



Port of Spain, January 26, 2017

# Trinidad and Tobago Internet Governance Forum (TTIGF) 2017

“The Role of the Internet and the Digital Economy in  
the Sustainable Development of Trinidad and  
Tobago”

## 2017 TTIGF Meeting Report

Port of Spain | Trinidad and Tobago

## Overview

The inaugural **Trinidad and Tobago Internet Governance Forum (TTIGF)** took place on January 26th, 2017, from 9AM to 1 PM at the Courtyard Marriott, Port of Spain. The theme of the TTIGF was “The Role of the Internet and the Digital Economy in the Sustainable Development of Trinidad and Tobago.” TTIGF 2017 had the distinction of being the first national IGF event ever held in the English-speaking Caribbean, drawing an enthusiastic multistakeholder audience from academia, the business community, civil society and the public sector. The event was also livestreamed, and attracted remote participants from all over the world.

The structure of this report follows the format of the TTIGF 2017 event, with four sections:

- Introduction and Opening Remarks
- Panel Discussion
- Open Forum
- Conclusion

A copy of the agenda can be viewed [here](#).

## Hosts

TTIGF 2017 was hosted by the Trinidad and Tobago Multistakeholder Advisory Group (TTMAG). TTMAG’s mission is to be an independent entity for the promotion and development of best practice policy standards for the .tt country code Top Level Domain (ccTLD) and the local Internet ecosystem in the interest of the Internet Community.

The TTIGF would not have been possible without the support of its strategic partners: The Institute of Electrical and Electronics Engineers (IEEE) Trinidad and Tobago Section, ICANN, IGFA, the Internet Society Trinidad and Tobago Chapter (ISOC-TT), the Trinidad and Tobago Coalition of Services Industries (TTCSI), the Trinidad and Tobago Computer Society (TTCS), the Trinidad & Tobago Internet Exchange Limited (TTIX) and the Trinidad and Tobago Network Information Centre (TTNIC).

## Resources

### TTIGF

Website: <http://igf.tt>

Email: [ttigftt@gmail.com](mailto:ttigftt@gmail.com)

[Twitter](#), [Flickr](#), [YouTube](#)

### TTMAG

Website: <http://mag.tt>

Email: [ttmag.info@gmail.com](mailto:ttmag.info@gmail.com)

[Twitter](#), [Facebook](#), [Instagram](#), [Flickr](#), [YouTube](#)

## Introduction and Opening Remarks

To open proceedings, chair Tracy Hackshaw welcomed participants and delivered brief opening remarks, introducing participants to the Internet Governance Forum (IGF) process, including the relationship between the global IGF and the deliberations and outcomes of national and regional IGF initiatives (NRIs), such as TTIGF 2017. Next, the TTIGF received recorded welcoming remarks from global internet governance leaders including:

- Mr. Chengetai Masango, UN IGF Secretariat
- Ms. Lynn St. Amour, Chair of the Multistakeholder Advisory Group of the Internet Governance Forum (MAG)
- Mr. Markus Kummer, Internet Governance Forum Support Association (IGFSA)
- Ms. Marilyn Cade, Chief Catalyst for the IGF-USA

Video of this section of proceedings can be viewed [here](#).

# Panel Discussion

## Moderator

Mr. Mark Lyndersay - Writer and Photographer, Lyndersay Digital

## Panelists

- Prof. Patrick Hosein - Director, Trinidad and Tobago Multistakeholder Advisory Group (TTMAG)
- Dr. Kim Mallalieu - Senior Lecturer, Department of Electrical & Computer Engineering, University of the West Indies (UWI)
- Mr. Kurleigh Prescod - Chairman, Trinidad & Tobago Internet Exchange Co Limited (TTIX)
- Mr. Kirk Sookram - Executive Officer, Technical Services and Development, Telecommunications Authority of Trinidad and Tobago (TATT)



TTIGF 2017 expert panelists (left to right)- Prof. Patrick Hosein, Dr. Kim Mallalieu, Mr. Kurleigh Prescod, Mr. Kirk Sookram, and moderator Mr. Mark Lyndersay.

