Over the past 12 months, the Switch! SEA Gender and Diversity Project has completed or is on track to implement all planned activities. In terms of project management, data collection and monitoring systems were developed for a risk register, monthly update reports and survey tools, and the coordination and planning platforms Slack, Jira and Confluence were operational in the first 3 months of implementation.

An updated Eol questionnaire was developed, and a different strategy implemented for its promotion increased its completion rate by 349% from the 2021 community consultation. The introduction of streamlined process improvements to managing participant recruitment reduced the time needed to screen Eols by 46% from phase 1, funded by the Australian Department of Foreign Affairs and Trade (DFAT), and the time needed to complete participant agreements by 25%. The 161 participants recruited were more gender-diverse in economies benefiting only last year from this innovation.

With respect to professional development, in just 6 months of implementation, 94% of participants have reported greater confidence in their ability to understand the technical subjects they have chosen for their professional development plans (PDPs), while 98% of the cohort reported completing their monthly PDP progress reports, up from 60% in phase 1 of the project.

To date, 37% of participants have joined the first pod coaching group, which was, as this report was being prepared, reaching its conclusion and assessment. Project participants were already better prepared to share their knowledge with the community and more empowered to share their technical expertise in discussions. This was evidenced by their networking and visibility activities, with 88% of participants agreeing or strongly agreeing that their communication skills had improved, while 77% reported participation in visibility and networking activities after only 4 months of support. This includes 40% of participants using AnitaB.org and/or LinkedIn Learning portals and 100% of participants signing up to the Orbit mailing lists and portal. Participants that requested research support during 2022 are reporting steady progress with their research, and 7% have shared research outcomes already published.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
Project management: Foundation staff and national coordinators strengthen project management and M&E, design and plan project activities effectively, and review project strategy based on lessons learned	Two progress reports produced annually, according to Foundation schedule	Two progress reports	Progress report submitted 30 July. End of year report deadline moved to February 2023	Completed	
	Project staff use platforms — for example Jira, Confluence and Slack — to coordinate and collaborate	Jira board used for weekly project meeting, focusing on tasks and collaboration	Project Jira board and Confluence space up-to-date and in use Daily use of Jira for coordination purposes	Completed	
	80% project team satisfaction	80%	97% project team satisfaction	Completed	
	100% participants use data collection and monitoring system to record outcomes against approved professional development plans (PDPs)	150 PDPs submitted, approved and in use	161 PDPs submitted, approved and in use	Completed	
	100% project team members use data collection and monitoring system to keep track of project activities, achieve targets and make decisions	Six national coordinators using the system to review and approve plans and document progress during this reporting period, reporting monthly	100%. Monthly update summary report to track participants produced by all six national coordinators	Completed	
	Survey analysis used for decision making and planning	Five survey tools use (1) Welcome Event, (2) Spring Pod Coaching Exploration Tools, (3) Spring Pod	All five tools implemented, and analysis reviewed during follow-up meetings	Completed	

⁶ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
		Coaching Completion Tools, (4) Switch! Gender & Diversity national event survey and (5) end of year project survey			
	At least two meetings conducted during the year to review the risk matrix, identify risks and suggest possible mitigation strategies	Two meetings	Seven meetings were conducted during the year to review the risk register. The project reported biannually on risks.	Ongoing	
	12 communication products, at least one per month, produced according to strategy	12 products	In the interim report, 19 communication products were referenced. From July to December an additional 16 were produced for social media to publicise the EoI, plus the production of two welcome packs, one APNIC 54 session activity and six national events, for a total of 44 communication products	Completed	The Foundation communication strategy is under development
Participant recruitment: Project participants signed agreements to join the project and submit their PDPs	25% increase in valid EoI responses compared with 2021 community consultation	A minimum of 84 valid responses expected, or 25% up from 67 valid EoI responses from the 2021 Community Consultation	349% increase, as 292 valid EoI responses were received in 2022)	Completed	
	Time to analyse EoI reduced by 25%	25% reduction	46% reduction	Completed	Baseline results from the previous SEA Gender project reported an average of 28 days for participant

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
					selection. In the three rounds during 2022, each selection took on average of 15 days.
	Time to complete participant agreements reduced by 25%	25% reduction	Participant agreement template modified to include the data required for all 161 participant agreements through a single database, and they were completed using DocuSign. Overall, file preparation was quicker and had fewer errors requiring manual modification	Completed	For this project, the first agreement was signed on 10 July 2022 the last on 16 October 2022. However, DocuSign reports most signing took 2–7 days.
	100% of participants structure their PDPs and submit for approval	150 submissions approved	Data collection and monitoring system reported 161 PDPs from selected participants submitted, with 11 not approved	Completed	
	At least 60% of confirmed participants attend welcome event	140 participants invited on 29 August 2022	81% attendance, with 114 participants attending the session	Completed	
	80% satisfaction in welcome event survey	80% satisfaction	100% of respondents either satisfied or extremely satisfied with the welcome session process and logistics	Completed	
Professional Development: Project participants make progress against the PDPs for training, certification and mentoring	70% of participants report greater confidence in their ability to understand the technical subjects they chose for their PDPs	70%, or 112 participants	94% report greater confidence: 87% in Cambodia, 92% in the Lao PDR, 97% in Thailand, 96% in the Philippines, 100% in Timor-Leste and 92% in Viet Nam	Ongoing	Total percentage to be reported in 2023, as the 2022 group just started at different times from June and September, depending when their participant agreement was signed

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
					for 12 months of support
	Analysis of “most significant change” stories shows increased confidence	N/A	N/A	N/A	Activity to be conducted in 2023
	Rate of PDP progress reported monthly per economy for 2022 and 2023 cohorts	The team-proposed target was to at least match the reporting rate that the SWITCH! SEA project had in its first 6 months of support to DFAT-funded participants. The reporting rate then was 95% with 100% of participants in the Philippines, Thailand and Viet Nam completing their monthly reports. 60% of participants in Cambodia completed their monthly reports	98% of the 2022 cohort reported PDP progress monthly after 6 months of support, from July to December, with 100% participants in Cambodia, the Lao PDR, the Philippines and Thailand completing their monthly reports. 92% of participants in Timor-Leste and 90% of participants in Viet Nam completed their monthly reports. Project participants performed better overall, as even in the two economies where fewer than 100% of reports were completed, the rate of 90% is higher than the comparable figure of 60% in the earlier cohort.	Ongoing	
	70% of participants graduated from their PDPs, meaning they complete 65% of the courses or activities in their PDP by September 2023	The team-proposed target was to at least match the 16 out of 74, 22% graduation rate — with an average of five personal development items per	While the 12% graduation rate, or 20 out of 161 participants, after 6 months of support is lower than the 22% recorded by the SWITCH! SEA project, the average number of personal development items was almost double at 9.2, or 1,484 items for 161 participants.	Ongoing	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
		participant (380 personal development items for 74 participants) to complete — that the SWITCH! SEA project had in its first 6 months of DFAT-funded support.			
	15% participants complete pod coaching program, joining until the end and answering the completion tools	15% participant completion	37%, or 60 out of 161, joined the coaching program 30%, or 18 out of 60 participants, attended six sessions 77%, or 46 out of 60, who signed up for pod coaching answered the completion tool survey (TL coaching ends on 30 January 2023)	Ongoing	
Visibility and networking: Project participants are better prepared to share their knowledge with the community, empowered to bring their technical expertise to discussions to protect the open, free and secure Internet	15% of participants improve communication, including English proficiency and public speaking	15% of participants	88% of participants agree or strongly agree that their communication skills have improved: 75% in Cambodia, 96% in the Lao PDR, 93% in Thailand, 93% in the Philippines, 81% in Timor-Leste and 84% in Viet Nam	Ongoing	
	25% of participants reporting, on their visibility and networking tab, the number of activities for speaking, sharing, or applying knowledge	25% of participants	77% of participants report visibility and networking activities after only 4 months of support out of the 12 months of commitment	Ongoing	
	40% of participants use AnitaB.org and/or LinkedIn Learning portals	40% of participants	72% of participants' accounts activated the AnitaB portal, out of 115 participants that requested access. 142 participants' accounts activated in LinkedIn, out of	Ongoing	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁶	Variations to Planned Proposal and Comments
			the 186 participants that requested access		
	80% of participants signed up for Orbit mailing lists and portal with at least 30% contributing online	80% and 30% of participants	100% of participants signed up for Orbit mailing lists and portal, and at least 38% contributed online	Ongoing	
	80% of participants satisfied with project activities conducted during national events organized by the project team	80% of participants	95% of participants	Completed	
	90% of feedback and recommendations received from phase 1 of the project incorporated into project strategy and approach, including the development of surveys specific to project objectives	90% incorporated	100%. All five surveys implemented related to one of projects objectives	Completed	
	At least 50% of supported research projects are accepted for publication or presented at conferences or events	50% presented	7%, after only 6 months of support, out of the 12 months commitment	Ongoing	The target is for 12 months to the end of participants' 12 months of personalized support, rather than for the calendar year.

