

2021



# Trinidad & Tobago Internet Governance Forum TTIGF 2021 Report

## ***Overview***

The annual **Trinidad and Tobago Internet Governance Forum (TTIGF)** took place online on Thursday January 28<sup>th</sup> and Friday January 29<sup>th</sup>, 2021 between the hours of 9am and 1pm.

The TTIGF 2021 consisted of 4 panel discussions addressing the theme, **“Digitalization: The New Norm”**. The four panels were titled **“Digitalization – The Multistakeholder Approach”**, **“Cybersecurity in the New Norm”**, **“Tech and Education – Revolutionizing Education for a Digital World”** and **“Digital Entrepreneurship”**.

The Structure of this report follows the format of the TTIGF 2021 event.

- Opening Remarks
- Panel Session 1 – Digitalization – The Multistakeholder Approach
- Panel Session 2 – Cybersecurity in the New Norm
- Panel Session 3 – Tech and Education – Revolutionizing Education for a Digital World
- Panel Session 4 – Digital Entrepreneurship
- Conclusion

## ***Hosts***

TTIGF 2021 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: Trinidad and Tobago Network Information Centre (TTNIC) and The Internet Corporation for Assigned Names and Numbers (ICANN). Additionally, the technical support from Joly McFie from isoc.live and other volunteers who gave their time and effort to ensure another successful TTIGF.

## ***Attendees***

The TTIGF 2021 was joined by many attendees across multiple platforms. The event was hosted on Zoom with up to 168 participants joining on the Zoom platform. TTIGF 2021 was also live streamed on Youtube and Facebook with over 400 participants on the platforms at peak.

## Opening Remarks



To open, TTMag's Chairman, Mr. Ajmal Nazir, welcomed the online audience, introduced himself and gave a brief description of what the TTIGF encompasses and its mission. He welcomed the younger generation to continue to carry the torch that the IGF carries. He then briefly gave a recap of the previous day's panel discussions and closed by saying how honored he feels as the chairman of the TTMag to bring the opening remarks for the event.



TTMAG Chairman, Ajmal Nazir

The audience was also greeted with recorded and live welcome remarks from the following global internet governance leaders:

[Anriette Esterhuysen, Chair, United Nations Internet Governance Forum's Multistakeholder Advisory Group](#)

[Markus Kummer, Chairman, Internet Governance Forum Support Association \(IGFSA\)](#)

The keynote address was given by [Senator the Honourable Allyson West, Minister of Public Administration and Digital Transformation Ministry of Public Administration and Digital Transformation](#)



Anriette Esterhuysen,  
Chair, UNIGF MAG



Markus Kummer  
Chairman, IGFS



Senator the Honourable Allyson West, Minister of Public Administration and Digital  
Transformation Ministry of Public Administration and Digital Transformation

## Panel Session 1:

### Digitalization – The Multi-Stakeholder Approach



Digitalization – The Multi-Stakeholder Approach Panel: Mr. Rabindra Jaggernaut (Top Left), Ms. Maria Daniels (Top Right), Mr. Peter Davis (Bottom Left), Mr. Sean Roche (Bottom Right)

#### **Moderator:**

Rabindranath Jaggernaut – Director, TTMAG

#### **Participants:**

- Peter Davis, IT Governance, Compliance, Security & Audit Consultant, Peter Davis & Associates

- Maria Daniel CFA FCCA, Chair, Fintech Association of Trinidad & Tobago (FinTechTT)
- Dr. Sean Rocke, Chairman, iGovTT

## **Introduction**

Mr. Rabindranath Jaggernauth, began by introducing the topic of Digitalization by referencing statistics which show that social media users have grown at an accelerated pace within the last three years and there is an increasing interaction of users online. He highlighted that the growing use of digital devices has heightened the demand and need for digitalization. He defined digitalization as the use of digital technologies to change the business model and provide new revenue and value producing opportunities, the process of transferring to a digital business. He acknowledged that digital technology has revolutionized almost every aspect of our lifestyle. He also pointed out that in Trinidad and other countries around the world the global pandemic has resulted in an acceleration of digitalization. Populations are forced to use digitalization for areas such as education, healthcare and commerce however he questioned, are we benefiting sufficiently? Giving an example of the public sector there are various forms of digital transformations taking place at different stages of progress, citizens also now expect a level of service akin to what they



receive from private companies which are speed, usability, availability and reliability. In the private sector, companies are looking for innovative ways to use technology to improve their processes. The internet, a catalyst or facilitator of digitalization is open, distributed, interconnected and transnational. In the internet area as with many other areas the multi-stakeholder approach is widely accepted as the optimal way to make policy decisions for a globally distributed network. He pointed out that one of the current challenges with taking forward a vision for digitalization in Trinidad and Tobago is understanding where and how to engage the range of different multi-stakeholder processes and policy making efforts currently on the way. Given the growing importance of the digital economy and the ever-expanding technology landscape. There has been a proliferation of efforts that have the potential to shape policies, governance models and infrastructure investments priorities. But it is often difficult for many stakeholders in the public and private sector to identify and focus on these processes with the highest potential for transformative impact. He then introduced Mr. Peter Davis and invited him to give his introductory remarks.

Peter Davis began his discussion by comparing the growth of the internet to that of a coral, something that grows and builds upon itself until it becomes

too little and break off. He is of the view that we are trying to retrofit something that has grown organically over time. He also sheds light on the term "multi-stakeholder" ; he advises that we should identify all the stakeholders and determine what would be their input into this process. He acknowledged that the cultural aspect or human aspect is also important where you have to develop your own talent and you have to educate the people with respect to digital concepts, one of the hardest parts is developing the digital culture, developing infrastructure and the governance component. He concluded that the challenges that need to be addressed are nationalism, the twenty-six words that created the internet, net neutrality, eminent domain, censorship and the concept of privacy.

**Moderator:** Introduced Ms. Maria Daniel and invited her to give her introductory remarks.

Ms. Daniel opened by highlighting that change usually occurs when remaining the same is more painful than the change itself. The pandemic has propelled this. She observed that digitalization is an enabler, you first have to have a vision of what you wish to achieve by going digital. Creating an app or filling out an online application form does not make a company digital since supply logistics play a key role. She posed the question, what do we envision together as a digital nation? We must first have a clear idea of

our strategy before we can use digital to differentiate ourselves or execute our strategy.

**Moderator:** Introduced Dr. Sean Rocke and invited him to give his introductory remarks.

Dr. Rocke agreed that in order for something to succeed everyone should have a seat at the table, he pointed out that there is an issue of fairness and equity that comes with the definition of the roles, the definition of that shared goal. He stated that without these defined boundaries multi-stakeholders may question their role or even feel marginalized. He also posed questions such as, what are our common goals, what are we responsible for, why are we doing it, as a collective how are we to move forward? Issues of structural changes and issues of governance are also important when considering the role the public sector plays in any multi-stakeholder process. There is also the occurrence of conflicts that may arise which can impede the multi-stakeholder process.

**Moderator:** Do you think that the multi-stakeholder approach is essential to successful digitalization? If so, why?

Peter Davis commented that anytime you are trying to pull people along then it needs a multi-stakeholder approach. He reiterated that the most difficult thing is identifying the people that need to be involved and they are

not always evident. We just need to talk to people and get them involved like we would in anything.

Maria Daniels posed the question, to what end, what are we all trying to achieve? She drew reference to a question on the chat that asks "If multi-stakeholderism is to be pursued, how is intellectual property individually identified?" The root cause of us not moving forward is that we always seem to go back to "What is in it for me?" and not "What is the bigger picture?". We are a part of a small economy. She encouraged that we must get out of this individualism for a multi-stakeholder to really be a success.

Using an analogy, Dr. Rocke reasoned that the human body cannot survive if any of the essential organs are missing. In acquiesce with Mr. Davis and Ms. Daniels he also chimed in by saying, you need to think about what is the common goal, it is key to focus on what is important. For over 20 years we have been having discussions and it is time we do something, we have to champion our own cause.

**Moderator: Peter, is there an entity that we can actually identify as a champion for digitalization in Canada?**

Mr. Davis answered saying, in Canada the government helps the concept of digitalization through the programs instituted. An example of this would be

SR&ED Credits, programs designed to free up capital to support the small innovative companies. This has to come through regulations, legislation and government. Agreeing with Maria and Danny, Mr. Davis echoed that you have to alter your vision before you reconfigure your business model, he believes this is true at the macro government level as well as at the organizational level. Unless you actually re-engineer something and do something differently, then all you're going to do is the things you do now faster and that might be more disastrous for your organization.

Ms. Daniels agreed, that therein lies the big difference between automation and transformation. Transformation is about completely changing the way that you do things. She advocated that we don't need consensus, we simply need to agree that this is the best way to go and the leaders need to lead that charge.

## Q&A

### Question from Mr. Albert Daniels (ICANN)

Mr. Daniels introduces himself and his organization (ICANN), he explained that his organization is based on the multi-stakeholder model, they provide spaces for businesses, governments, end users, technical community and country code managers etc. All of the policy that is developed in ICANN for the internet is actually based on the stakeholder

model. He observed that Trinidad and Tobago has been very effective in playing their part in all of these stakeholders groups however it's one thing to be at the table but if you are not active in making inputs in stating concerns then that seat at the table is not really effective. While there used to be good participation in the past, it seems like there has been some sort of regression now. Trinidad still has seats with regard to government end users, the technical community etc however the people who have been working hard some of them are in attendance at today's TTIGF and are suffering from burnout. So my question to the panel is how do you deal with that issue of sustaining enthusiasm for participation in the multi-stakeholder model?

SR It has to do with a sense of national service, with a sense of understanding what are the things you want to benefit from. What helps is the cliched team building activities. Sometimes the biggest issues I have encountered working with teams especially in a multi-stakeholder type of arrangement is that there is a drift in awareness of what is going on in the different agents. Communication with each other is essential to the process. The thing about transformation is that it's less revolution and more evolution so things change.

**Question from the livestream's YouTube chat: What has been the biggest challenge in ruling out E-Governance?**

**SR** I would say clarification of roles, obtaining and maintaining resources.

**Question from the livestream's YouTube chat: Would you bring some clarity into the role that IGOVTT has in this transformation?**

**SR** Given the mandate that is put on us based on the current government structure, the company essentially is tasked as it relates to certain matters of ICT to help those in the ministries, divisions and agencies. We are here to help the government through advising on matters of standardization and interoperability for example, helping to put frameworks in place. Another thing that the company looks at from an operational perspective is that it assists with the building blocks of digital services for example, underlying infrastructure, various building block services. IGOVTT has most recently been involved in rolling out certain services such as government payment solutions. As it relates to the other four pillars of the national ICT blueprint, one area we were particularly focused on is capacity building.

**MD** Decision makers have to understand how technology works and how it can really make the transformation happen. We have to ensure that the people who are making a decision have been educated themselves to understand what exists. Then that helps us with building a vision and even

executing it. Broadening the minds of those that sit at the dinner table is important if we really want to see transformation.

**Question from the livestream's YouTube chat: In terms of broadening the scope, what do we need to do in order to make that happen, what would be our next steps?**

**SD** We need to dialogue. We need to have an opportunity to facilitate discussion, hear the points and come to some understanding. This is what we should be doing as the immediate next step.

**RJ** We also need to be willing to have this dialogue both in the public and private sector.

**PD** talk is cheap, it's time for someone to come up with the capital. I have seen so many failed digital transformation projects in the last few years largely because there is a lot of technical debt out there. We have to address technical debt and spend some money on educating people and on awareness. The time for talking is long past and it is time to do something.

**Question of Denise Aleong-Thomas: Who is going to conduct a needs analysis of each sector?**

**PD** I think we understand the needs, I don't think we need any more paperwork. I've done a lot of work for governments and what happens is,



they get the report, put it on the shelf and then two years later somebody comes back and does the same thing. I think the time is now, you need to act. I thought you were going to ask the question, which was how are we going to come up with the money? Countries like Singapore and Dubai who have had fantastic success, decide to invest for the future and so your country as a whole has to invest for the future and do things that provide incentive to innovation in companies and in your society. You can't do it as individuals or individual companies but you have to do it as a society.

