

Internet Society Namibia Chapter

Beyond The Net 2019– Small Grant Project

**Namibia IoT Market
Survey Workshop 2019**

&

**NAMIBIA IOT FORUM
Launch**

BACK PACKERS UNITED

WINDHOEK, NAMIBIA

16-17 DECEMBER 2019

**Collin M. Hangula
Ndeshipewa Haita**



Welcoming and Introductions – Anna Amoomo, President – Internet Society Namibia Chapter

The Namibia IoT Workshop was held on 16-17 December 2019. This workshop was held as the Internet Society's Beyond The Net Small Grant project in Namibia. A total of 35 participants took part in the workshop over the 2 days.

Anna Amoomo, the President of the Internet Society, and project coordinator for the Namibia IoT Market Analysis, opened the workshop by welcoming the participants and giving a background of the Internet Society. She provided an overview of the activities of the chapter and the goals for the coming year.

She welcomed every participant to join the Internet Society and gave a short presentation of the Internet Society and its membership portal. The attendees were encouraged to join the Internet Society by signing up on the portal.

She also informed the participants that the workshop is meant to be participatory and welcomed all the comments, questions, suggestions and proposals by all participants.

Day 1

Session 1: Introduction to IoT- Collin Hangula

During the opening session of the workshop Collin Hangula, an Emerging Technologies researcher and also Vice-President of the Namibian ISOC Chapter gave a presentation to introduce the participants to the concept of IoT. The participants came from various fields of study including HR, Logistics, Community Development, Accounting & Finances and Marketing. Some of the participants had not heard of the concept of the Internet of Things before. The presentation provided an outline of What IoT is; Current Uses of IoT; African IoT Projects and past IoT related developments in Namibia.

Mr. Hangula also provided the background and purpose of the 2 days' workshop, namely to provide an overview of current IoT-related activities in Namibia (a market analysis) and to create a study / focus group (Namibia IoT Forum) that will continue to watch and report on the ongoing IoT and related activities in Namibia.

The presentation also highlighted to the participants that Namibia is currently in the process of developing a "national digital strategy", in which the role of IoT is not clearly highlighted. There will thus be a need for the Namibia IoT Forum to study the Position Paper for the National Digital Strategy and to be involved in the coming consultation meetings in order to ensure that the role of IoT is featured and reflected in the developing strategy.



Session 2: IoT Lived Experiences in Namibia

In order to provide the participants with an overview of some of the IoT related projects that are going on in Namibia, the workshop organizers invited some organizations to present their relevant projects. An overview of presented projects follows below:

Physically Active Youth (PAY) Katutura – Using IoT to prevent illegal dumping

This group of youth in Katutura uses sensors at illegal dump sites to prevent illegal dumping. The sensors pick up when rubbish is being dumped at designated illegal dump site and alert the group of youths living near-by, who then run to the sites to stop the perpetrators from dumping their rubbish illegally.

First SIM-less phone – Simon Petrus

At the age of 17, this young Namibian guy developed a phone, using recycled materials that could communicate over Namibian networks without a SIM card. In the meantime Simon has managed to add several additional features to his prototype.

UNAM Robotics Club – University of Turku – Alexander Ndeumona

In collaboration with the University of Turku, in Finland, the University of Namibia Robotics Club held an IoT and Robotics training workshop in August 2019. The workshop trained 25 young people. Alex Ndeumona project involved the development of a Fire Detector Device. The device has a smoke detector that analyses the presence and concentration of specific gases in the air and at a certain threshold activates a fan to reduce the level of the gas in the air. The device is also designed to detect fire and activate fire extinguishing activities, by either turning on a water sprinkler or releasing carbon dioxide into the surrounding air.

Alex demonstrated his working prototype to the workshop participants. The UNAM Robotics Club is planning on making this training workshop an annual event.

Simpology – Innovative Information Systems - Freddie

Simpology is a Namibia IT Company that has been in operation for 10 years. The main focus of the company has been the installation of information systems for mines and manufacturing companies. The company was started in southern Namibia and later moved to the capital city.

