

Data Driven Compliance: the use of Advanced Analytics in tackling Fraud & Error

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AREAS TO BE COVERED TODAY (OPTIONAL)

- Why should Tax & Welfare Agencies move to data driven compliance?
- The impact of technology on Fraud & Error
- How can Tax & Welfare Agencies respond?
- The Capgemini response

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Trends in Public Sector Agencies Tax & Welfare



Public administrations are being re-invented

External trends

Growing use of digital

- Growing use of internet to research and buy private sector products and services – fuelling 24/7 and e/mobile app service expectations
- Explosion in the use of social media – ability to build customer insight but reputational risks

Financial austerity in the West

- Stagnating or declining real incomes in the West; fiscal deficits and levels of debt
- Political pressure to address tax non-compliance and welfare fraud

Globalisation

- Tax competition between states - large business tax domiciles; inward investment; key skills
- Rapid growth of emerging economies and middle class – demand for welfare state

Technological developments

- Big data - new data sources e.g. Social media, smart grid; processing power e.g. Hadoop;
- High performance analytics e.g. SNA, voiceprints – shorter analytical timescales
- Internet transparency

Industrialisation of fraud

- Increasing sophistication of banks and insurance companies are driving criminals to attack tax & welfare authorities; testing defences; insider fraud

Welfare administration trends

Digital by default

- Push to online applications/change of circumstances and renewals; use of mobile apps / text; voluntary sector support for “needs help” segment

Improve customer experience

- Make it simpler for customers so that they comply with the need to inform of change of circumstances and make fewer genuine errors. Design out contact; simplify online forms & guidance and processes

Data analytics to better target risk

- Welfare administrations are leveraging new data sources and more sophisticated modelling tools and data mining to improve targeting of high risk cases, detection of fraud and retrieval of debt
- Segmented approach to fraud investigations; graduated range of interventions; moving upstream (prevention)

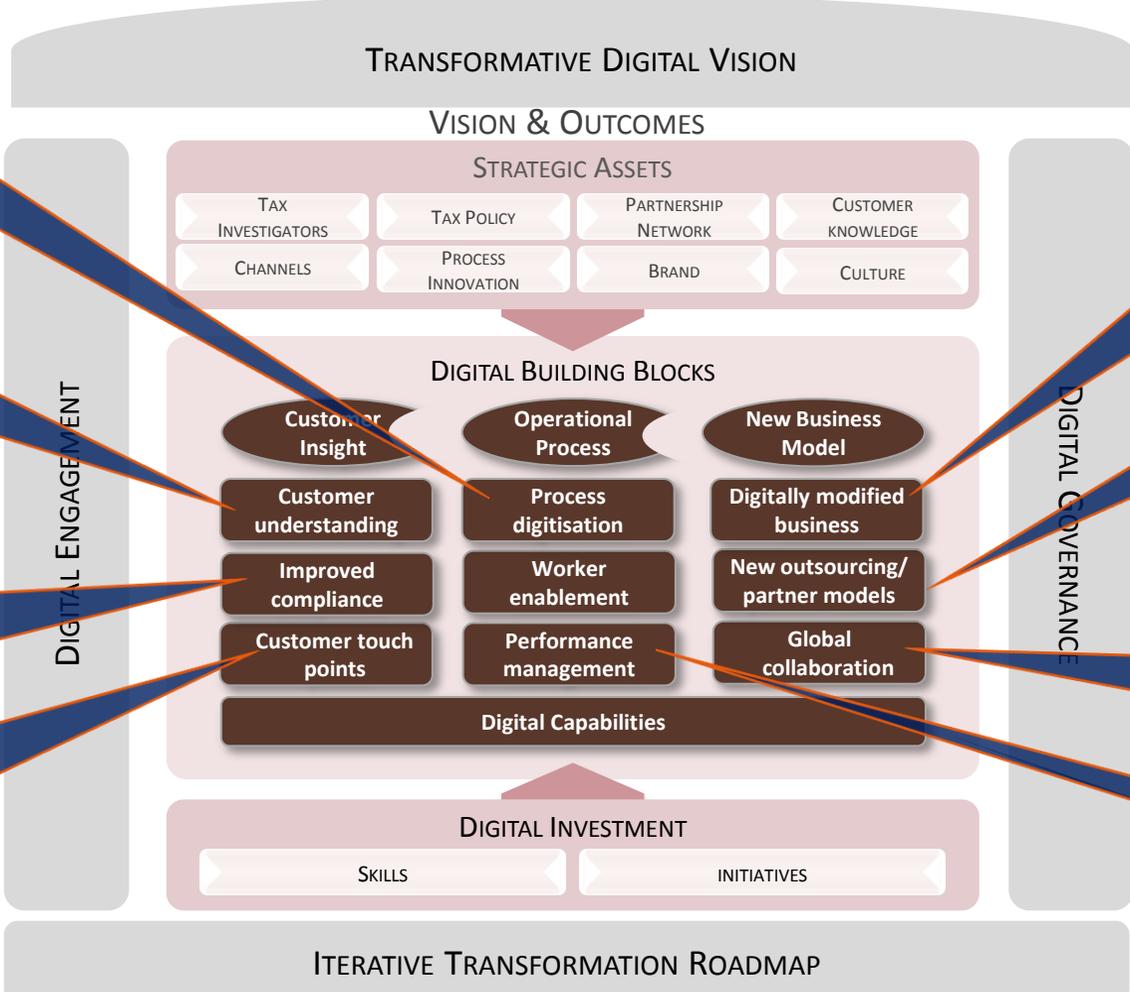
Re-inventing welfare administration

- Process standardisation across benefits; re-platforming; shared services, performance KPIs to drive productivity
- Outsourcing /JVs of selected functions e.g. IT, debt recovery, analytics; new commercial models

Digital' will fundamentally change the government administration model by 2020...delivering a step change in outcomes.



- Use of new analytical capabilities & tools
- Using cross-government & third party data sources
- Real time identify verification and data validation
- Personalized; Multichannel; real time customer account



- Digital by default – intervention by exception
- As a Service Models
- Bilateral and multilateral exchange of data
- Near real time dashboards

Data and analytics are at the heart of the digital government administration, informing the ability to deliver a differentiated customer experience, dependant on compliance risk

Fraud Phenomenology



Governments agree that there is a problem



Five Arrested After Attempted \$500k Tax Fraud

Arrests follow probe into scheme that saw 700 UK citizens' identities stolen

On August 27, 2013 by Thomas Brewster 0

Italian and UK police have confirmed the arrest of five individuals suspected of carrying out a "cyber attack" on HM Revenue & Customs as part of an attempted £500,000 tax fraud.



Europe fights tax evasion

After the revelations of the offshore leaks scandal the EU is ramping up its battle against tax evasion. Luxembourg has eased its banking secrecy, while Austria is still debating the issue. Are tax havens soon to be a thing of the past?



NEWS EUROPE

Bayern Munich boss Uli Hoeness admits tax fraud

Independent.ie Irish News

Public servants are investigated over €1.3m social welfare fraud

Home > Tax > HMRC > ID theft gang jailed for £2m tax fraud

ID theft gang jailed for £2m tax fraud

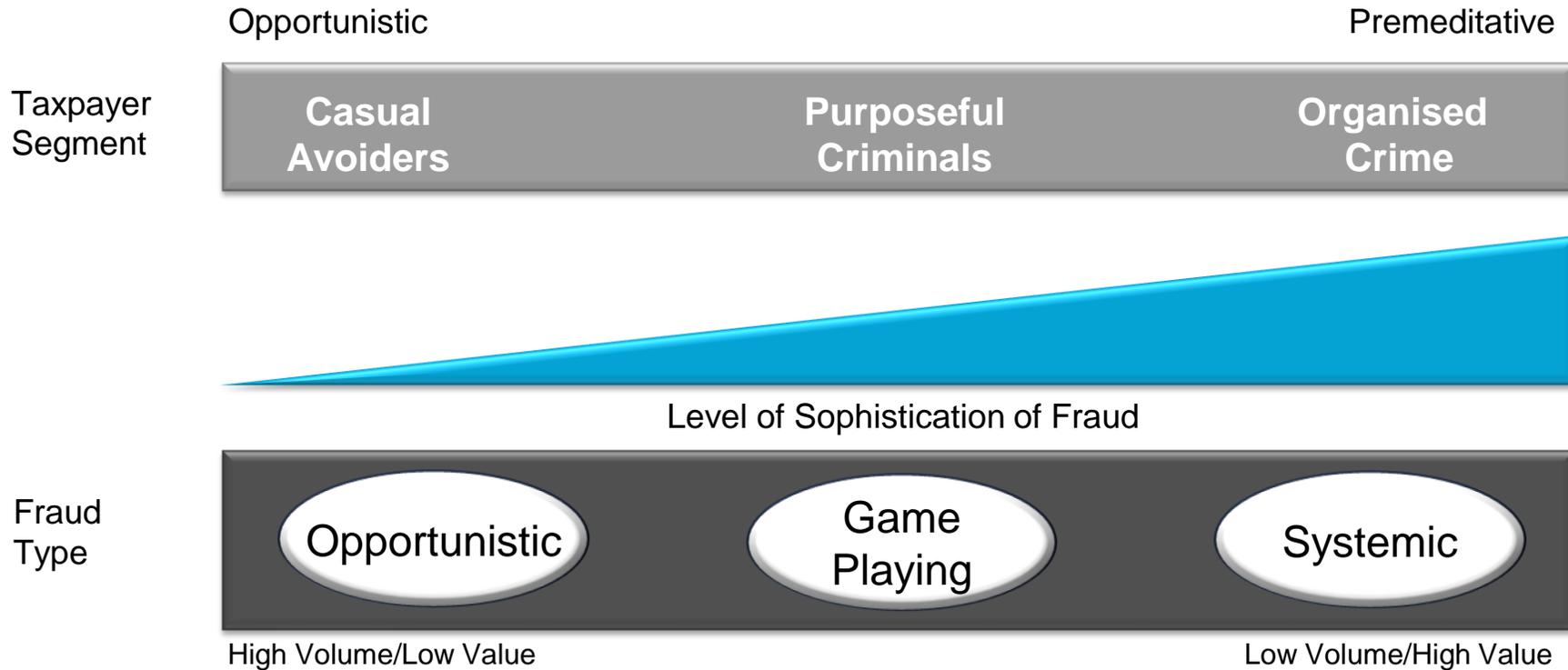
21 Aug 2013

Four members of a Southampton-based organised crime gang, who stole more than 3,000 identities in an attempt to defraud £2m of income tax, have been jailed following an investigation by HMRC.

