



## Cyber Security aspects of outsourcing, e-Governance, m-Commerce and financial inclusion

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*AADHAAR serves as a Proof of Identity  
& Address, anywhere in India*



# Agenda

**1**  
**Context**

**2**  
**Cyber Security Challenges**

**3**  
**Case Study**



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# UIDAI Charter: Setting up the context

*“The test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have too little.”*

*- Franklin D. Roosevelt*

**UIDAI** has been established to **empower** residents of India with a **unique identity** and a **digital platform** to **authenticate anytime, anywhere;**

This is driven from a **core value** of a **commitment** to **inclusive** nation building.

*In India its all about **We - The People!**  
The day we reach all of **Us - The People,**  
It's Mission Accomplished!*



# Financial Inclusion: An Indian view

More than 40% of the households in India do not have access to banking services.

- Indian Census 2011

India's household debt-to-GDP ratio stands at 9%, one of the lowest among the Asian countries

- livemint.com

*Some of the initiatives which the Government of India has taken are -*

## Pradhan Mantri Jan Dhan Yojana

- Open **75 million** bank accounts by January 2015
- ~**15 million** accounts opened on the first day

## Resident Payment System

- Money under various schemes **transferred to beneficiaries**
- Ensures the government funds are **safely transferred** to the beneficiary

## National Rural Employment Guarantee Act

- Enhancing the **livelihood security** of people of rural India
- **100 days of guaranteed wage employment** in a financial year

## Sampoorna Grameen Rozgar Yojana

- Providing additional **wage** employment and **food security**
- Creation of durable **community assets** in rural areas

### Source

1. Jan Dhan Yojana: <http://www.thehindubusinessline.com/opinion/all-you-wanted-to-know-about/article6370254.ece>



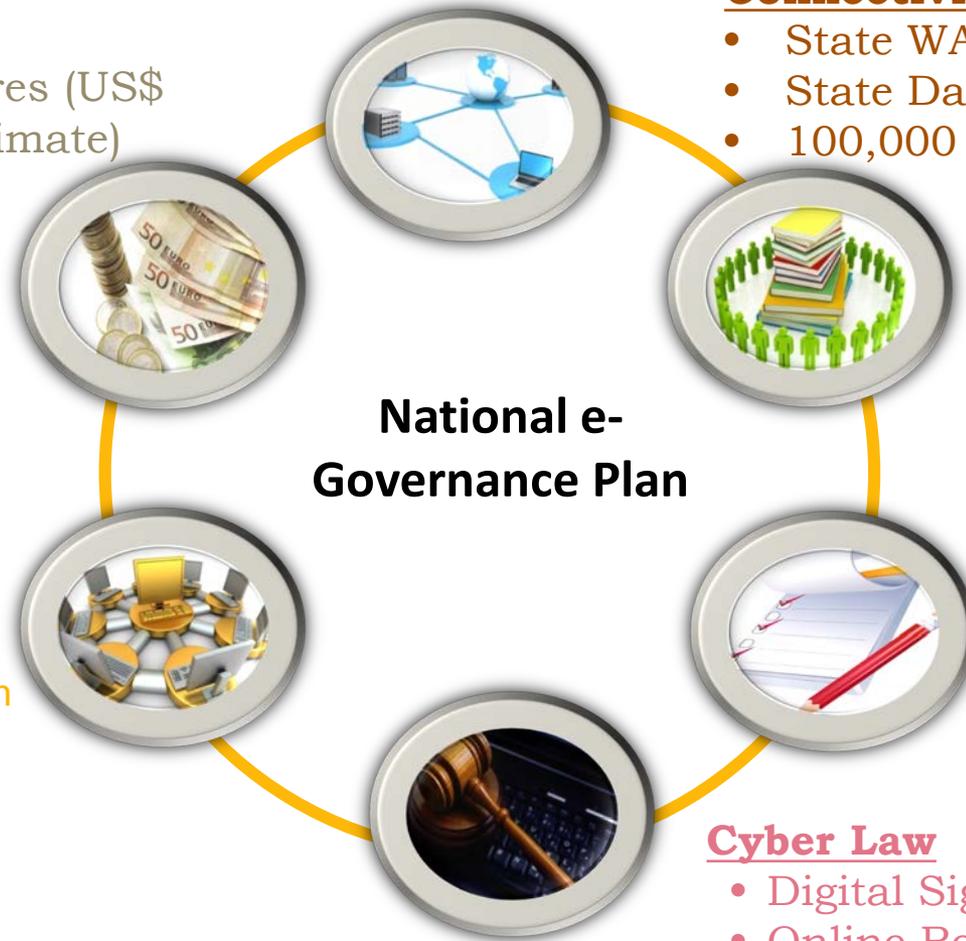
# e-Governance: One of the 'means'

