



# **BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTs**

@ the

## **INTERNATIONAL TELECOMMUNICATION UNION (ITU) ANNUAL REGIONAL HUMAN CAPACITY WORKSHOP**



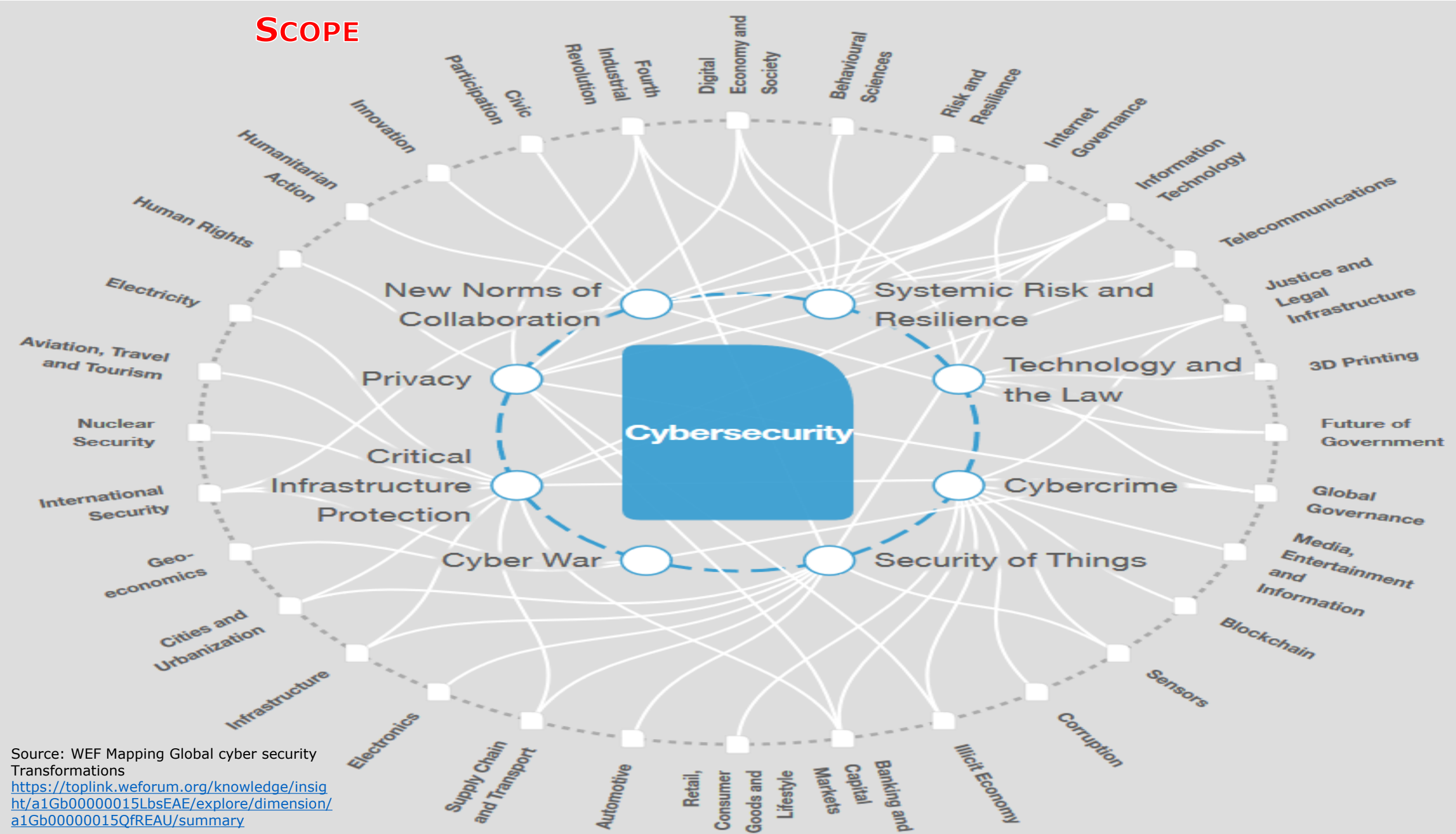
by:

**Consultancy Support Services (CS2) Ltd.**



[info@consultancyss.com](mailto:info@consultancyss.com)  
Shehu Musa Yar'adua Centre, Abuja, Nigeria.  
27-29 August 2018

