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BIG DATA CALLS FOR BIG SECURITY!

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Session Classification: General Interest

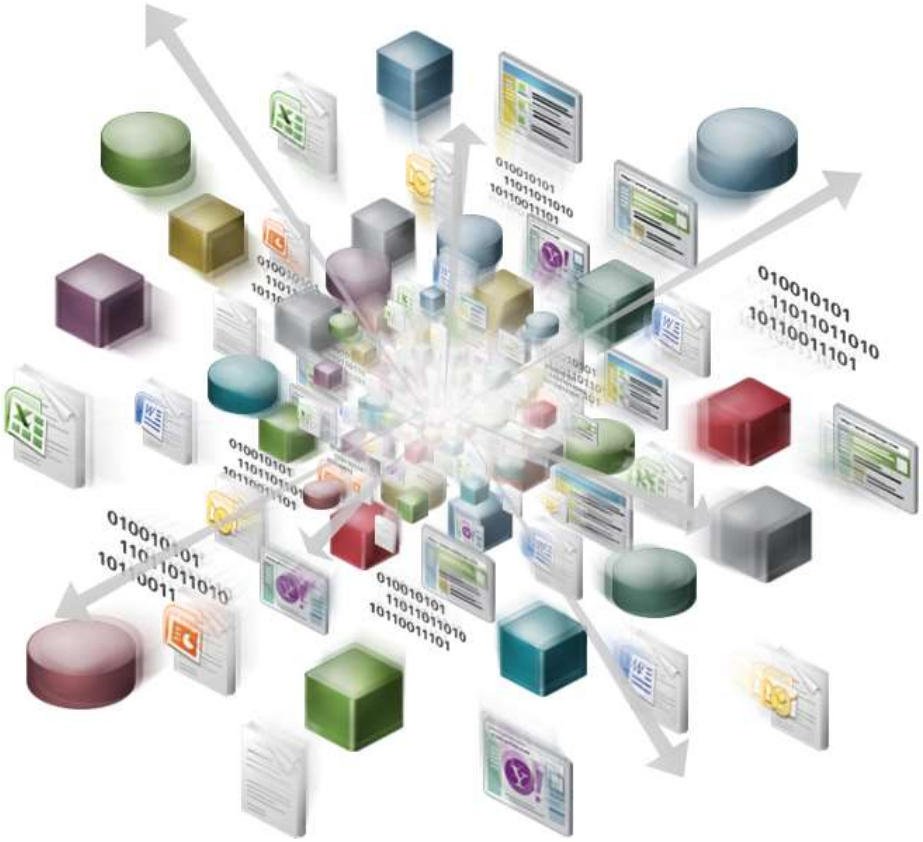
Agenda

- Why Big Data?
- Security Concerns With Big Data
- Securing Big Data
- Wrap Up

Why Big Data?

Big Data Analytics is the Future!

- Big Data
  - Not LOTS of data
  - But many disparate sources with mixed structure
- Industry trends driving Big Data & Analytics
  - Storage is cheap
  - “Anywhere” computing
  - Hardware capabilities



What Are Predictive Analytics?

- Deriving value from Big Data!
- Complexly
  - Organizing the unorganized
  - Data Mining, Modeling, Statistics, Machine Learning
  - The search for leading indicators
- How do we use it?
  - Business strategy
  - Public safety (CDC,NOAA)
  - Cyber Security
  - To Predict the Future!

Who Uses Predictive Analytics Today?

- Investors!
- Massive historical data
- Lots of math
  - The search for trends
  - Execute trades!
- The next step?
  - Implications of social media
  - See through the corporate veil
  - Now we can focus on the individual!

Predictive Analytics – Now is the Time!

- Businesses have data coming out of their ears
- Huge shift from the past
- Unused data
- Can we find value?
- Business leaders must innovate
  - Focus on business model innovation
  - Predictive Analytics can drive this!