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
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<p>1. Success:</p> <p>Increased enrolment and steady engagement: In Cambodia, enrolment increased from 10 participants supported in the DFAT-funded project to 26. The number of recruited and qualified Thai participants and Thai gender-diverse participants was higher than expected. The numbers increased from 19 to 34 participants and from 1 to 7 gender-diverse people. 12 women selected in the first group in Timor-Leste. The dropout rate is 0, and although 3 participants in Viet Nam have reduced their engagement for personal reasons, they continue to engage.</p>	<p>Positive effect as more gender-diverse participants were recruited</p> <p>Cultural diversity increased with participants from two new economies joining</p> <p>Increased workload as the number of participants increased overall</p>	<p>LinkedIn promotional campaign was useful to identify participants working in relevant areas.</p> <p>In Timor-Leste, promotion of the project continues to share APNIC Foundation mission and vision as well as the objective of the project for different types of organizations and industries.</p> <p>Increased efforts for coordination</p>
<p>2. Success:</p> <p>Gender specialist support started with interviews and reflection conversations that helped the team to engage with more confidence on gender equality and social inclusion (GESI)</p>	<p>Improved confidence to manage and understand gender-diverse participants</p> <p>Clarify GESI definitions in support of project activities</p> <p>Understand that GESI is part of APNIC or the Foundation overall approach and something that requires attention at project level</p>	<p>Recommendations reviewed for action plan to improve project and future development</p> <p>Action plan under development</p>
<p>3. Success:</p> <p>Improve the database of enrolment transactions, participant and group monitoring, and result matrix</p>	<p>National coordinators can increase the number of participants because monitoring is more manageable.</p> <p>Easier checking of progress in each economy and group</p> <p>Easier tracking of transactions meant easier processing of course requests from participants.</p>	<p>Investing time to work on continuous improvement of the database and revisions based on past project experience was worth it.</p> <p>Self-evaluation skills for the participants</p> <p>Observe and monitor ongoing progress in the system, complemented by F2F meetings to discuss the ongoing progress.</p>
<p>4. Success:</p> <p>Increased visibility and networking activities both online and F2F</p>	<p>Increased awareness for the Foundation and the project</p> <p>Organizations are identified that the project and the participants can collaborate with in the future.</p>	<p>Join events as attendee, speaker or competitor to network and share the project.</p> <p>Add participants to an online platform Orbit, where they can network.</p>
<p>5. Challenge:</p> <p>While national coordinators were planning to reduce the number of training providers in response to the challenges posed by enrolment processes and diverse (or limited) payments options, the landscape of training provision changed as many preferred to take on F2F courses, some in the local language, and</p>	<p>Limitations were experienced in local vendors' payment methods in the Lao PDR and Viet Nam, where credit card payment is not available or not allowed if using a credit card issued overseas.</p> <p>Local US dollar accounts are not available to most vendors.</p> <p>If only bank transfers are available, that considerably increases the</p>	<p>National coordinators advanced payment and requested reimbursement.</p> <p>Participants advanced payment and request reimbursement.</p> <p>Wired transfers were sent to vendors.</p>

reduce the number of global and online providers.	workload for national coordinators and the Foundation finance team.	
6. Low English proficiency limits access for participants from the Lao PDR, Timor-Leste and Viet Nam.	<p>Limited choice for courses and vendors in local language meant that new training providers had to be added.</p> <p>Less opportunity to join international conferences for participants in these economies</p> <p>Increased translation cost for the project</p> <p>National coordinator tasks delayed because of the need to translate</p>	<p>Support participants taking English courses.</p> <p>Let participants register for courses with local vendors and wait for the class to fill.</p> <p>Recommended that participants consider courses and vendors available in local language.</p> <p>Ongoing translation and interpretation offered by GTE continues.</p> <p>More participation and access to online platform and course enrolment will benefit participants as they learn and improve their English.</p>

Lessons Learned and Recommendations

- Conducting an external review of the project from a gender equality and social inclusion (GESI) perspective can help to identify gaps and thus help national coordinators and Foundation staff improve the delivery of a gender-diverse project. As this report was being prepared, Foundation staff were reviewing recommendations, and the GESI consultant was preparing an action plan with short-term and longer-term activities and priorities. Many of these recommendations currently under review apply not only to this project, but also to other Foundation processes and practices. The funding available to hire a GESI consultant for the first time proved to be very useful to the Foundation team.
- For future projects, it may be worth considering how to structure specific engagements with local organizations that employ project participants — without risking changes to the personalized PDP approach that supports personal development — and local training providers to influence how professional development opportunities are made available locally for women and gender-diverse technical staff.
- This year, national coordinators are looking at what resources may be needed to identify local activities and events that the project and participants can attend and collaborate with, looking at ways to structure a community calendar that can be used to expand and sustain the support being given to participants, because it is not simple to identify relevant technical events.

7. Information Society Innovation Fund Asia

7.1. Background

Marking in 2022 its fourteenth year of funding, Information Society Innovation Fund (ISIF) Asia has supported grants and awards since 2008 to support and build technical communities. More details available at <https://isif.asia/background>.

Objectives

The technical communities that ISIF Asia supports research, design and implement solutions to strengthen the availability, affordability and accessibility of the Internet and so facilitate human and economic development in the Asia Pacific region. It achieves this through the following:

- Funding innovative and relevant Asia Pacific research and development solutions appropriate to different stages of development, with a focus on three main areas — infrastructure, inclusion and knowledge — with a strong technical focus on network operations and security. Solutions should address problems identified through community consultation and evidence-based research, responding to community needs and seeking to maximize their potential.

- Supporting the continued deployment and use of IPv6 by network operators in the Asia Pacific.
- Producing high-quality evidence-based communication products in the languages of the Asia Pacific to target diverse audiences, accompanied by an effective dissemination strategy to facilitate the adoption and use of research and development results.
- Expanding and deepening the ISIF Asia network of funding partners and fundraising strategies to fund recipients' and technical advisors' efforts in support of issues of common concern that align with a shared vision for an open, stable, reliable, affordable and accessible Internet, and to inform the continuing evolution of ISIF Asia.
- Supporting and building an Asia Pacific-wide network of grant and award recipients that establishes an active, diverse and engaged community of Internet researchers and practitioners.
- ISIF Asia projects support the Foundation's aim to make more visible the positive influence of the Internet.

Benefits to the Internet Community

- As community members are eligible for grants and awards, they can directly benefit from the funding opportunities offered to support their research and operational priorities.
- Community members are able to access project documentation, new knowledge and understanding about robust research and development solutions developed through project reports and other communication outputs. These include blogs, case studies and project technical reports, as well as IPv6 deployments that will be produced in a range of Asia Pacific languages in line with accessibility standards.
- Solutions researched and developed by supported organizations directly respond to and benefit community needs.
- An increased rate of IPv6 deployment and use in the Asia Pacific.

7.2. Status update

Over the last 12 months, ISIF Asia has satisfied all planned activities and targets. Significant highlights include the 2022 call for proposals generating 60% more eligible applications than in 2021, demonstrating a growing need for the fund. Response included 120 applications received from 23 economies, including 5 economies that had not previously been involved. The application and selection process was strengthened, with project staff developing a detailed methodology for analysing committee comments and scores for both the ISIF Asia and IPv6 grants. Four new committee members were taken on, such that committee members now come from 12 different economies. At least 50% of each committee is now female. In terms of project implementation, 44 grants were managed during 2022. These included 22 projects carried over from 2021, and 22 projects, including 4 on IPv6, that were approved in 2022. Ten technical and financial progress reports have been approved, with project expenditure reaching 80% of the budget. ISIF Asia engagement was considerable throughout the year with the hosting of three online events to support networking among grant recipients. Additionally, the ISIF Asia awards ceremony was conducted in Singapore along with a breakfast for all attending grant recipients.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁷	Variations to Planned Proposal
Program development	Evidence that ISIF Asia focus areas are responsive to the funding needs of the technical community and inform Foundation programs	60% greater response to call for proposals than in 2021	<p>The 2022 call for proposals drew 60% more eligible applications than in 2021, showing a growing need for the fund. A survey of 2021 applicants reported that 63% of ISIF Asia focus areas are relevant to their most pressing needs.</p> <p>The survey for 2022 applicants to be conducted in Q1 2023 and so completed after the public announcement is done and all individual feedback to rejected applicants is provided</p>	<p>Completed for 2021 applicants after announcement.</p> <p>Ongoing for 2022 applicants to be completed in Q1 2023</p>	
Application and selection from 2022 open call	Number of applications received across economies in the service region	80 applications	120 applications received from 23 economies, including 5 economies that have not previously been involved, was consistently higher than in the 2021 application period, when only 1 economy was not supported before applying.	Completed	
	Foundation staff coordinate a strong, equitable and efficient selection process	Clear processes followed and documented	Project staff developed and followed a detailed methodology for analysing committee comments and scores for the ISIF Asia grants and IPv6 grants assessed in the second half of the year.	Completed	
	Selection committees identify organizations capable to deliver high impact through well-structured proposals	Selection committees are fully staffed with a diverse group of industry leaders who are committed to the ISIF Asia selection process and complete all required tasks. The final steps of the selection process, requiring input from the	Four new committee members were brought on. One new selection committee was created. Committee members are from 12 different economies. At least 50% of each committee is female. The full selection process was successfully completed by all committees in the planned system.	Completed	