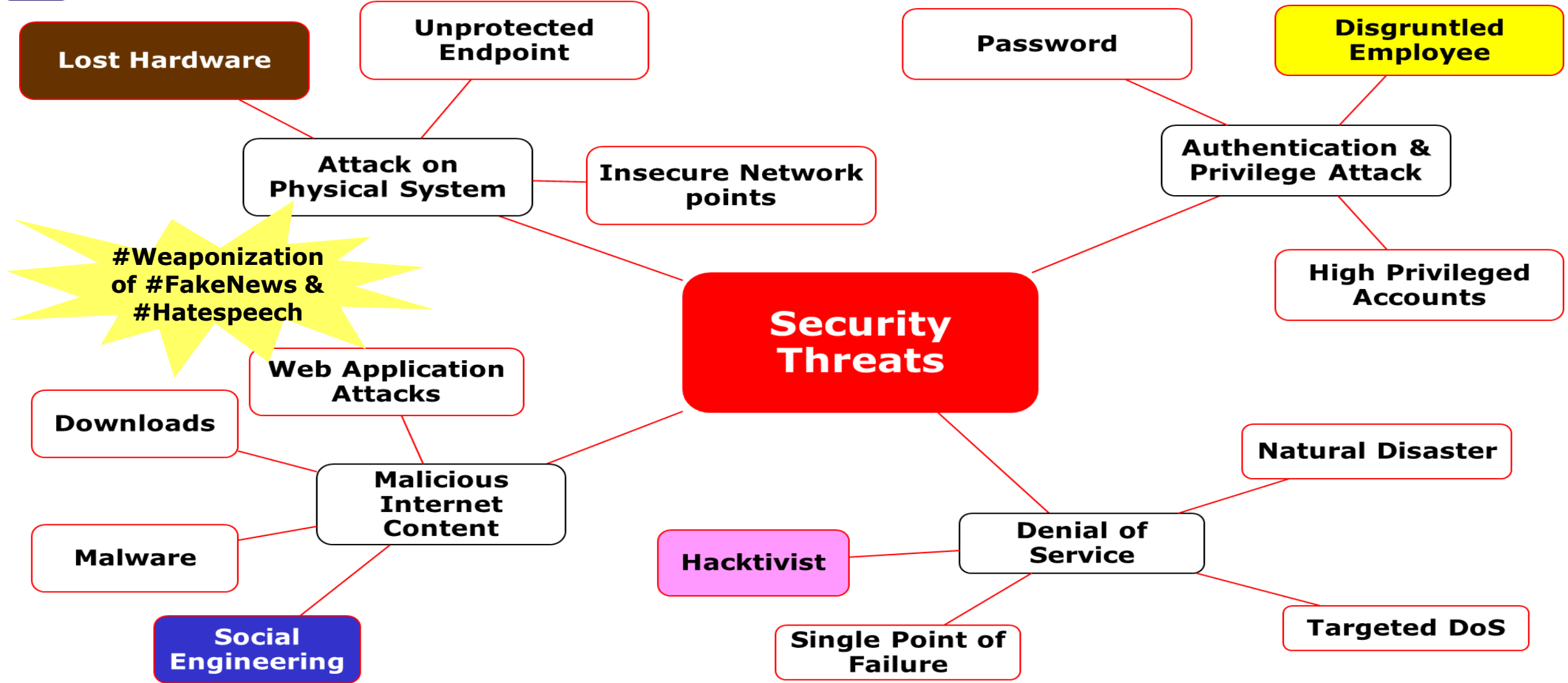
# SCOPE



Source: WEF Mapping Global cyber security Transformations  
<https://toplink.weforum.org/knowledge/insight/a1Gb00000015LbsEAE/explore/dimension/a1Gb00000015QfREAU/summary>



# CYBER "THREAT" SPACE



**“Cyber-criminals operate at the speed of light while law enforcement moves at the speed of law.<sup>1</sup>”**

1 Barry Raveendran Greene [www.getit.org](http://www.getit.org)

**Like most of the World, Nigeria is building an electronic future upon capabilities, processes & infrastructure that we have not yet understood how to protect.**

**05 February 2015, the President launched:**

- **National Cybersecurity Policy**
- **National Cybersecurity Strategy**
  - **Cyberspace as the 5<sup>th</sup> Domain of Warfare** after Land, Sea, Air & Outer-space

**On 16 May 2015, the President signed the **Cybercrime (Prohibition Prevention, etc.,) Act 2015** into law**

**“I also wish to assure the wider international community of our readiness to cooperate & help to combat threats of ..... Cyber crime.....” - President Muhammadu Buhari 29 May 2015 inauguration speech**