Following the opening segment was the panel discussion on the day's theme, "The Role of the Internet and the Digital Economy in the Sustainable Development of Trinidad and Tobago." The wide-ranging conversation touched upon the ways in which the digital economy can impact national development, some of the most critical challenges facing the digital economy locally, as well as the role of each stakeholder group in overcoming such challenges. Video of this segment can be viewed [here](#).

## Integration of ICT into the economy

The discussion opened with a discourse on the state and direction of ICT in Trinidad and Tobago. Dr. Mallalieu raised the critical point that information and communication technology (ICT) and its related services are not separate from the rest of the national and global economies, rather that they are, and should be seen as deeply integrated into the broader economic landscape. With this in mind, and in the interest of sustainability and national identity, she argued that ICT service providers should collaborate closely with sectors such as entertainment, where localised national niches exist. Conceptually, ICT should be seen as co-evolving with the rest of the economy. Following logically from this is the importance of local context, so that technologies and services deployed must be appropriate and adaptable to the needs of the country's firms and practitioners, instead of simply copying best-practice services and pathways that exist in advanced countries around the world. Further, panellists endorsed the relevance of both top-down and bottom-up approaches - with top-level infrastructure and facilities needed to enable ground-level idea generation and deployment - involving all stakeholder groups based on their specific capabilities.

Mr. Prescod outlined some of the facilitative activities that governments can undertake in this space, for example through the creation of safety nets for risk-taking activities. These would encourage repeated trial and error, and enable learning from failure rather than harsh cultural/financial penalties for business failure, which are essential to engender a culture of risk-taking, and the innovation process more broadly. Following from this, Mr. Sookram highlighted the role of regulators in creating the framework for sustainability and innovation by building trust in the system and reducing macro-level risk. Prof. Hosein added that academia's contribution to innovation and entrepreneurship, especially through research coming out of electrical engineering and computer science departments, should be greater, and with the new leadership at the University of the West Indies, St. Augustine campus, support for this would be forthcoming.

## **Role of Government in embracing and promoting technology**

The conversation turned to an assessment of the state's facilitation of ICTs at the national level. Mr. Prescod stated that while government may be relatively slow to respond *legislatively* to the emergence of new technologies and potential threats emerging therefrom, it has largely been accommodative in allowing technologies to be utilised, rather than immediately taking a 'regulate first, ask questions later' approach. The approach has been primarily to observe the use of technology, consult with stakeholders then decide on the appropriate course of action to take. The panel also observed that legislation and regulation trail technology development and adoption around the world, not just in Trinidad and Tobago. Dr. Mallalieu added that "government is an 'easy blame'" in such matters, and that a more helpful approach would be to identify precisely where bottlenecks exist, and to treat with them directly. Prof. Hosein argued for greater public

research and development (R&D) investment in science and technology, to support the growth of indigenously developed products and services. Mr. Sookram said that while governments may be slow to implement at times, new technologies enable vast opportunities for entrepreneurs and that it is up to the entrepreneurs to exploit such opportunities.

## Net Neutrality

The panel then discussed the issue of network neutrality in Trinidad and Tobago and the Caribbean as a whole, especially in light of the signing of the Caribbean Association of National Telecommunication Organizations (CANTO) [Code of Practice](#) on Safeguarding the Open Internet by a number of regional telecoms operators in 2016.

Mr. Sookram gave introductory remarks on the topic of net neutrality, highlighting the evolution of over-the-top (OTT) services over time, stating that OTT (voice, video, etc.) services are a hot topic in T&T and the region as a whole, the challenges posed therein to telecom carriers, the research and policy formulation process of TATT, and international considerations such as evolution in the policy outlook at institutions such as the Federal Communications Commission (FCC) in the United States. He added that TATT continues to monitor global developments as they pertain to regulation, given that strongly held views exist on many sides of the issue.

