



Smarter Analytics Live 2013

Turning information and insight into actionable business outcomes.

Intelligent Investigation Management

Targeting the Investigation

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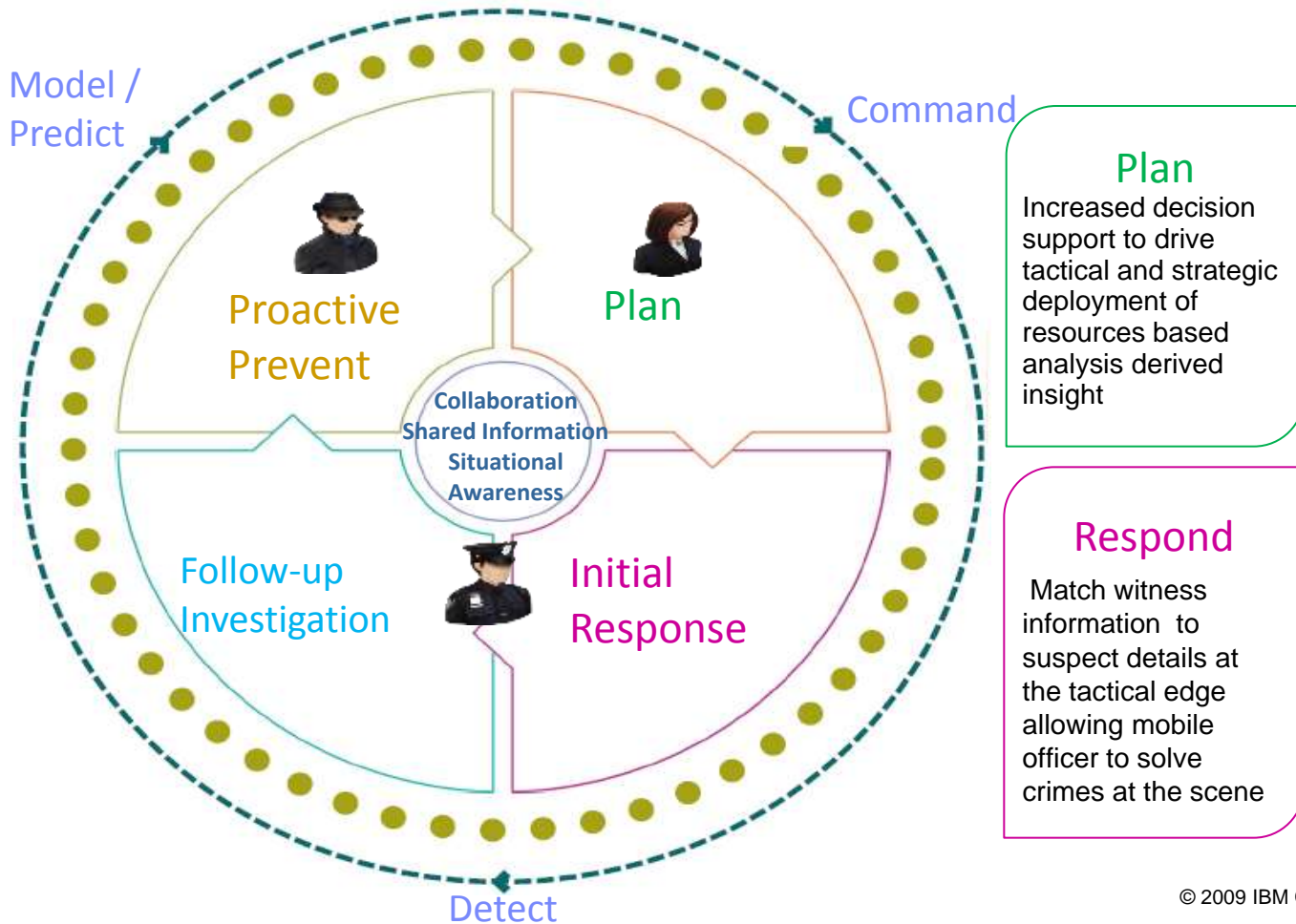
Smarter**Analytics**