⁷ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁷	Variations to Planned Proposal
		committees, will be undertaken in July and August.			
Project Implementation for 2021 grantees	Funding recipients use their funding efficiently in line with their proposed activities and complete supported projects on time and on budget.	No target number of reports is set because reports are submitted based on expenditure milestones, not prescribed dates. All 2021 grantees should have submitted at least one progress report by December 2022.	44 grants were managed during 2022, including 22 allocated in 2021, 18 allocated in 2022 and 4 IPv6. 10 technical and financial progress reports were approved, with projects reaching 80% of budgeted expenditure and 34 reports pending, as per their agreed grant proposals timelines. Reports show grantees are delivering approved proposals with a few variations and some no-cost extensions requested, mainly due to supply chain disruption and changes associated with COVID-related implementation challenges. No final report submitted yet.	Ongoing	
	Funding recipients have formal and informal reporting mechanisms and report quarterly in line with their agreed. Milestones and project plans	All remaining project indicators and detailed budgets for 2021 grantees will be completed and approved. Progress reports are reviewed in a timely way.	During 2022, 88 technical and financial report records were assigned in Fluxx. Each report record goes through three major stages: detailed budget and indicators, progress, and final. Informal email exchanges with Foundation staff account for project progress for all 2021 grant recipients, as 2022 grantees were announced only in Q4 2022 for implementation in 2023.	Ongoing	
	Supported IPv6 deployment plans are in place and well documented, with adoption and use encouraged.	Finalize milestones, disbursement schedules, and contracts for the two remaining IPv6 deployment grants for 2022	Four IPv6 deployment grantees for 2022 have received their first payments and are under way, with all funding from the 2022 budget allocated.		
	Evidence that funding recipients enhance their capacity through access to	Grants that include capacity building submit plans for how	Of the technical reports received so far, grantees note advances in their organizational capacity and availability of training for their staff. Scale-up grants and	Ongoing	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁷	Variations to Planned Proposal
	training, mentoring and networking	these funds will be deployed.	impact grants have specifically developed internal capacity-building plans for their staff.		
Engagement	A network of funded recipients share expertise and facilitate contacts with other donors and sponsors, contributing to the development and strengthening of partnerships.	One major F2F event will expand ISIF Asia's profile and reputation. At least one networking event for fund recipients will be hosted by the Foundation this year.	The Foundation hosted three online events to support networking among recipients during the first half of the year, followed up by many one-to-one informal information-sharing partnerships. A breakfast was organized in Singapore for all funding recipients attending the conference. The ISIF Asia awards ceremony was conducted in Singapore to acknowledge the contributions of Ulrich Speidel and Charles Lim. Award recipients were able to make many connections with new contacts and even with former ISIF Asia recipients that joined the event. The grants list was migrated to Orbit and is in use.	Ongoing	
	Donor engagement brings higher visibility to ISIF Asia and the Foundation.	N/A	The ISIF Asia awards ceremony was conducted in Singapore in September, to facilitate connections with donors and sponsors and re-establish relationships with organizations after many professionals in the industry left Singapore. In the process of organizing the event, a look book was assembled to facilitate connection with new contacts. Several follow-up events have since taken place. Follow-up after Singapore related to HSB engagement and Google.org.	Ongoing	
	Accessible online information and documentation available in several Asia Pacific languages increases outreach and	Outreach attracts sufficiently high-quality applications and reaches out to new economies, increasing	During the first half of the year, application outreach emails to NIRs were sent in English, Japanese, traditional Chinese, Korean, Thai, Vietnamese, Indonesian, and simplified Chinese. Blogs in English (5 more on the ISIF blog) and traditional Chinese. 5 ISIF	Ongoing	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ⁷	Variations to Planned Proposal
	knowledge sharing.	awareness of ISIF Asia goals. ISIF Asia is incorporated into the Foundation website, including notifications of grants incorporated on the home page. The website includes updated information in a local language.	posts on Foundation LinkedIn, 10 on ISIF Asia Facebook, 5 on ISIF Twitter, plus 2 ISIF posts on Foundation Twitter. A set of slide decks was prepared and reutilized for different sessions and speaking engagements and used by the APNIC External Relations and training teams for promotion.		

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
<p>Success:</p> <p>Inaugural IPv6 deployment grants, and Internet and the environment grants, allocated in two ISIF cycles running concurrently</p>	<p>Increased visibility and support from technical community as more core technical subjects are supported</p> <p>Increased engagement with new donors and prospective applicants looking at environmental issues</p>	<p>Structure separate application form and process in Fluxx</p> <p>Review by the infrastructure selection committee meant they had more applications to review, so in 2023, it would be a good idea to establish a separate IPv6 selection committee.</p> <p>Explored other promotion tools using LinkedIn.</p> <p>Reached out to UN and Internet governance groups working on environmental issues</p>
<p>Challenge:</p> <p>Delays with website development, and with NetSuite and Fluxx integration</p>	<p>Cross-posting and the need to update two websites duplicated work and delayed the availability of information.</p> <p>Integration of NetSuite and Fluxx is in its final stages but has been a really difficult and time-consuming project.</p>	<p>Budgeted additional support for 2023.</p> <p>Renegotiated contract with Fluxx, deciding to reduce the planned integrations from three to two (Currency Layer, NetSuite and Salesforce), got credit funds back. Turned off multicurrency due to challenges with bank changes to list of currencies used.</p>
<p>Challenge:</p> <p>Recruitment of Fluxx analyst delayed</p>	<p>Increased workload and difficulties in handling the daily administration of Fluxx, versus the need to finalize the development of pending modules</p>	<p>Professional development done again Q3 2022 with plans to recruit someone in Q1 2023</p>

Success: Awards 2022	Increased visibility and engagement of recipients and donors	Massive effort to structure the invitation list and re-establish contact with organizations we collaborated with in the past that now have new staff, as many left Singapore because of COVID-19 restrictions
Success: Orbit migration	New mailing list and online forum tool available, but still under development and requires reregistration	Supported the testing of Tribe and Hyperkitty and participated in user interviews and active migration processes for subscription and promotion. Lists were migrated and operating, which means that efforts to support the alumni network can start in 2023.
Success: Due diligence process expanded	Clearer process, but more time required, added to the last steps before generation of contracts	The due diligence process was reviewed by APNIC legal counsel and expanded to include antiterrorism checks. A detailed methodology was structured. Requested legal advice from APNIC legal counsel, which was submitted. Waiting for APNIC definition of the sanctions' advisory consultancy
Challenge: Sanctions on Myanmar and Afghanistan	Changes in the political situation in both Myanmar and Afghanistan affected one ongoing grant to Myanmar that had to be postponed and one new grant to Afghanistan that the Selection Committee had selected but could be processed.	Indicative assessments submitted by APNIC general counsel for both Myanmar and Afghanistan projects Additional discussions to identify a partner organization that can accept funds for Myanmar required changes to Fluxx processes (adding fiscal sponsor module) and development of new contract template for termination of grant agreement The possible implications of including Myanmar and Afghanistan on the list of economies eligible for ISIF Asia in the 2023 call for proposals are under consideration but not resolved as this report was being prepared.

Lessons Learned and Recommendations

The implementation of inaugural Pv6 deployment grants attracted more applications for the infrastructure selection committee to review. A recommendation for 2023 is to establish a separate IPv6 selection committee.

8. M-Root Deployment

8.1. Background

This project is a collaboration between APNIC, the WIDE Project and Japan Registry Services Co. Ltd to do anycast node deployment of M-Root (the only root server operated in the Asia Pacific) all around the Asia Pacific and beyond.

Objectives

The project seeks to extend anycast node deployment of M-Root throughout the Asia Pacific region by

- streamlining M-Root deployment and operations through continuously improved processes and automation,
- simplifying models for anycast instances, and
- investigating various deployment options.

It will identify and prepare 15 new M-Root planning and ordering instances in 2022 by focusing on

- eight high-volume locations in the Asia Pacific,
- five underserved locations in the Asia Pacific, and
- two high-volume locations outside of the Asia Pacific.

Benefits to the Internet community

- Faster and more reliable DNS service
- Faster and easier deployment of Root DNS anycast instances at desired or underserved locations.

8.2. Status Update

Over the past 12 months, the M-Root project confronted challenges to completing planned activities as three of four success measures were delayed. The deployment of only three anycast nodes out of a planned 10 was caused by delayed equipment delivery. The identification and preparation of only one anycast node out of a planned 15 was caused by delays in talks with potential local hosts. Global delays in high-tech equipment delivery meant no improvement in deployment lead time. Encouragingly, however, M-Root overall handled more traffic last year than previously.