Mr. Prescod discussed the CANTO Code of Practice and its implications, drawing attention to the fact that it supports net neutrality for “all legal services”, thereby raising the issue of what are considered “legal services.” He stated that the telecoms operators that form the membership of the TTIX agree that network neutrality is about non-preferential treatment of competing services on a particular network. Moreover, he raised the point that, as most telecoms operators in Trinidad and Tobago offer triple play or quad play suites of services, the implications of network neutrality are complex if the principle is to be applied consistently.

Dr. Mallalieu identified two fundamental issues in the regulatory space that potentially override/supersede net neutrality:

- **Competition:** Net neutrality is important to the extent that it promotes competition, or limits anti-competitive market behaviour, and there is well-established precedent in law and practice for what constitutes anti-competitive behaviour;
- **Differentiated quality of service:** Internet technology is based on the notion of differential quality of service, involving routing data through multiple pathways on basis of efficiency. Therefore, traffic management appears to be an obvious strategy to achieve such efficiency at the network layer. In and of

itself, traffic management by an ISP, in the absence of anti-competitive behaviour, should be expected therefore.

Prof. Hosein focused on technical issues in the detection of violation and therefore enforcement. In the domain of network traffic management, it is relatively easy to hide violations, e.g. an ISP throttling content coming from one provider vis a vis another. He indicated that research being conducted in T&T on that very topic. Even with regulations in place to uphold net neutrality, without the ability to detect violations, enforcement will be rendered very difficult, likely impossible. He was also careful to separate the issues of quality of service, which has primarily consumer-facing implications, and fairness in the treatment of content providers.

## **E-Payments and E-Commerce**

A critical, long-standing impediment to the growth of the local digital economy has been the lack of an enabling environment for electronic payments, inclusive of legislation, regulatory and technical support. The effect of this has been that doing business digitally in Trinidad and Tobago incurs significant costs and frictions, as well as a reliance on international payment processing services (e.g. PayPal and Stripe) which bring their own increasingly onerous regulatory compliance requirements.

In response to a question from an online audience member via Twitter (“What are the reasons we haven’t enacted the legislation for e-payments in Trinidad and Tobago yet?”), Mr. Prescod questioned what exactly has been impeded by the absence of e-payments legislation, given that electronic payments - through credit card based payment gateways, online banking, etc. - are already being processed by business entities in Trinidad and Tobago, including state enterprises. Markets are moving ahead in this space, to some extent at least.

Audience member Mr. Kwesi Prescod made an intervention, to clarify what is meant by e-payments. Debit and credit card point-of-sale (POS) transactions, online bank transfers, etc. are electronic payments, but are not commonly thought of as such when local commentators discuss gaps in ‘e-payments’. However, some other forms of transactions are not currently enabled in the local environment.

The challenges and gaps truly arise with the inability of micro and small enterprises (MSEs) to access payment gateways offered through the commercial banking sector, due to their difficulties in establishing online merchant accounts. Establishing such accounts is quite costly, and indeed out of the reach of many small and young firms. From the standpoint of consumers, these challenges have limited the range of local product and service options available, while the supply-side effect has been to discourage entrepreneurs, especially in the MSE space. What is needed, therefore, is not merely the

passage of the e-Transactions Act - which by itself does not enable e-payments - but a mix of policy and market-based initiatives to create a supportive ecosystem and facilitate a solution to a more precisely identified and better-targeted problem.

In response to a question on whether the Central Bank of Trinidad and Tobago (CBTT) should facilitate more banking e-services, the panel did highlight a potential role for CBTT in promoting e-payments, by being an advocate for e-payments legislation. Mr. Sookram highlighted the CBTT's role as the regulator of the financial sector, and the fact that central banks around the world have been critical in enabling, promoting and facilitating the development of digital financial services (DFS), including blockchain technology and cryptocurrencies such as Bitcoin (BTC).