# DOMESTIC CYBERSECURITY PLAYERS



## Government



- Defence Space Administration (DSA)
- Economic and Financial Crimes Commission (EFCC), Digital Forensics Laboratory
- Galaxy Backbone, ISO27001 Certification
- National Information Technology Development Agency (NITDA), Computer Emergency Readiness & Response Team of Nigeria - CERRT.ng
- Office of the Attorney General of the Federation, Cybercrime Prosecution Unit
- Office of the National Security Adviser (ONSA), Nigeria Computer Emergency Response Team (NGCERT)



## Private/ NGO



- Computer Forensics Institute of Nigeria (CFIN), Professional Body
- Consultancy Support Services (CS2) Ltd, Digital Forensics
- Cyber Institute Ltd/ GTE, NGO, Capacity Building & Research
- Cybersecurity Experts Association of Nigeria (CSEAN), Professional Body
- Digital Jewels Ltd. -- Research & Capacity Building

## Academia



- Federal University of Technology (FUT), Minna, Dept. of Cybersecurity
- Nassarawa State University, Keffi, Centre for Cyberspace Studies



# WHO ELSE IS USING CYBERSPACE?



**Boko Haram**



**MEND**



**IPOB**



**Arewa Youth**



**OPC**



**Islamic State**



**FARC**



**Aum Shinrikyo**

## Values, Propaganda, Financing & Recruitment

### Pentagon Manipulates Social Media for Propaganda Purposes

Source <http://www.globalresearch.ca/pentagon-seeks-to-manipulate-social-media-for-propaganda-purposes/25719>



- **Develop & disseminate propaganda**



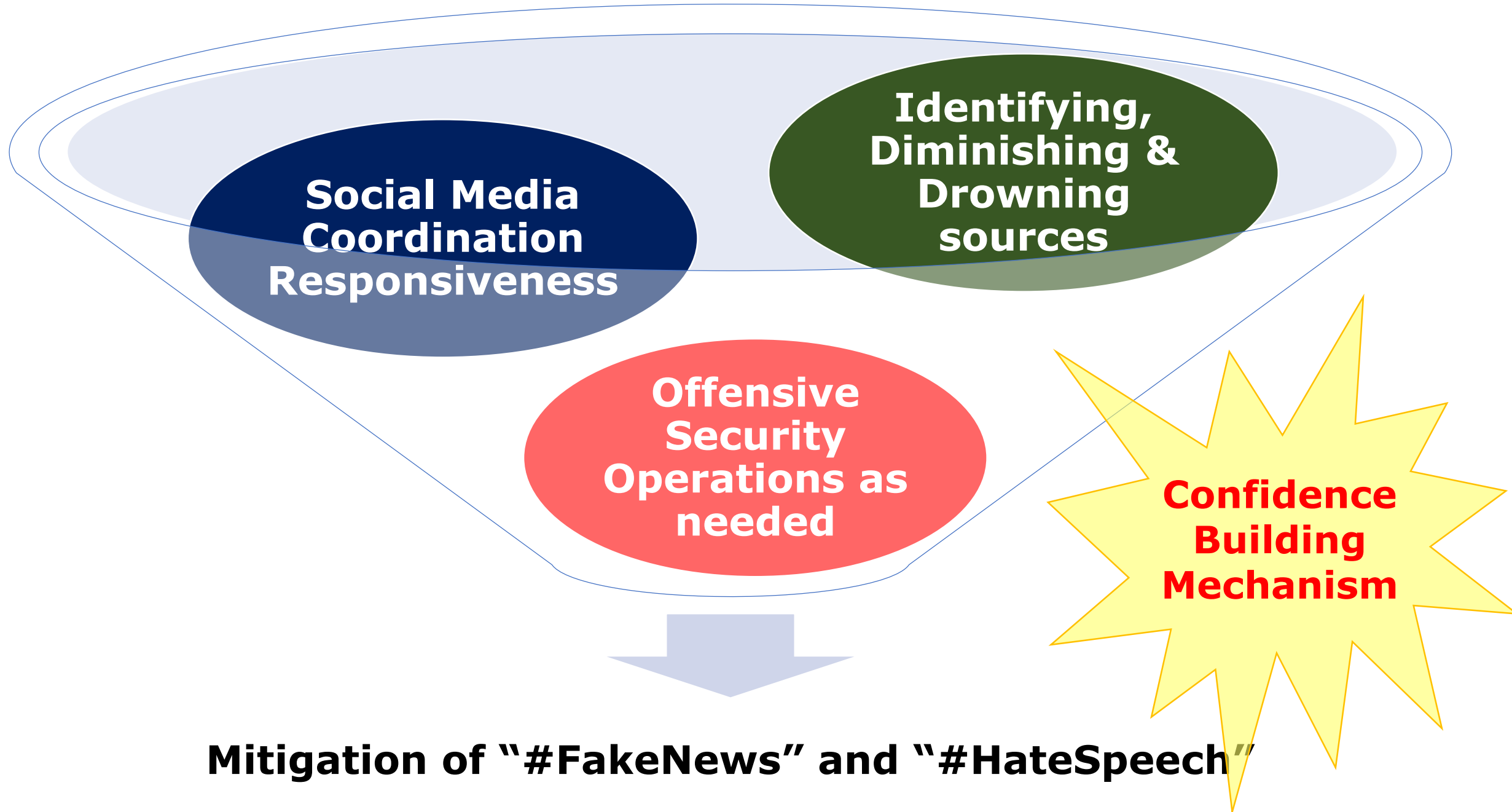
- **Illicit activities financial, mobilization planning & coordination**