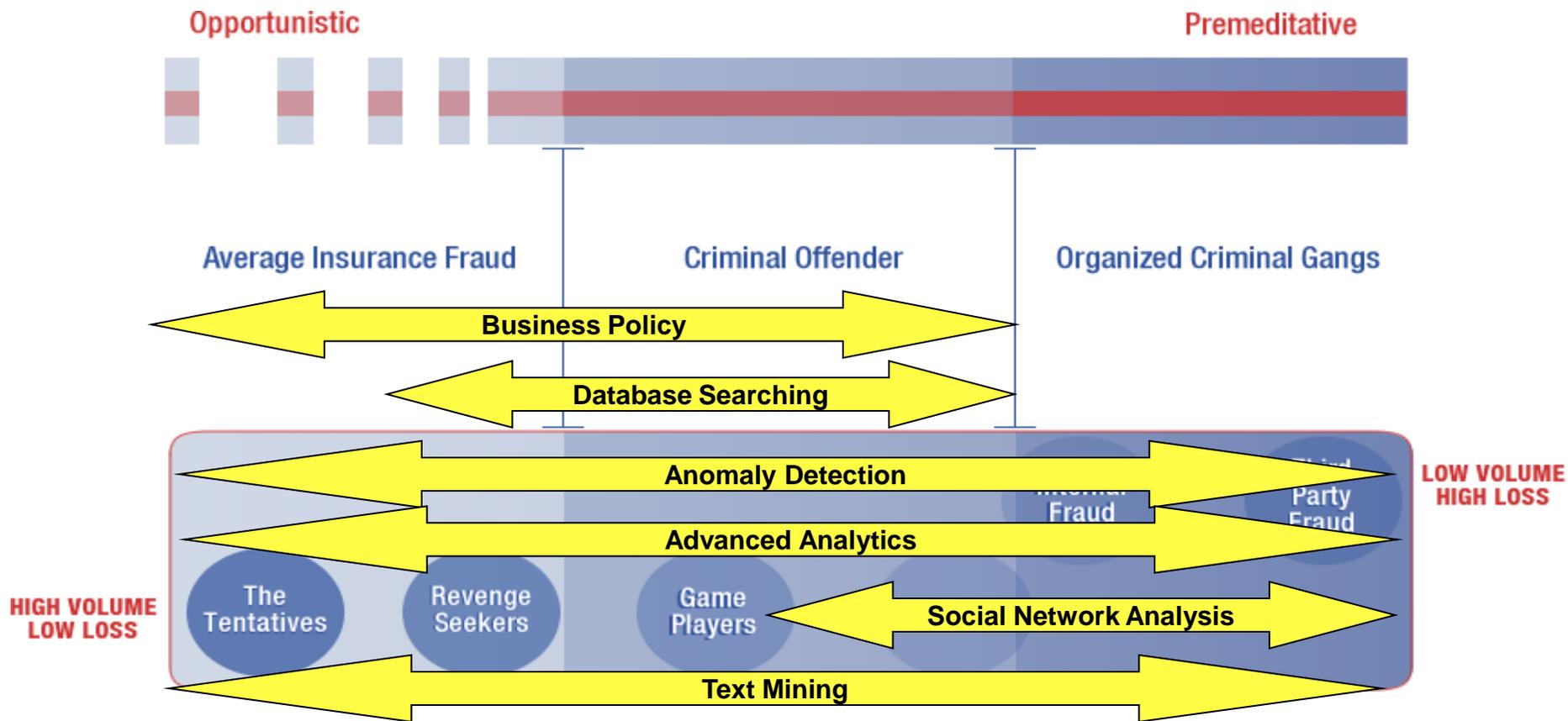
Agence France-Presse | January 8, 2014 6:18pm

Germany to probe welfare fraud by immigrants

The fraud landscape spreads from simple opportunistic non-compliance to organized crime



In response, fraud and error prevention measures with different sophistication must be applied (and at different point of the business process)

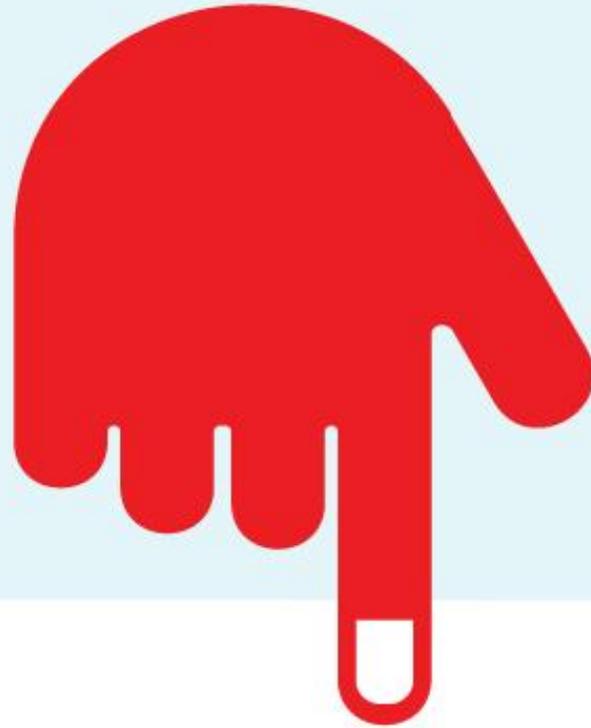


Source SAS Institute

Trends in Compliance Strategies



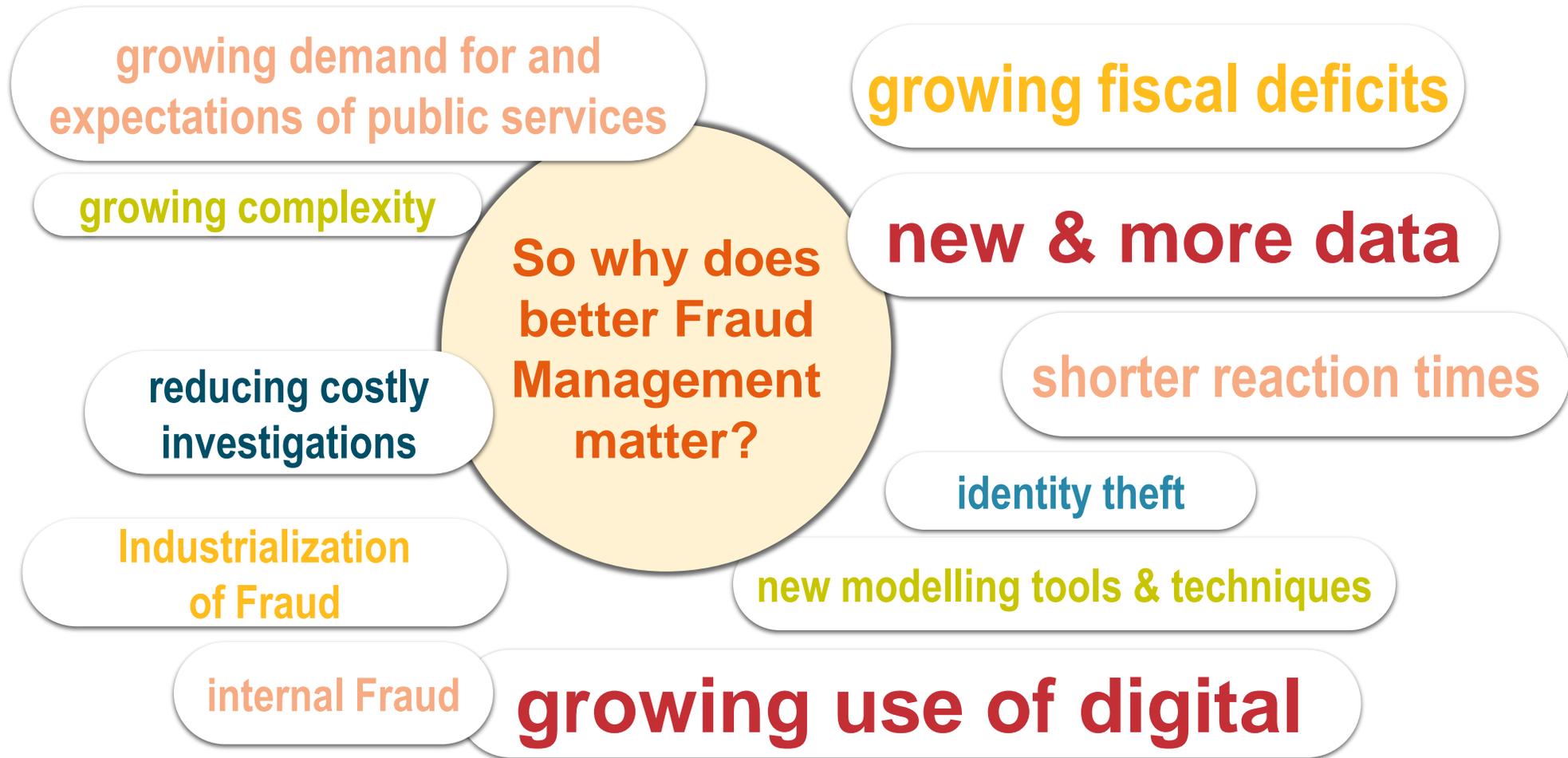
The deployment
of Risking is
evolving



To data driven
Compliance



So why would this affect my Compliance approach?