MD It is more important to ask, what do you invest in? If you think of how budgets are spent, it goes back to the question of are we spending it on the right things? Unless you actually solve a root cause then you never come out of the pain that you were suffering in the first place. We don't look at the root cause and where this money really needs to go.

PD If you want to focus on anything in education at any level you have to start teaching critical thinking. One of the reasons why Singapore is so successful is because of the mindset of the country, even in their low-tech solutions they are very high tech to some degree. You need to adopt that level of mentality if you want to move forward and compete in today's world.

**MD** Our education creates people who just want to do what was done before, memorize a definition but they don't understand it. Unless we teach people how to critically think. Unless our education system is changed and we make innovations like Math and English then we're never going to see innovation continuing past our days. It has to become part of the culture.

**RJ** One of the challenges we have is that the government is steeped in traditional ways of doing things and their perspective is that they want an immediate return. If you are going to be investing in technology it's going to be a long-term investment, you will see some short-term wins but the payback is in the long term. Singapore took decades to get to where they are today. One final question, how can we determine effective regulation in a digital world using this Multistakeholder approach? In closing I would also like to invite the panelists to share their closing remarks.

**SR** It is not because of lack of progress but even if you attain what you attain things change and that is sort of the premise behind a vision. I think that governance is key, governance as it relates to who are the stakeholders, what are their roles, what are they trying to accomplish and how are we going to accomplish it. Clear and effective communication is key as it relates to the Multistakeholder approach as well as the governance specified process interactions and interfaces between different agents.

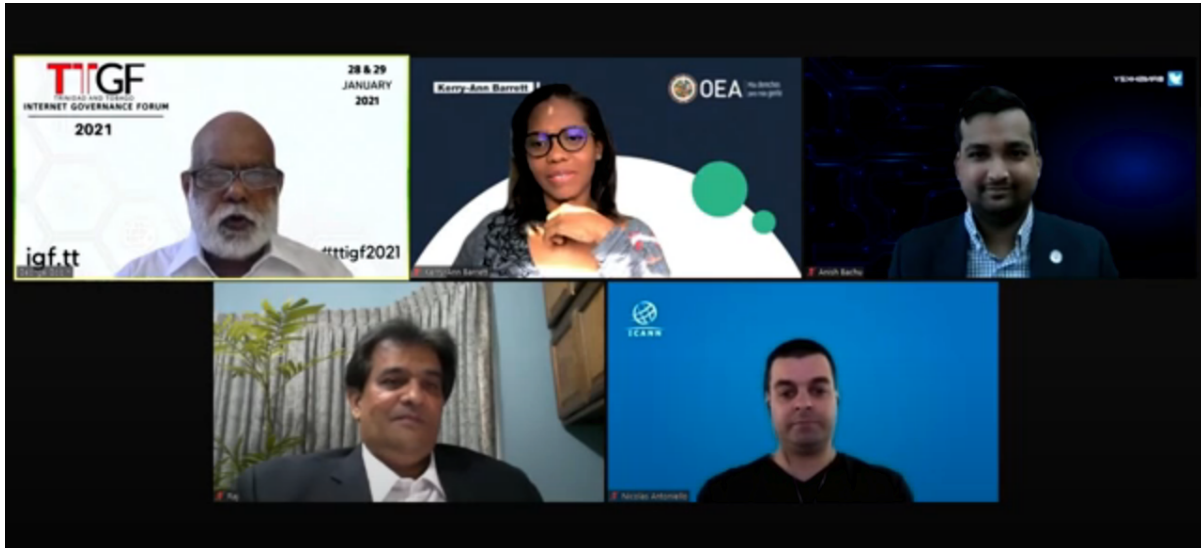
**MD** With regards to the regulations let us not take 5-10 years to get it done because by the time it's done it is already outdated. When talking about the stakeholder approach it's not just about the content but also having people to push it forward. We have to be the ones to activate change, public and private sector, every citizen has to come forward. We have to be the activists. We need to be more agile with regulations, we need to push things forward and we need to do it now.

**PD** Yes, most governments are putting things online but that is not considered a transformational act. The government has to reengineer itself and to consider what its vision is for serving the people. It comes down to leadership, and to the money to invest. We need commitment and usually commitment is demonstrated by money.

## **Conclusion**

Mr. Jaggernauti thanked the panelists for their contribution and closed off by reflecting that after attending a few ICANN annual sessions, relating to the multi-stakeholder approach, he reckoned that it is amazing to see their effectiveness. He encouraged that what it does and we have to bear in mind is that there are successful entities who have adopted the multi-stakeholder approach and are succeeding with it. Let us learn from organizations such as ICANN and Internet Society.

## Panel Session 2: Cybersecurity in the New Norm



Cybersecurity in the New Norm Panel: Mr. George Gobin (top left), Mrs. Kerry-Ann Barrett (top centre), Mr. Anish Bachu (top right), Dr. Rajendra Singh (bottom left), Mr. Nicolas Antoniello (bottom right)

### **Moderator:**

Mr. George Gobin, Director, TT MAG

### **Participants:**

- Dr. Rajendra Singh, Systems Engineer – Network Security, UWI, St. Augustine
- Kerry-Ann Barrett, Cybersecurity Program Officer, Organization of American States

– Anish Bachu, ICT Security Analyst, Trinidad & Tobago Cyber Security Incident Response Team

– Nicolas Antonello, Regional Technical Engagement Manager, Internet Corporation for Assigned Names and Numbers (ICANN)

## **Introduction**

According to cybersecurity ventures, cybersecurity attacks are on the rise and at the end of the year 2020 cybersecurity attacks were estimated to cost organisations approximately 20 billion US dollars. As defined by CISA, cybersecurity is the art of protecting networks, devices and data from unauthorized access or criminal use and the practice of ensuring confidentiality integrity and availability of information consistently. We have all become very reliant on the internet for entertainment, communication, transportation, online shopping, health and various types of devices. The recent pandemic has exacerbated the use of terms like digital transformation as in fact increased reliance or increased use of the internet to conduct our businesses. As our reliance and usage of these systems have increased, a new breed of criminal has emerged out of the shadows known as a cyber-criminal who is constantly trying to gain access to our computer systems and he did this more as a subject of

self-satisfaction and self-aggrandizement but now more and more we are seeing this as being used as a source of ill-gotten wealth. Computer viruses have been around for a long time since the advent of computers first started proliferation in the 70s but what we are experiencing now seems to be modern-day version of this with technologically advanced software that has morphed into new words in our vocabulary like phishing, spear phishing, social engineering, denial of service attacks, man in the middle, cross site scripting and most recently ransomware attacks being administered or run into on the web. The panel that we have worked together with today will discuss what we as individual business academia and governments should know about this menace and how we protect ourselves from financial ruin, loss of privacy, loss of intellectual property. This panel will seek to use known cybersecurity breaches to illustrate the costs and harms incurred whether financial, personal or otherwise but we are hoping for at the end of this panel discussion, our audience today will leave with a much better understanding and perspective of cybersecurity and the steps needed to protect yourself, your family, your business and your employer. Mr. Gobin then introduced the panel. He then requested their input on the topic and asked the question how we should proceed with this discussion?

Ms. Barrett opened the discussion by acknowledging Data Privacy Day and proceeded to illustrate from a regional perspective, what has been happening in the Caribbean at large. Drawing reference from a 2020 report that was published by the OAS in collaboration with the IDB. The report covers cybersecurity risk progress and the way forward in Latin America and the Caribbean. She pointed out that in the study, one of the factors gathered in the region at large with cyber is that many of us have actually improved our cybersecurity. Whilst it may not seem as impactful as we would want it to be, at the regional level we acknowledge the small progress that our governments have made. For example, many have actually implemented national cyber security strategies, some have improved their legal framework and many of them have actually thought about data protection. More than three quarters of the countries in the region don't think about critical infrastructure protection and these are the assets of the country that if something happens to them, the country will be vulnerable to risk. Another thing that we noticed in that report, is we've had significant growth in countries thinking about cybersecurity and centralizing into an entity, many of them have actually established internet response teams which is a good thing. Trinidad and Tobago has been working closely with the OAS on that and building their capacity however as Mr. Gobin pointed out, with the pandemic, everyone was thrown online and cybersecurity,

while it was in the back burner for many of us, it has now come to light that digital asset crisis management is something we have to think about tangibly. In terms of statistics , Mrs. Barrett shared that between November and December, 2020 her organization took notice that within the Caribbean region in particular there was an increase in spike of spam, fraudulent spam targeting accounts throughout the Caribbean. Many spam attacks were trying to conduct fraudulent activities because we now have an increase in bitcoins in the region. There has been an increase in almost \$31000 USD worth of Bitcoins that have flooded into the market within our region. Most spam emails that were detected had the title "Bitcoin money review, you can make \$1500 daily with this method" so they have been targeting many of our citizens with that. This demonstrates that even within the Caribbean, we are not exempt from the dynamism and the ease at which persons are targeting our citizens. Many citizens are receiving information regarding social and economic events that happen in seconds so spammers are using the pandemic to conduct malicious activities. Social engineering is not something new to cybersecurity however it has now gotten a wider platform with a global pandemic. Although many of our countries have suffered large losses because of the pandemic in our tourism sector, some commodity experts know that the impact is going to go beyond 2020 as we try to recover from this. It is going to be a long road back however what helps is



that a lot of our governments have now started to think about cyber. Countries such as Barbados and Guyana are now developing their strategy, and Jamaica is reviewing theirs so there is an increase in awareness of the need to have this issue on the front burner not the back burner. Latin America also suffered from attacks, there were a couple incidents of something called Covid Lock where within in a matter of seconds individuals and companies were targeted, when persons clicked on the link there was a lot of hijacking that happened, a lot of ransomware came out of the Covid Lock campaign that we did. With this threat online and everyone going online a lot of parents who are still not familiar with technology, who still fear it and their way of addressing technology is to take it away from their kids. Mrs. Barrett appealed that we should think about the fact that we are now online, there is no going back, our kids are now exposed to it, she implored that we should discuss internet safety and develop an online safety plan with your kids. She recommends that if you educate your kids appropriately you'll have a better relationship with them virtually as well.

Mr. Bachu began by saying that almost overnight Covid has changed how we do business, it has changed the cyber risk protocol of most organizations, big or small and we have been thrust into an area of remote working and having to put systems in place to be able to facilitate

teleworking and working from home. With that brings new systems and software that wouldn't typically be a part of an organization's IT suite. For example, in areas where you would set up VPN access, some organizations don't set up VPNs; they put remote desktops straight to the internet using various applications such as TeamViewer and Anydesk. Threat actors make their money by compromising systems and stealing data at mass, it is very easy to be roped into a mass campaign. One of the things Mr. Bachu's organization saw over the year 2020 was attacks against firewall and VPN devices. From January 2020 to December 2020 there were 37 unique devices and 33 organizations with vulnerable VPN firewall devices, mainly because they were outdated, weren't kept up to the latest software upgrade and some of them were a consequence of security misconfiguration. Out of those 37 devices that were compromised, the user credentials for 28 of them ended up on the dark web on various forums, so these organizations had to undergo intensive security audits to see if anyone actually made it into their network. There were also numerous reports on spam and extortion-based spam emails and bitcoin-based spam emails which would basically try to trick users into sending money or scare them into sending money. These happen on a daily basis and Mr. Bachu's organization, CSIRT try to track, mitigate and respond to most of these instances particularly for government and government entities when it happens within them He appealed that it is

very important to take the necessary actions to protect ourselves. Information is power and information is money. Pay very close attention to your security, do not leave it as just an IT responsibility, cybersecurity is now a board responsibility. There have been cases in the US where board members and CEOs have been held accountable for cybersecurity breaches.