The founder Mr. Freddie Kruger, has been involved in IoT since 1999, before IoT formally existed as the buzzword it is today. Simpology designed its proprietary IoT enabled platform called OPVANT through which the company collects data into a database, runs some intelligence and reports in summary form for decision & action by company executives. According to Freddie Kruger there are various potential applications for IoT in Namibia, especially in agriculture and utilities companies such as Nampower and Namwater. He informed

the participants however, that there are several regulatory hindrances that need to be removed in order to allow for IoT to take off properly in Namibia. Among these hindrances, according to him, is the fact that Type Approval for Namibian made IoT products does not yet exist.

The attendees were also asked to share any information about other IoT related projects that they are familiar with in Namibia. Several of the identified projects include:

City of Windhoek - An initiative to turn Windhoek into a Smart City. The current phase of this project is set to run until 2025.

Namibia University of Science & Technology - Smart Home Theses by a Masters and a Ph.D. student.

The attendees were encouraged share any details about other IoT projects with the IoT Forum leaders so that these projects leaders may be contacted in order to have their projects featured in the Namibia IoT Market Report that would be published in the course of 2020.

Session 3: Open Discussion – Relevant Uses of IoT in Namibia- Benjamin Akinmoyeje

In the final session of Day 1, the workshop participants participated in an open discussion to brainstorm potential IoT projects for real life issues. This session was moderated by Mr Benjamin Akinmoyeje, who is a social critic and a Masters Student in IT at the Namibia University of Science and Technology (NUST).

All the participants were asked to think of possible uses for IoT in their villages or towns. Some of the ideas shared by various participants were as follow:

Cattle tracking sensor – One participant suggested that IoT sensors may be used for tracking cattle in villages or on farms. With the combination of GPS technology farmers, especially in communal areas may easily be able track where their cattle have moved to.

Managing Water resources – Another participant from Onayena Village, was of the strong opinion that IoT may find application in managing scarce water resources in Namibia. When another participants asked how this maybe done, the villager said that he will start a process of research. Yet another participant, suspiciously asked: “How will IoT help us to get water in our villages, if it does not rain”. There was no easy answer to this question, but the group laughed heartily?

Feld Fire Detection – One of the participants complained that there are regular, almost annual feld fires in his region. Much vegetation is always lost this way. The gentleman wondered whether IoT may not be applied to alert the residents and leaders in his region of the fires before they grow large and uncontrollable. He also suggested that perhaps IoT may be

combined with other technologies such as drones and others, not only to detect the fires, but also to fight them.

Monitoring animals near fences – Someone else offered the suggestion that Namibia could look at the possibility of applying IoT to detect animals near the national highways in order to avoid accidents that are caused by vehicles running into animals crossing the roads. He suggested that IoT sensors may be attached to fences in areas know for animal crossings over the road. When animals are detected perhaps visible signals may be given to drivers to be alerted that an animal has crossed the fence and may be headed for the road.

Human-Wildlife Conflict – Another possible and related application for IoT is to address the current Human-Wildlife Conflict that has been identified as a major challenge in Namibia. How exactly this could be done can be a subject of a research project by organizations or schools.

Crowded Malls Detection – A female participants expressed a wish to have IoT used for detecting over-crowded malls in order to avoid them. This comment drew a few chuckles from the group.

Another lady from the group, observantly asked: “What happens after using IoT sensors to track, detect, map, collect data? To this Mr. Akinmoyeje explained to the group that IoT data can be used for two main purposes. Firstly, the data can be used for immediate, preventative measures. For instance, in the case where IoT is used for flood alerts or accident-related alerts, the user may use the data in order to escape the destruction that may result from these catastrophes. Secondly IoT data may be used by policy makers to make decisions and regulations that are based on evidence.