The world is changing and this drives the need for a more engaged, holistic and efficient model of risk management

“Our relationship with our customers is evolving”

- ✚ **Customer expectations** are driven by assumption that organisations should leverage insight they hold about them
- ✚ **Diversity** in population creates a specific type of demand on service delivery models
- ✚ Greater **migration and mobility**

“There is greater pressure to operate more efficiently”

- ✚ Less **appetite** for risky ‘big-bang’ programmes
- ✚ New **delivery models** with shared accountability
- ✚ **Joined up** services

“New technology is changing how we do things”

- ✚ **Accessibility**: more accessible to organisations and their customers
- ✚ **Ease of use**: enabling seamless flow from back-end to front-end
- ✚ **Automation & volume**: systems becoming increasingly automated and able to process higher volumes of data
- ✚ **Agile**: new delivery models

“Individuals and organisations are more globalised”

- ✚ **Collaboration** and/or competition across borders
- ✚ **Complex** international financial arrangements

“There is a shift towards working more openly”

- ✚ Customer expectation of **transparency** in every interaction
- ✚ **Privacy** concerns
- ✚ Data is being **shared** more actively
- ✚ Shift towards **open source** and open data
- ✚ Non-repudiation

“We need to respond to new threats”

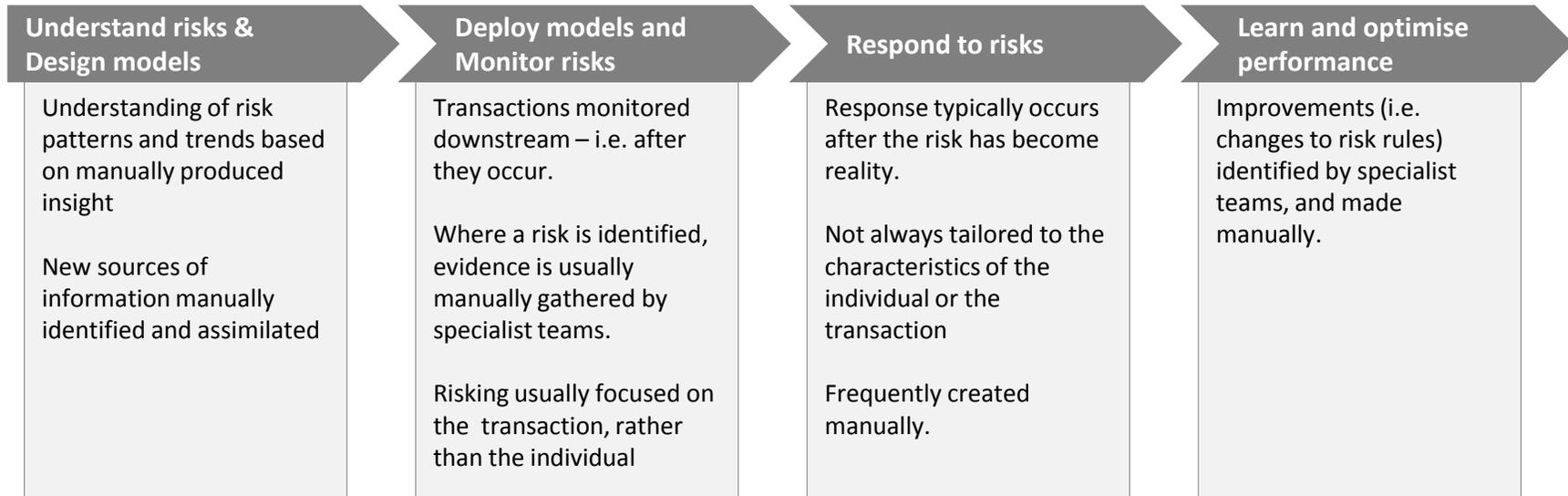
- ✚ Increased frequency of **cyber attacks**
- ✚ **New types of** technology enabled **fraud** (phishing / zapping)
- ✚ Increased **speed** of fraudsters
- ✚ Security



Risk Management was traditionally seen as a specialised capability, focusing on threats which were already transacted and driving corrective actions



Risk Management Value Chain



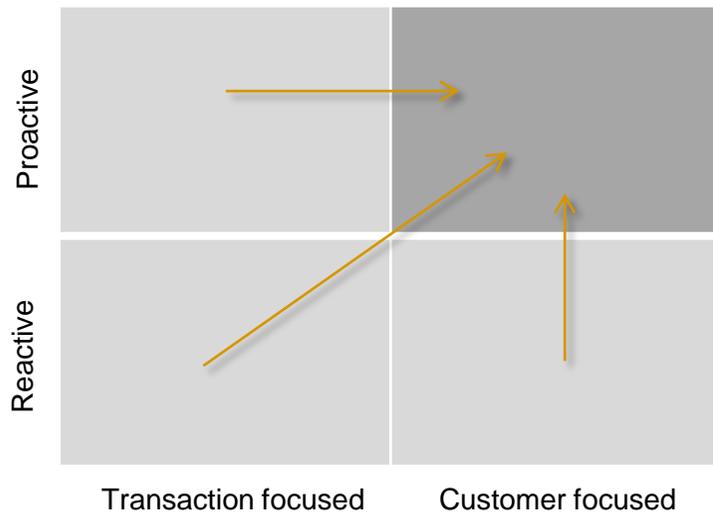
Capabilities supporting this model were usually siloed across the organisation, less synchronised and focusing on individual transactions/products with lack of holistic view of customer's risk



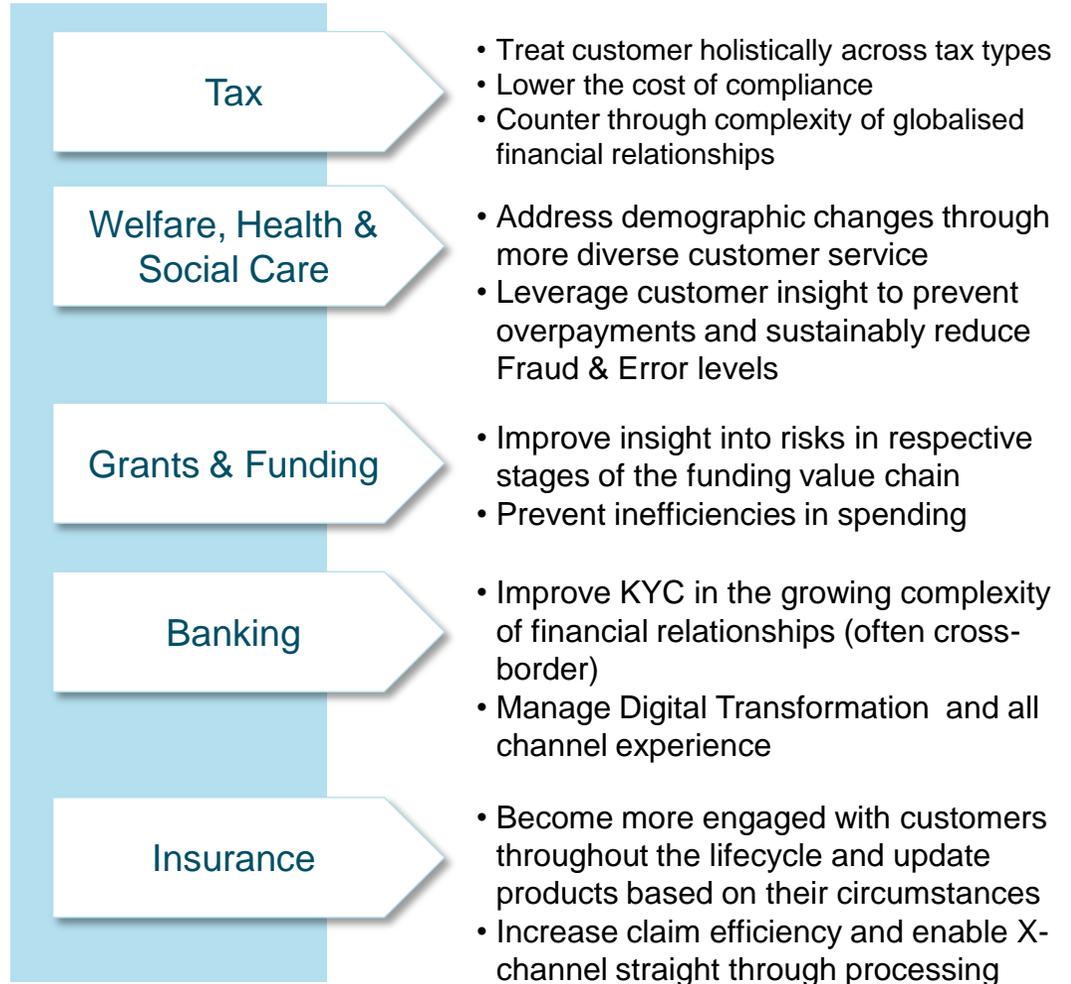
To enable that, the transaction-based industries will have to build deeper insight into their customers and leverage it more pro-actively

At the core of the global trends is a need to:

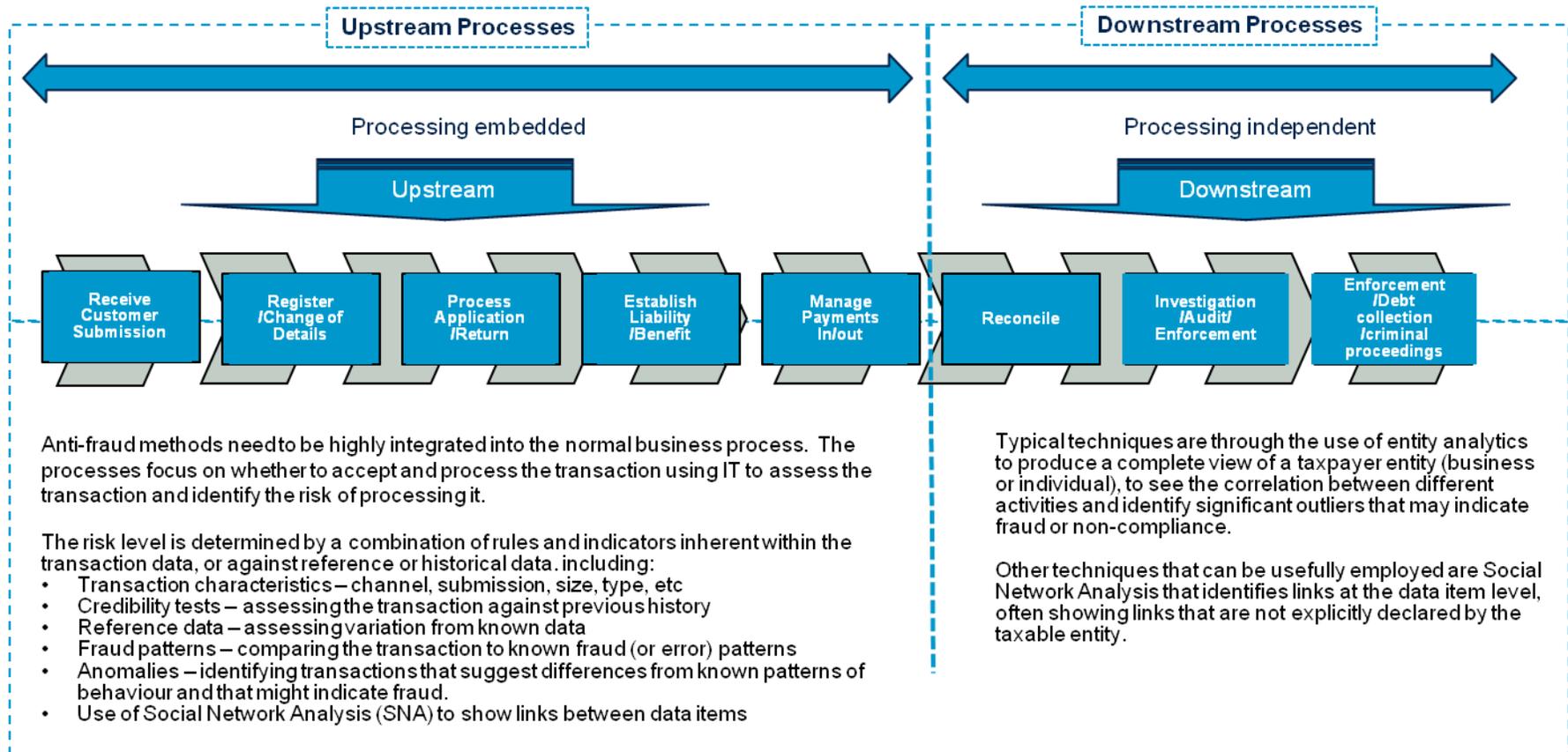
- **Build more insight:** create a more holistic view of customers, their circumstances and behaviours
- **Leverage this insight more proactively:** Change from reactive (downstream) driven organisation to one that actively drives interaction with customer and prevents risk



This translates differently across industries:

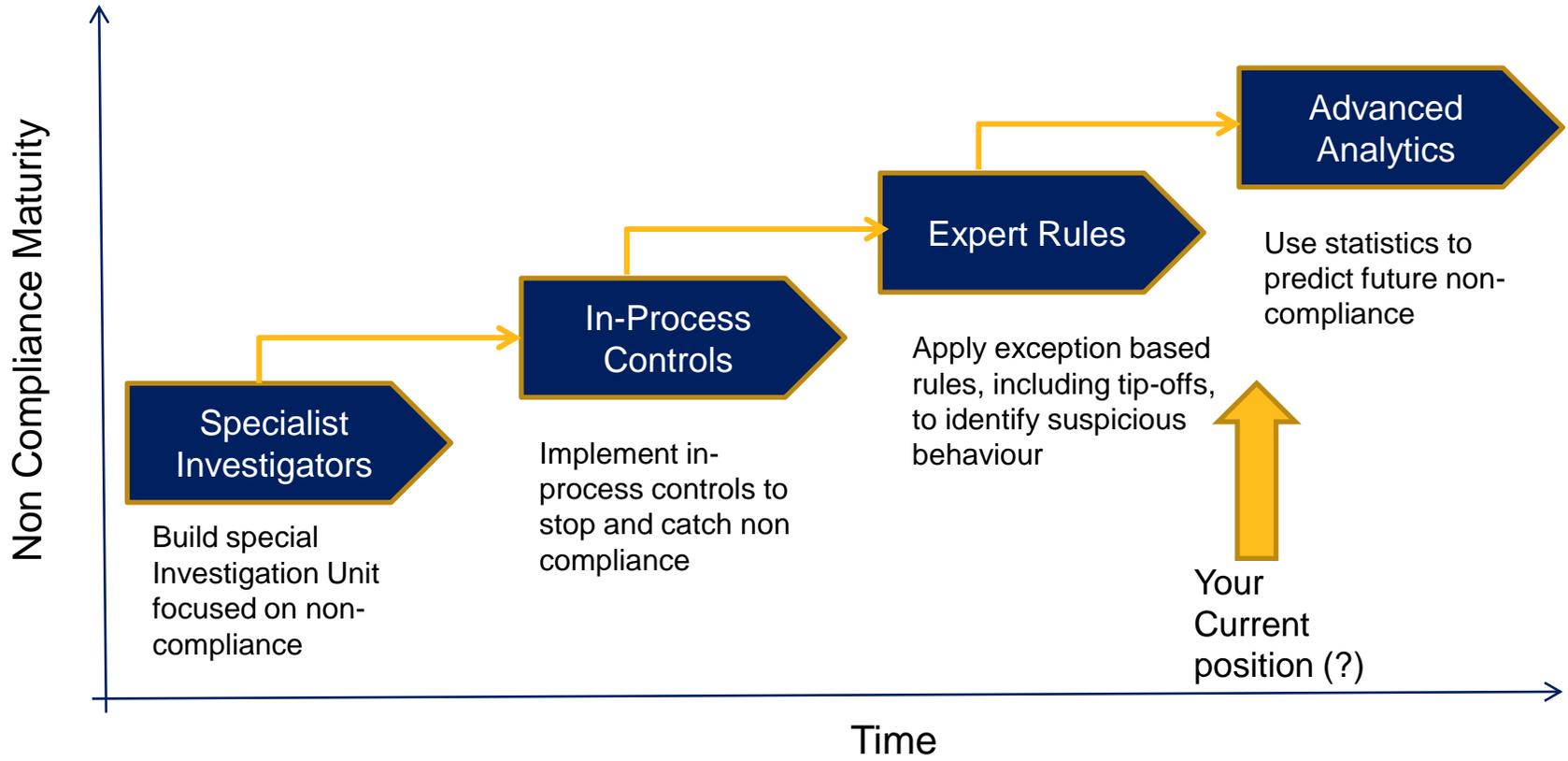


But you need to tailor it to the type of non compliance at the right phase in your business processes





The Non compliance Maturity Journey of modern Public Organisations



How will **Technology** impact the fight against Fraud & Error?





...but it is how you analyse that data that will be key to future success

Business Analytics is the uses of advanced analytical techniques to **find trends** and **predict future outcomes** which are used to **optimize business processes, customer interaction** and **manage risk and fraud**.



Business

“**Business**” – it is the use of analytics to directly target a business issue or process and as such is sold to the Business. Examples are customer retention, increasing wallet share, fraud reduction...

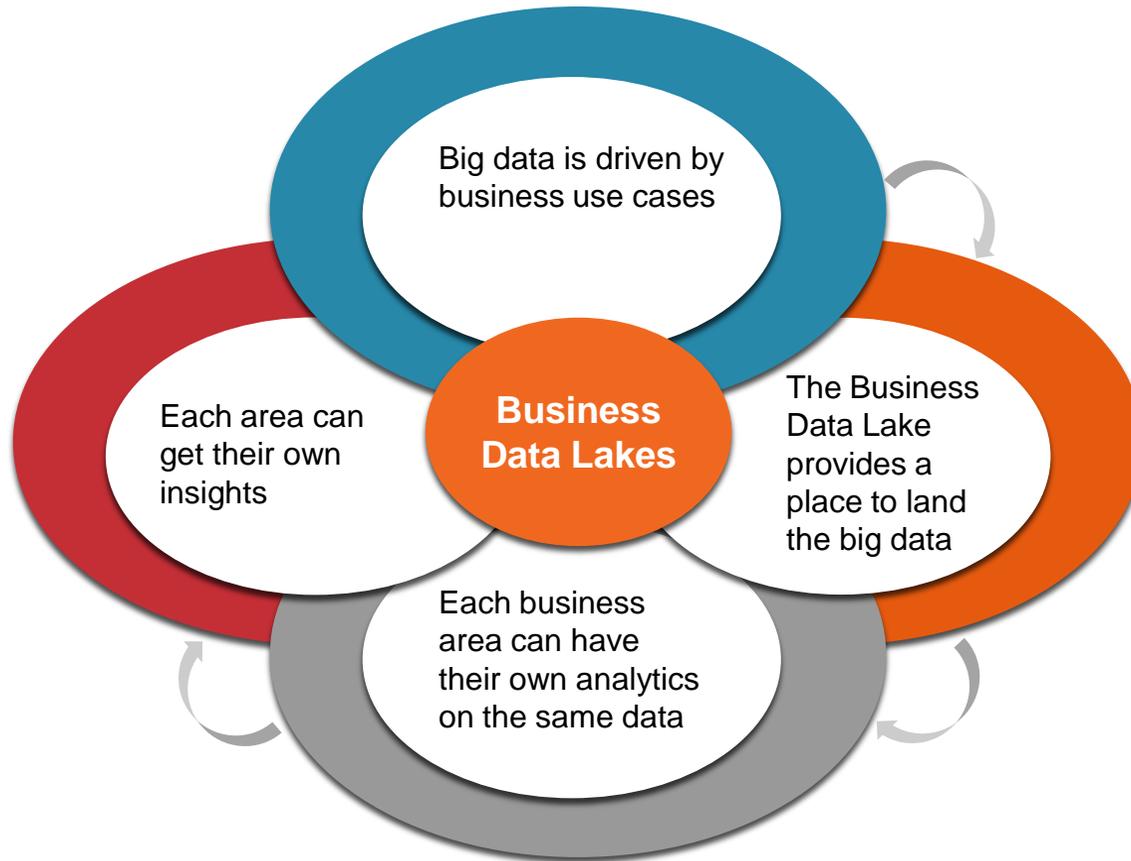


Analytics

“**Analytics**” – it makes extensive use of data, statistical and quantitative analysis, explanatory & predictive modeling, and fact-based management to drive decision making.