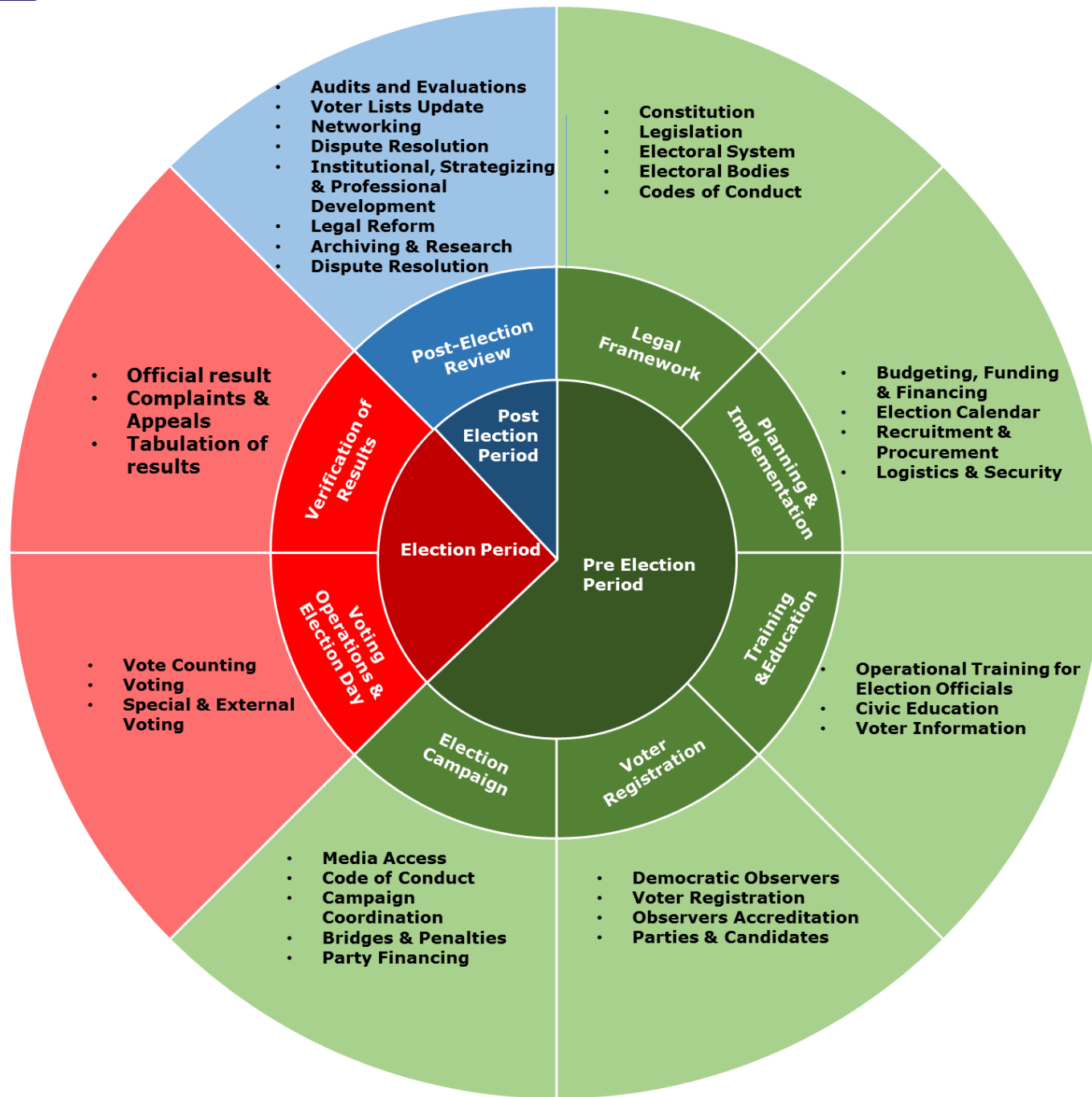
- **Take down infrastructure, Finance systems, Government services**