**“Easy governance, Effective governance and Economic governance”**

- Mr. Narendra Modi, Prime Minister of India

## Capital

- Rs. 23,000 crores (US\$ 5.11 billion estimate)



## Connectivity

- State WAN (2 MBPS connectivity)
- State Data Centre,
- 100,000 CSCs

## Capacity

- 20 GoI departments
- 35 States/UTs
- 360 departments in states
- Major Capacity Building program in pipeline

## Content

- Health
- Education

## Citizen Interface

- Employment Services
- Vehicle Registration
- Driver's License
- Passport/Visa

## Cyber Law

- Digital Signature
- Online Returns

**~3 billion transactions/services delivered in 1 year**



# e-Services Delivered: Getting there...

Digital India Programme was recently launched with the aim to **transform India** from a predominantly rural agrarian society to a **digitally empowered knowledge** economy

## Objective

- Creation of **Digital Infrastructure** and **Electronic Manufacturing** in India
- Delivery of all **Government Services electronically** (E-Governance)
- **Digital Empowerment** of Indian Citizens

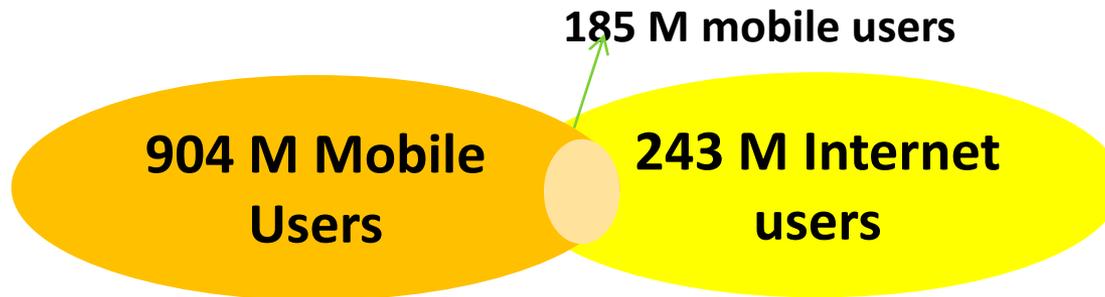
## Digital Tools

- A **Digital Identity** which will authenticate the end user.
- A **Bank account** for benefit transfers of subsidies and payments.
- A **Mobile phone** for universal access to all services.

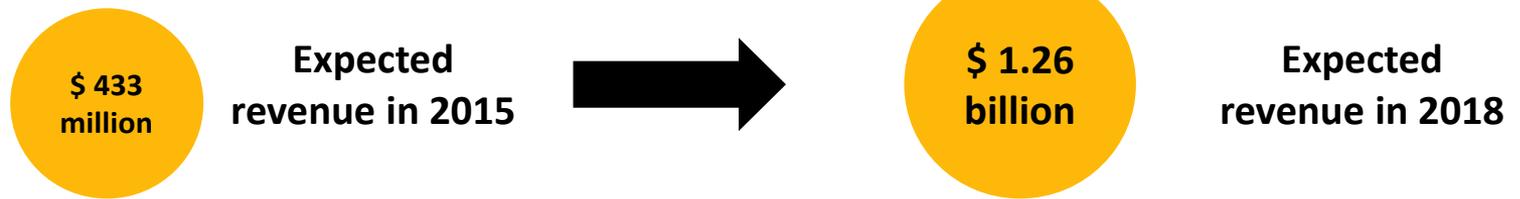


# m-Commerce: An Interesting case for India

Usage



Revenue



Popularity

## USSD Based Mobile Banking

- Recently launched **USSD based mobile banking service**
- Allows user to **access banking services** from any mobile handset
- March 2014 – Total of **\$355 Million**

## m-Commerce replacing e-Commerce

- **Snapdeal** – 50% sales come through mobile. Last year it was 5%.
- **Flipkart** – 50% sales through mobile by year end.
- **Myntra** – 40% sales through mobile by year end.

