# Introduction

## Information security

### Trust (say more - what is this?)

## Privacy

## Identification and authentication

### Context and Identity

### Levels of Assurance

## The Business Case for IAM

### Workforce IAM

### Consumer/Citizen IAM

# Digital Identity

## Definition

### Reputation

### Laws of Identity (this sounds like jurisdictions and real laws - is that the intent?)

## Identifiers

## Digital Identity Lifecycle (?)

## Mapping to human or device

## Proofing, Binding or Registration (?)

### Verification/Validation

## Credentials

# Access Control

## Authentication

### Dynamic Authentication (risk-based)

### Multi-Factor Authentication

### Single Sign-on Within a Domain

### Centralised Authentication Service

### Federated Authentication (between domains)

### Device Identity for Corroboration

### Fast Identity Online (FIDO) and its cousins

### Session Management

## Authorization

### Resources to Protect

### Authorisation

#### ACL’s

#### RBAC

#### ABAC / Dynamic Access Management

##### Policy Management solutions

### Privileged Access Management

#### Alignment to Risk Management

#### System Accounts

# Laws, Regulations, and Standards

## Framework to Understand Legal Environment

## Highlights of Selected Laws

### Europe

#### GDPR

### United States

#### Sarbanes-Oxley Section 404

#### Health Insurance Portability and Accountability Act (HIPAA)

#### Health Information Technology for Economic and Clinical Health Act (HITECH)

#### Family Educational Rights and Privacy Act of 1974 (FERPA)

#### Children's Online Privacy Protection Act (COPPA)

#### Fair and Accurate Credit Transaction Act (FACTA)

### Canada

#### Personal Information Protection and Electronic Documents Act (PIPED Act, or PIPEDA)

## Standards

### Terminology

#### ISO/IEC 24760-1:2019 IT Security and Privacy -- A Framework For Identity Management -- Part 1: Terminology And Concepts

### Architecture

#### ISO/IEC 24760-2:2015 Information technology -- Security techniques -- A framework for identity management -- Part 2: Reference architecture and requirements

#### ISO/IEC 24760-3:2016 Information technology -- Security techniques -- A framework for identity management -- Part 3: Practice

### Techniques

#### LDAP – RFC 4511

#### LDIF – RFC 2849

#### SAML 2.0

#### OAUTH 2.0 – RFC’S 6749, 8252

#### OpenID Connect 1.0

#### User-Managed Access (UMA) Profile of OAuth 2.0

# Workforce IAM / Internal IAM

## IAM Processes

### Joiner-Mover-Leaver

### HR Ownership

### Provisioning (On-boarding and Off-boarding)

### Role Management

### Re-certification

## Compliance

## Analytics and Intelligence

## Handling Business Partners’ People

# Consumer/Citizen IAM

## Consumer Journey (identification to loyal customer)

### Registration of Consumers

### Authentication Assurance (meeting LoA requirements)

## Industry Considerations

### Public Sector vs. Private Sector

### Financial Services

### Healthcare

## Social Sign-up and Sign-on

# Non-Human Entity

## Operational Technology (OT)

## IoT Devices

### IoT Sectors

#### Home Automation

#### Personal (wearables)

#### Implants

#### Plant Automation

#### Vehicle

#### Smart Cities

#### Agriculture

#### Building/Industrial

#### Utilities

## RPA / robotics

## Security requirements

# IAM Architecture and Solutions

## Business System

### Business Processes

#### Recertification of accounts

## Information/Data Architecture

## Application Portfolio

### APIs

#### HTTP

#### S/LDAP

#### RACF

#### XACML

## Technical

### Repositories

#### Relational Database

##### Query optimization

##### Replication limitations

#### Directories

##### Historical note - X.500

##### SLAPD and its descendants

#### NoSQL databases

##### Graph Databases

#### Identity Provider (IdP) Trends

##### Distributed Ledger (Blockchain)

### Identity Provider Services

### Protocols

#### Kerberos

#### Lightweight Directory Access Protocol (LDAP)

#### SCIM

#### SAML

##### SP Initiated vs IDP Initiated

##### Bindings

#### OIDC

##### Authentications Flows

#### OAuth

#### WS-Fed

#### FIDO U2F and UAF

### Enterprise control of “Cloud”

#### Public Cloud vs Private Cloud

#### Local Connectors and Gateways

#### IPSec VPN

## Recommended Practices

### Design for security

## Governance and Administration

### Audit

### Monitoring

# Operational Considerations

## Account recovery

## Call centers

## Engagement of user for their own security

## Security events and operations

# Project Management

## Importance of Project Management

## Characteristics of a Project Manager

## PMI Framework

### Concept

### Planning Stage

### Deployment Stage

### Methodologies

## PMO Issues

# IAM Knowledge Sharing

## IDPro

## Gartner

## KuppingerCole

## IIW

## Bibliography

# Advanced Topics – Parking Lot

## Digital Legacy - handling deceased persons’ digital ID (Advanced Topic)

## Self-Sovereign Identity

### Blockchain ID