Governments will have to become data-driven, analytics-enabled organisations

Moving faster to an analytics enabled world means a shift in our Big Data thinking



Insights can then be **shared across the business**

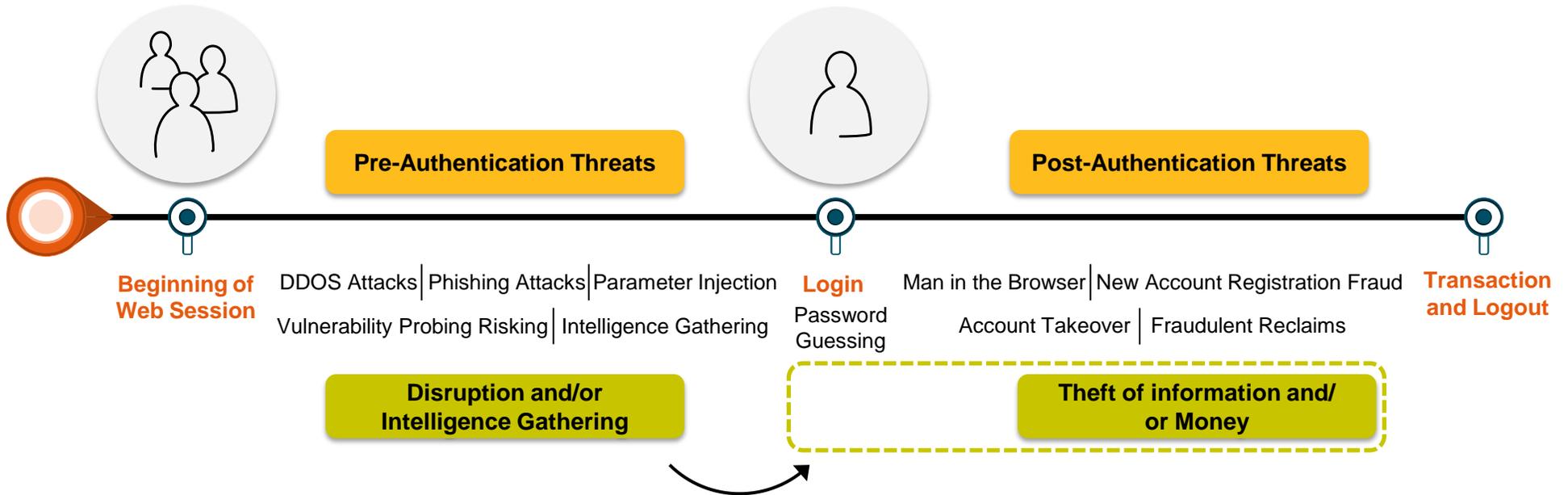
So we will need data lakes to support this new world of analytics



It's all about insight at the point of action

But Governments will also have to operate in a digital world with increased risks for fraud and error....

Nation States – Hacktivists – Organised Criminals



News > UK > Crime

Cybercrime boss offers a Ferrari for hacker who dreams up the biggest scam

Source: <http://www.independent.co.uk/news/uk/crime/cybercrime-boss-offers-a-ferrari-for-hacker-who-dreams-up-the-biggest-scam-9349931.html>



Major emerging Trends in Fraud Management

Centralization of Fraud Management Operations



To effectively fight fraud, forward-looking financial firms constantly update fraud management systems with new rules, statistical models and acquired knowledge. This process becomes easier and more efficient with centralized systems.

Usage of More Real Time External Data



Several financial services institutions are no longer content with just using regular transactional data to fight fraud and are also looking at external information obtained from third party vendors and intelligence from social networking sites to improve their capabilities in fraud detection.

Rise of Cyber Crime increased by the adoption of mobile devices and the use of external data



Computer hacking, virus attacks, websites and email spams

Consumers want simple, easy-to-use banking services, but do not accept that they are vulnerable to fraudulent activities. Organizations which are able secure their transactions by moving to the next generation of authentication, such as biometric authentication enabled through mobile technology, can create competitive advantage by meeting consumers' expectations for products that are both simple and secure.

Use of advanced analytics methodologies on a single fraud management platform combining...



Incorporation of a Hybrid approach to analytics

Out of pattern analysis

Comparing customer activity with peer group behavior, and also with the customer's own past behavior to identify outlying transactions.

Linkage analysis

Identifying other entities associated with known types of fraud, as well as practices used by fraud-linked entities – sometimes using analysis of social networking activity – and developing strategies to counter these practices.

Model development

Creating fraud-scoring tools and detailed statistical analytics to provide quantitative insight into possible fraud activity.

Rule development

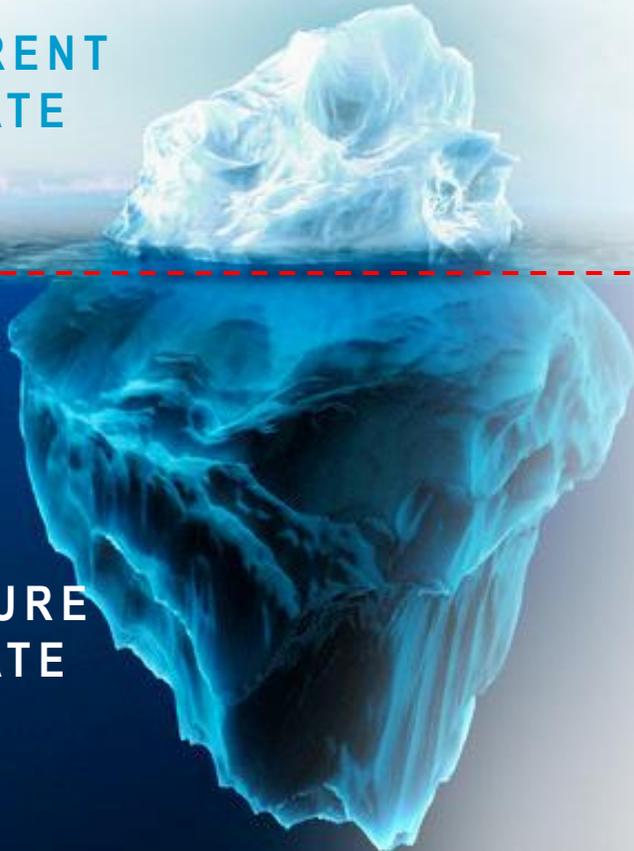
Creating and applying rules for basic business activities to spot unusual trends, as well as specialized rules for specific transactions.



Focusing on fraud, current detection systems only hit the tip of the iceberg

Current versus Most Advanced Fraud Detection Systems

CURRENT
STATE



FUTURE
STATE

- **Review**
 - Retroactive
 - Obvious standard patterns, hot-lists of known schemes
 - Minimal or ad-hoc feedback loop
- **Rules**
 - Models using thresholds
 - Detect linear relationship only

Static
&
reactive

- **Review** → **Detect**
 - Predictive (early detection)
 - Detect subtle cases
 - Constant feedback loop (learning models)
- **Rules** → **Advanced models**
 - Capture predictive non-linear behaviors
 - Adapt to constantly evolving fraud patterns
- **Multi-dimensional Big Data fraud systems**
 - Leverage highly fragmented/incomplete data
 - Create multiple linkages (claimant profiles, auto-body shops, physicians, adjusters, crime rings, micro-geo inputs, etc.)
 - Convert categorical and text-based data into predictive signals
- **Decision tools** (from pull to push, intuitive interface flagging cases, real-time interactivity)

Adaptive
&
predictive

Example of Applied Analytics:

Uncovering fraudulent
VAT Carousels

With Social Network Analysis





Some explanation of what we did: VAT Carousel Fraud – Basic Pattern...

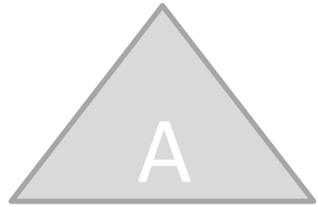
Process Diagram

Criminal Attack



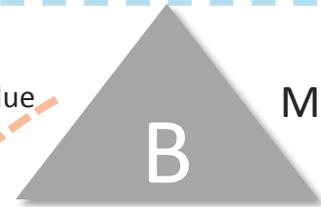
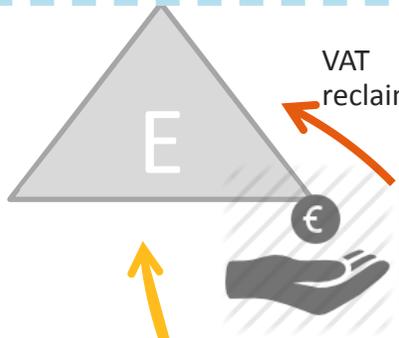
Country 1

3 E sells goods to A for €950k. No VAT due as A is based in another EU country. C claims refund of VAT of €180k charged by B