# "#FAKE NEWS" AND "#HATE SPEECH" MITIGATION



# ELECTION PROCESS?

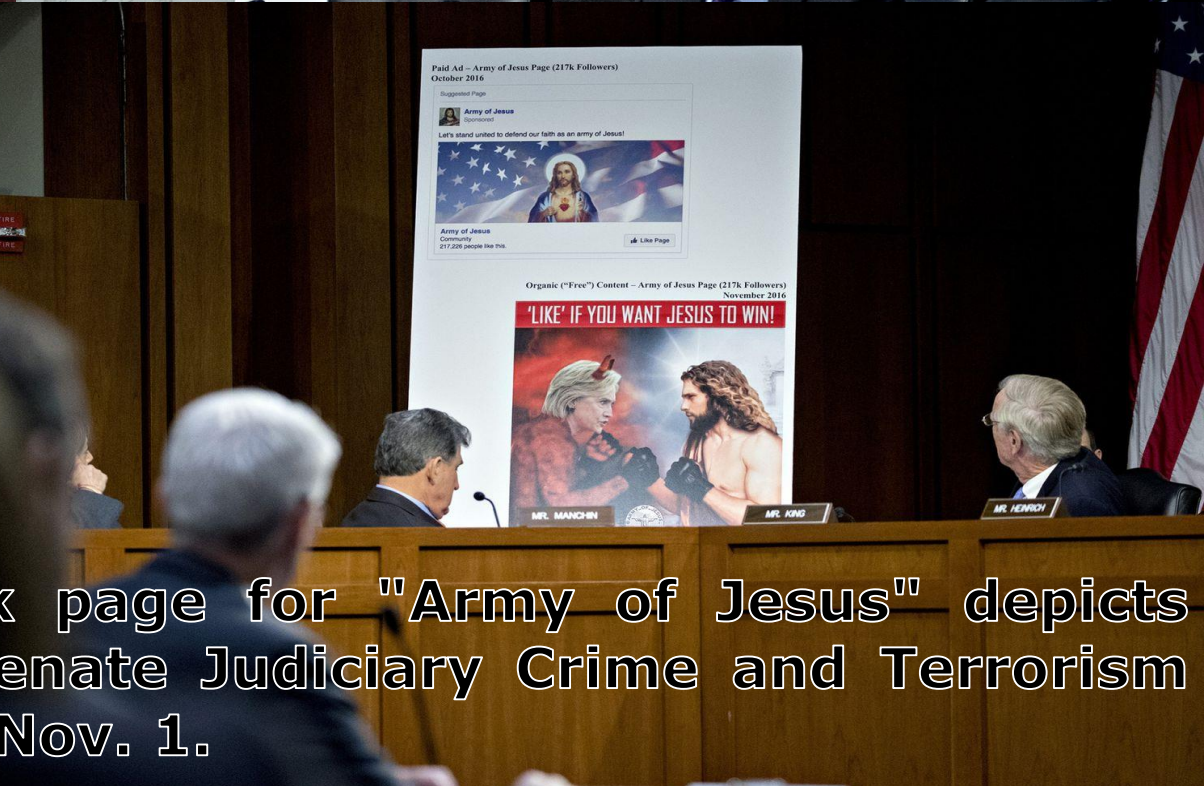
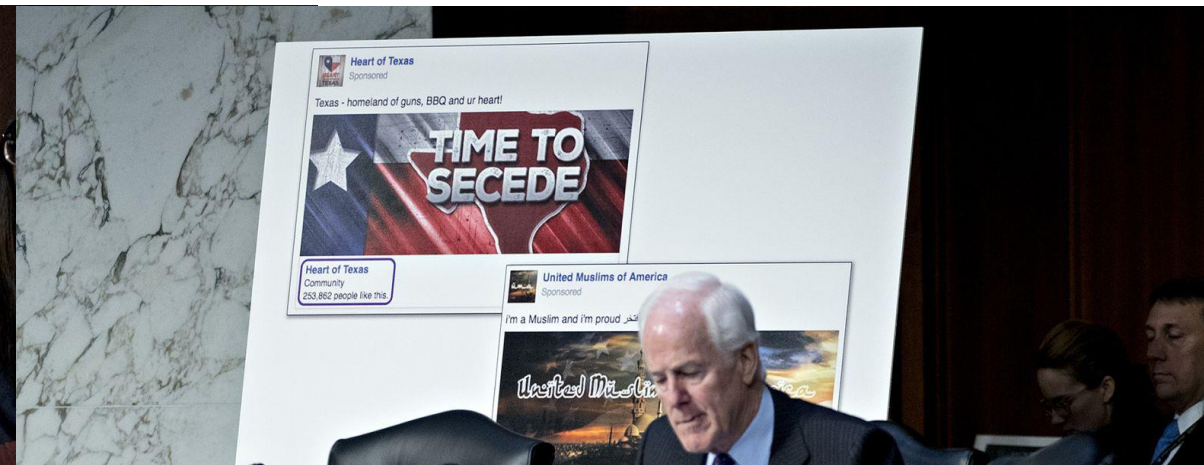