Project Milestone (Output)	Success Measure	6-month Actual	6-month Target	Annual Target	Annual Actual	Current Status ⁸	Variations to Planned Proposal
Deployment	Complete deployment of all 10 anycast nodes commenced in 2021	2 Completed deployment of the M-Root in Hanoi	7	10	4 Completed deployment of the M-Root in Guam, Singapore, Bangkok and Kuala Lumpur	Delayed	Deployment of M-Root servers in 11 locations (Kaohsiung, Manila, Dhaka, Bangkok, Jakarta, Ulaanbaatar, Kathmandu, Mumbai, Lahore, Kolkata, and Singapore) was progressed but was affected by delayed equipment delivery. Currently seeking alternative suppliers or solutions.
	Identify and prepare ⁹ 15	1	15	15	1	Delayed	Eight high-volume

⁸ On track, delayed, completed or ongoing.

⁹ Preparation includes considerable background work to engage with hosts, which has been done in the past 12 months.

Project Milestone (Output)	Success Measure	6-month Actual	6-month Target	Annual Target	Annual Actual	Current Status ⁸	Variations to Planned Proposal
	anycast nodes in targeted economies						locations and five underserved locations in the Asia Pacific have been identified, and talks with potential local hosts are in progress.
	Shorten the lead time for each deployment	N/A	N/A	N/A ¹⁰	N/A	Delayed	Due to global problems affecting high-tech equipment delivery, there has been no improvement in deployment lead time.
	Handle more traffic for M-Root overall	The WIDE project team has the detailed data and can confirm that M-Root overall is handling more traffic than previously.				On track	

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
Challenge: Delays affecting the ordering and delivery of equipment	Target not met	Engaging suppliers with adequate lead time in each local economy has been undertaken to buy direct to avoid delays. The use of three identified suppliers — two global and one local — can engage local suppliers for the purchase of supplies.
Challenge: In terms of identifying and preparing anycast nodes, negotiating with local hosts takes time. MoU negotiation has in some cases been bureaucratic, and delays have occurred as local hosts failed to meet APNIC requirements.	Target not being met	Preference is for MoUs to be less bureaucratic. Handpicking local hosts has been the preferred approach. The desire is to spread out deployment to reach underserved economies. Hiring a dedicated M-Root deployment manager to implement activities has been budgeted, and recruitment has taken place at Japan Registry Services Co. Ltd. This should ensure the project meets planned targets.

¹⁰ No target has been set because each individual economy faces different challenges.

Success: The project has managed to employ full time staff dedicated to managing project implementation. The use of DocuSign has created greater efficiencies meaning the signing of documents can be conducted online.		
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Lessons learned and Recommendations

To reduce delays affecting MoU negotiation, many activities related to project start-up can be conducted in parallel, including quotations and identifying opportunities in consultation with key partners to refine design, such as reviewing available staff and other resourcing.

9. APNIC Academy

9.1. Background

The [APNIC Academy](#) is composed of an online platform, training content and a training curriculum. It is the foundation of all APNIC training and employs blended learning, flip classroom, and hybrid flexible approaches that combine online and F2F training.

Objectives

The APNIC Academy serves as an integrated and community-wide online platform for the Asia Pacific region through the following:

- **Product management.** Maintain high-quality training assets to build capacity in the region through the APNIC Academy platform, content and curriculum.
- **Product development.** Continue to develop the APNIC Academy platform, content and curriculum to increase knowledge and skills in the community.

Benefits to the Community

- Meet high demand in the community for technical capacity development.
- Assist with regional Internet development by supporting the adoption of best practices.

9.2. Status Update

Over the past 12 months, the APNIC Academy has completed or is on track to complete all planned activities. Significant highlights include the successful migration of the Training Wiki and training.apnic.net to the APNIC Academy, establishing a central repository of all training materials, and exceeding targets set for virtual lab usage, self-paced online course usage and the number of registered users of the APNIC Academy. Significantly, the academy achieved a 97% satisfaction rate for APNIC training, as reported in the APNIC biannual survey.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹¹	Variations to Planned Proposal
Product management:	Transition the Training Wiki as a component of the	Migration completed by	System migration and integration was	On track	Some transition tasks, such as process and change management,

¹¹ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹¹	Variations to Planned Proposal
Integrate various training systems and products into the APNIC's Product Management Framework	APNIC Academy and merge training.apnic.net into the APNIC Academy by the end of 2022	the end of 2022	conducted in Q4 and completed		will carry over into 2023.
	Maintain academy platform availability at no less than 99.95%	Academy platform availability at no less than 99.95%	Academy platform availability at no less than 99.99%	Ongoing	
	Achieve a rating of at least 6.00 out of 10 for APNIC training in the APNIC Survey	Rating of at least 6.00 for APNIC training	6.4/6 97% satisfaction rate, as reported in the biannual survey	Ongoing	
Establish and support online technical assistance: Establish and support online technical assistance functionality to connect members with community experts	Begin conducting technical assistance through the APNIC Academy online platform by Q3 of 2021.	Activity completed in 2021			
	Provide technical assistance and advice to members, both online through the APNIC Academy platform and F2F, travel restrictions permitting	Respond to all technical assistance requests within 7 days	Responded to all technical assistance requests within 7 days	Ongoing	
Self-paced training: Increase knowledge and skills in the community through self-paced online training	Increase total self-paced online course usage	Up by at least 30% from 3,340 hours in 2021 to 4,342 hours	4,414 hours of self-paced online course usage	Completed	
	Increase virtual lab usage	Up by at least 20% from 6,902 hours in 2021 to 8,282 hours	12,125 hours of virtual lab usage	Completed	
	Increase registered users of the APNIC Academy	Up by at least 25% from 17,018 registered users in 2021 to 21,273	23,801 registered users of the APNIC Academy	Completed	

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹¹	Variations to Planned Proposal
Multilingual and mobile support: Extend multilingual and mobile support to more courses	% increase in subtitled course content across non-English languages by 2021	Activity completed in 2021			
	Document one research experiment to explore m-Learning/mobile app support in 2023	N/A	N/A	N/A	Research report activity has been deleted from the roadmap.
Internet infrastructure-focused training curriculum: Build a comprehensive Internet infrastructure-focused training curriculum ready for future certification	Establish a central repository of all training materials for better governance, lifecycle management and version control by the end of 2022.	Central repository completed by the end of 2022	Central repository created on Confluence and integrated with SharePoint in Q4	On track	Some transition tasks, such as process and change management, will carry over to 2023.
Product development: Continue development of the APNIC Academy platform, content and curriculum to increase knowledge and skills in the community	Achieve all 2022 goals, according to the Academy Products Roadmap	Achieve all 2022 goals, according to the Academy Products Roadmap	Four out of five completed, as one, appointing a certification officer, was cancelled.	On track	

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
Challenge: Human resources: Lost two senior staff from the academy team, and one will not be replaced, meaning	Follow-on impact on implementation	Rethinking the structure of the development team. Actively engaging with recruitment agencies in the recruitment effort alongside human resources.

Successes & Challenges	Effect on Project	Actions Taken
less staff time available to implement same activities. Recruitment is delayed by labour market conditions.		Delivery manager and full-stack developer recruited in Q4.
Challenge: Process: Challenges associated with change management and processes in relation to the Training Wiki and Central Repository	Staff capacity shortages can compromise overly ambitious targets.	Implement change management plan and process design
Success: Exceeded utilisation numbers for 2022 for virtual lab usage, self-paced online course usage, and registered users		

Lessons Learned and Recommendations

Staff capacity shortages can compromise overly ambitious targets. Increase capacity to take on the unexpected while delivering on meaningful and realistic targets, which is essential to team morale and culture.

10. Asian Internet Interconnection Initiatives

10.1. Background

[The Asian Internet Interconnection Initiatives \(AI3\) project](#) is an international research consortium linking universities and research institutes in Asia with researchers working to develop and deploy leading-edge technologies for the Internet such as IPv6, WWW caching and replication, and multimedia communication mechanisms, as well as applications for the advanced use of the Internet.

Objectives

The project aims to continue the development and the eventual full implementation of resilient satellite connectivity to support research and education infrastructure and collaboration in the Asia Pacific. At the same time, it aims to provide connectivity in the wake of disasters and emergencies. These objectives are pursued in collaboration with the Arterial Research and Educational Network in Asia-Pacific (ARENA-PAC). To achieve this objective, this proposal pursues three initiatives:

- the development of the non-terrestrial network (NTN) in the Asia Pacific;
- the development of inclusive, emergency-ready disaster-response networks; and
- support for technology development and collaboration to create a research and education network (REN) with community-based research on dynamic networks, network measurement and security, the internet of things, and research data platforms.

Benefits to the Community

- Research and education institutions in Asia, including at remote or poorly connected sites, have alternative or main connectivity for their activities, including network-based experiments.
- Communities in disaster and other emergency locations in Asia will be able to rapidly recover connectivity to the Internet using NTNs.
- Partner institutions have concrete global collaborations in various network-based research, generating program visibility among REN communities and other strategic partners.