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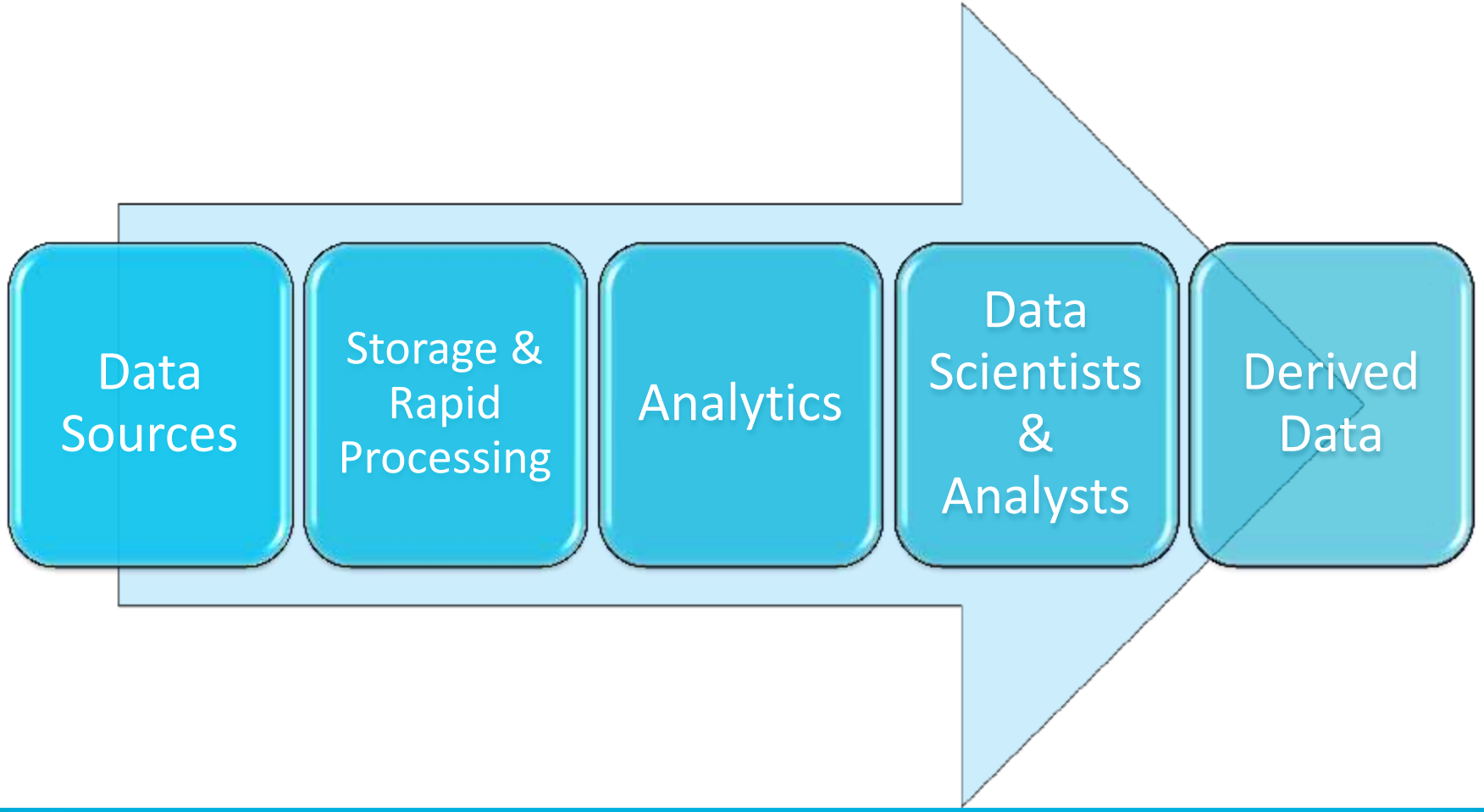