Audience member Niran Beharry raised the point that the CBTT currently has does not have a classification for third-party payment processors - as it does for commercial banks, credit unions, and other financial institutions. The implication of this for firms that wish to participate in e-commerce is a high cost of covering against fraudulent transactions. He also framed the current reliance on overseas payment processing services as an unnecessary source of foreign exchange leakage, since this includes transactions between local consumers and local e-commerce providers, but processing fees must be paid in foreign currency and in many instances the transactions themselves are done in US dollars. At a time when foreign exchange is scarce in Trinidad and Tobago, this appears to be a sub-optimal state of affairs. Audience member and TTAMAG board member Rabindra Jaggernauth opined that the banking sector in Trinidad and Tobago has historically been ultra-conservative, while the CBTT sees itself as a regulator, not facilitator; someone needs to step up and influence the banks to support e-commerce

Panelists identified the following key areas for improvement and expansion of capacity in relation to electronic commerce:

- **Implementation of the E-Legislative Agenda:** on Data Protection, Electronic Transactions, and Cybercrime.
- **Business Process Re-engineering:** within the private sector and public sector to bring e-payments forward and truly integrate it into the economy.
- **Market participants taking things forward:** competition among innovators to drive down the prices of e-services (e.g. online movie theatre ticketing), which will drive consumer adoption and incentivise more greater participation.

Moreover, panelists indicated their belief that Trinidad and Tobago has the capacity to innovate in this space.

## **Role of citizens and users in shaping the future of ICT and the Internet in T&T**



In response to a comment from audience member Mr. Kevon Swift on the importance of citizens and civil society having significant involvement in internet governance issues (in addition to experts from industry, academia and government), the panel raised a number of points in support. Dr. Mallalieu emphasised that teaching and mentoring by leaders in the field is not just about academic training but also providing exposure and opportunity for young and curious people to become actively engaged in managing and shaping the future of the society. This was followed by the acknowledgement that realistically, most members of any society will not necessarily participate or take interest in decision making processes on a particular policy domain, even when incentivised to do so.

Prof. Hosein stated that one of the the objectives of the TT MAG is to solicit and reflect the views of all stakeholders of the internet and ICT in Trinidad and Tobago, inclusive of citizens and civil society, in keeping with the multistakeholder model. He added that the assistance of TTIGF participants was needed and encouraged to enable this type of information exchange, and that there are avenues for special-interest stakeholder groups to participate in the TT MAG.

Dr. Mallalieu insisted upon the importance of participation as a cultural expression. Using the examples of hackathons, code sprints, IGF initiatives and other participatory ventures initiated in the Caribbean since the turn of the century, she argued that continuous bottom-up activities, aimed at developing the interest and involvement of younger people, would over time contribute to meaningful cultural changes that would be more robustly sustained than top-down structures imposed to achieve rapid and radical change. Attention was also drawn to the importance of social media in amplifying public concerns and building up pressure on the bodies where the bottlenecks to progress are greatest.

Mr. Prescod highlighted that government agencies do involve the views of citizens in policy development through public consultation and discussion, and indeed this practice is embedded in the processes of regulatory bodies such as TATT. Additionally, stakeholder groups such as the Trinidad and Tobago Computer Society (TTCS) actively and publicly voice their concerns and views on ICT and internet-related policies and legislation, which contributes significantly to national dialogue.

Contributions from audience members amplified these points, especially on the importance of culture change in creating a supportive ecosystem for digital innovation, especially as it relates to increasing the risk tolerance of entrepreneurs and investors.

# Open Forum

## Chair

Mr. Tracy Hackshaw, Director, Trinidad and Tobago Multistakeholder Advisory Group (TTMAG)

Following a short break after the panel discussion, TTIGF 2017 continued with an open forum, featuring comments and questions from in-person and virtual participants. Questions posed and summaries of comments offered during the open forum can be found below, and a video of this session can be viewed [here](#).