Mr. Antonello began by explaining the threats involving DNS, specifically the ones that are against the domain name system itself, the ones that use the domain name system as a means to perform some kind of attack or civil crime. He described that the most common types of civil crime involves phishing which is the fraudulent practice of sending emails pretending to be from reputable companies in order to reveal workers personal information for example passwords, credit card numbers, bank account numbers etc. Then there is malware which is a software specifically designed to disrupt, damage or gain unauthorized access at some level to a computer system, this involves ransomware, keyloggers, root key, rootkits, viruses etc. and then there are the botnets which are a network of private computers that are infected with malicious software and controlled as a group without our knowledge to perform a cyber-attack or cyber-crime to a third party. Threats make use of the fact that everyone makes use of the domain system, we all use the domain system to translate from the domain names which is a

friendly way of referring to websites and almost any publicly accessible device on the internet, the DNS translates those names to IP addresses. These threats make use of the fact that to perform cybercrime or threats for example, if you disrupt the DNS then you disrupt merchant transactions, government services, social networks etc. You can almost disrupt the whole internet if you gain access to a certain level of the domain name system. If you exploit the DNS system you can trick the fraud or deceive users. The most common vectors of exploitation include malicious registering of domain names, hijacking name resolutions or registration services, corrupting DNS data etc. Some of the most common attacks that make use of the DNS system are what is called disruptive reflection and amplification that is normally to spoof the source like the address of a user, website, server etc. creating a denial of service and directing a lot of traffic to that device so that device cannot manage that traffic and stop providing the service that it is meant to provide. Another attack is what we call resource deflection which is more or less the same which is to consume or try to consume all of the resources of a device to make it stop working. Cash poisoning, at the DNS server level involves changing the registry and making the DNS server answer the user with a wrong IP for a certain domain name. Another attack is changing the server the users use that involves using some type of malware to infect computers and change the way the computer behaves for

example route to a fake web page. Using the DNS as a covert exchange channel there are some techniques that make use of the DNS traffic to embed data and to be able to extract that data from a certain user or organization computer. Why they hide the data in the DNS traffic is because that way they can bypass the firewalls and all the security measures. If they are successful in hiding the data, when the computer sends a DNS there goes the data. Another kind of attack is to use the DNS as a covert backward channel that is to command and install malware into the computer and use the DNS and servers to hide commands and to send commands to the malware to attack a third party or whatever exploiting ideas which is internationalized. Domain names can be exploited in a way that points users to attack your sites exploiting IT and in general any domestic device infrastructure, so from a user location perspective there are mainly two scenarios, the enterprise and domestic. The main problem from a cybersecurity point of view is that the so-called new normal has changed from the former working at the office to now working at home. The first thing to do is to educate, the second thing to do is to educate and the third thing to do is to also educate. We have to educate people and ourselves and take extra care when using our domestic infrastructure because we are not under the protection of our IT team which protects our company. We have to learn what are the threats we are exposed to and try to mitigate them. To

provide tools to organizations and users to be more aware of what is happening inside and outside the networks, this will of course raise some privacy vs security conversations. Taking care of authorizations, registrations, password management how we manage our passwords how we do authentication to use two factor authentications as much as possible, using updated software within an organization. We have to be proactive instead of reactive. We don't have to run away when an issue arises but to take care of it in an informed and responsible way.

Dr. Singh opened by sharing information from an article that summarizes where the new normal is. This information discusses the following: 95% of organizations agreed that the first step for them was changing their cybersecurity strategy, their biggest challenge is enabling remote work at large scale. He agreed with Nicholas by reiterating education for employees is important. Network security and threat prevention needs to be improved. End point on mobile security goes hand in hand with remote work because it is either you deploy these endpoints and mobile devices which your organization would normally hand over to the employee or you bring in your own device. In these cases how do we protect both the organization's information and the person's information when it is at home. Rapid adoption of cloud technology is something most organizations are forced

into and at the University of the West Indies one of the very first things implemented when the pandemic hit was to move the e-learning platform to the cloud. Most of the University's services are in the data center but considering the volume of students which is close to 20,000 students accessing these services online. Another issue is the unplanned reinvention to Cyber security business models, many organizations don't have the budget or resources for their normal IT operations, much less for cybersecurity. Remote working and or learning has brought to the forefront that it is absolutely necessary for us to budget for and put resources into cybersecurity. The previous panel members spoke about digital transformation and as a part of this digital transformation it is important to have a budget and a structure that will include cybersecurity. Overall what we need to do as well is to build capacity. He explained that the University of the West Indies does not have a degree program focused on cybersecurity so a lot of businesses that need to build that capacity usually have their employees doing certification courses or foreign courses, he implored that we need to build this capacity locally and within the Caribbean.

**Question from Moderator: Kerry-ann, How much of a threat is Cybersecurity in our region and globally?**

Kerry Ann Barrett, responded by stating that if you think about the fact that in 2014/2013 CARICOM heads of government tiered cybercrime as a tier one threat, it has actually been on our agenda for years now, not considered as a tier one threat and a lot of it is as a result of lack of knowledge, it is not recognized that once you are connected to the internet you are vulnerable. One of the things Mrs. Barrett's organization promotes is that it is not a matter of being fearful, but it is about being cautious. For example it is like knowing that if you drive on the street you could have an accident however , it doesn't mean that you stop driving, it just means that you do the precautions, you put on your seat belt in case of an accident, but make sure to keep your eyes on the road and use indicators so thinking about cybersecurity through these lenses is not a matter of cybersecurity being a threat but it is about how we can put the best practices in place so that if something happens the impact is mitigated as best as possible.

**Moderator:** Where people are being cyber-attacked and what their metrics are, Gartner says that RDP compromise entails about 57% of cyber-attacks, 26% comes from various forms of email phishing and 16% from other malware viruses etc. So, it seems that phishing, RDP, compromised and timed releases of malware seems to be the highest or the most profitable and most consistent. Anish, how would you



recommend to our audience how they can safeguard themselves from these three things, phishing, RDP compromise and timed releases of malware?

Drawing reference to statistics, Mr. Bachu mentioned that whilst he is addressing the audience, there are currently 202 exposed RDP systems within the Trinidad and Tobago IP space. That is, 202 different machines with a direct line of communication from the outside that attackers can potentially take advantage of. There has actually been a 17% increase in the number of RDPs from the beginning of the lockdown to now. In the case of protecting in this sense, the general rule of thumb is, unless it is absolutely necessary and there is no other physical way possible a remote desktop protocol should not be directly accessed to the internet, you securely access it through a VPN first and then move to the RDPN. In the context of phishing, it is really centered around user education toward cyber security awareness, because no matter how many spam filters and security measures that we take there are still many instances where phishing emails can get through to the user. We are truly relying on the people within the organization to identify what a phishing email is and in order to do that they need training. In instances of timed releases of malware, we have seen a handful of these cases here in Trinidad where the backups were also

affected, in these instances it truly goes toward, how you backup your data, we recommend that users monitor their backups and conduct anti-virus checks on their backups, you also need to make sure that the backups work and are not corrupted. From a network perspective, ensure that you have installed an up to date anti-virus, up to date network security systems so that when these malwares do get activated later down the line, you have an up to date system that will be able to identify, track and mitigate it on the spot.

**Moderator: We have had a number of attacks in the RDP space, everyone recommends the use of VPN and the new topic seems to be around identity management. The weakest link in any security chain is the end user. Where do you guys think we should be going next in terms of how do we correctly identify and single sign on to multi factor authentication protocols, because from my point of view it is much easier for a hacker to go after your password and credentials system rather than trying to hack your network and firewall. This is a 20-billion-dollar industry, hackers are obtaining maximum gain. Nicholas, Raj can you guys talk to us about identity management and raise the level of security awareness.**

From a cyber security perspective, Mr. Antoniello observed that we have changed the way in which we deal with our everyday work and everyday

social development. We access a lot of sites and places on the internet that need our identification. There are many resources that we access that thankfully we don't need to authenticate. My first advice would be to use authentication when you really need it, do not provide information when it is not needed. In the cases that you need to provide authentication and information for example bank accounts, most people are moving from buying in person to buying online and of course you need some sort of identification. We have to educate ourselves and our children who are using the internet more and more, our children especially need to know what is normal and what is not normal. Try to educate yourself and your family about this new way of living. You also have to take care of your infrastructure, update your systems and applications, and use strong passwords when online.

Dr. Singh advised that in terms of passwords, the average non-tech user does not go through the process of the two-factor authentication. It has been mathematically evident that a complex password is not as good as a long password. Auditors will enter an organization and ask if users use complex passwords or rotate passwords every 90 days et cetera. He recommends a proper two factor authentication system, once you do that, even if a hacker obtains your email and password the second two factor

authentication code is more difficult for an attacker to obtain to actually complete the authentication process.

## **Q & A**

**Question from Susan Andrews:**

**Most of us are experiencing “Carnival tabanca” and there are now several virtual events being advertised. Which body monitors and regulates online payments and online transactions in Trinidad and Tobago? In other words, if there is carnival related fraud occurring, to which body does the public report?**

**AB** responded by explaining that when you look at the security of these systems, they generally have some sort of accountability to the central bank when it comes to the security of financial transactions online, when it comes to the security of government online payment systems, we at the at the Trinidad and Tobago Cyber Security and Internet Response Team handle those assessments. When it comes an incident or a breach of information or data we'll be looking at the Trinidad and Tobago Police Service Cyber Crime unit and the Fraud Squad within the TTPS.

**KB** explained that the end user is the most critical and vulnerable factor, even if you are purchasing something online. She advised that doing due diligence often helps.

**AB** recommended that one approach you can take to check if your link is legitimate is by simply using Google, if you can find your link via Google, then you are in a better standpoint than clicking on a link off your email.

**NA** also advised, one of the things that could help is perhaps making the habit of having a look at the expenses charged to our credit and debit cards.

**GG** noted that it is coming back to the point of personal responsibility.

**Question from Karishma Ragoonathsingh:**

**How feasible would it be to make it mandatory that organizations be associated with or at least employ a cyber-response team?**

**KB** from a practical standpoint, addressing it in terms of a cyber-response team but to make sure that you have a cybersecurity response role within your organization. We give these practical ideas to our member states because people think of a team and then they start thinking automatically about a large budget and then once people start thinking about the budget they get intimidated and just scrap the idea altogether. So, what we always suggest is to start small and think, do I have someone who is my

information security person. The role is assigned either to your I. T. person or you hire somebody for that. But you think about the role to make sure that somebody is actually checking your network, somebody is actually responsible for coordinating your policies, all your users within your organizations know who to call if they have an incident and then once you build-up that experience within your organization you can then start to make a case to your CEO or manager that this role is substantive and I need a budget line and when you get your budget line you may be able to hire a person to think small. That's why it's always an issue because we think big and we always think this incident response team needs to have fancy screens on the wall and million dollar technologies but all that is really needed is an open source ticket system where someone can call and report an incident, where you have someone who is accountable to follow what the issue was and have some resolve. So, think about it more practically. Let us think about roles rather than just having a team because that is intimidating.

**RS** for the people who want to go all the way to setting up a CIRT, there is the RFC 2350 which is perhaps the easiest RFC you will find. You can use this to guide you on how to set up your CIRT and to come up with an initial budget and probably have a plan to scale it as time goes.

GG and RFC 2350 may be out of the budget for some SMES and way beyond their capability of thinking. I'm trying to understand how we can elevate the importance of this subject for people whose core business is not IT and security. How do we get that message to them?

NA agreeing to what KB initially suggested, I think that we also have to add a cybersecurity role within our family now. We are our own cybersecurity team, I would say take some time to know what is going on out there to be able to act, so be informed.

AB for smaller organizations in particular, the CSIRT is here if you need advice or direction, feel free to reach out through our website or via email and we'll do our best to guide you in the right direction.