10.2. Status Update

Over the past 12 months, the AI3 project has successfully completed many planned activities, particularly in relation to conducting NTN research and the development and platform installation of REN trial sites, along with ongoing collaboration with research and education partners and the funding of internships. Challenges were encountered, however, in the development of an inclusive network among poorly served institutions and REN technology development, where installing additional connectivity to targeted sites and the installation of dynamic network nodes and internet of things nodes were delayed until 2023.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹²	Variations to Planned Proposal
Development of a non-terrestrial network (NTN) in the Asia Pacific	NTN research and development conducted by 2022	NTN is proven to work with relay nodes by the end of 2023.	NTN was proven technically incompatible with relay nodes.	Ongoing	Switched from relay nodes to using provider gateway (Starlink) to reach the ARENA-PAC network.
	# of NTN nodes installed and operated	Installations expected in 2023	N/A	N/A	2 Starlink nodes installed and tested in Japan but not yet operating
Development of an inclusive, emergency-ready disaster-response network	# of installed emergency-ready networks based on NTN	Installation and operations expected in 2024	N/A	N/A	
Promotion of internet emergency-readiness to research and education network (REN) communities and strategic partners	# of disaster network drills conducted	Drills expected in 2023	N/A	N/A	
	# of presentations in REN meetings held	Presentations expected in 2023	N/A	N/A	
Development of inclusive network among poorly served institutions	# and type of sites providing additional connectivity beyond 2G to underserved poor and rural communities	Installation expected by the end of 2022 for Timor-Leste	No installation	Delayed	Negotiations continue for better offers from providers.

¹² On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹²	Variations to Planned Proposal
Support REN technology development and collaboration	# of installed dynamic network nodes	5	0	Delayed	Proposal still in progress, delayed by the Japanese academic year
	# of installed internet of things nodes	5	0	Delayed	Contracts were signed and activities started in December, and installation is expected to be completed by Q2 2023.
	# of installed network sensors	5	0	Delayed	Proposal still in progress, delayed by the Japanese academic year
	Research data platform installed at Keio University	Hard and soft expansion of the first platform	1	Completed	
	# of internal collaboration meetings with research and education partners	2 at AI3/SOI Asia Joint Meeting 12 AI3/SOI Asia monthly seminar 5 community-based research (CBR) meetings	2 at AI3/SOI Asia Joint Meeting 12 AI3/SOI Asia monthly seminars 5 CBR meetings	Completed	
	# of internships, disaggregated by gender	6	6	Completed	Female: 1 (17%) Male: 5 (83%)

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
1. Challenge: Defining the details of CBR collaboration was difficult because of differences in internal procedures at each partner university.	Bureaucracy and the need to deal with particularities in each partner institution delayed agreements and therefore the start of activities.	Carefully managed case by case, understanding local procedures Established service agreements contracts with each partner

Successes & Challenges	Effect on Project	Actions Taken
2. Challenge: Dealing with differences in NTN regulation in each partner economy	The complexity in local NTN regulations delayed activity scheduling	Consulted the Legal Clinic at Bond University in Australia for support and advice regarding legal issues related to the topic. The project also directly called local representatives in search of local support.
3. Challenge: Attracting female interns has proved difficult because the talent pool is small. Nevertheless, increasing the number of female interns remains as a project goal.	Unable to attract female talent as interns, the project is unable to leverage greater levels of creativity, innovation, sensitivity and insight, which affects in turn the Internet industry more broadly.	The team plans to start discussions on the topic from April 2023, the start of the academic year in Japan.

Lessons Learned and Recommendations

Introducing community-based research (CBR): This helped to expand the community by leveraging partners to engage with other partner organisations. While standardizing collaborative research processes took longer than expected because of significant cultural, technical and administrative differences, the format allowed more flexibility and more dynamic action by counterparts in partner universities. That helped to expedite adaptation to local situations regarding technical specifications and the supply chain realities affecting procurement. The new scheme attracted new talent to the community.

11. School on Internet Asia

11.1. Background

[The School on Internet Asia \(SOI Asia\)](#) project was launched in 2001 as a platform for linking education programs among universities and research institutions in Asia. It uses satellite Internet technology to provide connectivity that is less expensive, easier to deploy, and more feasible for universities located in regions where the Internet environment is insufficiently developed. The project also conducts research and seeks to develop information technology human resources in Asia. It does this using an educational methodology called the evidence-based approach (EBA). The EBA is a data-driven learning strategy developed by SOI Asia. With an EBA, participants study a specific emerging issue by collecting and analysing data. They then use the data for storytelling to understand and study the fundamentals of an issue and its related topics. The EBA Consortium is a collaboration of top universities in Southeast Asia to develop human resources capable of identifying and solving problems using evidence and analysis.

Objectives

SOI Asia aims to foster and support a collaborative community among universities and research institutions in Asia using evidence-based research to design resilient future societies. To achieve this objective, this proposal pursues the following three initiatives:

- **Developing the EBA methodology.** Using EBA, develop capacity-building programs to address emerging issues in Asia.
- **Future Internet Engineer Development Program.** Develop capacity-building programs for network engineers to advance the future global research and education network.

- **Develop a common learning platform among partner institutions.** This is to support the capacity-building programs listed above with a CBR framework.

Benefits to the Internet Community

- Research and education institutions in Asia will be able to develop their own programs for sustainable human resource development.
- Partner institutions will be able to develop the human resources needed to manage their Internet infrastructure.
- Universities will have access to a credential-issuing learning platform.

11.2. Status Update

Over the past 12 months, the SOI Asia project had mixed success implementing planned activities. Highlights where annual targets were exceeded include the development and implementation of an e-portfolio platform, for which a beta version of credential issuing was developed. Additionally, three courses adopted the e-portfolio system — EBA, the Asia Pacific Internet Engineer (APIE) program and AI3/SOI Asia Internship — and seven SOI Asia universities and students accessed and issued credentials.

Success in meeting annual targets for the [Asia Pacific Internet Engineer \(APIE\)](#) program was mixed. Targets were met for the number of economies where SOI Asia students participate in the program (three economies) and exceeded for the number of SOI Asia universities and research institutions served (five universities versus a planned four). The development and implementation of an online e-workshop was successfully implemented, while a camp activity and online public version are delayed until Q1 2023. The 28 certifications issued for each APIE course was well below the target of 60.

The redesign, implementation and operationalization of the [Evidence-Based Approach \(EBA\)](#) program is behind schedule, including the number of SOI Asia students participating in the program (16 students versus 100 planned), with only one SOI Asia university able to operate the program, not the planned two. Only 16 EBA certificates were issued, well below the planned 75.

Finally, a financial report on AI3/SOI Asia is provided in Appendix 1, which also gives details on how these activities are funded.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹³	Variations to Planned Proposal
Evidence-Based Approach (EBA) program EBA program redesigned, implemented and operationalized in the SOI Asia community	EBA redesign process implemented according to annual plan	One review meeting conducted annually	0	Ongoing	Review meeting not conducted because there were few activities to review. Instead, EBA conducted an input session at the SOI Asia Joint Meeting with the University of Science of Malaysia (USM) in Penang, Syiah Kuala University (USK) in Aceh, Hasanuddin University (UNHAS) in Makassar and Brawijaya University (UB) in Malang, as well as in peer-to-peer meetings for forward planning with the University of the Philippines Diliman (UPD) in Manila, Institute of Technology Bandung (ITB)

¹³ On track, delayed, completed or ongoing.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹³	Variations to Planned Proposal
					and University of Malaya (UM) in Kuala Lumpur.
	# of SOI Asia students participating in the program	100	16	Delayed	Problems were the low number of students participating due to COVID-29, MoU delays, and fieldwork schedule changes.
	# of SOI Asia universities able to operate the program	2	1	Delayed	Schedule changed
	# of certificates issued by 2024	75	16	Ongoing	Forward schedule changed
Asia Pacific Internet Engineer (APIE) program developed and implemented in the SOI Asia community	APIE pilot course components developed and implemented according to annual plan: online, e-workshop, camp and Internship	Full course developed and implemented by the end of the Japanese academic year in March 2023	Online and e-workshop implemented by September 2022; camp and online public version in development and were expected by February 2023 Committee review session held in November 2022	Ongoing	
	# of economies where SOI Asia students participate in the program	3	3	Completed	
	# of SOI Asia universities and research institutions served	4	5	Completed	
	# of certifications issued for each course, and high	60 in pilot program: 30 for online and 30 for e-workshop	28 N/A	Delayed	Satisfaction surveys will be conducted at the end of the program.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹³	Variations to Planned Proposal
	satisfaction rates and feedback	80% of participants report high satisfaction and offer positive feedback on curriculum			
Development and implementation of a common e-portfolio platform that issues credentials for students who attended SOI Asia courses	Development of an e-portfolio platform for issuing credentials for SOI Asia-provided courses in partnership with AI3/SOI Asia community members	Open the platform	Beta version released	Ongoing	
	# of courses adopting the e-portfolio system	2: EBA and APIE	3: EBA, APIE, and AI3/SOI Asia Internship	Completed	
	# of SOI Asia universities and students who accessed e-portfolio and had credentials issued	3	7	Completed	
	# of institutions and enterprises recognizing the e-portfolio system	Focus first on platform development, then approach institutions and enterprises from 2023)	N/A	N/A	

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
1. Challenge/success: EBA: service agreement contracts created to overcome difficulties to organizing activities outside of Keio University.	The difficulties managing fieldwork outside Keio can overload the Keio team, with consequent delay, schedule change, low satisfaction rates and poor outcomes.	In addition to MoUs between partner universities, the project introduced service agreement contracts that define roles and guidelines and allow more autonomy for partner universities to organize and host fieldwork.