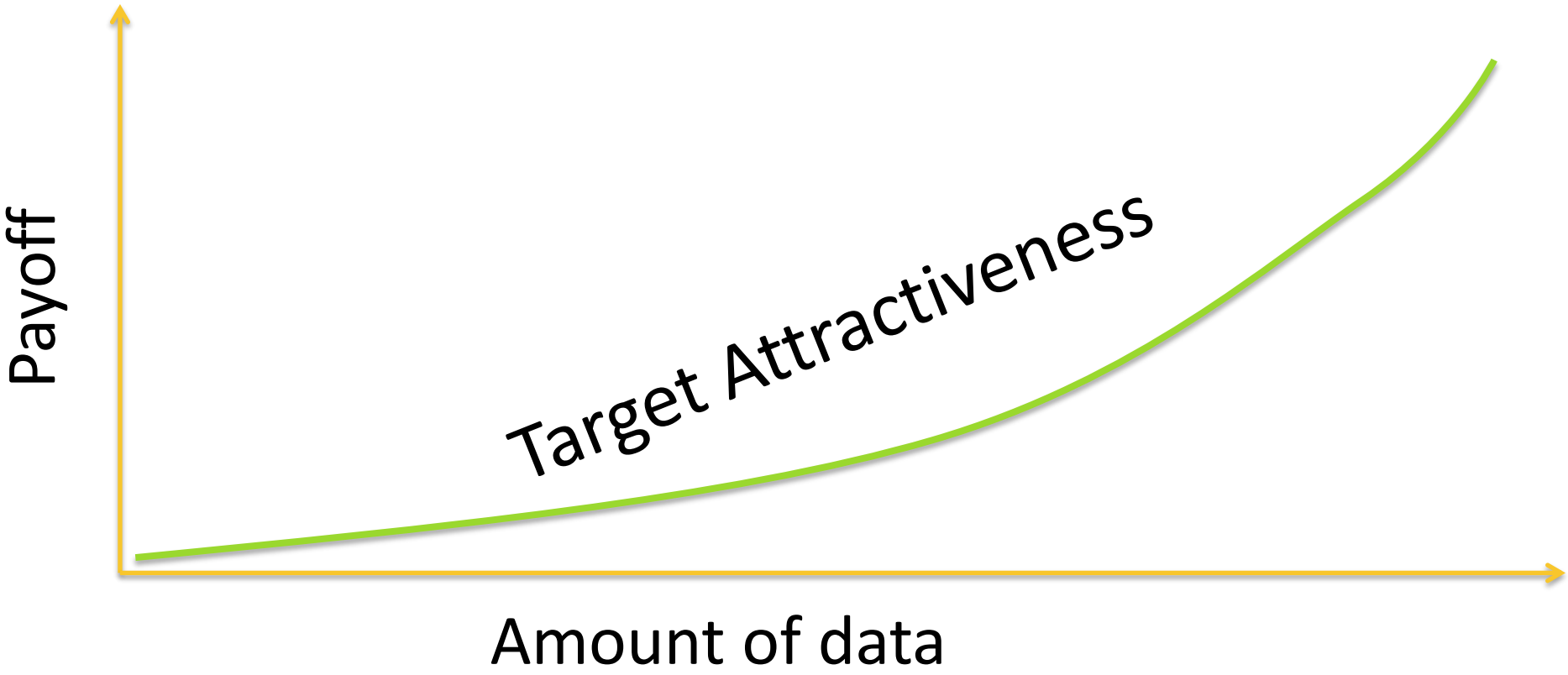
Security Concerns with Big Data