1 A sells goods to B for €1m. No VAT as A is in different EU country from B

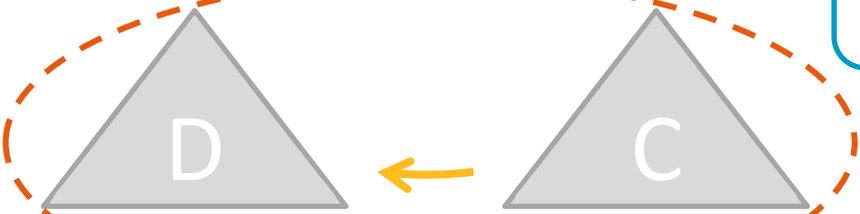
Country 2



Missing Trader

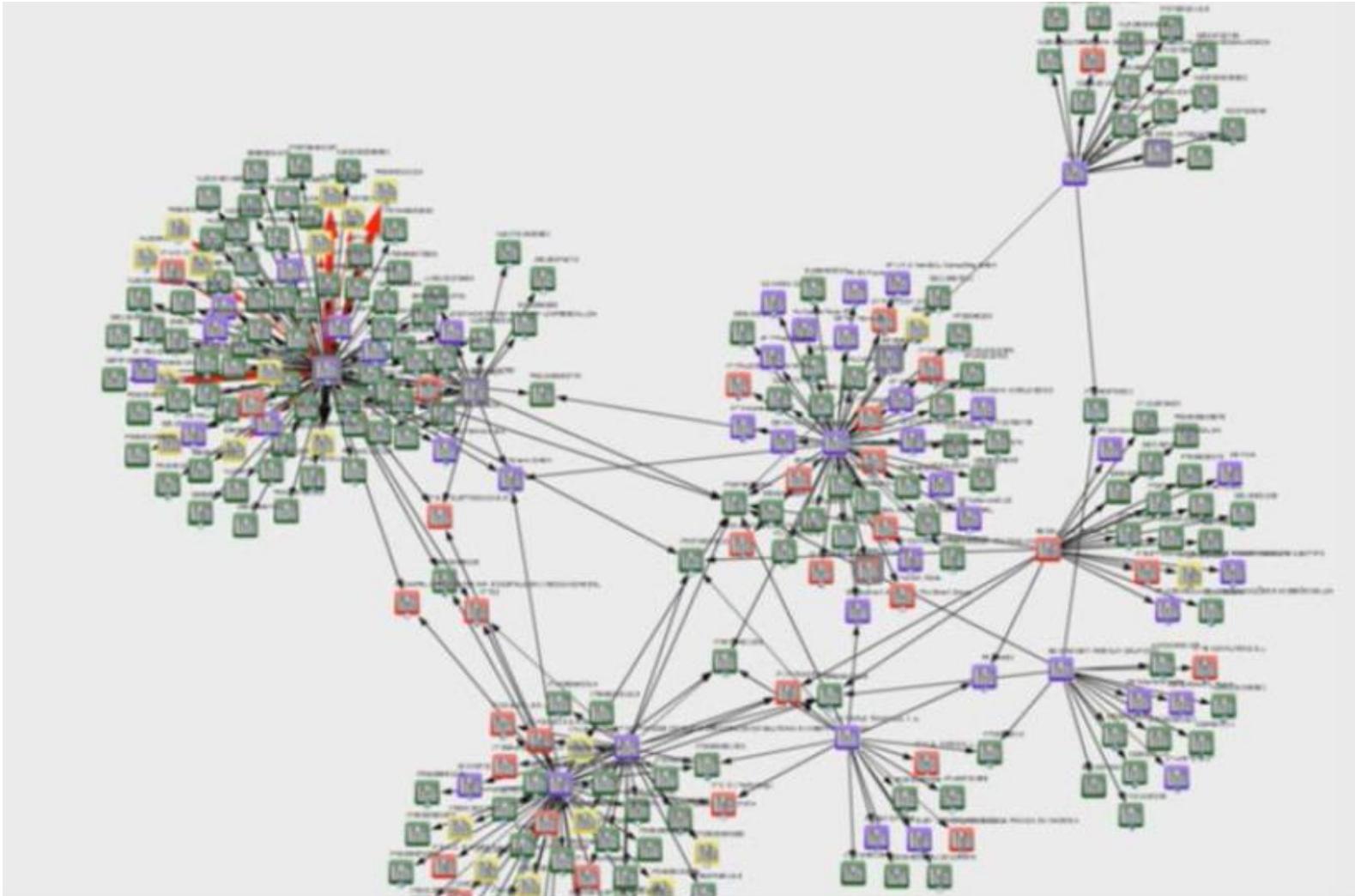


2 B sells goods to C for €900k plus €180k VAT. B never pays €180k VAT to Belastingdienst and "disappears"