GG is of the opinion that, this is where the responsibility and accountability should really exist, because the government at the end of the day is the one that should be challenged and should be the one that has the budget to understand the importance of having this access for its citizens, we can't all set up CSIRTS in our organizations, but there should be that central governing body.

**Question from Luke:**

When we consider the future of digitalization in the Caribbean, what are the

expectations of the I. T. fraternity in terms of CARICOM involvement, are they a key stakeholder as a group in making things move faster?

**GG** I'm going to skip that conversation because as some of you, if you have been attending our seminars, we've been speaking about something called the Caribbean data protection for the Caribbean model against GDPR. We have been trying in the best way to bring this up with CARICOM governments and just like everything else it depends on what they see as priority and getting important legislation like this and for those of you who want more information on that please feel free to visit [www.IGF.tt](http://www.IGF.tt) to see the last discussion we have had on this. To be honest, we don't have the outlet to get it to the CARICOM and more importantly get that decision made.

**RS** if you take a look at the inter-ministerial report, to set up the cybersecurity agency for Trinidad and Tobago, one of the line items in that report speaks about if you set up your CSIRT you are going to set up in such a way that you have collaboration lines with other CSIRTs both locally but also more regionally and internationally. Because you are really on the internet which is a global network, you cannot really protect yourself from incidents in isolation, you have to collaborate. This is where I mentioned in the earlier discussion that the OAS was involved in assisting with building that capacity with Trinidad and with academia and building that network



out regionally. They actually involve all of the OAS countries so of course you do that based on your own networking. I know the question was moving towards having a more formal CARICOM body overseeing something like that but I think our Prime Minister chairs the cyber-security committee on CARICOM so it is something we need to take forward and hope to get the Trinidad and Tobago CSA set up, and how we can have that collaboration not only at the CSIRT but at the higher levels, government and national level different areas of cybersecurity.

**AB** looking at cybersecurity at a CARICOM level, we do collaborate with some of the other CSIRTs in CARICOM, when it looks at policy security across CARICOM, that's handled usually by CARICOM impacts, they have a cybersecurity group inside there that tries to coordinate at that level. In the case of our local CSIRT, how we get information to and from is actually through the OAS through a network called CSIRT Americas where we have a direct line to every CSIRT on this side of the hemisphere and receive information about threats and activities and the like.

**NA** there is also something that all governments may do which is publish or make it available to the public, not only to the domestic side but to do ISPS for example Internet Service Providers and Organizations, there are many protocols that may be deployed that can protect the users and network from

different kinds of threats on cyber-attacks. There is a lot yet to do in that field and the one role of the government is to promote that. Invite all the organizations of internet service providers to deploy these protocols to be able to be more secure and protected.

**KB** one of the things we have been focused on at the OAS is capacity building, but we have been encouraging our CIRTs to reach out to their constituents and we do have free open training for at least not only members of the CIRT but other CIRTs within the country that they work with to be a part of the training, because a national network is only as strong as each of the network operators. Actually cooperating with others from having your ISPS, private sector and public sector be a part of the training so that when the CIRT reaches out to them, it's not the CIRT trying to build capacity but everyone is on par with the knowledge that is needed for information sharing. We did something recently with the Pacific Alliance which is one method of information sharing platforms and we have been encouraging our member states to think about information sharing among the national CIRT and other persons within the country to be able to share the data because it's all a matter of getting the information out in the region. If something is happening in Trinidad, more than likely, it is probably happening up the pipeline in Jamaica or Barbados, but because nobody is

talking about it, everyone is being knocked off one by one like a secret assassination. We ought to start to share information and set up the right protocols. So that is one of the things actually developed for the Pacific Alliance, an information sharing protocol, so among the four countries in their alliance, they are able to use that protocol, common terminologies, common taxonomies for different incidences so everyone says penetration is penetration, this kind of attack is an attack everyone is speaking the same language so for example if 5 pens means that it is a serious incident everyone fears in the same way and can share data so it is something that we are thinking about for the Caribbean and we are going to see how we can figure out how to roll out that kind of training to make sure that Caribbean countries start to think about it in the same way as well.

**Moderator: Can the panelist give a one-minute overview on where you would like to see this go next based on this discussion and all the points that have arisen?**

Mrs. Barrett, encourages everyone to think about cybersecurity not as an intimidating undertaking. Cyber hygiene is what we promote, it's as simple as combing your hair or brushing our teeth, the internet is now our new life, it's not something that is a distant future where we think it's something out of our reach, all our kids are online and we are online every day, some of us

are stuck at home online that is or only interaction. Think of cybersecurity as a hygiene matter, do your due diligence, update your machines, do your password changes, all the tips we've tried to give you here just try to employ.

**AB** change how you think about cybersecurity a little bit, it is not just an IT responsibility, it is everyone in the organization part to play and there are simple steps to improve your cybersecurity posture. As Kerry-Ann mentioned, keep yourself up to date, know your assets, know what you are protecting, know the information you need to be protecting because not everything on the network needs to be protected to a Fort Knox level so identify what you need to protect and prioritize your resources. You can contact the CIRT if you ever need advice or guidance you can also reach out to us via our website or our primary email address.

**NA** agreed that cybersecurity is a part of our life now more than in the past because a great part of our social interaction and our life have been almost fully online for a year now and it is probably going to take another year or so to go back to some degree of normalcy. At ICANN, one of our goals is to provide capacity building on all ICANN related topics and we have a lot of curricula and a lot of capacity building proposals, we can also provide a capacity building schedule so we can also coordinate with any organization

or group of users who want to go deeper into this pattern. You can also drop me an email or contact me via George to set something up.

**RS** I just posted a link to the chat. If you look at that document from Gartner it will guide you in setting up a road map and it is basically along the lines of what the entire discussion talks about and what Nicholas, Kerry-Ann and Anish just summarized. I just gave you a printed road map where you can read and digest.

## **Conclusion**

Mr. Gobin, in closing, acknowledged that it is impossible to cover a topic like this in 90 minutes, it would likely take two or three days just to get everyone's input. He then expressed his gratitude to the panelists who gave their time freely and thanked them for their pre discussions and spending time with us. He also thanked the valued audience members for joining the conference today. He gave thanks to the members of the IGF team for putting the event together. Finally, he closed by encouraging the audience to follow the TT MAG at [www.MAG.tt](http://www.MAG.tt) to keep abreast of the things happening.

## Panel Session 3:

### Tech and Education – Revolutionizing Education for a Digital World



Tech and Education – Revolutionizing Education for a Digital World Panel: Mr. Vejai Sammy (top left), Mr. Devanand Gosein (top right), Mrs. Jacqueline Morris (bottom left), Pt. Shiva Maharaj (bottom right)

#### Moderator:

Vejai Sammy, Director TTMAG

#### Participants:

- Jacqueline Morris, E-learning Manager, The Judiciary of the Republic of Trinidad and Tobago
- Dev Gosine, Director, TTMAG

– Pt. Shiva Maharaj, Educational Technologist, Founder, Director and Chief Operations Officer, I.C.T. Expertz Limited

– Felipe M. Noguera, Telecommunications Consultant,  
Telecommunications Services of Trinidad and Tobago (TSTT)

## **Introduction**

Panel moderator, Mr. Vejai Sammy commenced by introducing himself and the topic of discussion. Presenting the topic he recognizes that the topic “Tech and Education: Revolutionizing Education for a Digital World” is a very timely topic. He acknowledged that in light of the recent pandemic and the call to work from home, we have seen the importance and efficiency of digitalization in keeping both the public and private sector afloat, with most businesses even venturing into e-commerce. He then posed the question, are we preparing people to be able to function and cope in this growing economy of e-commerce and digitalization? He reiterated a comment from a previous discussion, "critical thinking and innovation is needed to push T&T through the digital transformation age". He then introduced the first panelist, Mrs. Jacqueline Morris.

Mrs. Morris amiably acknowledged the forum participants. She then initiated her discussion by highlighting that one of the most fundamental

parts of building our society is how we educate our people and our citizens. This panel, she says, calls for a revolutionizing of education on digitalization and is of the view that this conversation is long overdue. She made mention that she was trained first as an engineer and cognitively consumes data in terms of process and design. Therefore questions she asks when looking at the system of education, is how it is designed, why was it designed, what was it designed for, what was it designed to produce, who designed it, what were the assumptions, what was the environment in which it was developed and when looking at the system and whether it was fit for purpose. Going back in history helps us understand why certain decisions were made and depending on whether these assumptions still stand today or we need to make changes in the light of our current environment and then we can determine which parts, if any, are fit for purpose now. What needs to be changed and how will we change it? She explained that the current foundation of our education system began somewhere around the year 1100 in Europe, it was a religious education system, its primary purpose was training clergy, free education was mandated around 1179, however nothing much changed until the 1800s, this was in the occurrence of the industrial revolution where there was the institutionalization of mandatory education for all, one researcher acknowledged that the goal was to produce more soldiers and obedient citizens. Parents are required to send their children to



school from 5 years old to 11 years old, where at the end they will obtain a certificate for attaining an educational standard and can then be sent off for work, this model worked for about 60-70 years and then the system grew from church schools to schools that were built and organized by towns and villages. In England in the year 1944, the Butler act codified the split between primary and secondary education teaching levels; it also managed to bring the church schools into full partnership with the state. These were church schools that agreed to be funded totally by the state and to set themselves under the local government education authority. Then there were aided schools, which kept more control over their curriculum, staff and admissions. That created the current system that we have and then came our independence and we would continue having that system, since then we have made minor changes to it. The system that we have now is effectively the system that was created in the 1600s but a lot of things have changed, for example we don't have jobs for life anymore, we don't need obedient citizens so when we look at the system itself and the push to put technology into a school system that has not really changed much in the outcomes of the system of learning that we have it is similar a donkey cart that is being refurbished however it is still a donkey cart and it's not really going to be fit for purpose to drive us down the highway. This is Ms. Morris' perspective of dealing with technology education without looking at the

foundations of the education system. She then generalized some of the underlying assumptions that came from history. For most of the period of time that this type of education was developed it was a rural system so it followed the agrarian calendar, children and everyone else had to get harvest in between the months of June - September. In the industrial age, children were allowed to work at the age of 11 so the end of compulsory education was set at the age of 11, secondary school was optional for those who could afford, this is why primary school education ends at the age of 11 and secondary school begins at the age of 11. Even though we now have mandatory secondary school. Subject based teaching, began by teaching in Latin, it expanded with the printing press and the reformation which allowed the Bible to be read in English or in the vernacular and other subjects were added as it became formulated, for example chemistry became an area of study so it was added, these things she added were included with no consideration for theory. The goals of education were to produce workers for industry, civil service, soldiers and obedient citizens. She noted that government assisted schools have the concord act which is basically based on the Butler act of 1944. She pointed out that when we look at what we want for our country, vision 2030 states the vision for education is "an education system that encourages entrepreneurship and innovation and prepares learners to take advantage of opportunities in a rapidly

changing global environment" it also states that it is integral that "research and development as well as innovation be promoted and institutionalized as part of the pedagogy across the education system, primary, secondary and tertiary, and the long term goal of 2030 our population will be diversely educated, innovative and entrepreneurial. Ms. Morris heeded that we need to start thinking about what an education system that is fit for these purposes look like, she implored that we cannot just think of the strategies, content and technology but we need to think about what the system looks like from the ground up. She emphasized that the important terms people should remember about what we need in our education are research, innovation, accessible education for all, diversity, entrepreneurship in a system of rapid change. She noted that this is the place we need to start in order to revolutionize education and not continue down the road of refurbishing a donkey cart and expecting it to function like a BMW because it is just not going to happen. Not without change from the very root of things.