In the closing part of the session, the moderator facilitated the discussion around the issues that the participants think are or could be hampering the development of IoT in Namibia. Several issues were identified:

1. **Cost issues** – One participant strongly felt that introducing an electronic Health Passport would be a very efficient step in the general healthcare system in Namibia. However the initial investment in such an digital Health Passport system would be astronomical. This is probably true with implementing any IoT or digital system at the start.
2. **Systemic corruption** – The same participant who pointed out the cost issue also highlight the fact that, although the cost benefits for introducing a digital or IoT-enable solution are established, systemic corruption may still hinder or stop the introduction of innovative solution, because some officials and business people may have been

corruptly benefitting from the procurement of the paper based Health Passports and it is in their interest to maintain the status quo.

3. Unfavourable regulations – One participant shared with the workshop group that CRAN, the regulator, has regulations that make it hard for IoT to take off in Namibia. These regulations prohibit the manufacture of IoT components. There are also very tight regulations on the import of some of the necessary components such as Raspberry Pi microcomputers. It will become very necessary to engage with the regulator to have these “sanctions” on IoT components lifted. Perhaps this can be one of the advocacy projects for ISOC Namibia, going forward. The participant referred to a research project that demonstrated that there is a link between the availability of Raspberry Pi and innovation in different countries.
4. Limited Internet Access - Another major issue identified was the limited internet access, especially for rural and peri-urban. Without adequate internet access in these regions it may be impossible to carry out any innovative IoT-related projects that may have potential to improve the lives of people in these regions.
5. TVWS not allowed in Namibia – TV White Space (TVWS) is the technology concept that proposes to use the region of the radio frequency spectrum that was previous used by TV stations that have now move to digital methods, to provide internet access. This can work especially well to provide access to schools and rural areas. The regulator currently does not allow the use of TVWS for internet access. This may be another advocacy project that ISOC may need to focus on. TVWS has the potential to solve many of the internet access issues, to support IoT and other advanced technologies

After the discussion of the challenges, it was clear that the mood in the workshop was becoming negatively affected. The session moderator encouraged the workshop that these challenges are the very work that we should tackle as a group. He closed of the session by saying “Great things don’t get done by a crowd – they are accomplished by a person or team with a passion and dedication”.



Day 2

Session 4: Discussion on IoT Safety & Security – Anna Amoomo

On the second day of the workshop, the participants were once again welcomed by Anna Amoomo, the president of the Internet Society Namibia Chapter. After the welcoming breakfast, the delegates settled down to start the fourth workshop session with the theme of “Protect Yourself”. In this session, moderated by Anna Amoomo, the participants were asked to think about the safety and security aspects that would be introduced into society and Namibia in particular, with the emergence of IoT applications.

In the introductory remarks, the moderator pointed out that people will have to be made more aware that as more IoT enabled devices, applications and services are rolled out, personal security of individuals and organizations will become a greater challenge. Nations will have to introduce laws and regulations for the protection of individuals.

The participants raised concerns and discussed their hopes, fears and aspirations on the following topics:

Tracking of people’s movements –

One safety concern that was raised early in the discussion was that if more of day-to-day services and items, such as health passports, traveling passports, driving licences etc, become IoT-enabled and connected to the Internet, it will become much more easier and likely very common to track the movement of people. One participant felt that this is a great privacy and safety concern. He asked the group how this can be prevented before it becomes uncontrollable.

Another participant replied this query that tracking of people has already become a standard. Internet giant companies such as Google, for instance, use our phones to track our movements. Many people are not aware of these capabilities in the phones or simply are not concerned about it, since it has likely not been used negatively against them yet.

Regulations to protect people’s data –

A student participant raised the point that there will be an explosion of data on the Internet available about individuals as more items in their lives such as cars, fridges and homes become connected to the Internet through IoT. He asked the workshop; “How will such private data be protected on the internet?”

Mr. Freddie Kruger alerted the workshop that there are model regulations that prescribe and regulate how personal info should be protected and safely used. He referred the workshop to a

regulation known as Protection of Personal Information (POPI). He believes that Namibia has adopted this regulation but is not completely certain. The challenge however is that majority of people have no clue what is in the regulation or act and how it protects them.