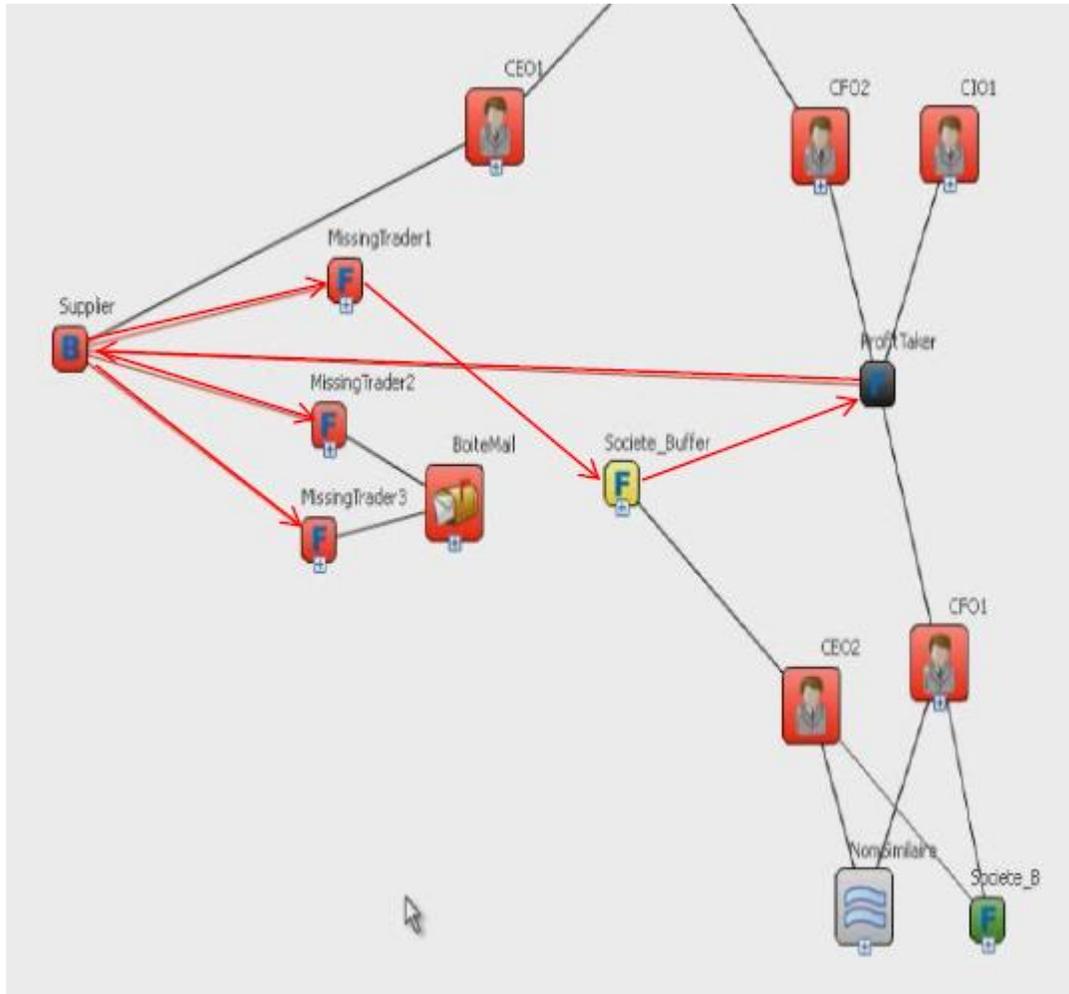


Buffer Traders

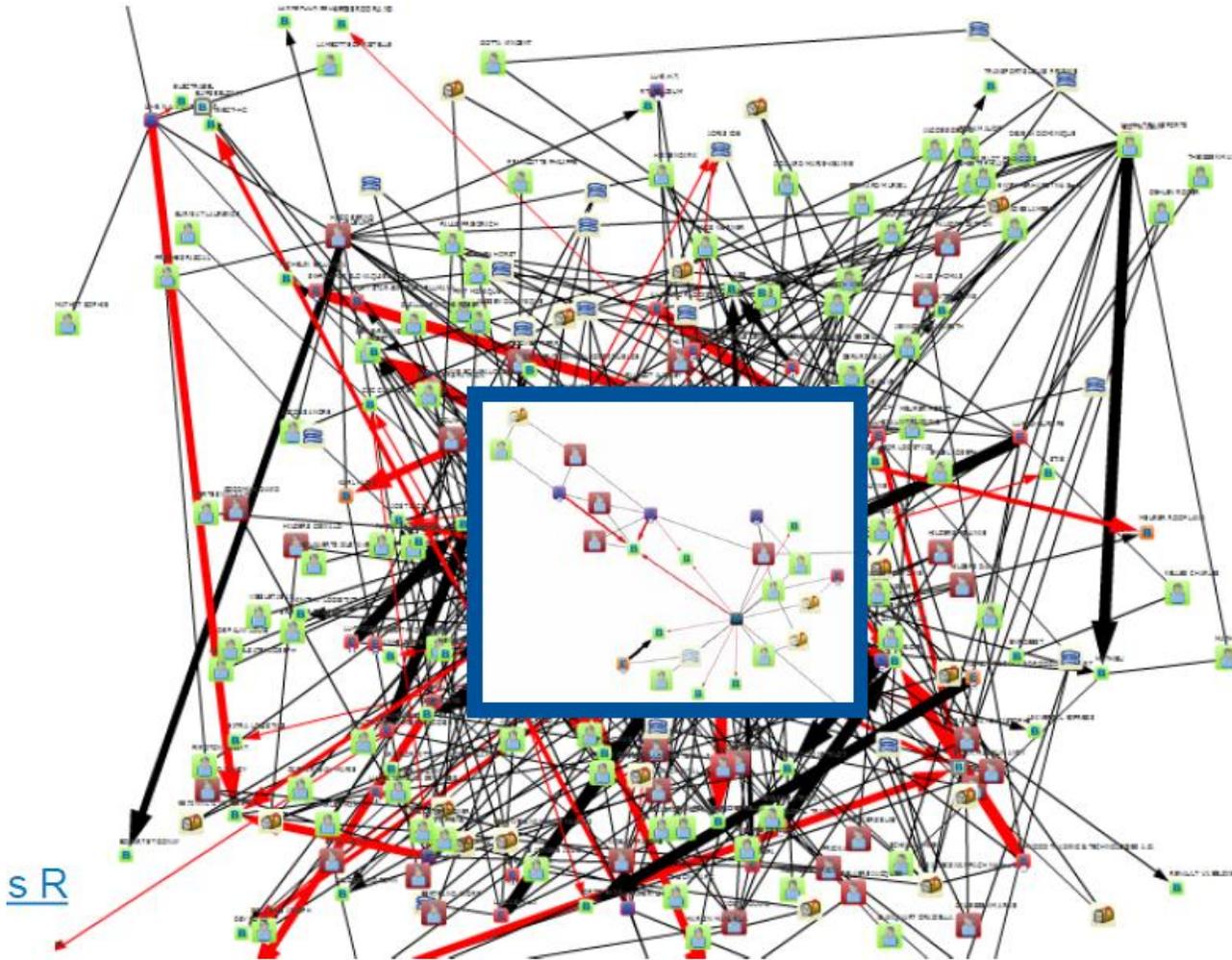
VAT Carousel Fraud – Presented Pattern

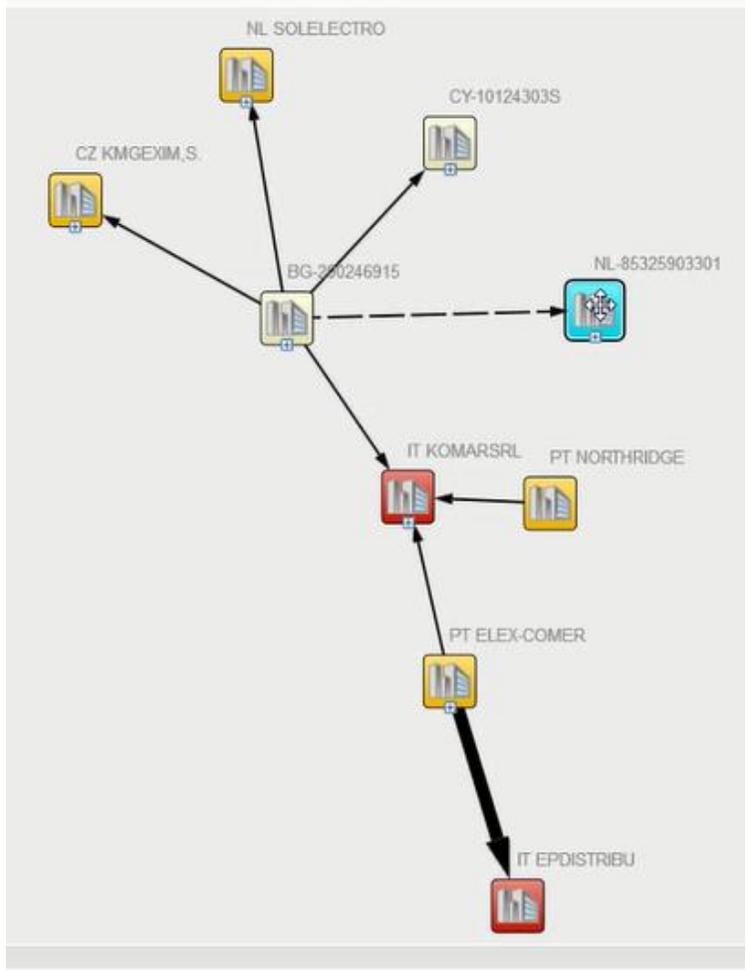


VAT Carousel Fraud – A network after investigation

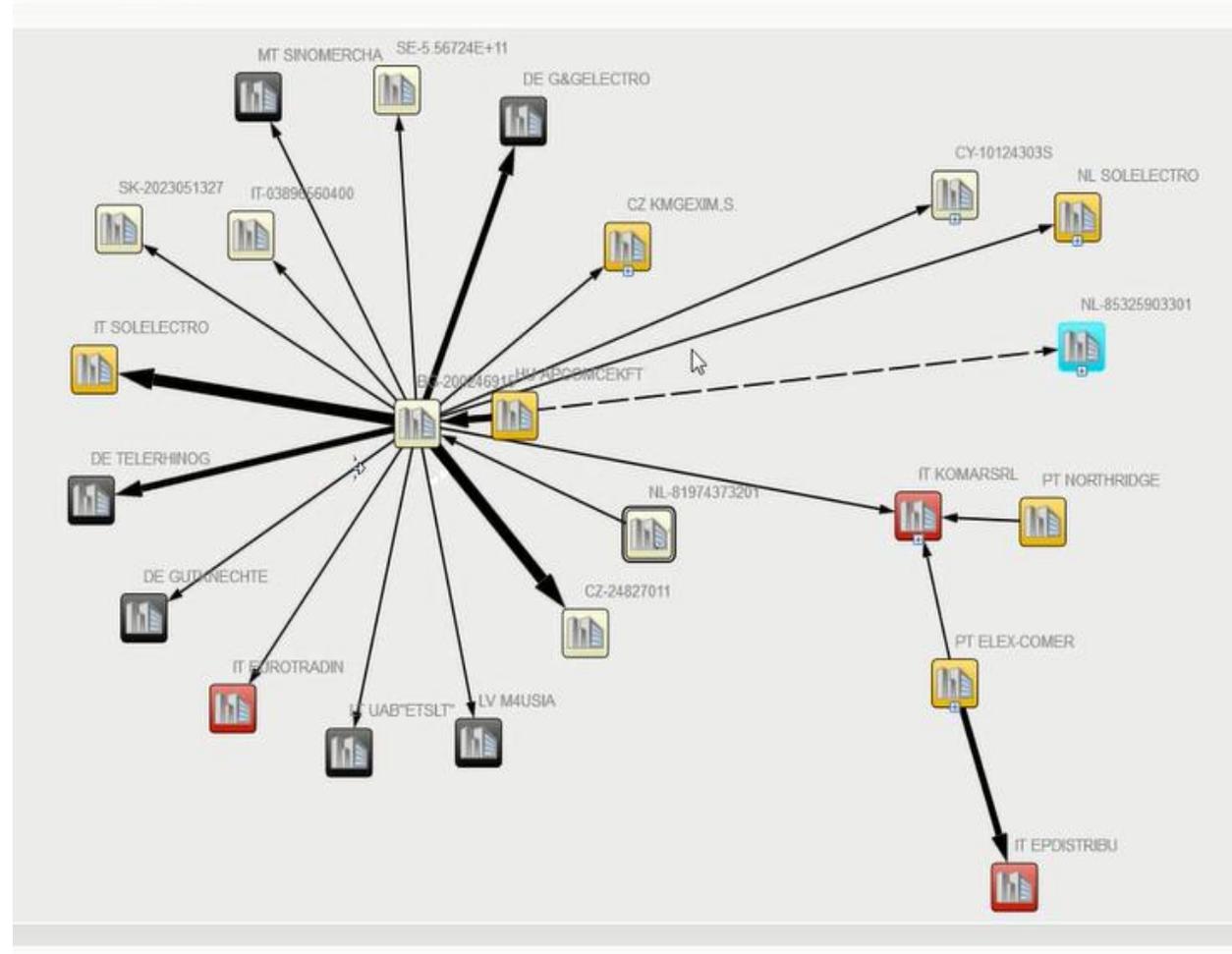


VAT Carousel Fraud – Getting the picture...



