**Omnia Architecture**

# National Level Cybersecurity

## A Spacetime Perspective

### The Causal structure of Cyberspace

* Khun's Cycle that binds human awareness
* Bandwidth
* Namespaces

• Search Engines and Social Media

• Dominant Areas

• Domain Name Service

• API Registries

• Public Key Infrastructure

### The Nature of Power Struggles

* Symmetrical Battle
* Asymmetrical Warfare
* Data is the Currency of Cyberwars

• Meta Data

• Routing

• Indexing Structure

• Content Data

• Code that acts on Data

### The Art of War

* Deter animosity before war starts
* Those who computes more, wins!

• Searching

• Public Search Engines

• Private Search Engines

• The Power of Names

* Winning at all scales!

## Digital Governance

### The Spacetime Dominian

* The right to occupy the namespace
* The language of agreements
* The Landscape of Cyberspace Security

• Case Study of US Government Programs

• Case Study of European Union

• ENISA

### The Constituents

* The People
* The Physical Territory
* The Law (Sovereignty)

### Homeostasis in Cyberspace

* Defensive Mechanisms

• Scenarios and Solutions

• Resistance to Intrusion

• Quarantine Zones and Immunization

* Self-Governance

• Social Resilience

• People's Market

• Protect the Interests of the Crowd

* Law Enforcement

• Guaranteed Contract Execution

• Automatic Law Refinement

• Generative Legal Contracts

• Automatic Proofs

• Operational Data Observation

• Mesh Service Architecture

• Data Plane and Control Plane

## Security Infrastructures

### Technical Infrastructures

### Societal Structures

* Culture
* Organization
* Religious Foundations

### Resilience against Natural and Globalized Disasters

* Preemptive Actions
* Emergency Response
* Globalized Sourcing of Solutions

# The Enabling Factors

## New Technologies

### IoT

* Work with top tier IoT Supply Chain platforms

### Data Centers

* Centralized
* Personalized

## New infrastructures

### Data Sources

* Live Data Streams
* Historical Data

### Data Analytics

* Adopt Industry Standards

• Enable Interoperability

• Embrace Legacy Data

* Steamline Meta Workflows
* Generalized Data Processing: Search

## New Mental Models

### Culture

* Foundational Beliefs captured in Live Data
* Envision Social Dynamics using Live Data

### Media

* Shaping the Language of Data Medium
* Sensible Media

### Education

* A national curriculum for Data Awareness
* The Reflexive Data of Learning Activities

# The Economics of Cyber Defense

## The Formulation of Cyber Defense Policies

### Data Centric

* Public and Private Data Centers
* Containers of Data Assets
* Common Search Algorithms

### Legal Algorithms

* Legal Coherence and Consistency
* Compliance: Execution of Contractual Agreements
* Consensus Technology

### Refinement Process

* Sustainability in Cyberspaces
* Alignment of Localized Interests

## Measurable Signals and Outcomes

### Realtime Trust-Worthy Data

### Accountability through Book-Keeping Service

## Governance Mechanisms

### The Kubernetes of Political Agencies

### The Council of Cyberspace Governance

### The Cloud as a New Frontier

# Building the Future

## Implementing Omnia in Cyberspace

### Security Through Distributive Justice

* The nature of data:Timeless and location-free
* Power balance and information symmetry
* Encoding Security into Natural Human-Machine Interfaces

• ID Authentication Service

• Ubiquitous Recommendation Algorithms

### Inclusive Model of Governance Participation

* Industry Standard Creation Agencies
* Personalized Data Centers and Broadcasting Infrastructures
* Educational Programs to Inform that masses

### Modularized Development and Operations

* Cyberspace Defense Policies in DevOps
* Build Locally, Deploy Globally
* Extract Security Patterns from Vertical Applications

## Discussion

### Security of Human Civilization

* Reliance on Automated Reasoning Tools
* A New Foundation of Maths and Reasoning

### Security of National States

* Physical and Cyberspace Security as One
* Grooming Security Awareness takes Time

### Elements of a National-level Cybersecurity Program?

* Governance Body
* Constitutional and Cultural Compliance
* Executive Agencies
* Technical Infrasrtuctures

# Conclusion

## Cybersecurity is a Global Issue that requires equitable solutions.

### Relative Advantages of Large and Small Organizations

### Globalized Equity

### Localized Competitive Edges

## The architecture of global data distribution defines the characteristics of cybersecurity

### Universal Access

* Secure and Reliable Data Transports for All
* Public Access to Computing and Storage Resources

### Interoperability and Security

* Public Private Partnerships
* Transparency and Simplicity

### Search at all Scales

## National States can participate in the architectural refinement process

### Actively Participate in Shaping Technology Standards with existing Standard Bodies

### Deploy Technical Products and Data Services that are compatible with National-Level Cybersecurity

### Support Bottom-up Arts, Entertainment, and Educational Activities that can elevate the Cybersecurity Literacy of Government Agencies and National Citizens