Targeting the Investigation

- Whether you work in Law Enforcement, Tax, Customs, Immigration, Intelligence, Human Services or Finance carrying out an investigation into an individual or an organization is a complex and protracted exercise. The activities surrounding an investigation involves data collation, complex analysis and the investigative skills to conclude on a desired outcome. In conducting investigations, an organisation needs to ensure their teams' actions comply with standard operating procedures and regulations, meet agreed service levels, produce the required intelligence assets and audit trails of all their actions for evidentiary purposes. In this session you can learn how IBM's customers have been meeting these challenges, and how IBM Intelligent Investigation Management could enhance your organisation's investigative capabilities through forensic analysis of structured and unstructured information; and structure and automate your investigation processes with case collaboration management and investigation governance.



Prevent
Provide analytical support to major and long running investigations . Determine causal effects and forecast levels , establish priorities

Investigate
Resolve identities, uncover hidden associations and generate fresh leads for the timely resolution of on-going investigations

Plan
Increased decision support to drive tactical and strategic deployment of resources based analysis derived insight

Respond
Match witness information to suspect details at the tactical edge allowing mobile officer to solve crimes at the scene

The investigation process is rife with challenges



- High operational cost chasing too many false leads
- Inefficiencies in coordinating investigations
- Limited visibility into the status of ongoing cases
- High resource needs to collect and assimilate information/evidence
- Inability to prevent and detect similar events in the future



Challenges: Fighting fraud and Crime



- Investigation has become overwhelmingly complex
- **Information** trapped in content and disparate systems
- Timely analytics tools & capabilities to discover patterns
- Lack of visibility and control of the **investigative process**
- Governance of the **investigative process**



Generally lack an intelligent & integrated enterprise fraud, criminal, military and financial crime operating solution

Intelligent Investigation...