**Moderator:** Mr. Sammy agrees that we have to look at what the education system produces, we are still creating the same type of individual from a system that was created decades ago which may not be suitable for the type of environment where you need to have the ability to adapt quickly

**by updating or changing your skill set. He then goes on to introduce Pt. Shiva Maharaj.**

Pt. Maharaj commences his discussion by citing a book published by the University of Chicago Press by a 20th Century educational reformer known as Mr. John Dewey, "School and Society" in this book, Dewey criticized schools for simply teaching lessons and he advocated that "methods of teaching and learning must be adapted to the changing societal situation that is applicable to life and the real world." Pt. Maharaj noted that we are presently in what is known as the fourth industrial revolution, enabled by technology that is based in computing and the internet. He mentions that we have the internet of things and all these grand ideas of the inclusion of technologies and internet technologies in schools during this period especially with the signs of the fifth industrial revolution upon us. He shared that technology can be defined as the application of scientific knowledge for practical purposes. He posits that technology has always been in the classroom since the time we dipped our feather pens into ink, we began using technology, he acknowledges that we have evolved from blackboards and whiteboards to interactive boards and now with online learning we have interactive online boards, so the evolution and revolution continues to happen. Pt. Maharaj articulated that the United Nations issued a statement

regarding the Covid-19 pandemic, noting that it has created the largest disruption of education in history affecting nearly 1.6 billion learners and more in 190 countries. In contrast, the world economic forum published a research-based report that suggested that online learning facilitates increased retention and information in less time, therefore the pandemic may have changed education forever and will remain an integrated part of the educational landscape. However, this drastic and necessary jump onto online education has exposed many gaps in the 21st century competencies. Ms. Morris rightfully said that we have to look at where we are in society and 100 years ago, John Dewey said that the education system must match that which society requires. If we are looking at digitalization, the competences for a digital citizen should also be included in the education system. Specifically, we need to now look at what are the competencies needed for a digital citizen and where do we start teaching these competences?

**Moderator:** Mr. Sammy agreed that technology has always been involved in education but the pandemic has really shed some light in terms of the way education is being delivered, it has also highlighted certain inequalities among students since technology can be a provider and an enabler. He acknowledges that one of the things that the IGF purports to

be is the fact that the internet should be a human right and it should be available to all, not only to those who can afford it. We may have to bring in devices and so forth to facilitate the current environment for educating. The online system seems to have a greater impact in terms of getting materials to students and allowing them to digest it better, recall it or even make use of it. We have to prepare students for a different work environment from before. Mr. Sammy proceeded to introduce Mr. Dev Gosein.

Mr. Gosein opens by greeting everyone and expresses his elation that the previous panelists set the precedence for the topic at hand, he commended that they really demonstrated the perspective on why we need to have these discussions on technology and education. He firstly pointed out that the digital revolution in education is another case for multi-stakeholderism, he mentions that we should not adopt a blame game policy by blaming someone if it is not working right, however educators need to take ownership and be the change they want to realize in this transformation process. After delving into the history and the why's of education there are things we need to consider. The first thing we want to look at is change in management of stakeholders and educators. We have to be a part of this change management process, and in any change management process we

have to manage our emotions. We also need to look at things like infrastructural development for both staff and students, availability of devices, connectivity issues, proper learning management systems, professional development of staff, there's a whole approach in terms of how we go about managing and implementing this revolution in digital education. From an administrative point of view, we need to evaluate and set up metrics within the institution where we will be able to monitor and measure things, so we can correctly determine if we are doing things right and if we are being effective. Thereafter, we need to go back and do it all over again because it is going to be a continuous cycle of evolution.

**Moderator:** The introduction of technology is a disruptor for the educational landscape. We are uncovering as we go a lot of factors that need to be considered when looking at revolutionizing education. As the environment and economies change, the individuals that we produce have to take advantage of it. Mr. Sammy then introduced the next panel member, Mr. Felipe Noriega.

Mr. Noriega opens by expressing his gratitude for having him and for addressing such an existential topic for humanity. He begins by asking the question, how do we define revolutionary in terms of education, especially in the current context. We have looked at the topic historically but currently

during the Covid-19 pandemic, how are we defining revolutionary? He pointed out that Mr. Sammy mentioned how we deliver education in terms of the curriculum but the other angle is the content of the curriculum itself. Although digitization is a relatively new norm globally. There have been vested interests in Trinidad and Tobago that have wanted to delay digitization due to the very cost of it. It is an exorbitant cost, while this has delayed our competitiveness economically, it has also given us an opportunity to do what we are doing now which is to reflect and think critically, critical thinking is vital if we are going to decide where we are going forward. Mr. Noriega pointed out that he just returned from the United States where he taught at a university level, he recalled a Promethean board, which is a big electronic eye in the classroom that monitors everything, teachers are expected to teach through the packets and the curriculum that the University offers but he questions, what happens when there's no bandwidth, what happens when the internet goes down. He also points out that teachers are now learning how to teach with the aid of artificial intelligence, he advised this is a dangerous trend that needs to be avoided when we plan implementation of digitization of our education. He questions whether this opportunity to reflect on the implications of digitization for example digital IDs and vaccines, whether it gives us the opportunity to revive the popular democratic institution that



once was very prominent in Trinidad And Tobago, of national consultation, town meetings that will allow us to shift the paradigm of economic determinism and allow people's critical thinking to make decisions for how we move forward in a digital world. He then questions how the internet of things, artificial intelligence and singularity which is where you have computers not reporting to people but informing people on what to do, impact upon learning. How do we measure the effectiveness of teaching and learning, is it just through tests that means the teachers end up teaching just for and to the test other than teaching holistically so that students can be encouraged to be creative, innovative, entrepreneurial and think critically? He is of the opinion that we have encouraged industrial education but the information age hasn't produced that pedagogy of entrepreneurial education just yet. From learning and cultivation of human values, organic human intelligence, conducive to revolutionary education in the digital world. He lastly questioned, how do we apply technology to cultivate virtue, human values as the mark of an educated person in the digital world. He closed by saying, since the Covid-19 pandemic he was unemployed this led him to create a website called [www.virtualschooleducareacademy.com](http://www.virtualschooleducareacademy.com) with students from the ages of 1 - 15 based in New York, New Jersey, North Carolina, Georgia, Florida, Trinidad and Tobago. He shared that for the last 6 months they were doing student presentations on prominent individuals

who are worthy of emulation, they would currently be working on two very interesting projects, one is global warming and they are working in teams in different locations, family members and strangers working together and they're looking at things like why is it getting colder and there's more snow, why are the polar ice caps melting, what are the effects of light pollution and what can be done about it, the idea is integrating and getting students to lead the learning process using the technology as a tool.

**Moderator:** Mr. Sammy thanked Mr. Noriega for his contribution and commends him on changing the way in which students approach education and engage in critical thinking. He then posed the question, education needs to develop individuals so that they can contribute to society. If we are looking at creating this type of individual who is going to contribute to an even more digitalized society, what do we need to do and what should we be looking at in the context of our education system?

Pt Maharaj recommends the use of the word competences and not skills because it is very important to understand that if we are looking at a competent digital citizen we have to look at certain things which makes a person competent in terms of knowledge, skills and attitude. We have to acknowledge as to what the technical jargon and terms are, the skills such as keyboarding skills, using a mouse and attitude in terms of doing things in

terms of the morals, values and ethics, these aspects come in with the digital citizenship and digital literacy that is needed. Most of these curriculums that already exist start from a very young age, preschool, because this is where you need to have these ideas on moral ethics and skills being developed for the ideal digital citizen.

Mrs. Morris replied by saying there is no simple answer to this question because looking back on what exactly is fit for purpose, do we know what we need? We have not discussed what that new citizen looks like. We need to say, what does this person look like and then we say how do they function, in what environment do they function and then we break it down to what do they need to know, how do they need to function, what kind of interactions do they need to do and then we can say we've got to have students who have come out with true collaborative work, we need students who have empathy, we need students who are curious and then we can say how can we create a system in which students learn these things. How can we ensure that instead of learning it on a superficial level they truly come up embodying these things? Another very important aspect is collaboration, innovation has never occurred by anybody sitting by themselves in isolation. Everyone works in teams. We have a very individualistic system. From a young age we need to cultivate respect for one another, respect for

diversity. Collaboration and respect are some of the things that we need to have as a society because if people are individualistic then they don't care about each other and we don't have a society.

Mr. Noriega contributed by advocating that when we teach students to work on projects the collaboration takes place among the learners and the teachers who are also learners. He says that the only thing he disagrees with Ms. Morris' statement is that while he is a proponent of cooperation, collaboration and learning, a certain level of competitiveness in the process is also healthy so they can strive for excellence, not cut-throat competitiveness but competitiveness to help each other excel. He advises that we should however be taking account of and documenting this progress.

**Moderator:** Mr. Sammy, expanded on what Ms. Morris's statement saying a lot of the training, skills and human characteristics that you acquire at the primary school level, prepares persons, entering this digitalized world and economy, the matter of teaching skills from early on for example teaching coding at a primary school level, so students are comfortable with the technology. Having a technology focused curriculum will have its advantage on individuals to prepare them to work in this economy.

Ms. Morris advocates that when we do regulations, it is outdated in 5 years and it is going to be the same thing with traditional technology education as opposed to technology in education, this is education in technology. Things change. Oftentimes you teach someone how to use certain programs or how to use certain tools and two versions down they come back for training. She also says that when we teach children technology, we teach them a programming language, we don't teach them the concepts of coding and the fact that you can learn any language we teach students to click here, use this etc. but we don't teach them what a word processor is or how to use them in general. If we taught these things in general, then students can easily learn and teach themselves very quickly how to use the new version. We need to have technology education that is not about specific technologies because inertia is a huge thing, there will be people who will continue to use a new tool in the way that they learn the old tool. We need to take away the specifics of technology both in regulations which is what the EU started doing and start thinking about. The values and the ideas which have been propagated instead of the specifics, more in terms of what technology does for us to continually learn as things change so very quickly.

Mr. Gosein noted that Ms. Morris raised some very interesting points and proceeded to give a real-life example. His Rotary Club was requested to

donate some new devices, being an educator himself and being involved what was decided instead is rather than give devices, they focused on professional development with the staff and what they encountered is that, while certain platforms are available such as Google Classrooms, whatever teachers use, they have no idea how to use it. Things like formative assessments and self-marking assessments. He advised that we need to look at teachers and try to get them to feel comfortable with the solutions they are going to use and once they feel comfortable with the solutions it will be beneficial for the students. The other thing he points out is, when you ask the question, what must we do to prepare the student for digital learning, we should ask ourselves, what should we do when we meet a situation we were not trained for. We need to infuse a passion for curiosity, a passion for learning and more so collaborative learning. Sometimes as educators we feel like we have to be that sage all the time, we need to appreciate the fact that we can guide students into creating and providing opportunities for their individualistic learning.

## Q & A

**Question from YouTube audience member, Rishi Ramlal: Are assessments really reliable when done online?**

DG answered by saying, it has to do with school policies. He suggested the use of a camera pointing directly at the student, a camera pointing at the keyboard and your microphone turned on.

JM recommended to start by writing good assessments, and refrain from what people call "Googleable" assessments. As it defeats the purpose of an assessment if the answers are easily found on Google, develop assessment that tests the way the student applies the information, develop assessments that requires students to synthesize information they have learnt over a period of time and create something new, create assessments that require actual thinking from the students, you can even ask students to explain that thinking. If there is a parent working with them, you can tell whether it's the student's voice or the parent's voice. If you can move to a more authentic way of assessing then you lose the ability of people to cheat then you can add security, you can have a lockdown browser, you can use cameras and microphones, questions can be rotated and answers can be shuffled.

VS thank you Jacqueline, essentially it is about creating assessments that encourage students to practice critical thinking. Perhaps this is something that is being revolutionized in the education system.

**Question from Susan Andrews: How do we develop the individuals, how do we then train the individuals to fit into society, collaborative**

**environments and multi stakeholder systems.**

SM this is why we now have to look at digital citizenship in terms of being a good citizen online as well as the areas that make someone the ideal citizen as a digital citizen. You can look up things like Project Zero by Harvard Education, as they have identified some competences that we need to have to be an ideal digital citizen and by extension a good citizen.