Source:

1. Expected Revenue in 2018: <http://www.firstpost.com/sublib/display-market-insight.do?id=291014067>
2. Expected revenue in 2015: [http://www.pwc.in/en\\_IN/in/assets/pdfs/publications-2011/vas\\_landscp.pdf](http://www.pwc.in/en_IN/in/assets/pdfs/publications-2011/vas_landscp.pdf)
3. M-commerce popularity - <http://m.firstbiz.firstpost.com/biztech/goodbye-e-commerce-hello-m-commerce-50-of-snapdeal-s-sales-come-via-mobile-flipkart-tries-to-catch-up-83950.html>
4. Usage: <http://www.digit.in/mobile-phones/india-to-have-185-million-mobile-internet-users-by-june-2014-iamai-19195.html>



# Outsourcing: India's growth catalyst

*Outsourcing is one of the most significant growth catalysts for the Indian economy*

**8.1 %**

**Relative Industry share in the National GDP**

**\$ 118  
Billion**

**Revenue for  
FY 2014E**



**\$ 225  
Billion**

**Revenue for  
FY 2020E**

**Diverse Supplier Landscape >15,000 firms**

**>1 million  
women**

**4<sup>th</sup> largest urban women employer**

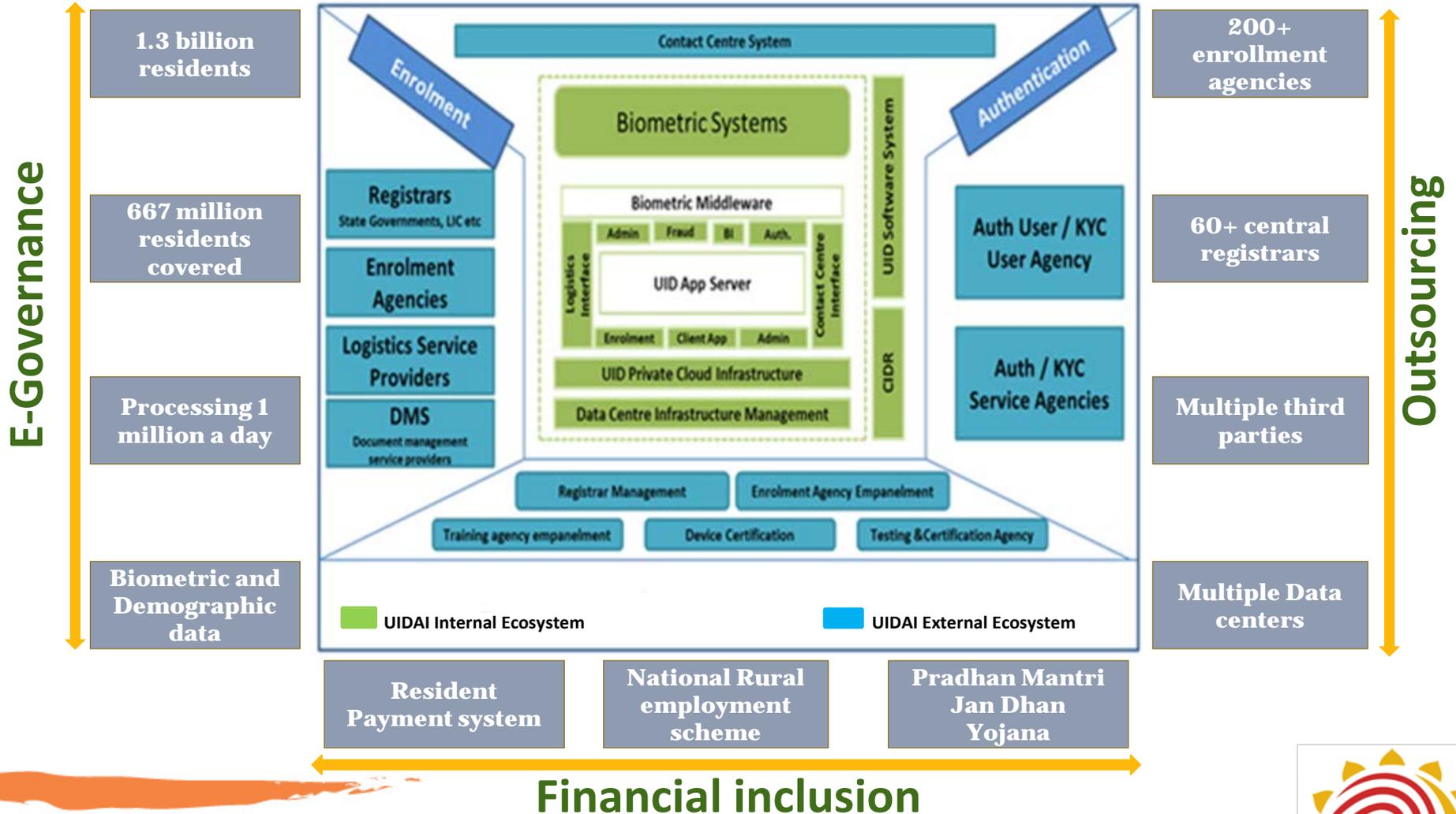
Source

1. Outsourcing figures: <http://www.nasscom.in/indian-itbpo-industry>



# UIDAI Case study

AADHAR database is *world's biggest biometric database* with approximately **667 million individuals** already registered



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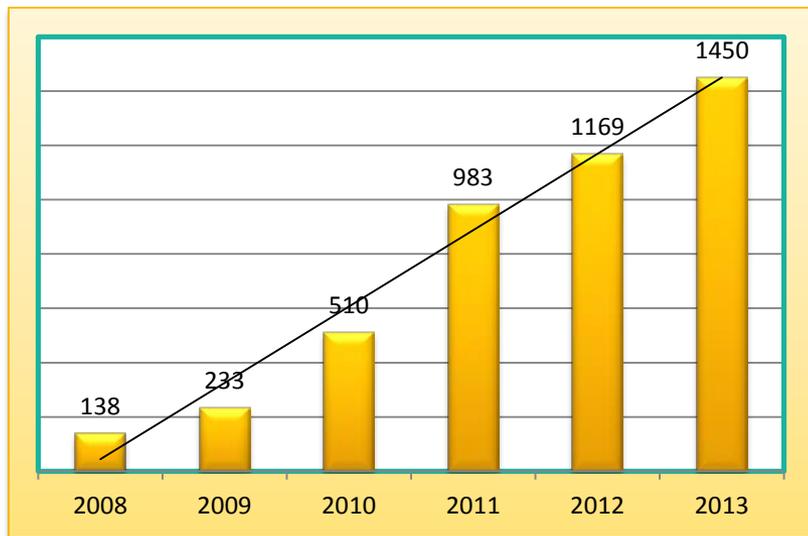
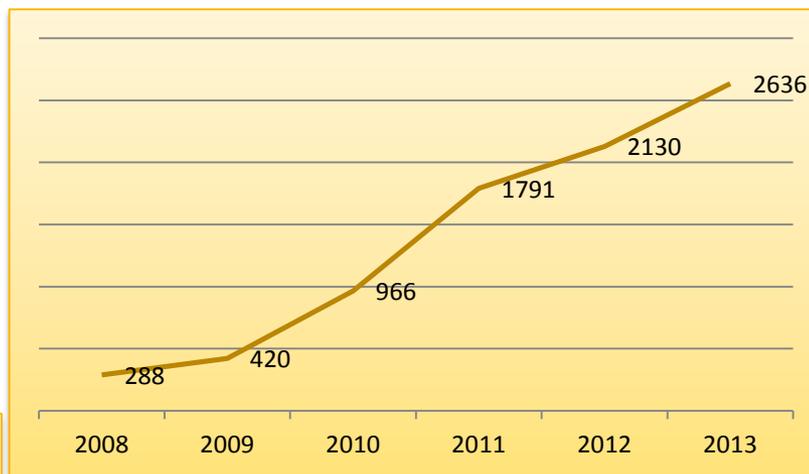
Case Study