Example Investigation – True Events




Double Murder
1/06/2006



Witness Statements



Forensic Reports



Forensic Evidence

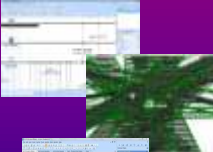



Telephone Records



CCTV Footage

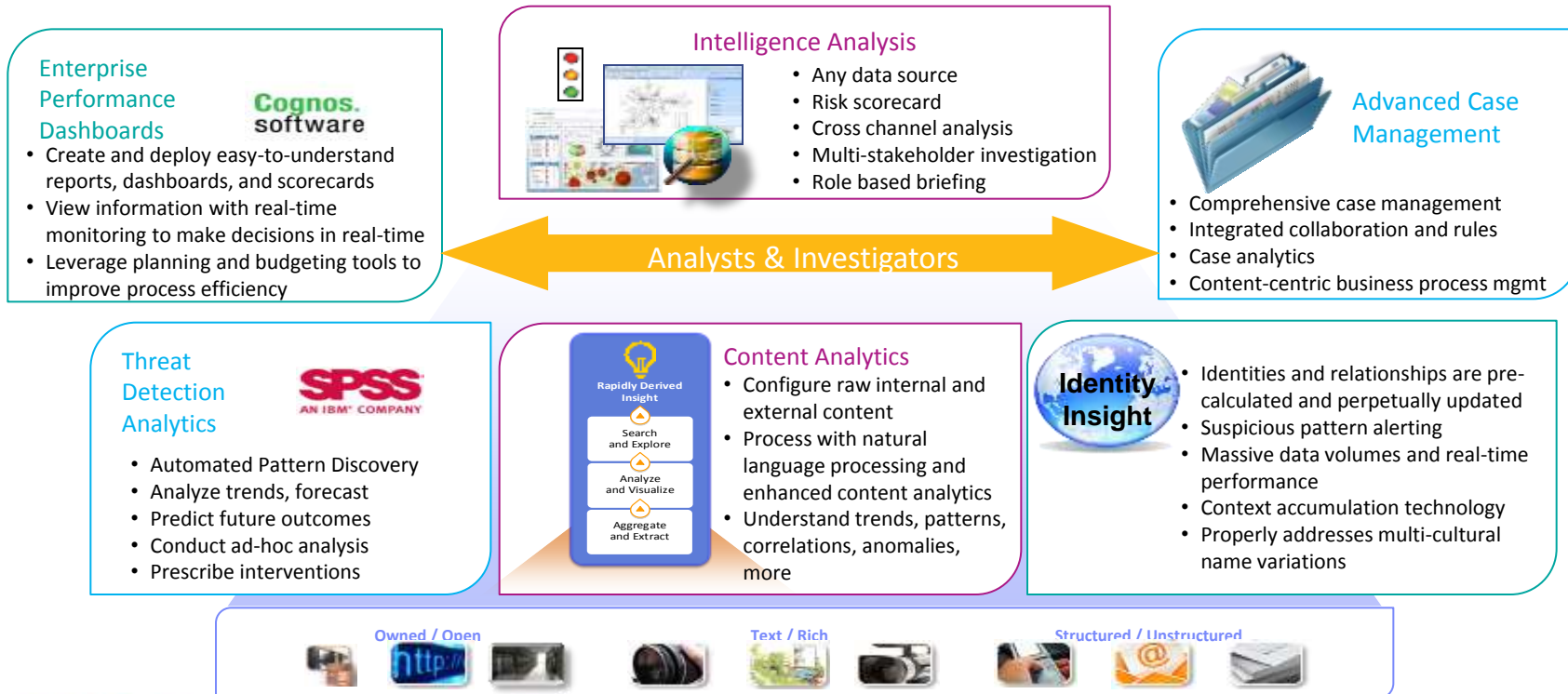
IBM Investigation Analysis Platform



Intelligent Investigation...



IBM has the technology to address end-to-end investigations



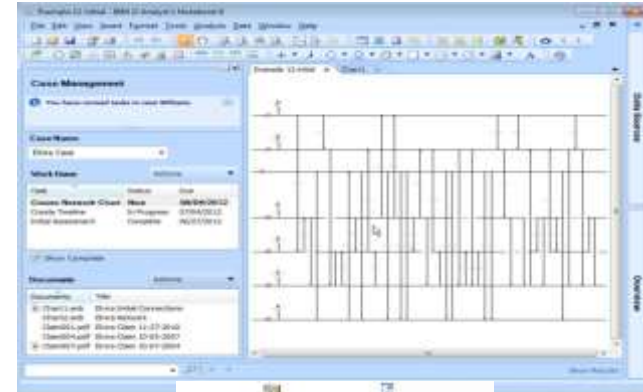
IBM Intelligent Investigation Manager

A new solution for optimizing investigation



- Efficiently process cases and coordinate activity across the investigative team
- Conduct forensic analysis, generate leads, visualize the scope of the fraud and gather evidence.
- Capture results directly into the case.
- Discover new entities, patterns and insights by searching through structured and unstructured content
- Facilitate the management of the case including the handoff to supervisors, litigators or other authorities
- Provide transparency into the effectiveness of the investigative process using integrated KPI reporting and analytics
- Provides an audit trail of information, tasks, reviews, approvals and correspondence associated with all aspects of a case

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Intelligent Investigation Manager components



IBM Intelligent Investigation Manager

IBM Case Manager

IBM Content
Analytics

IBM i2
Intelligence
Analysis

IBM Case Manager for delivering customizing investigative solutions that enable investigative teams to efficiently manage an investigation

IBM i2 Intelligence Analysis for conducting forensic analysis in the context of the investigation

IBM Content Analytics for driving the discovery process across all available data during the investigation

Capabilities Are Used by Clients In Multiple Sectors



National Security



- Counter Terrorism
- Counter Intelligence
- Intelligence Analysis
- Border Security
- Cyber Risk

Defense



- Establishing Civilian Structures
- Counter Intelligence
- Intelligence Analysis
- Target Analysis and Defense
- Peacekeeping
- Force Protection
- Pattern of Life Analysis
- Human Terrain Mapping

Law Enforcement



- Tactical Lead Generation
- Counter Terrorism
- Major Investigations
- Organized Crime
- Neighborhood/Community Policing
- Public Order/Major Event Management
- Volume Crime
- Fusion Centers