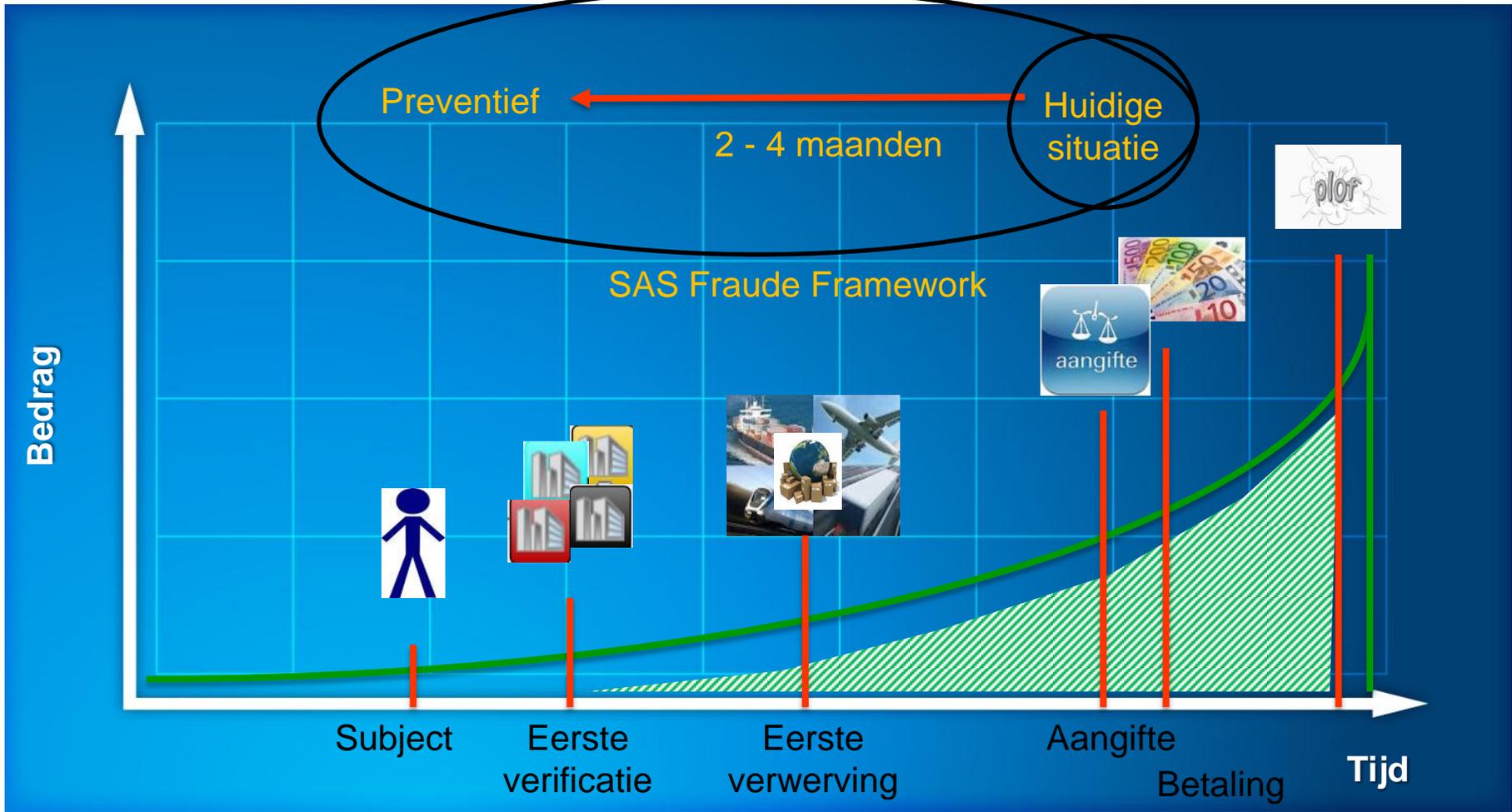


2 jul. 2014



2 jul. 2014

Next step: moving from Investigating networks..... To event oriented risk assessment



Lessons learned In the effective use of Applied Analytics:





Lessons Learned: building a compliance capability

Think big...

- The use of the enormous amount of available data (both public and private) to increase your compliance capabilities and effectively implement large scale fraud detection and preventing measures implies significant investment in business and technology change, supported by strong governance
- Organisations typically start by designing a target operating model, enterprise architecture and enterprise data model that sets out how they will achieve improved predictive & downstream compliance outcomes. They supplement this with a gap analysis of current capabilities, a route map and a business case

...Start small

- Experience from other countries shows that developing a wide compliance is a 4-5 year journey
- Identify an initial customer segment to design, build and roll out an integrated business-IT cross-value chain solution (policy, process, organisation/governance/capability, data model, technology tools)
- **Prove it, then scale it** – then address a second segment applying the same common capabilities

... It's not just about technology

- Successful projects started by bringing together business expertise, data expertise and technology expertise working very closely together in incubation chamber circumstances.

...There is no one size fits all

Our **credentials** in Tax & Welfare



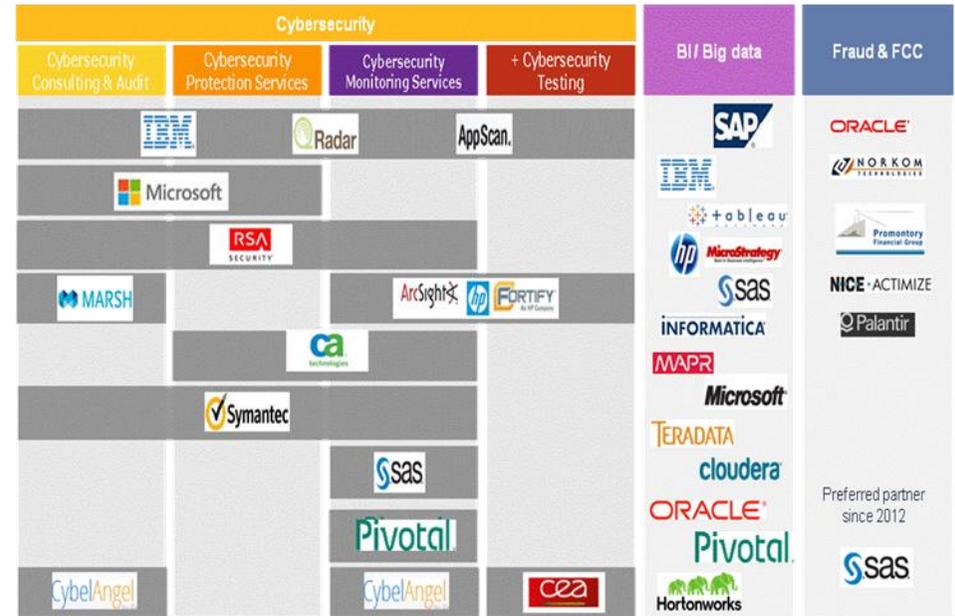
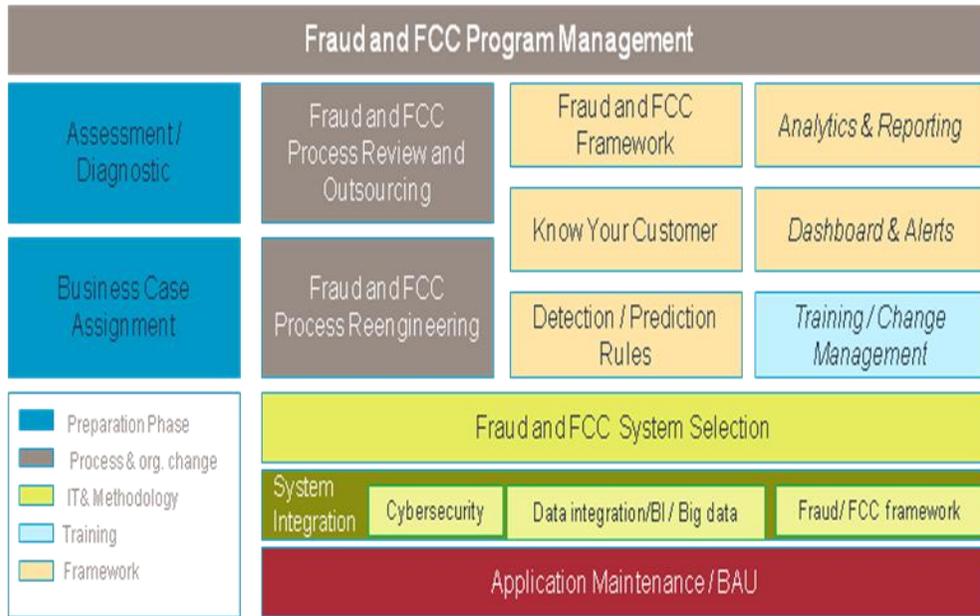


Capgemini Global Tax & Welfare Sector



 HM Revenue & Customs United Kingdom	 IRS Department of the Treasury Internal Revenue Service United States	 Skatteetaten Norway	 MINISTERSTVO FINANCII SLOVAKIAN REPUBLIC Slovakia	 Skatteverket Sweden
 Belastingdienst The Netherlands	 SEFAZ-SP Brazil	 FINANCES PUBLIQUES France	 Australian Government Australian Taxation Office Australia	 Bayerisches Landesamt für Steuern Germany
 pennsylvania DEPARTMENT OF REVENUE United States	 DEPARTMENT OF SALES TAX India	 SEFA Secretaria de Estado de Fazenda do Estado de São Paulo Brazil	 pôle emploi France	 DWP Department for Work and Pensions United Kingdom
 Bundesagentur für Arbeit Germany	 DETR United States	 Försäkringskassan Sweden	 NAV Norway	 Assurance Maladie France
 Zentrum für Informationsverarbeitung und Informationstechnik Germany	 Uwv werken aan perspectief The Netherlands	 sefaz.ba Brazil	 SVB voor het leven Sociale Verzekeringbank The Netherlands	 Arbetsförmedlingen Sweden

Capgemini comprehensive compliance solution services are based on an eco system of strategic alliances and partners



Capgemini End to End Fraud and FCC Services



HM Revenue & Customs



Strategic alliances and partners

Bank of America



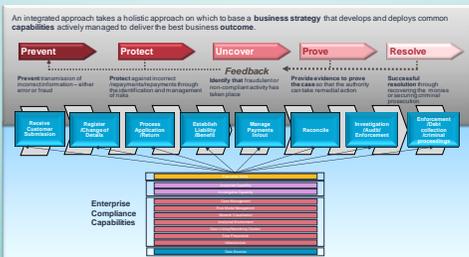
Capgemini offers an end-to-end solution or offer assistance for specific phases of the implementation of a Fraud and FCC framework which requires a well-structured approach leveraging Cyber security, Data integration Big data and analytics fraud capabilities.

Our capabilities



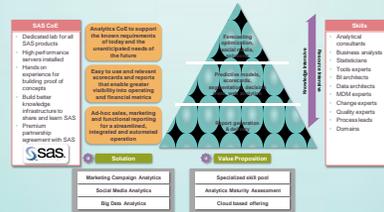
Domain expertise

- Partner to 35 Tax & Welfare globally
- Understanding of the Tax business process
- Compliance Framework
- End to End solution
- World's foremost provider of Business Information Management (BIM) services.



Delivery capability

- Strategic global partnership with SAS on Fraud management solutions
- BIM Centre of Excellence in India
- Business & Solution Architects
- Local footprint.



Proven value

- Proven success stories in UK, Netherlands and in the Financial Services Sector
- £2.6bn additional tax yield to date for HM Revenue & Customs.





Our Thought leadership

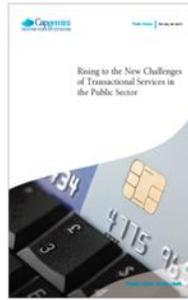
Compliance



Business intelligence



Big data & fraud management



Fraud analytics



Tax & fraud management



Welfare & fraud management



Noorwegen



Canada



DWP

Tax



USA



Tax Forum



Future



Transformation



Compliance



Cost reduction



Tax gap



Agility



About Capgemini

With more than 130,000 people in over 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2013 global revenues of EUR 10.1 billion.

Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.



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