# Cyber Security - Trends

Cyber crime has been reported as one of the top economic crimes experienced by organizations in India (**Weight – 24%**)

*Number of cyber crime cases registered under the IT Act have gone up 10%*



*Number of hacking cases registered under the IT Act have increased 10%*

# Cyber Security Issues

Cyber Security Area	Cyber Security Challenge	Sector Applicability
User & Service Authentication	<ul style="list-style-type: none"> <li>Authenticating 1.27 billion residents identity and services provided to confirm <i>“who they say they are”</i></li> </ul>	G M O FI
Skill Development	<ul style="list-style-type: none"> <li>Limited skills on the cyber security and its implementation</li> </ul>	G M O FI
Resident Awareness	<ul style="list-style-type: none"> <li>IT knowledge awareness and literacy is low</li> <li>Culture of no hesitation in sharing personal information</li> <li>Huge resident base</li> </ul>	G M O FI

G Governance   
 M m-Commerce   
 O Outsourcing   
 FI Financial inclusion

Source: <http://www.indiaonlinepages.com/population/india-current-population.html>



# Cyber Security Issues

## Cyber Security Area

## Cyber Security Challenge

## Sector Applicability

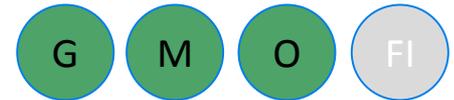
3rd Party Vendors

- PPP model – Multiple agencies working on different aspects of service delivery
- Unclear security scope, roles, responsibilities & SLA's
- Vendor screening/selection



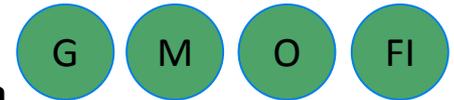
Legal & Compliance

- Legal : IT Act, Privacy, Cyber Security Policy
- Regulatory: RBI, IRDA, DoT



Infrastructure

- Availability of services ( Resilience)
- Perimeter Security
- Uniformity of security implementation