Big Data – The Ecosystem



Big Data Can Make You a Target



Big Data Can Create a Liability

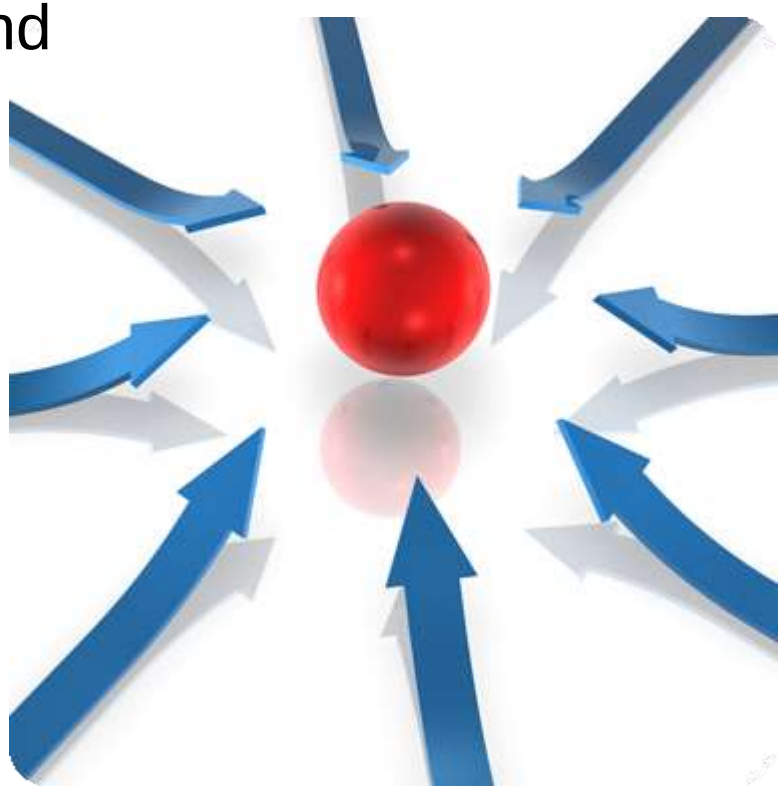
- Using Big Data Analytics in Retail
- Implications:
  - Gathered data is given willingly by users
  - Data is aggregated with other sources
  - Retailers run analytics that manifest trends/predictions
  - Outcomes accurately predict the future
  - Users get better product placement
  - Retailers win loyal customers
- Not Singular pieces of data!
  - It's the CORRELATION that matters

How The Bad Guys Can Use Big Data

- Hacking the Coca Cola formula
  - Can you derive the formula?
  - YES YOU CAN!
  - Shipping/Receiving/Production data
    - Think Crypto plaintext attack
  - KFC would be harder, but possible!
- IP/Strategy Derivation
  - Attackers can figure out your IP by looking at data sets you don't necessarily protect
  - Macro trends repeat themselves over multiple sets of data, can I fill the gaps from missing data sets?

The Security Problem of Derived Data

- If I derive your PII, must I protect it?
- The Legal System is WAY behind
- Compliance might be farther
- Do I have to protect data from aggregation?
  - EXIF Data
  - Geotags
- Huge impact to business
  - US = Case Law
  - EU Privacy Updates