- **Why Hack the Election Technology and sub-systems?**
- **Directly hack the Electorate (voters) and the Process**
- **#Fakenews** Hack the Commander-
- **#HateSpeech** in-Chief
- **Ethnic Chauvinists:**
  - **IPoB**
  - **Herdsmen**
  - **Arewa Youth**
  - **MEND**
  - **OPC**





# ALLEGED RUSSIAN-BACKED ADVERTISING AIMED AT MANIPULATING AMERICAN OPINION



A board showing a sponsored Facebook page for "Army of Jesus" depicts Hillary Clinton fighting Jesus during a Senate Judiciary Crime and Terrorism Subcommittee hearing in Washington, on Nov. 1.

Source: <https://www.bloomberg.com/news/photo-essays/2017-11-01/social-media-companies-grilled-over-these-russia-ads>



**ITU analysis reveals that a 10% increase in a country's digitisation score fuels a 0.75% growth in its GDP.<sup>2</sup>**



**Booz & Company's study shows a 10-point increase in the digitalization score will lead to a 1.02 percent drop in the unemployment rate.<sup>3</sup>**



**WEF 2016 Global Competitiveness Index (GCI) Nigeria ranks 124 out of 140 with a score of 3.5 with 1 being worst and 7 being the best.<sup>4</sup>**



**Kaymu.com survey reveals internal digital divide: 86% of total visits to e-Commerce sites originates from Lagos. FCT 2<sup>nd</sup> having 9% of e-commerce visits.<sup>5</sup>**

Source:

1. Clive Humby, ANA Senior marketer's summit, Kellogg School, USA
2. World Economic Forum; The Global Information Technology Report 2013; [http://www3.weforum.org/docs/WEF\\_GITR\\_Report\\_2013.pdf](http://www3.weforum.org/docs/WEF_GITR_Report_2013.pdf)
3. Booz & Company's study, in 2011 titled The Varying Effects of Digitization on Economic Growth and Job Creation – A Global Perspective
4. World Economic Forum Global Competitiveness Index (GCI) <http://reports.weforum.org/global-competitiveness-report-2015-2016/economies/#economy=NGA>
5. E-Commerce in Nigeria. Market Trends and Consumer Behaviour by Kaymu.com [https://static-market.jumia.com.ng/cms/creative-corner/guides/research/E-commerce\\_NG.pdf](https://static-market.jumia.com.ng/cms/creative-corner/guides/research/E-commerce_NG.pdf)

# "Trusted" INTERMEDIARY of value

- **Authentication**
  - **Required by the Next Generation of Digital Services**
  - **Crypto-currencies**
  - **"e" Documents**

- No** •Harmonised Data
- No** •Authentication
- No** •Trust
- No** •Digital Economy



**Cowries**



**Gold**



**Cash**



**Cards**



**Electronic**



**Virtual Money/  
Cryptocurrency?**

**What will  
the national  
Mint produce  
in 21<sup>st</sup>  
Century?**



## NATIONAL STRATEGIC INTEREST

**Develop, nurture & patronize a home grown IT economic sector**

**Generate employment (job creation)**

**Increase incomes & Government revenue**

**Promote Knowledge Generation & empowered Human Resources**

**Foster confidence in our economy & our Broadband as well as related ICT infrastructure**

**Enable the Nation to meet it's national development agenda**

**Enhance human safety & national wellbeing**

**Foster broader adaptation of knowledge "info-structure" for broader & even socio-economic development**

**Reduce the cost of ICT services by ensuring that they carry only what they are designated to carry**



# CYBERSECURITY RESILIENCE MATURITY FRAMEWORK

Step 2: Address Sophisticated Attacks

Step 1: Critical Security Controls (CSC)