JM we have to define what we want in a citizen first and once we do that we can say this is what we want in a citizen, these are the attributes and the characteristics and then we can start thinking how we can create them but until we know what we are looking for we don't know how to set up a system for them to learn it. We need to say what we want first, not what we want to teach but what we want to see as the product of this learning.

**Moderator: What would you like to see going forward in the context of the changes in our education system in order to prepare students for the world ahead? It may not be perfect or ideal, it may not happen right away but what do you think we need to see happen?**

Mr. Gosein advised that we definitely need to have a well-managed change by the educators, administrators, matter of fact by all stakeholders in terms of what is required. We need to have a good understanding and appreciation of the infrastructure that is required. We also need to



encourage inclusion and leveling of the playing field, some countries don't say "education for all", they go a step further and say "success for all". Stakeholders for example the providers for the bandwidth should realize the importance of equity in access. A robust professional development program for parents. Another critical factor is the metrics. We need to assess what we're doing, how we are doing it and be ready to find opportunities for development.

Pt. Maharaj, in agreement with Mrs. Morris asserts that we need to reengineer from what we want at the end. When we look at digital citizenship we also need to look at citizenship and integrity, assessment is important. Training on digital citizenship including parents is important. In our programs at ITZ Experts on digital citizenship, our programs integrate parents, students and sometimes even the school. All of these stakeholders are required to be on board with what is required for a good citizen. We are still researching and understanding the digital citizen so once we know the requirements and when we know that then we can put things in place to achieve that.

**Moderator:** We have to realize that education is not a technology issue but it is a human issue and technology is a facilitator. We have used technology only to shift the delivery methods and we have to see if it is

actually changing the concept of education and the impact it is making on our students. He is of the view there are some changes happening, it is certainly preparing our students to function in a digital economy however it is not going far enough.

In describing an article which analyzed companies during the year 2020, Mr. Gosein read that due to the pandemic some companies folded and some flourished. He reflected that today's discussion started off on creativity and critical thinking etc. however when they analyzed some of these companies that flourished, there were two major factors that contributed towards their success. These companies displayed both of them in significant proportion. These factors are creativity and agility.

Mrs. Morris shared that what she would love to see coming out of this is that the Ministry of Education or some other major champion will start doing a multi-stakeholder activity to start investigating these things so that we know what we want, where we are going and we can start looking at the system deeply and make those changes. It does not have to be a major revolution all at once, it can be adjusted in an evolutionary way but at the end if they do it correctly and bring the right stakeholders on board, we can get to the system of education that we need to create the business we want in the future.

## Conclusion

Mr. Sammy expressed his thanks to our panelists for taking the time and making a great contribution to the topic of discourse. He encouraged everyone to stay tuned for the upcoming session on “Digital Entrepreneurship”. And concluded by encouraging the audience to visit the website [www.mag.tt](http://www.mag.tt) to become involved and to contribute.

## Panel 4: Digital Entrepreneurship



Digital Entrepreneurship Panel: Mr. Tracy Hackshaw (top left), Mrs. Camille Abrahams (top centre), Mrs. Roxanne Colthrust (top right), Mr. Keron Rose (bottom left), Mr. Agyei Archer (bottom right)

### **Moderator:**

Mr. Tracy Hackshaw – Director ICT & Digital Economy Strategist, TFH & Associates

### **Participants:**

- Keron Rose, Mobile Expert, and Founder, Droid Island
- Agyei Archer, Independent Design Director & Co-Founder/CEO, Unqueue (Agyei Archer Ltd.)

– Camille Abrahams, Programme Coordinator for Animation Studies,  
University of Trinidad and Tobago.

– Roxanne Colthrust, Serial Entrepreneur & Managing Director, Shop  
Caribe

## **Introduction**

Panel moderator, Mr. Tracy Hackshaw opens by welcoming everyone he then introduces himself and explains that this panel session is entitled Digital Entrepreneurship. He begins by saying that over the last 12 months, as a result of the pandemic we are seeing what is called a new class of entrepreneurship having emerged. He acknowledged that it has been happening for some time but it has been accelerated in the last 12 months. There have been several gestating opportunities in what we call the digital economy that have come to the forefront. We have seen pockets of innovation and entrepreneurship emerging in various areas in marketplaces, social media, in certain service industries for example animation, we have seen the emergence of delivery services, we have seen a great take up of e-commerce to a large extent, payment solutions, but at the same time we need to understand that this is just a few of the opportunities that currently exist and today we are looking to discuss how we can accelerate and catalyze this new emerging thrust of digital entrepreneurship

and growing the local digital economy. He goes on to explain that in this session our very esteemed panel will confront and discuss the realities that confront digital entrepreneurship today and look at how the digital economy can grow further. He hopes that we are not going to simply rehash what we already know but we are going to find a way to reorient the conversation towards one that is solution oriented not problem based and come up with some concrete action plan. He then takes the opportunity to introduce the members of the panel.

**Moderator: Posed his first question as an open question to our panelists. What can we do in Trinidad and Tobago to encourage a greater take up of digital entrepreneurship. Let us start with Roxanne to open discussions.**

Mrs. Colthrust opens and expresses her appreciation for having her on the panel. In terms of how we can encourage a greater uptake of digital entrepreneurship. She points out that she has seen growing interest over the last 20 years. She points out that we have some fantastic minds who are coming up with some fantastic projects. She advised that encouraging a greater uptake is really about creating an enabling environment, encouraging development, and collaboration. Sometimes we don't collaborate enough, we just go out there and do things on our own but we must find the ones who have gone there before. She reckons that during the

initial stages of web development in the Caribbean region they were one of the few web development companies, now fast forward to twenty years we have young business people calling themselves technologists, doing similar things, embracing technology and finding a way to work with technology. We are on the cusp of something phenomenal and that uptake comes from collaboration, reaching out and creating an enabling environment. In Trinidad and Tobago we are seeing the movement of tax breaks for digital companies and companies that are developing digital technology, this is creating an enabling environment, what we need to do now is ensure that those opportunities are real. The enabling environment is there but we need to now push forward to make them operational. And that's the key thing that's going to help us move forward.

**Moderator: Thanks Ms. Colthrust for her optimistic uptake. Camille maybe you would like to go in a little further with your understanding of what we need to do to encourage a greater uptake perhaps you can bring some of your own experiences as a response to the question?**

Ms. Abrahams is of the notion that one of the main things that needs to be recognized is that digital entrepreneurship is new and exponential, it is constantly changing, the future is that this technology that is affiliated to entrepreneurship will almost always be new so we always have to be open to

new things. Because it's new there's often a young intake with digital entrepreneurship which means that there's a certain amount of hand holding that needs to happen, this compares to the oil industry. When the oil industry first started, institutions or the state didn't build oil refineries and say figure it out, there was a long-term investment in that new industry so the same thing needs to happen with digital entrepreneurship. Institutions that are investing in the state or businesses often what happens is that we have first phase funding or first phase investment and then it ends and that consistency makes a huge difference because then you see these digital products go from ideation to prototype into becoming monetized and often that full three or four phase support is not there. We also need to understand that we have a fluid industry which is changing constantly, with the education side of things there's sort of a double-edged sword because we're dealing with academia that is very haptic, for me one of the most important thing for supporting digital entrepreneurs is that we start from the education side of things. We start looking at giving students tools that will allow them to be innovative. That will allow them to test, fail and fix. That will allow them to apply new technology to new ideas.

**Moderator: Agyei can you jump in as a digital entrepreneur?**



Mr. Archer on the contrary, in his opinion admits that when he thinks about digitization and digital entrepreneurship, it starts at the infrastructural level. If we are talking about entrepreneurship we have to talk about money and if we have to talk about money we have to talk about managing money and managing the processes around money. Until we overhaul banking across the board digital entrepreneurship is going to be a challenge. The challenge with overhauling banking is not a technical one, it is an infrastructural one because the people who are for example in charge of those systems will have to get fired for us to move forward. The challenge is that infrastructurally there is no reason for the banks to encourage e-commerce in the Caribbean because as far as they are concerned the system they have works, it has worked and it will continue to work in their favor. Opening up industry and commerce digitally means that you are leveling the playing field in a way that a lot of our establishments are not ready for. He acknowledged that the points Roxanne brought up about enabling are very true and very right but we must talk about who is doing the enabling and who's responsible for the enabling. When that conversation happens, we have to talk about the infrastructural level. There has to be a central bank conversation and a private conversation. It is not that we don't have the resources, infrastructure or minds locally but the challenge is that somebody has to get fired and unfortunately no one wants to walk away

from their high paying job. People who are in charge of those systems have been in a position of relative comfort. IT managers who have been at a job for 15 years. On one hand the infrastructure is set up in such a way that there is fluid transition. Modeling the US economy around start-up culture is a flawed position to take because we don't have the population to support those business models. What we can take away from the American start-up culture is that a lot of those companies were developed by people who had to figure it out on their own and who figured it out on their own because they had their own infrastructure in their hands. Agyei is not of the belief that we need to mentor people to become digital entrepreneurs, we just need to give them the space to do it. We have people who are indeed smart, resourceful and can see a problem they can fix. The challenge when developing a business is how are we going to make money, how are we going to pay suppliers, fundamentally it comes down to who has access to the banking system. In his experience, being able to work for Google and having the opportunity to be paid in US dollars. If he has the opportunity to be paid in US dollars which affords him the opportunity to bootstrap on Unqueue. He describes that this is a very basic problem because when considering for example e-commerce fulfillment our best option technically is WiPay. We can utilize First Atlantic however we would then need to hire a developer from 10 years ago who understands why a system

is broken and broken on purpose. WiPay on the other hand has abridged a huge gap however he is of the view that WiPay will more than likely plateau on innovation, for example it does not support the basic idea of immediate refunds, the reason for this is largely because of the infrastructure. If the infrastructure was set up differently we wouldn't be dependent on First Atlantic Commerce for our banking and First Atlantic Commerce wouldn't get to condescend to us with their technological platforms because the reality is that we are so fixed in what we're doing. Whilst developing Unqueue and visiting many banking institutions explaining to them that Unqueue wishes to set up online payments properly and even offered to build the API, however their offer was rejected. His team can do PCI Compliance however they just wanted to make their lives easier. The honest reality is that there isn't that set up and the convenience around that set up is more than just being nice to young people and putting them in a good class and patting their backs and encouraging them. It really comes down to the infrastructure and the infrastructure is not there. He is of the opinion that the best that we can do is kind of bad right now. He advised that in order to improve digital take up we need to fire some people and we need to overhaul some of our technological standards at the base level. The base level is not WiPay or any of our providers but it is at the banking and central banking level.

**Moderator:** Let us move on to another individual who has been very vocal about this very same topic in his blogs and various interventions on social media and in his online learning platform, Mr. Keron Rose. Keron maybe what you can do is respond to what Agyei is pointing out there, what are your thoughts on the plateauing of the infrastructure and what do we need to do?