Biometrics vs RFID Chip Implants

Another participant shared with the workshop that the Namibian government is currently well advanced in the setting up of an e-government network. The physical network has already been rolled out and there are currently 2 or 3 services being installed on it. The main challenge preventing a wider adoption and use of the e-government network is the fact that Namibia first has to move to a digital identity system that would be the central aspect of this e-government system.

The participant asked the workshop what this foreseen digital identity system may be. Would IoT play a role in such an identity system? Should such a system be a biometric-based system or should we go with an RFID implantable chip.

A great discussion on the merits and demerits of both biometric and RFID chip implant systems followed after this question was raised.

One participant felt that we should not have to choose between either of the systems. He felt that people should be given a choice, so that it is more inclusive of different individual's preferences. He felt also that he would not object to the chip implant system if the benefits of this system over others were made very clear.

Another participant preferred the biometric system since the implantation of chips may have adverse health effects, which governments may not yet be aware of.

Several participants completely rejected the idea of a chip implant, because this may be a manifestation of the biblical concept of the "Mark of the Beast"

The discussion was very lively and made even more interesting by the fact that in our country we may have to start the discussion of the introduction of a national digital ID system on a national level.

Awareness Raising

In order to move on from the digital ID discussion, the moderator suggested to the group that much work needs to be done to raise awareness of these different issues among the Namibian citizens. People will require awareness about issues of IoT, Data Protection, Privacy, Digital Identities, RFID, Biometrics and many others issues.

Data Literacy, Science, Collection & Research

Another participant observed that in our workshop discussions about IoT, a central and recurrent theme has been the importance of Data. The participants spoke about collecting data, analyzing data, protecting data and so on. The participant shared the feeling he realizes that the knowledge about data and what to do with it is very important, especially in the era of these emerging technologies such as IoT. He is of the opinion that many Namibians are not aware of the importance of data.

He suggested that we should not only work to raise awareness among the people, but also work hard to train people in “Data Literacy”. Hopefully when we have a significant amount of people who are data literate, we may have a chance to develop Data Scientists who will be able to help Namibia navigate the storms of emerging and complex technologies.

Session 5: Launch of the Namibia IoT Forum – An ISOC Namibia Special Interest Group – Collin Hangula

After two days of discussing IoT and related opportunities and challenges in Namibia, for 2 days during the workshop, the final session was set aside for the establishment of the Namibia IoT Forum. This would be an IoT-focused special interest group of ISOC Namibia that will studying, discussing and reporting on all IoT developments in the country, region and continent for the benefit of ISOC Members and partners. This session was moderated by Collin Hangula.

The moderator explained to the participants that in order to continue the discussion around IoT matters, the ISOC Namibia leaders proposed the formation of a special focus group to continue monitoring developments in IoT in the nation, and to try to engage stakeholders and decision makers to ensure that IoT developments happen to the benefit of the nations.

The participants were requested to brainstorm and contribute ideas on what the Namibia IoT Forum should be focused on for the coming year. The discussion yielded the following results:

2020 Activities for Namibia IoT Forum:

After a brainstorm and discussion session the workshop attendees agreed that the activities of the Forum should include but not limited to the following.

1. Training & Awareness – Data Literacy, Data Security Awareness
2. Engagement with Stakeholders – CRAN, MICT, and others
3. Policy Research & Recommendation – Identify IoT relevant policies and provide input



2020 Outputs for Namibia IoT Forum:

The gathering also agreed that at the minimum, the Forum should try to produce the following outputs.

1. Annual Report (State of IoT)
2. Annual Workshop
3. Policy Workshop Input

Inaugural Committee & Members for Namibia IoT Forum

At the end of the discussions the workshop attendees held a quick nomination and voting session to elect the willing leaders who will be tasked with managing the activities of the Namibia IoT Forum. The following individuals were elected into the respective positions

1. National Coordinator – Freddie Kruger
2. Deputy National Coordinator – Alexander Ndeumane
3. Administrator s – Jackie Van Wyk & Ndeshipewa Haita
4. Active Contributors – Several willing members

The elected leaders accepted the responsibility of managing the Forum's activities for 2020.