<p>2. APIE: The gap between students' expected and actual skills required changes to the original content plan for advanced online content.</p>	<p>The struggle to catch up with online content can be a reason for low motivation, dropping out and slow progress in following program components.</p>	<p>Hired a teaching assistant from the same economy of participants who supported learners in their native language Considering a redesign of advanced-level online content Conducted extra mentoring and support sessions to lever skills Changed the eligibility requirement for APIE Camp participation</p>
<p>3. Establishment of a sustainable e-portfolio and development of an operating system</p>	<p>Decreased the number of delays in the schedule for development and operation delivery</p>	<p>In addition to hiring an additional full-time engineer, the project established an internship cycle that facilitates project progress and allows the participation of younger members. Regular touchpoints and mentoring</p>
<p>4. Attracting female interns and APIE participants has proved to be difficult because the talent pool is small. Nevertheless, increasing the number of female interns and APIE participants remains a goal for this project.</p>	<p>Unable to attract female talent as interns, the project is unable to leverage greater levels of creativity, innovation, sensitivity and insight, which affects in turn the Internet industry more broadly.</p>	<p>APIE: Invited female guest lecturers and teaching assistants to join the APIE Camp in February 2023 as a first step to raise the visibility of existing female talent and thus inspire younger generations. Internship and APIE: The team plans to start discussion on the topic from April 2023, the start of the academic year in Japan.</p>

Lessons Learned and Recommendations

Introducing Virtual Reality to EBA fieldwork programs. Travel restrictions because of COVID-19 made the EBA team look for new solutions for fieldwork programs under different circumstances. The use of virtual reality in online fieldwork in 2022 showed value for the EBA, specially for activities preparing visits. Virtual reality has potential to broaden the range of fields into areas with access restrictions and to make the audience more inclusive by catering for individuals with physical impairments. The EBA team is preparing more experiments as part of regular fieldwork programming in 2023.

12. Trust Discretionary Funding

12.1. Background

Providing funding support allows the APNIC Foundation to contribute to the technical community in the Asia Pacific in a flexible and proactive fashion. Funding allocations are determined in close collaboration with APNIC in line with its ongoing and established sponsorship activities and then driven by the Trust.

Objectives

The project sponsors and support activities that advance Internet knowledge and education in the Asia Pacific. Funding is made available for events, papers and core support.

Benefits to the Internet community

- Enhance technical and operational knowledge outcomes.
- Strengthen an informed and collaborative community through events.
- Support the efforts of organizations and community groups to strengthen network operations and security

12.2. Status Update

Over the past 12 months, the Trust Discretionary Fund has successfully sponsored three events, one publication, five websites and online tools, and one fellowship.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹⁴	Variations to Planned Proposal
Strengthen an informed and collaborative community through events	# of online tools, events, publications or fellowship sponsored	N/A	<p>Three events sponsored:</p> <ul style="list-style-type: none"> • Connections 2022 • AINTEC Conference 2022 • Asia Pacific Secretariat Support <p>One publication sponsored</p> <ul style="list-style-type: none"> • <i>Internet Protocol Journal</i> <p>One fellowship sponsored</p> <ul style="list-style-type: none"> • Mutually Agreed Norms for Routing Security (MANRS) Ambassador Fellowship Program <p>5 websites and online tools sponsored</p> <ul style="list-style-type: none"> • CyberGreen Institute • PeeringDB • Island Bridge Network Limited • IXP Database • Shadowserver 	Ongoing	Sponsored activities increased as additional activities were added by the Trust, in addition to planned activities renewed in 2021. This resulted in overspending by US\$56,500.

Successes and Challenges

Successes & Challenges	Effect on Project	Actions Taken
<p>Success:</p> <p>Existing sponsorship applicants have renewed their agreements for 2022.</p>	<p>Sponsorship engagement has strengthened Foundation networks and the Foundation's positive standing in the Asia Pacific technical community.</p>	N/A

¹⁴ On track, N/A, delayed, completed or ongoing.

<p>Success: Positive feedback from sponsored events</p>	<p>Greater exposure and positive relationship building for the APNIC Foundation</p>	<p>“We are incredibly grateful for APNIC Foundation's sponsorship of AINTEC throughout the years. Your sponsorship enables us to have high-quality talks from invited speakers that are leaders and future leaders in networking. Furthermore, we are able to sponsor student travel grants to encourage participation from younger researchers. Next year, we are looking to hold AINTEC 2023 in Southeast Asia (possibly Vietnam) around November. We look forward to working with you on future AINTEC conferences and APNIC events.” — 2022 General Co-Chairs, Asian Internet Engineering Conference (AINTEC), January 2023</p>
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Lessons Learned and Recommendations

A recommendation is to ask supported organizations to share a short summary report, maybe structured as a blog article, to promote their achievements through the year. Alternatively, engage supported organizations to share their updates via Foundation Orbit lists to increase their community engagement. Not all supported organizations may be amenable to this approach, as they use a sponsorship package mechanism to reduce their reporting and donor engagement overhead, but it would be great to have mechanisms for them to promote themselves and raise the profile of the Foundation through their networks.

13. Curriculum Development for Non-technical Audiences

13.1. Background

This project was first funded in 2021 to respond to the many barriers that keep young, non-technical audiences from participating meaningfully in Internet governance. One of the biggest barriers is that the ecosystem is unwelcoming, and concepts are usually explained in uninteresting and confusing ways. Unfortunately, this audience needs some technical knowledge about Internet operations to be seen as credible and to have their voices heard.

This project aims to tackle this problem head on by developing an engaging [online game](#) that acts as a welcoming cocktail for this audience.

Objectives

The objective of the Curriculum Development for Non-technical Audiences project is to ensure that these groups better understand Internet operations and improve their interaction with the technical community. This will be achieved through the implementation of three main outputs: the production of a high-level design document, the development and testing of an introductory curriculum, and the implementation and evaluation of the curriculum.

Benefits to the Internet Community

- More well-prepared fellowship recipients participating in conferences and policy development.
- More enabled participants at APNIC conferences to inform decision-making by government officials, with better understanding of how the Internet works.
- More meaningful engagement with non-technical audiences and a better understanding of APNIC's role and services.
- Advance education in the Asia Pacific region.

13.2. Status Update

Over the past 12 months, the Curriculum Development for Non-technical Audiences project has successfully completed all planned activities. Significant highlights include gaining final agreement from the Steering Group on the goals, learning objectives and audience requirements for phase 1 of the project, defining the

creative direction for the online game along with the narrative and overarching game mechanics, conducting nine workshops with the target audience to gather feedback and input on aspects of game design, and the successful development of a game prototype that meets key acceptance criteria.

Project Milestone (Output)	Success Measure	Annual Target	Annual Actual	Current Status ¹⁵	Variations to Planned Proposal
Defining derivative goals, learning objectives and audience requirements for phase 1 of the project	Gaining final agreement on these items from the Steering Group	N/A	Final agreement gained	Completed	
Conduct user experience workshops to gather feedback and input on aspects of game design	Conduct # of user experience workshops with the target audience	Conduct seven workshops	Conducted nine workshops with the target audience	Completed	Engagements have extended beyond workshops to include email and F2F discussions, testing sessions both online and observational, and gathering feedback through such mechanisms as surveys.
	Define the creative direction for the look and feel of the game, and the narrative and the feel of overarching game mechanics	Creative direction for defined and agreed items	Creative direction for defined and agreed items; input engagement from key internal and external stakeholders	Completed	Certain elements have yet to be designed, but they are not directly related to creative direction.
Develop a prototype to assess the viability of certain aspects of the game	Prototype developed that meets acceptance criteria of demonstrating certain aspects, so that they can be assessed for viability	Prototype has been developed, and it is currently allowing us to assess the aspects necessary.	Prototype has been developed and it is currently allowing us to assess the aspects necessary.	Completed	

Successes and Challenges

¹⁵ On track, delayed, completed or ongoing.