Private Sector



- Security Investigations
- Industry Oversight & Compliance
- Cybercrime
- Risk Management
- Anti-Money Laundering
- Fraud

Government



- Industry Oversight & Compliance
- Cybercrime
- Securities Investigations
- Anti-Money Laundering
- Fraud

The value of data visualisation



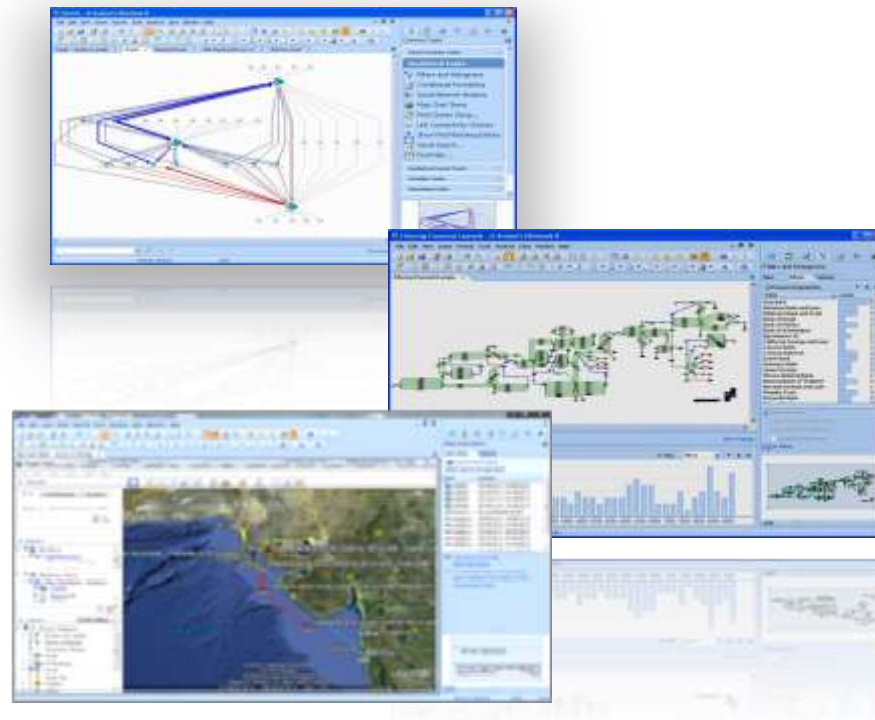
Improve context by delivering more insight into the relationships between data points

- Model does not show correlations between individuals

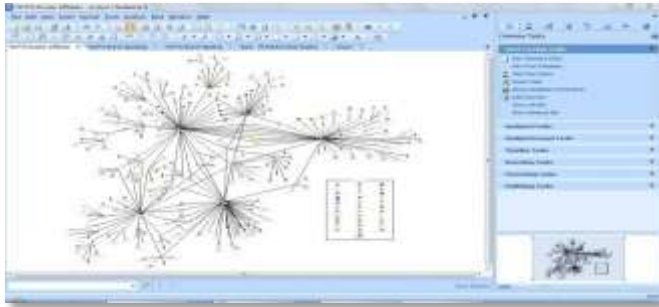
Visualizes connections that otherwise would have to be picked up the case investigator

Allows analysts to be more effective – ability to receive deeper insight into investigation process