Maturity Descriptor	Employment of Security Controls	Security Tailored to Mission	Participate in Information Sharing (Threat/Vulnerability)	Response to Cyber Threats	Resilience to Cyber Attacks
<b>Level 5: Resilient</b>	<b>Augment CSC Based on Mission</b>	<b>Mission Assurance Focused</b>	<b>Real-time Response to Inputs</b>	<b>Anticipate Threats</b>	<b>Operate through Sophisticated Attacks</b>
<b>Level 4: Dynamic</b>	<b>Augment CSC Based on Mission</b>	<b>Mission Focused</b>	<b>Real-time Response to Inputs</b>	<b>Rapid Reaction to Threats</b>	<b>Able to Respond to Sophisticated Attacks</b>
<b>Level 3: Managed</b>	<b>CSC Integrated and Continuously Monitored</b>	<b>Partially Mission Focused</b>	<b>Respond to Information Inputs</b>	<b>Respond to Attacks After the Fact</b>	<b>Protection Against Unsophisticated Attacks</b>
<b>Level 2: Performed</b>	<b>Foundational Critical Security Controls (CSC) Implemented</b>	<b>Mission Agnostic</b>	<b>Inconsistent Response to Information Inputs</b>	<b>Respond to Attacks After the Fact</b>	<b>Some Protection Against Unsophisticated Attacks</b>
<b>Level 1: No Resilience</b>	<b>Inconsistent Deployment of Security Controls</b>	<b>None</b>	<b>None</b>	<b>No Response</b>	<b>Susceptible to Unsophisticated Attacks</b>

**Confidence Building Mechanism**



NATIONAL SECURITY INTEREST TO BUY-LOCAL

OPPORTUNITY: WEALTH AND JOB CREATION PLUS REVENUE GENERATION

- Africa Cyber Security Market was estimated to be \$0.92 Billion in 2015
  - Expected to grow to \$2.32 Billion by 2018
  - What percentage of that market can be ours/ yours?
- Confidence Building Mechanism



## Education:

- Primary,
- Secondary,
- Vocational and Tertiary
- Incubators/ Hubs

**Confidence Building Mechanism**



## Lay Digital Society's foundation's:

- Enabling environment
- Positive legislation and regulation,
- Tax Incentives and
- Some Government investment



## Create Centers of Knowledge:

- Start-Hubs/ Incubators
- Educational and/ or
- Research Institutes
- Military



GLOBAL COMMISSION  
ON THE STABILITY OF CYBERSPACE

- Promote mutual awareness and understanding among the various cyberspace communities working on issues related to international cybersecurity by contributing to an essential global task of supporting the security and stability in, and of, cyberspace:

- Norms coherence
- Policy

**Confidence Building Mechanism**



**Marina Kaljurand**,  
former Foreign Minister of Estonia



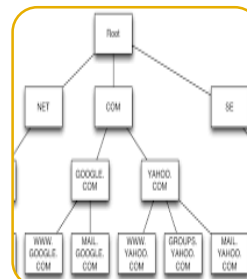
**Michael Chertoff**,  
former Secretary of the U.S. Department of Homeland Security



**Latha Reddy**,  
former Deputy National Security Adviser of India



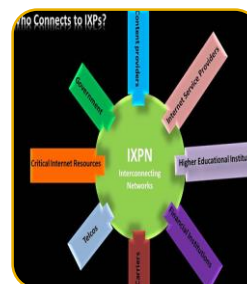
**NORM: PROTECT THE PUBLIC CORE OF THE INTERNET**  
**WHAT IS THE PUBLIC CORE OF THE INTERNET?**



The **Logical Infrastructure** (Transmission Control Protocol/Internet Protocol (TCP/IP), Domain Name Servers (DNS), **Routing Protocols**)



The **Physical Infrastructure** (DNS, Servers, **Sea Cables**)



The **Organizational Infrastructure** (**Internet Exchanges (iXP)**, Computer Emergency Response Teams (CERTs))