Successes & Challenges	Effect on Project	Actions Taken
<p>Success and challenge:</p> <p>Applying an ADDIE/Agile hybrid methodology</p>	<p>By nature, the hybrid ADDIE/Agile approach has meant that certain aspects of the game have remained undefined and in flux until an appropriate direction could be found through a process of iteration. Due to the complex nature of the subject matter and the requirements of the game, this process of iteration has taken longer than anticipated.</p> <p>This has made it challenging to communicate to stakeholders, in a timely way, certainty over the direction of these aspects and any directly dependent aspects of the game. Understandably, this has been frustrating for stakeholders at times and may give the impression that progress is not being made on the project.</p> <p>That said, if we were to have used a strictly gated approach, like ADDIE alone, this would have required significant reworking. The reason for this is that the abovementioned aspects of the game would have needed to be defined and locked in early, before we could test and confirm viability, which occurs through Agile-style iteration cycles.</p> <p>We learned this lesson in the first 6 months of the project, when the first game design document was put together to define all aspects of the project. Most aspects have now been completely reworked as we gained more clarity and direction on project requirements.</p>	<p>Stakeholders have been kept as updated as possible with progress, considering their busy schedules and travel commitments. As certainty over each aspect of the game becomes clearer, this is communicated to stakeholders.</p> <p>Any aspects that are not yet clear are communicated straightforwardly.</p> <p>As the project progressed, if it was identified that a certain aspect was causing roadblocks due to uncertainty over its direction, this aspect would be prioritised over all other items to be worked on next. This helped to expedite the removal of roadblocks.</p>
<p>Success:</p> <p>The project was able to gain significant traction in the latter half of 2022 by removing obstacles that were previously holding back the project.</p>	<p>Many stakeholders provided feedback that they were able to see a considerable amount of progress between updates and deliverables presented earlier in the year and those presented toward the end of the year.</p>	<p>As discussed above, major aspects of the game that might have been creating obstacles because of their fluidity or uncertainty were prioritised for resolution. At the start of the second half of the year, we saw many of these aspects being resolved, allowing good progress to be made.</p> <p>Additionally, contractors that had been stalling the project and generating a lack of clarity because of their inconsistent and wavering commitment were removed from the team. Replacements for these contractors were either sourced or their tasks were taken over by other team members to sustain progress on the project.</p>
<p>Success and challenge:</p> <p>Producing a game of this kind, particularly with its varying requirements, necessitates the design and</p>	<p>Because the need for such complexity was not fully realised early on in the project, and its extent is still being revealed as the team works through the design of some aspects, there has been a mismatch between expected versus actual delivery time frames.</p> <p>The benefit, however, is that both the engine and the approach we have taken to develop it will support the development of future add-ons</p>	<p>Key APNIC stakeholders have been kept abreast of delays to delivery and have been asked to make decisions about scope and direction throughout the project.</p> <p>To minimise issues with delivery time frames, the focus and scope of the game have been narrowed.</p>

Successes & Challenges	Effect on Project	Actions Taken
<p>development of a complex underlying logic engine that mimics many aspects of real-world Internet and networking operations.</p>	<p>and, potentially, a multiplayer experience. It will also allow APNIC to repurpose various aspects for other products and other audiences.</p>	
<p>Challenge: Many of the experts engaged to work on the project, while being experts in their own fields, are not experts on Internet operations. Conversely, the subject matter experts involved, while being experts in Internet operations, lack an understanding of the audience and of good learning design principles.</p>	<p>It has been extremely difficult for all parties involved to jointly define the boundaries in scope for an initial minimum viable product for the game because they do not easily understand each others' perspectives. Defining scope has thus taken much longer than expected.</p> <p>Budget and resources have also been diverted as external experts who were meant to have relevant cross-disciplinary knowledge were engaged but, in the end, were not able to provide additional clarity, perhaps because of the complex nature of the project.</p> <p>Additionally, core team members have had to upskill themselves to broker agreements and compromises and to take on tasks that are outside their field of expertise.</p>	<p>An external subject matter expert with cross-disciplinary knowledge and expertise was engaged to provide input for scope clarification. However, the complexity of the project and the desired outcomes were difficult to grasp for the expert, whose input was not very useful in the end.</p> <p>As a last resort, it became necessary to upskill the project manager and learning designers to try to be honest brokers between the stakeholders, technical experts, writers and developers.</p>
<p>Challenge: Juggling differing expectations and requirements from key stakeholders within the time frame and budget</p>	<p>Related to the above, each stakeholder group — the audience, APNIC stakeholders, subject-matter experts, and learning and game designers — has had very different views and requirements for the game. In particular, the requirements of the audience and the desires of the APNIC and technical stakeholders have often been at odds.</p> <p>This has often created situations with “too many cooks in the kitchen,” creating a lot of tension over the direction and approach to many aspects of the game.</p>	<p>The project management team undertook a lot of foundational work with the various stakeholders to achieve a consensus on the overall vision and approach early on. However, because most stakeholders are limited in their availability and can engage with the project only on an ad-hoc basis, they need to be reminded frequently what has previously been agreed.</p> <p>In addition, the approach to the game has evolved over time as more is understood and revealed about various requirements and the subject matter. This has made it challenging to keep everyone in alignment. To combat this, the project team tries to keep stakeholders abreast of changes and attempts to gain buy-in and consensus by providing them with different options to choose from with regard to direction.</p>

Lessons Learned and Recommendations

What lessons for the future can be learned from the project? They may include technical or social lessons, and lessons relating to cross-cutting issues including sustainability, access and the inclusion of people regardless of gender, disability or ethnicity sustainability.

A development company was engaged early on in the project to provide input on design and garner buy-in. However, this engagement locked in time frames for development that were premature for the level of iteration required for the game. Ideally more design work would be completed before development started, assuming that resources are available.

Stakeholders involved in developing learning products must understand audience needs — what the audience needs to learn about and how deeply they need to understand it for the product to solve problems as required. Without that, it becomes very difficult to define the scope of a learning product, unless there are those on the project who can act as brokers to help the team reach consensus.

Normal project management practices and principles do not always apply to all projects. Time must be allocated to finding alternative approaches that work well within the specific context of the project and with the specific mix of stakeholders involved.

Normally engaging contractors on terms based on outcomes and milestones, rather than on time spent, is the preferred approach. However, engaging contractors on a full-time or dedicated basis may ensure greater commitment and involvement.

Decision-makers need to either be fully involved on the ground to understand the day-to-day decisions made, or else trust the team in place. It is very difficult to have executives that cannot be intimately involved but do not want to delegate decision-making.

Appendix 1 : AI3/SOI Asia Summary Financial Report

AI3-SOI Asia Detailed project annual report attached as separate document.

AI3 & SOI Asia 2022 Summary Financial Report (USD)

Project	Budget	Fund Received	Actual Expenditure
AI3 Project:			
CBR	627,900	313,950	275,484
NTN	38,400	19,200	1,296
Emergency-ready network	35,400	17,700	-
Community & Project	53,500	26,750	51,666
Personnel	310,000	155,000	123,344
Management and General	355,067	177,534	177,534
AI3 Total	1,420,267	710,134	629,323
SOI Asia Project:			
EBA	604,500	302,250	68,441
APIE	302,750	151,375	195,502
SOI Asia CBR	88,850	44,425	11,180
Community & Project	87,500	43,750	182,700
Personnel	500,400	250,200	280,314
Management and General	528,000	264,000	264,000
SOI Asia Total	2,112,000	1,056,000	1,002,137
AI3 & SOI Asia Total	3,532,267	1,766,134	1,631,460

AI3 & SOI Asia Multi-year Fund Summary (USD)


2021 Fund Received	2,026,300
Less: 2021 Project Expenditure	966,880
Less: 2021 Management & General Fees	303,945
Balance of 2021	755,475
2021 Balance carried forward	755,475
Plus: 2022 Fund Received	1,766,134
Less: 2022 Project Expenditure	1,189,927
Less: 2022 Management & General Fees	441,534
Balance of 2022	890,149

Appendix 2 : Foundation Grantees

Grantee	Project Title	Amount Funded (USD)	Status	Economy
CVISNET Foundation, Inc.	Communication Support for Typhoon Rai Victims using LACS	\$15,000	Activities completed in 2022, reports in progress, and final payment pending	Philippines
Digital Empowerment Foundation	Community Network Xchange Asia Pacific 2022: Walking the Talk with the Internet, Community and Networks	\$10,000	Completed	India
APNIC Pty Ltd	APNIC 54 Fellowship Support	\$34,000	Completed	Australia
DotAsia Foundation	APrIGF fellowships and APSIG capacity building for people with disabilities in digital rights and governance, YIGF, and general event support	\$30,000	Activities completed in 2022, reports in progress and final payment pending	Hong Kong
Maldives Internet Exchange	Maldives IX	\$20,000	Ongoing activities, reports and final payment pending	Maldives
Bond University	Internet Law Research	\$59,500	Ongoing activities, reports and final payment pending	Australia
Myanmar Internet Exchange Association Inc.	Supporting the Myanmar Internet Exchange	\$19,200	Ongoing activities, full payment processed for equipment procurement, reports pending	Myanmar

Agreement was reached in 2023 with the Solomon Islands Ministry of Communications and Aviation to fund a national computer emergency response team, with activities to commence in 2023.

Appendix 3 : Receipt from Keio University


No.01-10011718

R E C E I P T


Date : May 6, 2022

Name of Contributor : APNIC Foundation
Amount of Contribution : 1,766,134 USD
As Donation for : Research activities conducted at Cyber Civilization Research
Center, Keio University Global Research Institute.

We would like to express our heartfelt appreciation for your generous
contribution to Keio University.