- Provides evidence/output for criminal or civil prosecution



Make investigators productive through interactive visualisations



Link analysis & social network analysis



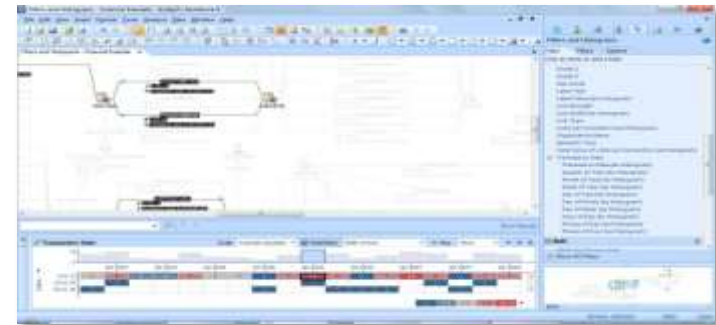
Transaction timelines



Geospatial

twitter

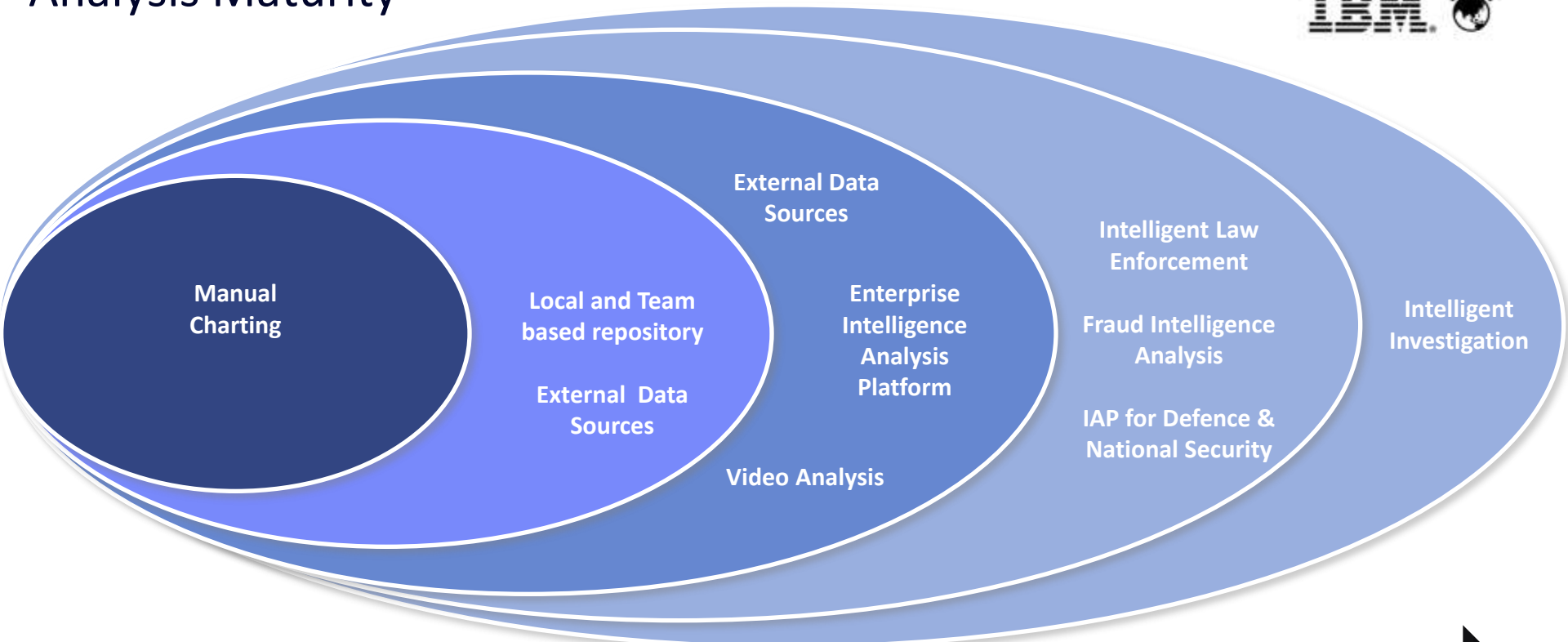
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Histograms & activity heat maps

SmarterAnalytics

Analysis Maturity



Increasing sophistication, depth, accessibility and applicability to industry



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IBM Video Analytics

Activity Driven Alerts from Video Analysis



Motion Detection

Triggers on any motion that fits size/duration constraints



Tripwire

Triggers when object center passes over a virtual line



Directional Motion

Triggers when object moves in a certain of directions



Abandoned Object

Triggers when object appears in region, stops and remains still for period of time.



Object Removal

Triggers when object which has been still in image for long time starts to move.