Mr. Rose is of the notion that Mr. Archer has hit several nails on the head. However, that overhaul isn't going to happen overnight, it is going to take a few dominoes to fall in order for us to really get this right; however, we still have enough to keep things simple. What Keron tries to advocate from a digital entrepreneurship perspective is for people to just start learning the basics, to start learning some digital skills so that even if you are not trying to build the next Unqueue or build the next Wi-Pay you could at least develop a digital skill for example web development or copywriting. Develop a digital skill that will at least allow you to earn additional revenue, there are so many global freelance platforms, we also have enough infrastructure to be able to get paid online and to get clients from around the world. From a perspective of keeping it simple, if somebody who has a 9 - 5 who is looking to earn additional revenue, learning some digital skills right now would go a long way and to be honest, the earnings that you could

obtain from a lot of these digital skills may be able to replace and far surpass what you're getting paid at a 9 - 5. In his experience, most of his clients are not even located in Trinidad and there is no issue in getting paid because you can still use Wi-Pay. You can also still use PayPal even though PayPal only works in a limited capacity in Trinidad it is still an option for us to be able to use. He is of the view that getting paid isn't really an issue, however the lack of education is of greater concern. Most people don't know what exactly is possible so they won't be quick to pursue for example email marketing where they could tap into a resource like LinkedIn and pull in clients to do email marketing or become a virtual assistant. Don't just limit yourself to Trinidad and Tobago because the reality is that we are still growing. Some of the biggest companies in Trinidad and Tobago are outsourcing stuff to people. So, if you can develop your own skill sets and start tapping into social media platforms and the global networks you can start to generate your own client list from people outside of the country or outside of the Caribbean so you're not just limiting yourself to just one economy. The majority of people on this panel are tapping into clients outside of Trinidad. What we need is more people to speak about their experiences from their successes and their failures. Putting that information out there and showcase to people what is possible from the most basic levels. Allowing people to see what we can do even within our broken

system would at least give them the leg up to survive until the system starts fixing itself but until then there's still a lot we can do even within this system. You can learn from so many platforms online. Get certified and apply your skills and trade online and still earn money without a problem.

**Moderator:** One of the hopes I had was that we're going to move beyond just talking and certainly move to the concrete actions we can take. I want to make this a very interactive session as I indicated to our panelists. In terms of internet governance and multi-stakeholderism, by that I mean all the stakeholders getting together, government, private sector, civil society, academia, technical, what do you think can be done from a stakeholder position to get this digital economy going and to drive entrepreneurship.

Mr. Archer posited that in a country like Trinidad where everything is administered by the government there needs to be some sort of decentralization. If we are talking about contributing to local GDP and making money inside of Trinidad it is not considered a foreign exchange conversation, it is about generating TTD. If the people who are supposed to be very smart are scaling themselves up on languages and technologies and platforms that have international market value, there isn't an economy around that. Persons who advance themselves in learning about these technological infrastructures that can move us forward are going to leave or

work somewhere else. However, the government's mandate as a stakeholder should be around the type of facilitation. There just isn't the conversation for that right now and that facilitation is a legal, infrastructural but largely technological conversation. We have had conversations with people from the central bank before and the question was always how are you going to make this secure and then we tell them how we're going to make it secure but then it's not enough because the guy who we just spoke to has to go research what we just said because he doesn't know about it either and it comes back down to the governmental aspect. Until he says "yes" to it we are not going to be able to transfer money from one bank to another seamlessly. Wi-Pay is probably the best we can do because as a stakeholder the government's investment is in the optics of digital entrepreneurship and the optics of digital entrepreneurship are really great when you think about economies where that kind of scale can work but what that also means is that at the governmental level the investment is purely about the optics, it is not actually about the GDP. He is of the idea that our government thinks that we should get into tech for the same reason that the government has a Facebook page, because they should. However, he doesn't think that it has anything to do with an actual investment in the infrastructure and until we move past the very optical investment we have right now where we talk about "e-money" and we put "e" before everything. Until we move past

putting "e" before things and actually get into talking about the technology and after we talk about getting into the legal infrastructure then as a stakeholder the government will lose any kind of influence they have because the private sector isn't going to invest until the government says it is okay to and if the private sector doesn't invest then nobody's going to get a job, then all of our Javascript developers and Python developers and PHP developers are going to work for Dropbox, Google, Facebook or somewhere else and that's only because there isn't that basic infrastructure at the governmental level to make money for it. There's no economy, so if you don't have an economy you can't expect to want to work in it. So, at a governmental level, this is where the conversation has to start.

**Moderator: Thank you Agyei. There's a question in the chat I think Camille can answer. The question is, which of these stakeholder-isms do you subscribe to? Do you think there's a role for any one of these stakeholders?**

Camille answered by saying that for the past 20 years she has been trying to get stakeholders to recognize the value of the digital economy and the digital enterprise as a whole. She noted that only recently did we start seeing digital service as something of value. Camille agrees with Keron that if we want to really be financially successful we cannot only look in, we have to



look out of Trinidad and Tobago. She is of the view that perhaps the stakeholders could come in however, we cannot totally depend on them so there has to be some co-dependence. For example, with Full Circle Studio a lot of jobs come in through external studios. So, there is no issue with money coming in, however there are huge issues of us going out so we need to find a way to fix that. Gaming is a multi-billion-dollar industry and there are small gaming studios in Trinidad who are bringing in a lot of US dollars, so if we are seeing that this is actually bringing in foreign exchange then this is where the stakeholders should come in. For the 19th anniversary of Anime Caribe last year, there was a huge issue of not obtaining sufficient funding because of the pandemic and because of the fragmentation, people weren't in the same space, the organization literally created a system which we termed as a "Digital Corporative" where there were people who were doing AR, people doing VR, people who doing animation, gaming et cetera came together using the Anime Caribe platform as a way to promote themselves. There were approximately twelve micro digital enterprises who were able to pull resources, the audience increased by 500% and this is because those digital heads came together and shared that 500% growth. It really is about thinking outside of the box. Camille strongly believes that in our own way, we can start to make changes. She can see these changes happening because she recognizes the potential in her own students. She

advocates that there are ways to fix the issues, we just need to pull our heads together, not to ignore the government and the stakeholders but to find a way to collaborate with or without them.

**Moderator:** I noticed a discussion in the chat regarding capital and capital financing and even the phrase vulture capitalism being used, and that is the private sector stakeholder. Maybe Roxanne would like to speak to that or Keron, in terms of the private sector's role in this whole thrust of digital entrepreneurship.

Roxanne is of the opinion that there is no one solution, she recommended that we ought to look at it on a spectrum. The digital enterprise is at its infancy stage in Trinidad and Tobago but there are some sectors that are a couple steps ahead so when we are talking about the involvement of the multi-stakeholder, we have to look at it on that spectrum. During Shop Caribe's startup, which is an online shopping platform for Caribbean made things, Roxanne and her team spent approximately six months back and forth with the bank until they found their own solutions. At all levels of this spectrum there are government institutions that are well meaning but just as Mr. Archer was saying, they just don't understand what we are talking about. There are organizations whose main role is to give grant funding and they still don't understand it. So, within this spectrum, we have to now identify

key stakeholders that we have to work with. The accessing of payment gateway has to be made easier. Roxanne and her team at Shop Caribe have a fantastic relationship with FAC and due to that collaboration, they have been able to get through that gateway and she offered that if anybody needed that kind of support, working with FAC she can offer to help get them there. The spectrum she explains also has things like for example animation, we have studios who are doing well but we still don't have enough of the government saying, "this is a pillar, we are going to invest into that." She acknowledged that the venture capital comment is valid and explained that many years ago we did have a venture capital incentive program which was tasked with finding projects that one can invest properly into and get them to the next level. She believes that if we are able to craft some sort of key bullet points that we want to portray to these key stakeholders and say this is what we want to enable this digital environment. This new economy that we are moving into needs us to be agile and on point with a lot of things but we have to come back to some basic tenants.

**Moderator:** The cooperative platform or shared learning, and shared experience environment is something concrete that is coming out of this platform and I think it is something that we can take note of. Keron, a question from the chat is asking about intellectual property theft and what

**is the role of the entrepreneur and stakeholders in something like that in this space.**

You can live in the Caribbean, work remotely and the cost of living is 10 times cheaper here. Giving an example of what Mia Motley did with Barbados in inviting remote workers to Barbados from countries like the US, Keron believes this was a brilliant initiative and he hoped that the rest of the Caribbean would follow on that initiative. He pointed out that there are a lot of discussions online regarding the best place for digital entrepreneurs to base themselves. He expresses that he would like to see the government go down that route of inviting remote workers to come live and base themselves here because it will automatically bring in some foreign exchange and the citizens will have the opportunity to fraternize with people who are doing bigger and better things. Even if we're not creating the technology, he expressed that he would like to see governments reaching out to companies, for example Amazon, or bring in an international corporation which would fuel employment and generate more foreign exchange for ourselves. He also advocates that companies like FAC and Wi-Pay start to push education. They know exactly what it takes to get on board, the banks know what it takes to get on board but none of the companies put forward any sort of education to teach people the proper

process. He noted that there are a lot of things we can do with the FAC and Wi-Pay as is, however it might be a new territory for those who are now getting into digital entrepreneurship. JMMB does a great job at providing technical support and helping their clients receive PayPal funds. They are also one of the only banks that you could use to connect with PayPal to receive money. But they don't speak about it. With respect to intellectual property. There are lawyers here, who specialize in intellectual property. For example, people like Saelese Haynes and Carla Paris there are a few local lawyers who advocate online on the topic of intellectual property and protecting it. You can easily reach out to them to ask basic questions because that is one of the key things you're going to need in order to protect yourself. He admitted that he can't speak to it, however he can point you in the direction of the experts who can guide you through it. They do a great job of talking about protecting your intellectual property in the digital age.

**Moderator:** Thank you, Keron. In addressing a question about the government bringing in what has been called anchor tenants. In the past, as many of you on this discussion might know, those things have been half measures. I am personally aware of quite a few attempts being made by the government to have brought in Google and Facebook. They have been here, they have seen Tamana for example, but it needs to be taken beyond

a technocrat level and taken up at a high political level. I think Camille will be able to express that. Even in her field they have brought in firms and large companies to look at Trinidad and Tobago and maybe there has been success there so we'll leave that to have Camille address when she comes in next. However, let us get some feedback from Devanand Teelucksingh.

## Q & A

Question from YouTube chat: Do you think successful digital entrepreneurs could come together to form a banking entity that will provide their banking needs, but also a type of funding needed for other digital entrepreneurship.

AA: The answer to the question is to speak to the central bank. It would be nice, if we could do that, there's been a lot of theoretical conversations about models for that happening, but that probably needs to be approved by someone in the central bank who does not understand it.

Moderator: Camille, can we discuss Tamana and what has been going on with the government and what they have been doing. Not just from the standpoint of people exporting their services, but also growing the local industry by bringing perhaps that anchor tenant word to the table. What is

**the role of organizations for example UTT, Tamana, even the IDB in something like this. Any thoughts on that based on your experiences?**

We can't talk about these things without talking about politics. The Tamana experience was developed by UTT, Ministry of planning, IDB and a few others and the funding came through that format, the challenge occurred when the bureaucracy came in. Then that bureaucracy created a complicated web, however there was still an outcome. That outcome was the formulation of an Outsourcing Hub at the new Tamana campus. Camille expressed her intent to share this with the audience because it is important to know that these things are now being made available. She then explained that the model for it is not the typical model since the organization battled through the bureaucracy to make sure that it is not the typical model. Drawing an example from the animation industry, she illustrated that it takes an average of 15 to 20 years of constant investment, on state level and otherwise, to really flourish. Her organization has received that only within the past three or four years. Through this support, the Tamana Hub will encompass training which comes under the UTT, investment, which comes under IDB and stakeholder support, which comes from the various government ministries. The idea is that the space is a space that will have access to all of the hardware, software, technical needs, space, digital

technology that could support ideas but also allow our students to feed into a pipeline. It has been going on for about three - four years in the planning stage however it should be ready to open by the middle of this year. The idea is that, it is a platform that will allow digital ideas to have a home and we need to make use of that because in her experience, it is the first time ever in Trinidad and Tobago and in the Caribbean that we have a place that allows entrepreneurs, whether it is digital, film or research and development to have that kind of access. Anyone out there would have access to students who have the skill sets to support their project. Pulling together all these different elements in order to create almost a new model that will allow some kind of movement. She recommended that if there could be a way where we can really collaborate, the Tamana platform could be where these kinds of things could manifest.