## Net Neutrality

**Question:** Does the Trinidad and Tobago Internet Exchange (TTIX) consider whether over the top services (OTT) should be classified as illegal?

**Ajmal Nazir, Vice-Chair, TTIX:** OTT services were not discussed by the TTIX as a group, though individual members (i.e. telecoms operators) have their own positions on the issue. TTIX will engage further with TATT on this, while they are also monitoring developments around the world with respect to OTT services. Commentators have a tendency to lump together all types of OTT services, treating disparate services such as WhatsApp, Netflix, Roku, etc. similarly, though they differ importantly - some of these services can enable violations of statute (in respect of intellectual property, for example) more readily than others, and these are the ones that concern TTIX more; however, no firm position has been taken. That said, the TTIX has a narrow remit in respect of ISPs and traffic interconnection, therefore positions and actions taken by the operators in respect of net neutrality will not be taken as members of TTIX, but as entities in themselves.

**Kwesi Prescod, Independent Consultant** The question is probably best directed to the ISPs themselves, or to TATT - and views can be expressed directly when TATT hosts public consultations on OTT services later in 2017. Further, consumption of most OTT services in Trinidad and Tobago would involve trade and market access issues, since those services predominantly originate abroad. There is also a matter of clear problem definition. While there is a near infinitude of OTT services in total, but the one category which poses a challenge here and is most pertinent to the discussion comprises those services that are competitive with regulated telecoms services, i.e. voice, video, messaging etc.

## SIDS issues on Internet Governance

**Question from Glenn McKnight [via YouTube]:** What are the challenges and opportunities for Small Island Developing States (SIDS) in relation to Internet Governance?

**Tracy Hackshaw:** The SIDS share very similar problems and histories. Some observations from working with the Pacific Island nations include: higher cost of laying infrastructure due to their separation by huge bodies of water, quite different than in the Caribbean; however, in terms of development, very similar challenges - and therefore there is a desire to create a platform for discussion of common issues and concerns - to find unified positions through a multistakeholder approach, as an aggregation of 53 countries which make up the SIDS. Some common challenges include: climate change and natural disasters challenges; political challenges including the development of policies that will survive changes in political administrations. The Samoa Agenda, arising out of a UN meeting (beyond only ICT and the internet) was also developed in 2014 touching upon some of these issues.

**Bernadette Lewis, Secretary General, Caribbean Telecommunications Union (CTU):**

The role of public awareness and education in voicing these issues in SIDS is key, especially given our small population sizes and small communities of expertise. The Caribbean Internet Governance Forum (CIGF) sees the vital importance of national IGF initiatives in taking the outcomes of regional fora and bringing them closer to action; further and closer collaboration between CIGF and TTIGF in the future could serve as a model for the rest of the region.

**Albert Daniels, Stakeholder Engagement Manager (Caribbean), Internet Corporation**

**for Assigned Names and Numbers (ICANN):** It is vitally important that SIDS band together to find common ground and common positions on these issues, since together the group can exhibit significant influence in international fora.

## TTIGF Governance

**Question from Kwesi Prescod:** Is TTIGF an event, or an organisation/entity?

**Sanjay Bahadoorsingh, Chair, TTAMAG:** The TTIGF is an event, the TTAMAG is the body that has been responsible for orchestrating and hosting it; in future, e.g. for TTIGF 2018 (carded for Q1 2018), TTAMAG is looking forward to greater collaboration, involving all stakeholders, in organising and putting it together. TTIGF, as the inaugural event of its kind in Trinidad and Tobago, aims to be the seed for a collaborative ongoing process.

**Bernadette Lewis:** The Caribbean IGF involves an event, but also incorporates a process of developing Caribbean Internet Governance Policy and implementing it over time, with work ongoing throughout the year.