Keio University
2-15-45 Mita, Minato-ku
Tokyo 108-8345 Japan
〒108-8345
東京都港区三田二丁目15番45号

慶應義塾
義慶塾



Appendix 4 : Public Links to Project Information

ISIF Asia: <https://isif.asia/>

M-Root: <https://m.root-servers.org/>

APNIC Academy: <https://academy.apnic.net/en/>

Training delivery: <https://training.apnic.net/>

Community Trainers: <https://training.apnic.net/community-trainers/>

AI3/SOI Asia: <https://www.soi.asia/about>

Switch! <https://apnic.foundation/gender-and-diversity/>

Appendix 5 : Affirmation of Commitments

Affirmation of Commitments between APNIC and APNIC Foundation

Parties

This Affirmation of Commitments is made between:

A. APNIC Pty Ltd ACN 081 528 101
for and on behalf of the Asia Pacific Network Information Centre
of 6 Cordelia Street, South Brisbane, Queensland, Australia
(**APNIC**);

and

B. APNIC Foundation Limited ACN 646 643 156
of 6 Cordelia Street, South Brisbane, Queensland, Australia
(**AFA**),

and

APNIC Foundation Limited
a company incorporated in Hong Kong with its registered office located at 21st Floor,
Edinburgh Tower, The Landmark, 15 Queens's Road Central, Hong Kong
(**AFHK**)

(AFA and AFHK collectively, **APNIC Foundation**)

Background

1. APNIC Foundation, comprised of its constituent corporate entities, AFA and AFHK, was formed by APNIC to further its efforts to support training, capacity building and other Internet development activities in the Asia Pacific region.
2. In this document:
 - a. a right given to APNIC Foundation is a right given to both AFA and AFHK; and
 - b. an obligation of APNIC Foundation is an obligation of either AFA or AFHK, or both of them, at the election of AFA and AFHK on a case-by-case basis.
3. APNIC is the sole member of both AFA and AFHK.

4. This document sets out the commitments that each party makes to the other party for the provision of funding and other resources by APNIC to APNIC Foundation.
5. This document replaces and supersedes any previous Affirmation of Commitments entered into between the parties or a subset of the parties.

Mutual Objectives

6. APNIC declares its intention and commitment to ensure that the ongoing objectives and activities of APNIC Foundation, as set out in APNIC Foundation's respective constituent documents, are fully supported.
7. The parties envisage that, over time, APNIC Foundation will become self-funded, and its reliance upon APNIC to provide financial and other resources to enable the APNIC Foundation to carry out its objectives and activities, should diminish over time.
8. The parties acknowledge that with APNIC's technical, resourcing, and administrative capability it is uniquely suited to assisting APNIC Foundation in the delivery of its programs in the Asia Pacific region.
9. APNIC is committed to assisting and supporting APNIC Foundation in accordance with the terms of this document.

Commitment to funding and other support

10. APNIC commits to ensure that, where alternative sources of funding are not procured or available to APNIC Foundation, APNIC Foundation will have the funding described in clause 11 below, for the period up to 10 years starting from the date of this document (**Funding Period**). APNIC also commits to provide a minimum of two years notice of any substantial change to its willingness to fund and support the APNIC Foundation.
11. The funding referred to in clause 10 above will comprise:
 - a. the salary and other on-cost of employing such number of APNIC Foundation's staff members as agreed between the parties, who may be employed by APNIC and seconded to APNIC Foundation (or as otherwise agreed between the parties);
 - b. operational overheads up to an amount approved annually by the APNIC Executive Council as part of the APNIC budgetary approval process;
 - c. on a project-by-project basis as agreed between the parties, APNIC will assist APNIC Foundation with respect to the initial costs of delivering those projects until such costs are reimbursed by the donors; and
 - d. such other funding or variation of the aforementioned funding as agreed between the parties from time to time,

with the intention being that where alternative funding is available, the funding provided by APNIC under this clause 11 will be reimbursed on a cost recovery basis at such time as agreed between the parties.

12. The parties envisage that over the Funding Period, APNIC Foundation will increasingly rely on funding from parties outside of APNIC, and eventually become self-funded. APNIC Foundation will seek, to the extent appropriate and reasonable, donors to fund APNIC Foundation's operational expenses and the delivery of projects that meet APNIC Foundation's objectives.
13. The parties acknowledge and agree that:
 - a. any amounts provided by APNIC to APNIC Foundation will be on an interest free basis; and
 - b. the repayment by APNIC Foundation of costs incurred by APNIC for the benefit of APNIC Foundation pursuant to this document, including in respect of completing works as subcontractor to APNIC Foundation, will be without markup and only on a cost recovery basis,

such that APNIC will not derive a profit from the relationship between the parties.

Subcontracting and cost recovery

14. Where appropriate and reasonable to do so and as agreed between the parties, APNIC Foundation will engage APNIC as a subcontractor to:
 - a. provide APNIC Foundation with staffing and other resources to assist APNIC Foundation in delivering its projects; and
 - b. assist in the design, implementation, management, and maintenance of certain projects funded by APNIC Foundation.
15. Unless otherwise agreed between the parties, where APNIC is engaged as a subcontractor by APNIC Foundation pursuant to clause 14 above, the following terms will apply:
 - a. **(project)** the parties will agree on the scope of works, deliverables, timeframes, and budget (**Project Specifics**) for each project or part thereof being subcontracted to APNIC (**Subcontracting Project**);
 - b. **(performance)** APNIC will complete the subcontracting works in accordance with the Project Specifics;
 - c. **(documentation)** APNIC will provide such information as required by APNIC Foundation to fulfil its reporting obligations but will not assume responsibility for those obligations;

- d. **(cost recovery)** APNIC will invoice APNIC Foundation on a cost recovery basis for all costs incurred in performing and adhering to the Project Specifics for each Project;
- e. **(intellectual property)** each party:
 - i. agrees that all intellectual property rights developed in the course of performing the Subcontracting Project (**Project IP**) will be owned and vest in:
 - A. the party that performs such work; or
 - B. where APNIC further subcontracts the performance of the Subcontracting Project, APNIC as the main subcontractor;
 - ii. agrees, where reasonable to do so, to make the Project IP available under a Creative Commons Attribution-Share Alike License; and
 - iii. grants to each other party a worldwide, non-exclusive, royalty free, irrevocable, non-transferrable license to the Project IP.

Commitment to accountability

- 16. For so long as APNIC continues to provide funding or other resources to APNIC Foundation for its projects and activities under this document, clauses 17 to 21 below will apply.
- 17. APNIC Foundation will, on an annual basis by 1 December each year, submit its annual strategic plan for the following year to APNIC for its guidance and approval.
- 18. APNIC Foundation will, at the end of each quarter in each calendar year, submit its operational and activity report for that quarter to APNIC for its approval.
- 19. APNIC Foundation will, within 30 days after each meeting of its board of directors, provide APNIC with a copy of the minutes of the directors' meeting.
- 20. APNIC Foundation will, to the extent permissible by law in the jurisdictions in which it is incorporated, adopt and observe all appropriate staffing, governance and financial policies and processes in the interests of good governance and to meet the requirements of laws which apply to it and the reasonable requirements of its donors.
- 21. APNIC Foundation commits to have its annual financial statements audited by a firm of auditors acceptable to APNIC.

Commitment to collaboration, cooperation and support

- 22. APNIC and APNIC Foundation are committed to maximizing collaboration, cooperation and mutual support between the parties.

23. To achieve the objectives, set out in clause 22 above, the parties are committed to regular meetings at management level to ensure that there is regular open, transparent and productive communication between the parties.
24. Specifically, APNIC is committed to cooperating with the APNIC Foundation by providing training, technical assistance and other support as agreed with APNIC Foundation in the development of its projects and activities in accordance with clauses 10 to 15 above.
25. In turn, APNIC Foundation is committed to cooperating with APNIC's development activities in supporting its efforts to provide training, technical assistance and other services to APNIC's members and the Asia Pacific Internet community.

Key personnel

26. For so long as APNIC continues to provide funding and other resources to APNIC Foundation or engages employees for the benefit of APNIC Foundation for its projects and activities under this document, clauses 27 and 28 below will apply.
27. APNIC and APNIC Foundation agree that the following are the key personnel for APNIC Foundation:
 - a. CEO/Executive Director;
 - b. Head of Programs; and
 - c. such other persons who may, from time to time, occupy senior executive positions within the APNIC Foundation.
28. APNIC Foundation may not:
 - a. remove or dismiss any key personnel;
 - b. change the position designation of any key personnel; or
 - c. make any new appointment or replace any key personnel,without the prior written consent of APNIC.

Designated contact persons

29. For the purposes of all communication under this document, unless otherwise agreed between the parties, the designated contact person:
 - a. for APNIC – is its Director-General; and
 - b. for APNIC Foundation – is its CEO.

No partnership or agency

30. This document does not create any partnership, agency, association, employment, or any other fiduciary relationship.
31. This document does not give any party any authority to act as agent for, or on behalf of, or to represent or bind the other party in any manner.

Status of this document

32. The parties record their mutual intention that this document serves as a non-binding record of their understanding.
33. This document does not create any enforceable obligations under law.

Duration and amendments

34. This document is intended to have effect for the Funding Period, whilst APNIC funds and supports APNIC Foundation in the manner set out in this document.
35. The parties can modify this document by recording any such modification in writing signed by both parties.