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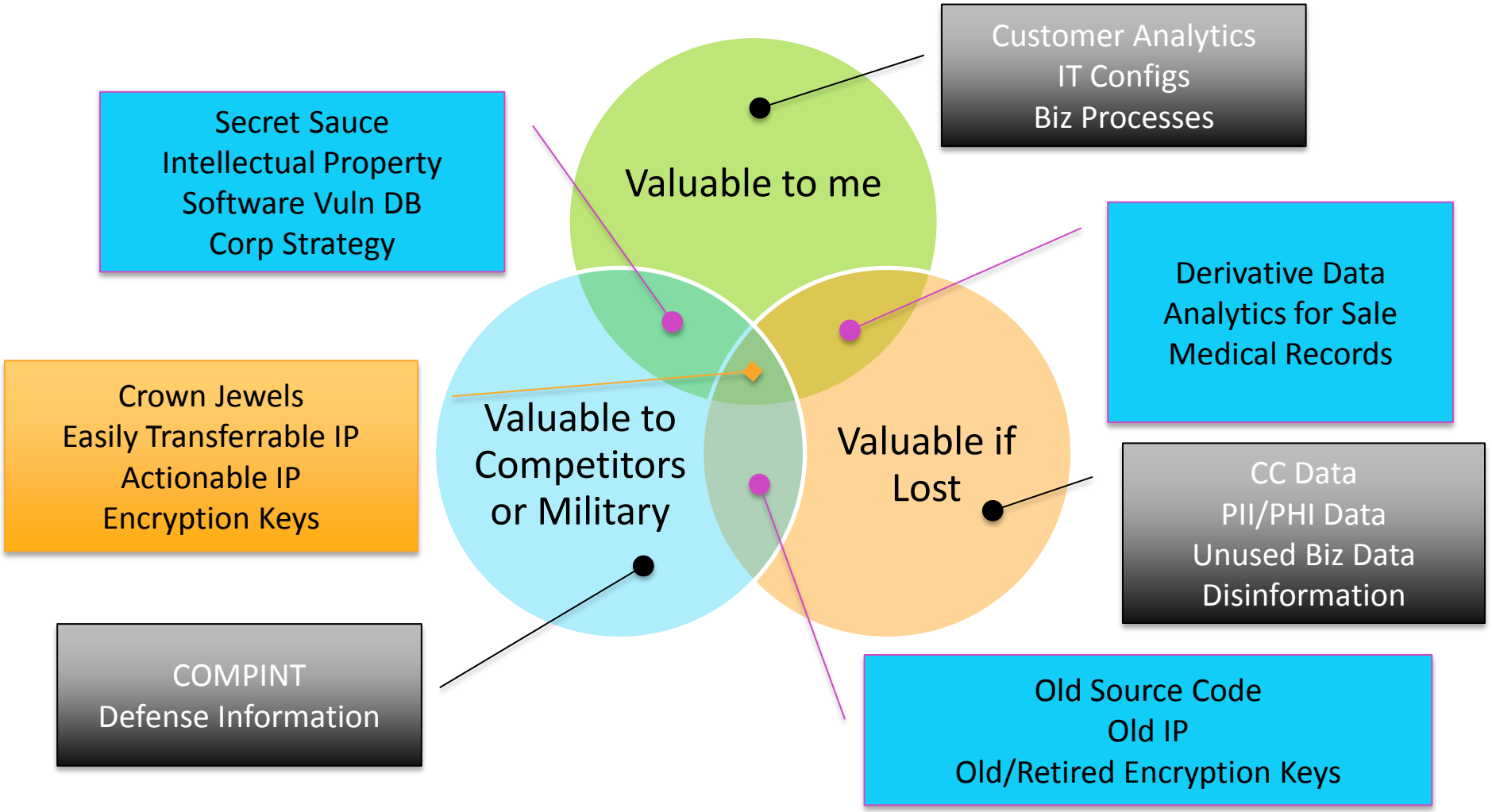