# THE GLOBAL FORUM ON CYBER EXPERTISE (#THEGFCE) WORKING GROUP B

[HTTPS://WWW.THEGFCE.COM/](https://www.thegfce.com/)

## CYBER INCIDENT MANAGEMENT AND CRITICAL (INFORMATION) INFRASTRUCTURE PROTECTION



**GFCE**



**Holland**



**India**

- 75
- 20
- 5
- 4

- **Members**
- **Nations**
- **International Organisations**
- **Multinationals**

Buckets	Topics	Milestones
<p><b>National Cyber Security Incident Response</b></p> <p><b>Incident Capture and Analytics</b></p> <p><b>Cyber Exercises</b></p> <p><b>Critical Information Protection</b></p>	<p><b>Identify obstacles and carry out gap analysis,</b></p> <p><b>Collect maturity metrics,</b></p> <p><b>Develop a repository of best practices and case studies,</b></p> <p><b>Develop recommendations.</b></p>	<p>Kick-off Phone Meeting, F2F Meeting, Kuala Lumpur Phone Meetings</p> <p><b>Annual Meeting September 2018, Singapore</b></p> <p>Phone Meetings Update Progress Report December 2018, Phone Meetings Annual Meeting 2019, Phone Meetings Update Progress Report December 2019</p>
<p><b>Confidence Building Mechanism</b></p>		



**Education/  
Certifications:**  
**With practical  
examinations &  
continuing education**

**Essential Work Habits:**  
**Ability to work  
methodically & is very  
detail oriented**

**Soft skills:**  
**Ability to clearly  
articulate complex  
concepts both written &  
verbally**

**Confidence Building**

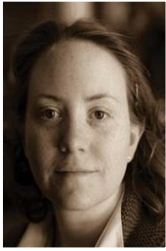
**Technical detailed  
knowledge of:**  
**Open Source  
Applications**  
**Network  
Implementation**  
**IP**

**Solid Technical  
Foundation:**  
**Understand  
architecture,  
administration,  
management &  
evaluation of operating  
systems, networking  
(especially routers), &  
virtualization software**

**Creative Perspectives:**  
**Examine security from a  
holistic view, including  
threat modelling,  
specifications,  
implementation, testing,  
& vulnerability  
assessment**



# WOMEN IN IT SECURITY: POWER PLAYERS



**Heather Adkins,** director, information security, **Google**



**Ann Barron-DiCamillo,** director of **US-CERT,** U.S. Department of Homeland Security



**Lara Nwokedi,** Head of Information Security management **First Bank Plc.**



**Roxane Divol,** General Manager (GM) of **Symantec's Trust Services**



**Rakiya Mohammed,** Chief Information Security Officer (CISO) **Shuaibu-CBN**



**Melinda Rogers,** CISO, Department of Justice



**Wunmi Adetokumbo-Ajayi,** **PWC**



**Maureen Jatto,** **EcoBank PLC**



**Julie Cullivan,** senior vice president of business operations & chief information officer, **FireEye**



**Eva Chen,** CEO, **Trend Micro**



**Zareefa Mustapha PhD.,** Lecturer, Cloud Forensics **Baze University**



**Confidence Building Mechanism**



## MATTERS ARISING

**We must build optimal capacity in the cyberspace as the 5<sup>th</sup> domain of warfare**

**Collaboration is critical**

**Cyberattack is an "exploit" not a "weapon," combination of tactics, technology and teamwork to penetrate disrupt or destroy opponent systems**

**Develop the Cybersecurity Economic Subsector by Patronizing Domestic Cybersecurity Players**

**Mr. President designate the Election Process as a Critical National Information Infrastructure**

**Engage in local and international research**

**"#Weaponisation" of "#FakeNews" and "#HateSpeech" must be mitigated**

**Take Social responsibility and desist from circulating #FakeNews and #HateSpeech**

**Encourage the development of Hackers who will defend the "Digital Nigerian."**

**Encourage the growth of National and Institutional Resilience**

**Nigerian Society must encourage Women in IT Security**

**"The real target in war is the mind of the enemy commander, not the bodies of his troops.<sup>1</sup>"**



# Proposition for Adoption

**Confidence  
Building  
Mechanism**

- By the year 2020/25 an MSME based **Cybersecurity Solutions** economic sub-sector should be in place principally driven by suitably empowered knowledge workers below 35 years of age



**Thank  
you, for  
your  
attention**

**Na gode,  
don  
kulawa**



**O ʃeun,  
fun  
akiyesi re**

**Imela na  
igere anyi  
nti**

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