As a Special Interest Group of ISOC NAMIBIA, the IoT Forum leadership and the Internet Society Namibia Chapters leaders will sit together in January and February 2020 to discuss details such as the leaders term length, funding, financial management etc.



Appendix 1: Event Advert & Program



The advertisement features a dark blue background with a network of white nodes and lines. A yellow and green curved banner at the top contains the Internet Society Namibia Chapter logo and the event title. Below this, a yellow banner highlights the theme 'LEARN DESIGN DEVELOPE'. A black box lists the daily agenda. The dates '16TH -17TH DEC' are prominently displayed on the left, while the venue and time 'BACK PACKERS UNITED Windhoek West 08H00-13H00 (BOTH DAYS)' are on the right. A central image shows a laptop with 'IoT' on its screen, surrounded by various IoT-related icons. At the bottom, a dark blue curved banner provides the RSVP contact information for Anna Amomo, including a phone number and a website URL. The Internet Society logo is repeated in the bottom left corner.

Internet Society
NAMIBIA CHAPTER

IoT MARKET ANALYSIS
2 DAYS WORKSHOP

LEARN DESIGN DEVELOPE

Day 1 Local IoT Exhibitions
Day 2 Discussions and Creation of IoT Forum

16TH -17TH
DEC

BACK PACKERS UNITED
Windhoek West
08H00-13H00 (BOTH DAYS)

IoT

RSVP
Anna Amomo +264 81 456 0238
<https://www.internetsociety.na>

Internet Society





Internet Society Namibia Chapter

AGENDA- MARKETING ANALYSIS ON IoT IN NAMIBIA

DATE AND VENUE

16 & 17 December 2019

08:30 REGISTRATION and BREAKFAST

09:00 WELCOMING REMARKS – ISOC NAMIBIA –Anna Amomo

09:30 SESSION 1: Introduction and what is IoT

10:00 Presentation by Collen Hangula:

Perspectives and Potential trends

Africa and the world

Namibia and the 4th Industrial revolution

11:15 BREAK

11:30 SESSION 2: LIVED EXPERIENCES: Presentations and exhibitions

Havana group

Students Petrus Simon-

Unam Robotics class-Smoke detectors

Industry Simpology : Freddie Kruger

Namibia safety expo

12:15 SESSION 3 Discussions

Key considerations

Challenges

Market readiness

Promote the use of IoT

Policy and Accountability

13:15 LUNCH and networking

Day 2

09:15 Breakfast and

SESSION 4

Introduction to the IoT Forum

Discussion duties

Outputs

SESSION 5: PROTECT YOURSELF - ROUNDTABLE DISCUSSIONS

PROTECT YOURSELF - ROUNDTABLE DISCUSSIONS

SHORT BREAK

1 Open discussion

16:30 SESSION 6: FINAL SESSION: PLANNING THE WAY FORWARD

17:30 CLOSING

Anna Amomo,

President – Internet Society Namibia Chapter



Building Trust

Trust is the key issue in defining the future value of the Internet.



Appendix 2: Event Photos





Appendix 3: Attendance Registers

Day 1:



Internet Society
Namibia Chapter

NAMBIA IOT WORKSHOP
ATTENDANCE REGISTER
Day 1: Namibia IoT Model Analysis

NAME & SURNAME	ORGANIZATION / OCCUPATION / INTEREST	CELL NUMBER / EMAIL ADDRESS	SIGNATURE
Collin Honyala	ISOC	internetcollinhonyala@gmail.com	
Erasmus Mubanga	ISOC	erasmus.mubanga@isoc.org	
Princy Ky	ISOC	princy.ky@isoc.org	
Priscilla Namwona	ISOC	priscilla.namwona@isoc.org	
Alfred Ndawane	UNHAM	alfred.ndawane@unham.org	
Lucas KIRINDA	ISOC	lucas.kirinda@isoc.org	
Peter Simon Mupfanga	ISOC	peter.simon.mupfanga@isoc.org	
Tuli Hamungeth	ISOC	tuli.hamungeth@isoc.org	
Jacob Van Kester	Simpology	jacob.van.kester@simpology.com	
Freddie Kruger	Simpology	freddie.kruger@simpology.com	
H.N. Aluyika	ISOC	h.n.aluyika@isoc.org	
Ruvon Feyr	ISOC	ruvon.feyr@isoc.org	
Jacobs Van der Merwe	ISOC	jacobs.van.der.merwe@isoc.org	
HAITA NDESHIPENA	STUDENT - NUST	haita.ndeshipena@nust.edu.na	