**Tracy Hackshaw:** Given that TTIGF 2017 is the first edition, it is an event, that triggers a process that is aligned and harmonised to the CIGF and to any other national IGF initiatives that take place within the region. With the TTIGF, important themes are emerging which will initiate processes of research, discussion and action throughout the year and feed into the activities of TTIGF 2018 and beyond.

## The Digital Economy

**Simon Fraser, Faculty of Social Sciences, University of the West Indies, St. Augustine Campus:** Greater focus needs to be placed on creating an enabling environment for the digital economy, rather than infrastructure, as we have built up significant infrastructure.

**Kieron Swift:** Coming back to the discussion of “how ICT should interface with the rest of the economy”, it’s important to not frame the issues around ICT, rather to discuss them as human issues that are of import in social, economic, and environmental contexts. It is also important for stakeholders to engage in conversations tied to practical action, moving away from generic, high-level conversations.

**Kevon Swift, LACNIC:** LACNIC is one of the three founding entities involved in the Latin America and the Caribbean IGF (LAC-IGF), which collaborated in 2015 with UN ECLAC for the ECLAC Ministerial Meeting. LACNIC also has a support program for national IGF initiatives, which gives advice and funding to hosting bodies, as well as expertise in

**Arvinda Rampersad, Entrepreneur:** If we are looking at leveraging the internet and the digital economy, it may be worthwhile making use of digital financial services as a leapfrog to local payment solution challenges.

## DNSSEC and IPv6 Uptake

**Question from Albert Daniels:** What has the uptake been like for the DNS Security Extensions (DNSSEC) and transition from IP version 4 (IPv4) to IP version 6 (IPv6), and what is their importance to the T&T internet community?

**Patrick Hosein:** DNSSEC awareness and uptake needs a lot of work in T&T, the .tt country code top-level domain (CCTLD) signed on to DNSSEC, and only 2 subdomains of .tt are signed.

**Bernadette Lewis:** The CIGF has been actively encouraging IPv6 adoption, through its ‘IPv6 Caribbean’ programme.

**Kevon Swift:** Based on data from Akamai, Trinidad and Tobago's IPv6 adoption rate ranks at 24th in world, however there is a major gap between itself and all other Caribbean countries, so there is an opportunity for Trinidad and Tobago to discuss and work together with the rest of the region on improving this.

**Ajmal Nazir** From the perspective of an ISPs, the IPv6 transition is critically important, and in fact a question of necessity. IPv4 addresses have been exhausted from LACNIC, while some ISPs have had to delay IPv6 transition - it requires training of staff in some instances, and acquisition of new equipment in others. However, in mid-2016, they began to transition, with some customers using IPv4, others using IPv6.

## Local Digital Content

**Abdullah Mohammed:** E-content is one of the ways that T&T can develop and grow, we are quite creative/innovative when it comes to content, and incentivising creation of local digital content should be a priority.

**Kim Mallalieu:** An example of an incentive for digital content creation comes from the UK's Digital Economy Act, passed in 2017, which contains provisions for determination by the BBC of age-related TV licence fee concessions.

**Kurt Caesar, TTCS:** In T&T, we are mostly content consumers rather than producers, and creators are often stymied by the lack of infrastructure in some cases, or impetus, as it is not monetarily feasible for them to do so.

**Ajmal Nazir:** While digital content creation is a big issue, the question of where that content will be hosting is also important. Now that we have 2 IXPs - one for North Trinidad and one for niche operators operating out of South Trinidad - the operators have been trying to get local content providers involved, in addition to working with content delivery networks (CDNs) such as Akamai, Google, Netflix, etc., to create an environment where local content is hosted locally.

**Irwin Williams:** There is an important role for open data in enabling digital innovation, especially open government data. T&T in 2016 missed the opportunity to be part of the Caribbean wide open data initiative.