IBM CopLink (Face Match)

Facial and Demographic recognition in the field



Ingest



Search



Key Issue: “80% of time spent on entering or managing data & information”



- *“sometimes we had to manually enter information from nearly 300 reports a day...”*



Leaving ONLY 20% of time on analysis

Unstructured data – Automatic Entity Extraction



The screenshots illustrate the workflow of automatic entity extraction. The first shows the user interface with the 'Test Analyze' button. The second shows the results of a search for 'Hirovash Mujtabaev', displaying a list of entities categorized by type (Address, Organization, Person, Subject). The third shows a network graph where these entities are represented as nodes and their relationships as edges, providing a visual overview of the data structure.

External

Internal

twitter #SAL

Open Source

Email Geospatial Telephones SIGINT Biometrics Data Records

Content Analytics enables agencies to ingest, search and analyze unstructured and structured data from multiple sources



Content Analytics for Investigation

Enables agencies to ingest and analyze investigative documents

Correlate data

- Correlate unstructured information (reports, notes) to structural system

Analyse unstructured information

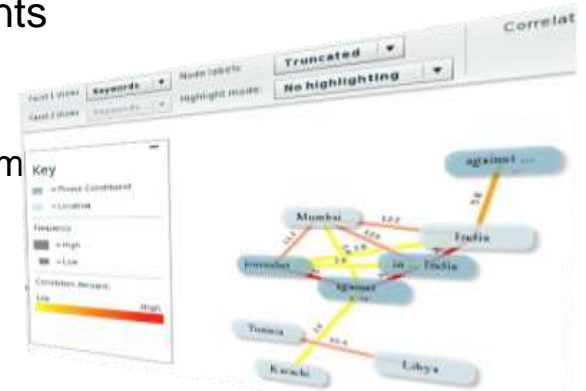
- Derive and identify new trends, patterns and anomalies

Connect structured and unstructured data

- Provide a 360-degree view of suspects and relationships

Advanced analytical features

- Semantic searching, risk alerting, SNA etc... help turn volumes of data into a wealth of insights