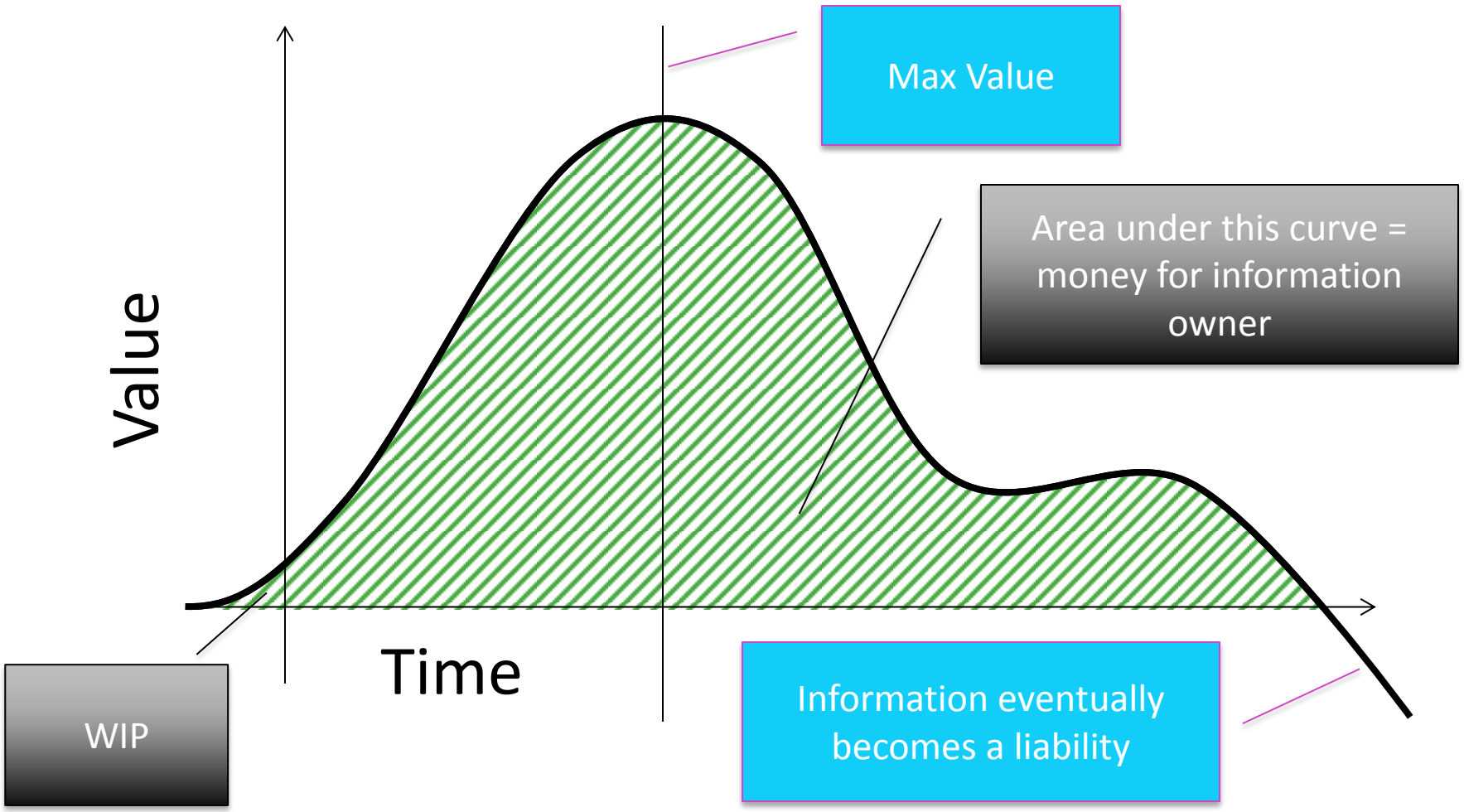
Securing Big Data