**Moderator:** Thank you very much Camille. I just wanted to ask the panel, what areas of digital entrepreneurship do you think are potential centers of excellence for Trinidad and Tobago. Let me explain what I mean by that, should we be directing our efforts into particular areas where we can earn foreign exchange in a very real way? Are there specific areas or niches that you think we can jump on board with, for example data science,



**cybersecurity, where we can sell our services and earn foreign exchange.**

**What areas would you say as an expert panelist, should we focus on.**

Speaking from her experience, Roxanne advised that a lot of research went into the decision to focus on a shopping platform, it was also corroborated by an article she read in the Digital Economy Report. The articles outlined that since 2017, billions of people have been looking at buying things online. But now there is a growth for something special which propelled Etsy, where people are looking for things that are special and things that remind them of home. This research led Roxanne and her team to creating Shop Caribe. Roxanne shared that they have been able to provide an opportunity for hundreds of small entrepreneurs to sell their products. It is a major objective and win for the company because now, there are people who were displaced, as a result of the pandemic, who normally would have a brick and mortar store, now have an opportunity to sell their product online. The other side of it is that now that people all over the world have access to products that are made in the Caribbean which is another win for the company. When conducting their review with vendors, in terms of their sales to date, many of the responses talk about never having sold to anybody abroad before and it is a fantastic moment for them. She agreed that whilst our systems are broken to some extent and we don't have enough

government support, we still have to do the things that we can. We have to jump out there and push the envelope on areas that we can. We are seeing mobile money. People willing to use a credit card to make payments online. And that's a level of financial empowerment that people now have, there are things that are happening. Yes, there is still a segment of the society that is still un-banked however we have done very well working with Wi-Pay. She commends them for taking a step out in terms of a Technology Agency company stepping into the Fintech area. She advised that there are elements we can work with and grow and take step by step as we move forward.

**Moderator:** Thank you Roxanne. I think that we need to take a very close look at exactly what is our expertise and where we can really add value and ensure that we don't just jump in at the masses and contribute in small pieces. We should really be looking for spaces where we can really take the lead whether it be marketplaces or whether it be offering digital skills and services. Agyei do you have anything further to add to that or any of the other panelists?

Agyei agrees that while his shopping app is great and the convenience is nice he is not very interested in the potential for digital entrepreneurship helping things like buying Sushi, however he advocates that when you think

about the potential that digital entrepreneurship has, it is on things like for example, agriculture, government infrastructure or fisheries, things that we can help at a real scale because, when it comes down to the technology it is about scale. In his opinion, if we were to open up money on the web in Trinidad, that would be more valuable. He thinks about the potential that digital entrepreneurship has in solving the problems that we have at the largest scale. So, for example, business registration was brought online just a couple of years ago and it is still disappointing. These are the opportunities that we really have for entrepreneurship because there is so much that we have for infrastructure that we have that is dependent on technology that can be improved. It is really around, how we can make life better and easier but at the infrastructure level. Unqueue is a good example of where we can use technology to solve problems at scale, but the type of problems that we can resolve could be a lot more ambitious. We are just starting to scrape the surface of what we can do with technology and digital entrepreneurship. When we think about digital entrepreneurship, we think about being the next Amazon or being the next anything that is selling something online, but there's so much else. Things like Unqueue are a drop a bucket relative to the kind of problems that we could be solving.

**Moderator:** Yes, and I certainly think we want to and I do want to challenge that statement you made about the foreign exchange problem. You don't want to just migrate, buy and sell online and that becomes our entrepreneurship, that would be the worst thing to happen. What exactly are the areas that you think that we as a country can accelerate? Our virtual creative showcase that can be earning foreign exchange through some method. What are your thoughts on these sorts of areas? What are the areas that we should focus on as entrepreneurs going forward? Keron let's go with you first and then Camille will go after.

Keron begins by commending Agyei on recognizing that even though they built Unqueue, he knows that it is a drop in the bucket and goes on to advocate that we don't want to just migrate the buy and sell experience online. Where we really need to focus on is to start exporting culture and start exporting our skill sets. For example, somebody who knows how to cook Caribbean food becomes digitally savvy enough to create an e-book or a cooking school and use one of the many learning management system platforms for example Teachable, Thinkific or Kajabi and build an online school to earn foreign exchange. If we could start thinking about Mas from the perspective of not just bringing people in to come wine and jam at a fete but now you have an online school teaching people how to create their own

Mas costumes, that's a huge way to start earning foreign exchange and expanding the culture. One of the biggest challenges in the Carnival industry this year was the majority of people doing virtual fetes who are not digitally savvy. We are not doing virtual events, all we are doing is streaming live concerts. When you think of virtual the first thing that comes to mind is, receiving a package with virtual goggles and some remote sensors and being able to interact in a virtual world. We need people to start becoming more digitally Savvy. He gave an example of a fete, where somebody who was based in Europe, event coordinators approached him to sell to the European market, but there was a challenge, in order to track commissions, they wanted him to take note of everybody's email that was sent to the platform to purchase tickets. So, his friend reached out to him looking for another way around it because he could not write down a thousand emails to track commission. Keron advised that the easiest thing is affiliate marketing. Why don't they have an affiliate dashboard, and give him a link where every time someone clicks on the link the commission is tracked. When they went back to have the conversation with the promoters, they had never heard of affiliate marketing. So, we have people who want to do things virtually however until we become more digitally savvy and until people start to learn some of the basics of doing online business, we can't move forward because we don't have the skillset and it's not that we can't

obtain it, we just need people, willing to step out and be willing to learn because a lot of these problems that we are having are already solved. You can earn foreign exchange, but now people have to start thinking digital-first. Companies as big as Tribe or Rogue should have an online Mas school where they can enroll thousands of people every single year to learn how to create costumes. That would probably earn just as much or maybe even more money than bringing in a limited amount of people into the country for Carnival. Digital allows for scale at large if we can start thinking digital-first, the possibilities are endless. Whatever physical product you are trying to create, think about how you can turn it into a digital product first. Most times, going digital is a whole lot cheaper. The logistics are even better because now we're not actually physically shipping out a physical product, people can download it through a wide variety of ways. It is just about adopting the digital mindset first. In order to get that digital mindset first, we need people who have found success to be willing to share their knowledge. Each one teaches one. Enlighten people and show them what is possible even within the confines of our system. It might not be the best, but there's still so much that we can do.

**Moderator: Keron, you hit the nail on the head. It is not about the experience per say, it is about creating a sustainable product that hasn't**

been developed before. Camille, I would like to ask you to expound on your point and wrap-up at the same time.

Camille shared that at Full Circle Studio, the team members share their experience whenever they go international to sell, it is not just animation, but they sell Trinidad as a digital destiny. She explained that whenever they go to shows they carry a hashtag with them. Some common hashtags they use are #OutsourcingSunshine #AnimateInTheCaribbean. She describes that they sell the hub experience when trying to bring investors, not only would you come to the hub to experience a technical thing, but you will experience Trinidad as a destination. Camille advised that we need to understand, especially those in the Carnival industry, that they are not experts in the digital media space. They are experts at Carnival therefore they should work with people who are experts in the digital meet. Just because you know of software doesn't mean that this is what you should do. For Anime Carib last year, when different teams pulled their resources, young minds came together and they said let us look into AllSpace, which was in a beta state, there we designed a three-dimensional space that looked like we were in the Caribbean. Whilst running some tests, we realized that the older generation would not really know how to jump in there. So, for some people who wanted to be there, we would have had some of our

students literally take them into the three-dimensional virtual reality space. Carnival should not be what we are aiming for in 2021. What we should be aiming for is Carnival 2022 because it is too late for Carnival 2021 to be a success if you are using digital media for digital reality. In her closing statement, she commended everyone who was a part of the discussion and expressed her hope that we could pull our resources together and make some differences moving forward.

**Moderator: As you are wrapping up, can you give one concrete action, you would want to suggest to everyone else what we could do with it.**

Ms. Abrahams suggested that we put some concrete ideas down on paper. She suggests the hub that they are working on in Tamana needs stakeholders like everybody here in the audience and if we could utilize the hub in that way to support the digital economy and digital entrepreneurs, we are a platform for that.

**Moderator: Do you think coworking would be something that could happen in Tamana?**

Camille assured that it is part of the plan.

**Moderator: Excellent. Roxanne, Final thoughts and one concrete action we could take going forward.**



In her final thoughts Roxanne closed by saying everything takes time. We are also still new at this point. We are still new at the digital enterprise or digital economy, even in the context of virtual events, virtual fetes or virtual parties. If last year taught us nothing, it is that we have to be kinder to ourselves and the expectations that we have. Yes, we want things to be moving at a pace. We want our government institutions to understand where we are going and we get frustrated. So, when we detail what we want it helps us to push these agencies forward. Explaining her experience in being involved in one of the virtual fetes and just getting everyone on board with what they were trying to do, how they were doing it, when they were doing it, how it will roll out, what the order will be, we are still convincing people and we are still not sure what that is supposed to look like. So, as we grow, she encourages us to keep pushing forward. Let's make this a start at collaborating. So as this digital economy unfolds, we have the resources. Just having this panel, and the people making comments in the chat, we have resources available to us. We have the knowledge and the expertise right here that we can pull together and make these things actionable. Yes, there are some great big world-changing ideas out there but if you can't achieve those, you do the little things first. She then closed by expressing her gratitude for being a part of the panel.

**Moderator: Thank you so much Roxanne. Agyei?**

Agyei acknowledged that whilst he spoke a lot about government involvement, on the other side of the spectrum what he didn't really get to talk about is the private sector/entrepreneur /VC relationship. Drawing from his experience he shared that although he was able to bootstrap Unqueue himself, an investment bank now owns a quarter of Unqueue. Generally speaking, there is a lot of difficulty in an asset. He acknowledged that Camille made a really good point about talking to the experts. We have a really skewed idea of who the experts are in Trinidad because, for a considerable period of time, the experts have traditionally been people who have had the same job for 10 years, but that isn't actually expertise, that's just experience. We need to reframe who knows what they're talking about when they're talking about digital entrepreneurship. It shouldn't be the person who has a good job somewhere, it should probably be the person who has likely failed three start-ups because they probably know really well what not to do next time, we are just not looking in the right places for the answers that we fundamentally need.

**Moderator: Keron, last word, concrete actions, and last thoughts.**

Keron encourages people to hold themselves accountable. Even within the confines of our system, you can go online and learn a skill. We have the

tools to get paid where you don't even have to step foot in an office again and still make more than the majority of the highest income earners here in Trinidad and Tobago. We have everything, we need to become self-reliant and not have to rely on the government to give us jobs or to provide jobs. Agreeing with Agyei, a lot of the experts we assume are experts because of the positions they've had are not the people that should be leading the charge. They are also not the people you should be going to ask questions, start with a Google search because a lot of the information that we need is there, we just need to look for it. He then encourages people to build their skill set, if they can build their skill set and start to build their portfolio they can now tap into the global network of clientele, you are no longer limited to clients in Trinidad or in the Caribbean. You can easily build a website. You can easily do copywriting. You can easily be a VA for somebody in Japan, India, and in the US all, at the same time and start to make money from all different aspects of the world. He also encourages people to be okay with saying to themselves, "I might not be too digitally savvy but I'm willing to learn, I am willing to try even if it's something small". Just start because we have the tools, we just need more people to hold themselves accountable and build their own brand, build their name, put themselves out there and start to earn. You can do that.

## Conclusion

Mr. Hackshaw encouraged that today's discussion be made concrete and actionable. He is of the view that this is a good opportunity for us to work together, as a community and as a country to push this agenda forward. He thanked the panelists, Camille, Roxanne, Keron and Agyei and all the people who have joined the discussion in moving this agenda forward. He is of the opinion that this is the way out of the economic crisis that we are going to be facing so we need to look at the next move forward whether it be the green economy or blue economy, but certainly the digital economy. They are ways that we can take this forward as the panelist encouraged, the barriers to entry are extremely low. It just takes a little bit of effort to do some research, skill up, understand where your niche is, where your skills are and begin building your brand. You never know what can happen. He encouraged the audience that we can go forward together and turn the economy around. He concluded by expressing his gratitude for coming together today, contributing and participating.