G

**Governance**

M

**m-Commerce**

O

**Outsourcing**

FI

**Financial inclusion**



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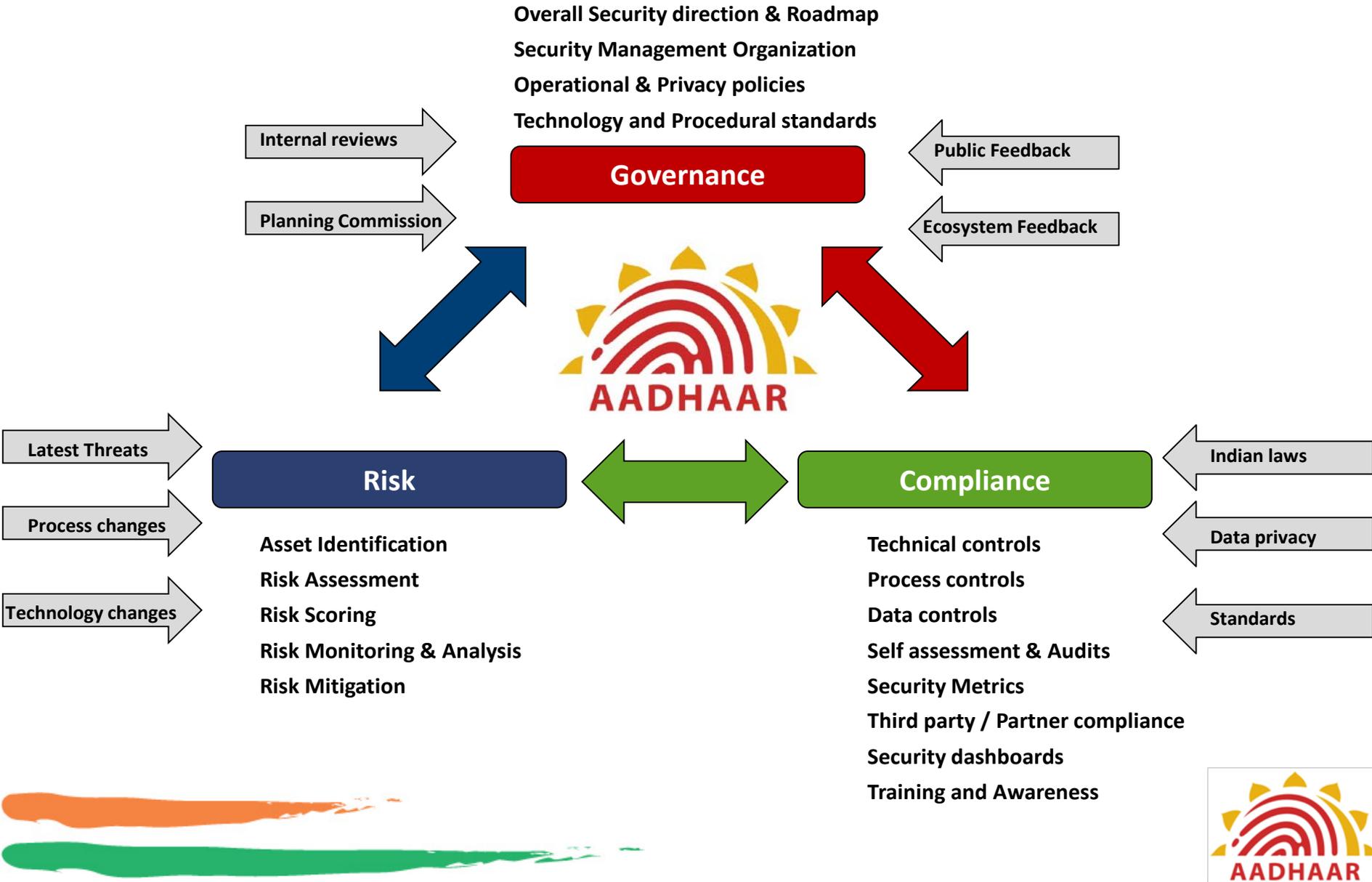