**Patrick Hosein:** There have been attempts to setup open data platforms such as data.tt and maps.tt, with limited success. Innovation, especially in the area of analytics, requires a lot of data, as large datasets are needed to train machine learning algorithms. While it is forthcoming from some entities in the areas of agriculture and electricity distribution, local researchers often have to rely on foreign sources of data. Difficulty of obtaining (quality) data from government agencies.

## Handling Electronic Waste

**Dev Anand Teelucksingh, TTCS:** We're using more ICT, more people are getting online, but one consequence of that is the amount of electronic waste generated. As technology evolves and obsolete/broken devices have to be disposed of, what can be done to treat with the growing amount of electronic waste generated in TT? This is a SIDS issue as well.

**Niran Beharry, Proteus Technologies:** In Trinidad at least, it is difficult to collect and sort e-waste; whereas it is relatively easy to recycle glass, plastic, etc., e-waste tends to contain a lot of hazardous materials and therefore that introduces greater complexity into the process. Attempts were made in the past to work with mobile operators (Bmobile) to collection booths at their offices/distribution centres, but collection and concentration logistics proved difficult. It's also important to identify and validate the recycling chain when sending electronic waste abroad for disposal, so that it is handled responsibly once it leaves the country. Trinidad and Tobago has the technical capability to process most e-waste, except for cathode ray tube (CRT) televisions and mercury vapour bulbs.

**Bernadette Lewis:** At the CTU Ministerial Conference in September 2016, the CTU was mandated to work on the issue of e-waste, and it is in the early stages of formulating a document on it.

**Amos Sylvester, Cybercrime Unit, Police Service:** Cyber-hygiene is a very important issue when disposing of electronic products, as important data can be accessed by unwanted intruders if not backed up and removed from device storage before disposal.

## Balancing security and privacy

**Kurt Caesar:** Government is moving towards centralisation of citizens' data through initiatives like machine-readable driver's permits, the TTConnect portal, etc., however, with the variability in uptake of security protocols and processes, who is taking the lead to ensure such sensitive data will be secure?

**Amos Sylvester** Currently there exists the Trinidad and Tobago Computer Security Incident Response Team (TTCSIRT) to respond to network and information security threats. In 2015, a cyber-security agency was proposed to guide policy in this area, but it was shelved by the present government.

## Critical Telecoms Infrastructure

**Simon Fraser:** Minimum Legislative Standards for Custodians of Public ICT Infrastructure are needed, including cable companies, ISPs, protective services. We need to ensure that

our telecoms systems are resilient enough to withstand natural disasters and major national security threats. Currently our sub-sea fibre optic cable infrastructure terminates at one, largely unsecured landing point. This is especially important, given how dependent we are becoming on this infrastructure.

**Kirk Sookram:** This is an issue that the TATT is looking at One landing point, there are plans over the next three years towards seeking a cable landing system to the landing point, to create a ring between T&T and the rest of the cabling systems in the Caribbean. TATT is also working on minimum standards, on networks, equipment used and facilities, especially in respect of emergency communications. TATT is also engaging with the Office for Disaster Preparedness and Management (ODPM) and the Ministry of National Security (MNS) on a National Emergency Communications Plan.

**Question from Glenn McKnight:** Many communities around the world are working on community mesh networks to provide low-cost community wireless internet access; is anything being done here along similar lines?

**Jacqueline A. Morris, Lecturer, University of Trinidad and Tobago (UTT):** There was an initiative in 2013-2014 to create a mesh network in Tobago, but its status is uncertain.

## Conclusion

At the end of the Open Forum, **Shernon Osepa of the Internet Society**, identified the need for concrete plans of action emerging from the TTIGF 2017 discussions. 5 areas of interest for a research and action agenda from TTIGF 2017 were adopted:

1. E-Commerce
2. Data
3. Internet Access and Infrastructure
4. E-payments / DFS
5. E-waste

Dev Anand Teelucksingh, Vice-Chair of the TTMAG closed proceedings with a vote of thanks to participants, as well as the TTMAG's local and global partners in putting together the TTIGF.