Internet Society
Namibia Chapter

NAMIBIA IOT WORKSHOP

ATTENDANCE REGISTER

Day 1: Namibia IOT Market Analysis

NAME & SURNAME	ORGANIZATION / OCCUPATION / INTEREST	CELL NUMBER / EMAIL ADDRESS	SIGNATURE
Amelius David	Amn ICT	0812049611	
Francine Sulewa	Self Employed	08133712292	
Enochamus, Sebastian	Olds	Sebastian.ringelmann@gmail.com	
Bussmann, Sany	Volunteers	Sany@swain.org.na	
Wahle Felina	Volunteers	felina@swain.org.na	
anna Annomo	ISOC	0814560358	
Thoo Shifaleu	ISOC	0812422887	
Sheya Johannes T	Volunteers	Johannes2000@swain.org.na	
Wesley Portmanus	Volunteers	wesley@swain.org.na	





NAMIBIA IOT WORKSHOP

ATTENDANCE REGISTER

Day 1: Namibia IOT Market Analysis

NAME & SURNAME	ORGANIZATION / OCCUPATION / INTEREST	CELL NUMBER / EMAIL ADDRESS	SIGNATURE
<i>Priscilla Namuyi</i>	<i>WISN Banker /</i>	<i>0812279965</i>	<i>[Signature]</i>
<i>Alimola Ekandya</i>	<i>USI</i>	<i>081683407 / benkin@gmail.com</i>	<i>[Signature]</i>
<i>Benjamin Atemenge</i>	<i>NUSI</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Erasmus Mubenge</i>	<i>IT</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Lucas Ekibanga</i>	<i>ISOC</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Steph Johannes T</i>	<i>Volunteer</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Gabriel Ngunjiri</i>	<i>MUST / Student</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>HANTA KHEPUPWA</i>	<i>MUST / STUDENT</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Petrus Simon Nampunga</i>	<i>ISOC</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Forbbie Kanyer</i>	<i>Simphony</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Tomas Noe Kanyer</i>	<i>Simphony</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Phillipa Roy</i>	<i>Small business</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>Immanuel Tujopini</i>	<i>Telecom Namibia</i>	<i>0814512 / matungu@gmail.com</i>	<i>[Signature]</i>
<i>PETRUS SHIFIDI</i>	<i>CAPRICORN GROUP</i>	<i>0813748988</i>	<i>[Signature]</i>





Internet Society
Namibia Chapter

NAMBIA IOT WORKSHOP

ATTENDANCE REGISTER

Day 1: Namibia IOT Market Analysis

NAME & SURNAME	ORGANIZATION / OCCUPATION / INTEREST	CELL NUMBER / EMAIL ADDRESS	SIGNATURE
Aurelius David	R-Genesis	081244964	
Anna Imogene	ISOC Namibia	0811510038	
Natasha Heitkes	Volunteer	0813531531	
Jessica Bentes	Volunteer	0816328548	
Esty Louw	Volunteer	0813622892	
Ellie David	Volunteer	0812860084	
Lavinia Shigamba	Teacher	0814199455	
Peter Kaponga	Self-employed	0813686351	
Stephanie Swakwama	OpenSource.com	+26473681226412	
Alastair Ndlovu	UNMFM	0816504938	
Thao Shifaleri	Business Consultant	0812422887	
Helena Bottemus	Volunteer	0912181417	