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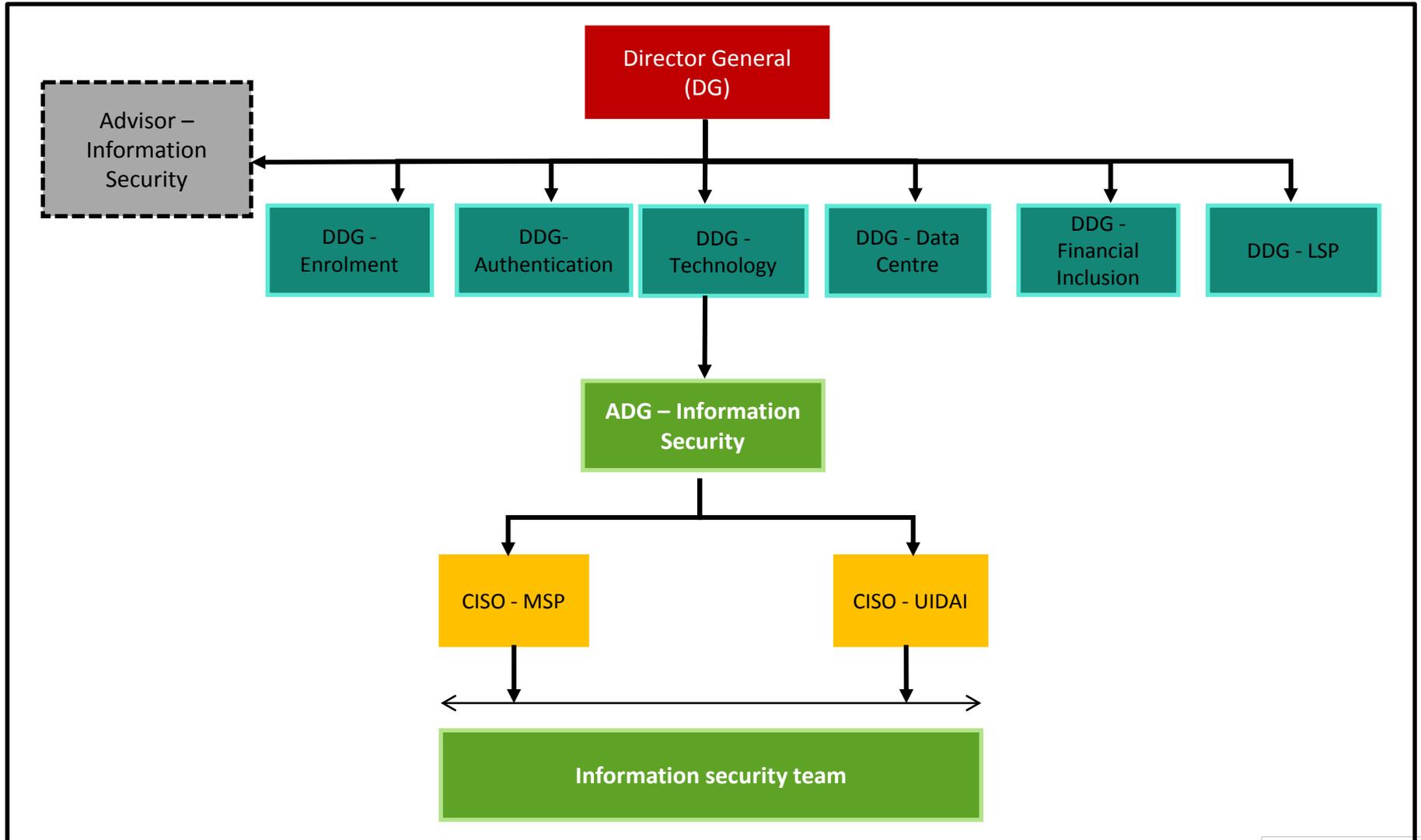
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# Cyber Security in UIDAI