How to View Data and Analytics



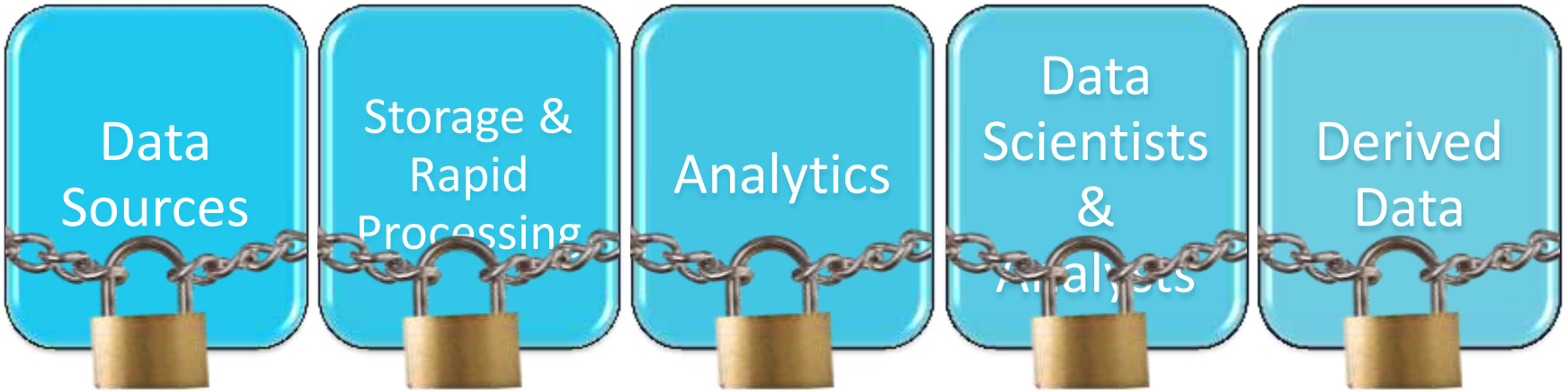
The Value of Information Over Time



Big Data – Securing the Lifecycle

- Data mapping
  - Where does data live?
  - What is the full lifecycle of data?
    - Raw
    - WIP
    - Data product
    - Disposal
  - How is it used by the business?
- Common Practices
  - Governance
  - Separation of Duties/RBAC
  - Compartmentalization

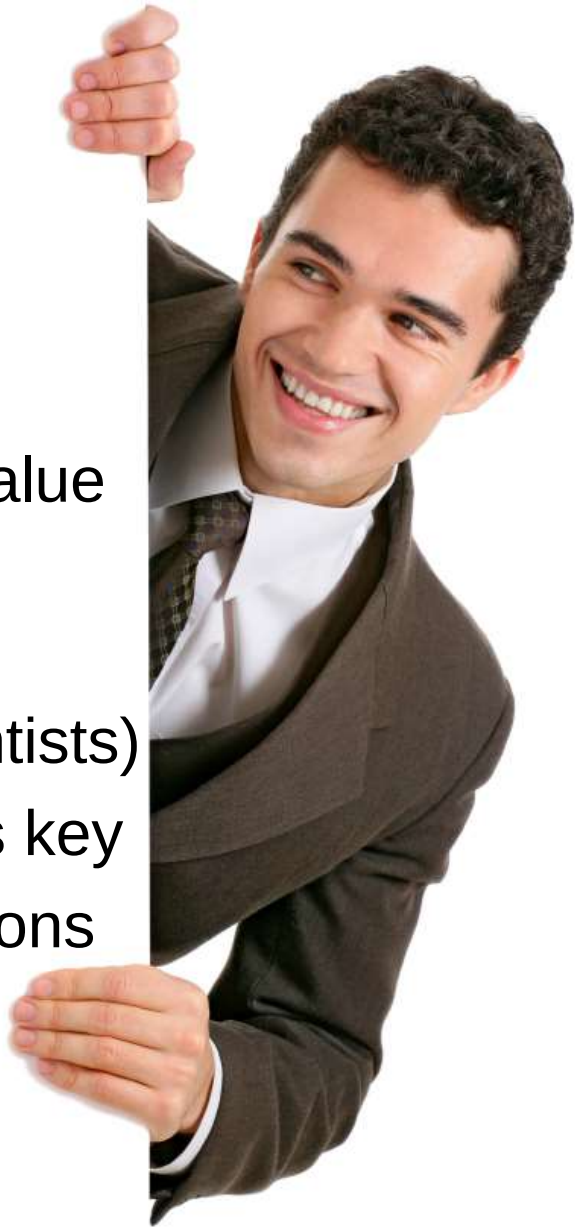
Big Data – Securing The Ecosystem



Wrap Up

WHAT DID WE LEARN?

- Know the lifecycle of big data in your org
- Understand the risks in the ecosystem
- Understand the business uses and the value of data over time
- Have a policy on security of derived data
- Educate new roles in security (data scientists)
- Classification of data and data sources is key
- Consistently evaluate changes in operations for security implications



Questions?

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THANK YOU!

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