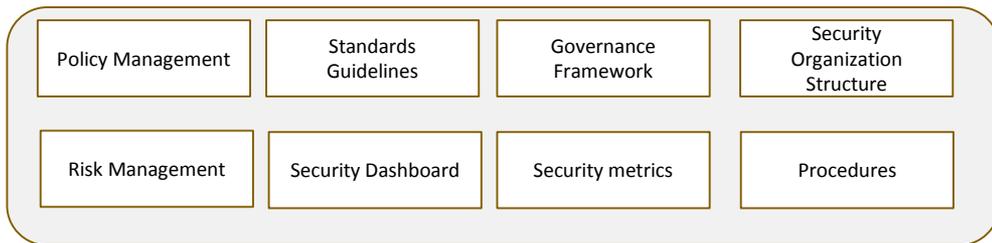
# UIDAI Security organization Structure



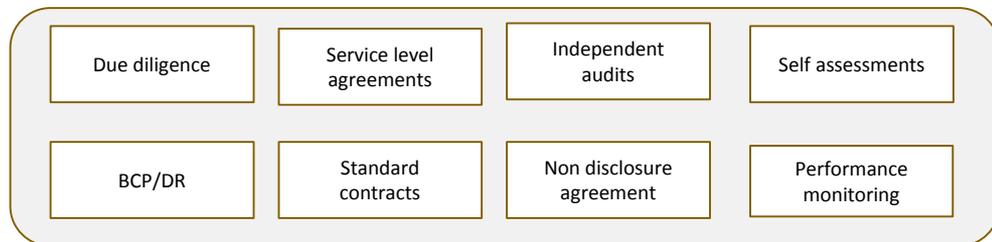
# UIDAI Security Architecture

## Technology

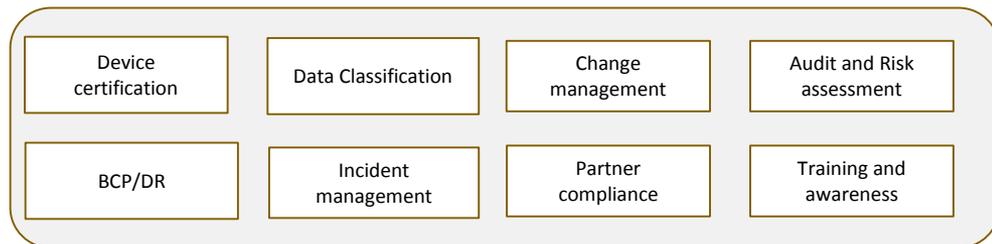
### Governance



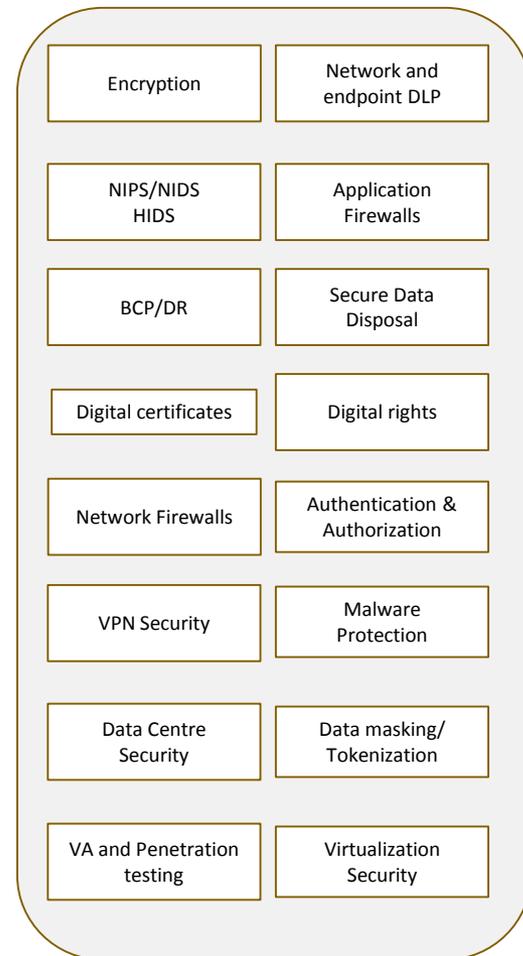
### Third Party Assurance



### Process



### People



# Security Controls



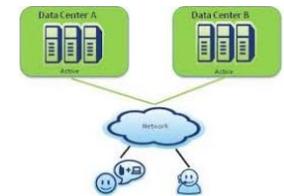
- Encryption of resident data using 2048 bit PKI
- Digitally signed packet for tamper proofing and authenticity
- No logging/ storing of any PID block at device level, directly encrypted from the memory
- AUA license key to enable/ disable specific features
- Response is digitally signed for self-verification

- Audits are maintained for every authentication transaction
- Hash-based Message Authentication Code (HMAC) of PID block to eliminate tampering

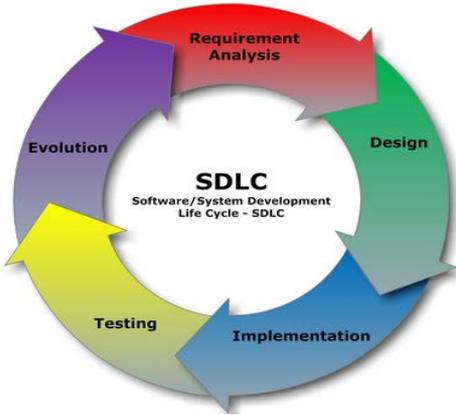


- Information Security and Privacy included in the contracts

- Multi-DC Architecture



# Security Controls



- Secure software/application development life cycle

- Comprehensive security policy, training and awareness



- Network protection and "virus/malware checks" schemes are used to ensure no rogue device or data can disrupt the service



- Network filter is used (white listed IPs, Certificates)



- Data partitioned across multiple security "zones" separated by firewall and IPS



**Thank You**