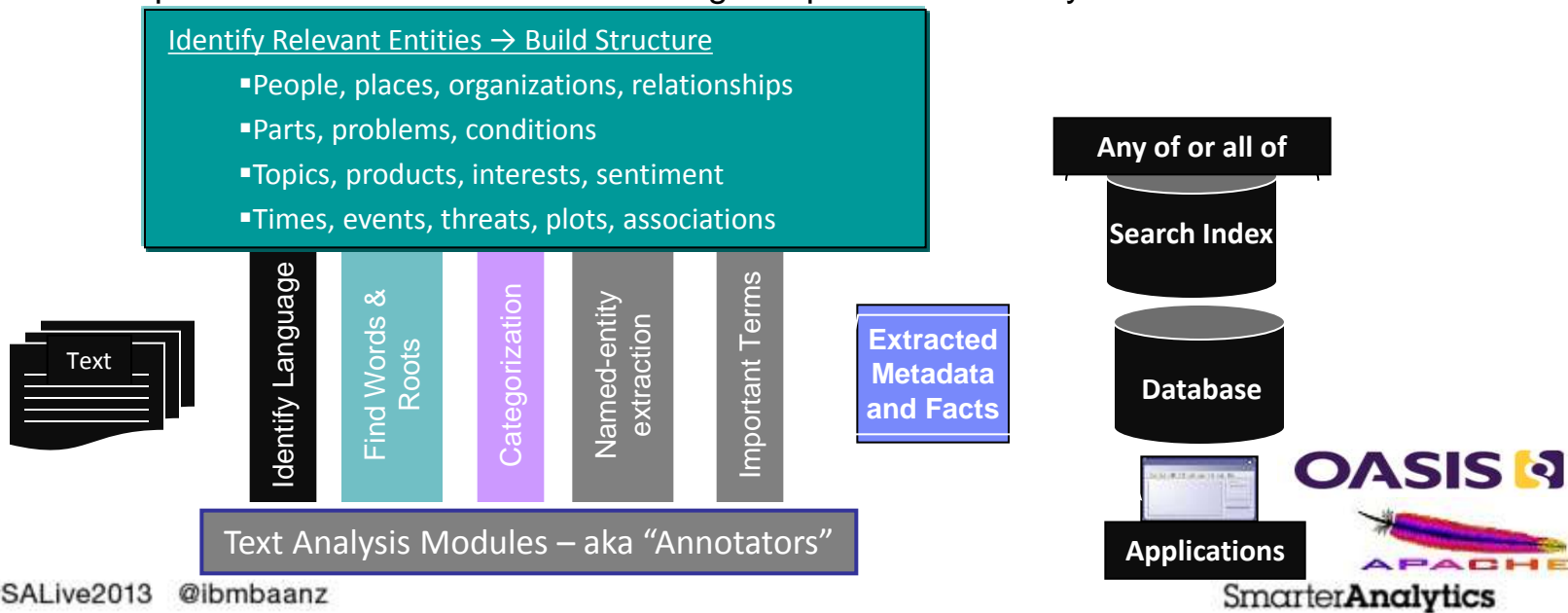


Document Processing – Pipeline Details

The only industry standard for content analytics



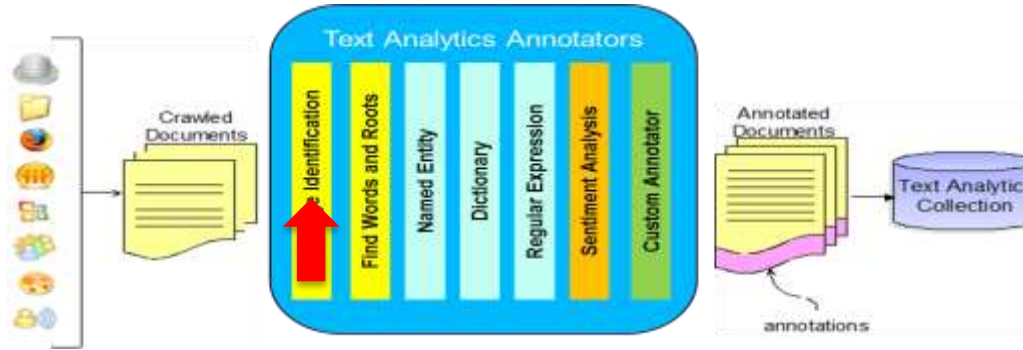
- OASIS Standard as of March 2009 - UIMA
- Enables interoperability of different analytics solutions and enterprise applications
- Provides an SDK for building and composing text analytics
- Defines a common interface for integrating text analysis modules
- Enables development of new and re-use of existing components for analysis



What do Content Analytics annotators do?



annotator- a software component that performs linguistic analysis tasks, then produces and records annotations



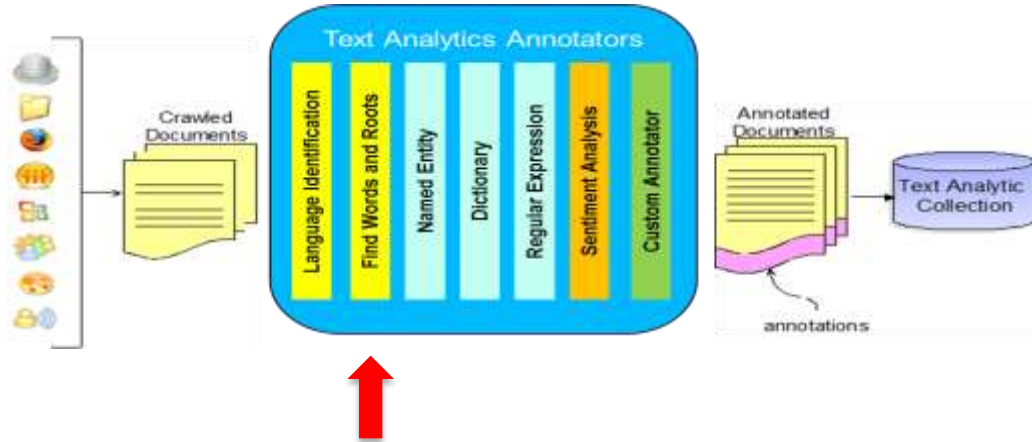
I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

ENGLISH

What do Content Analytics annotators do?



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I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

Noun

Verb

Adverb

Determiner

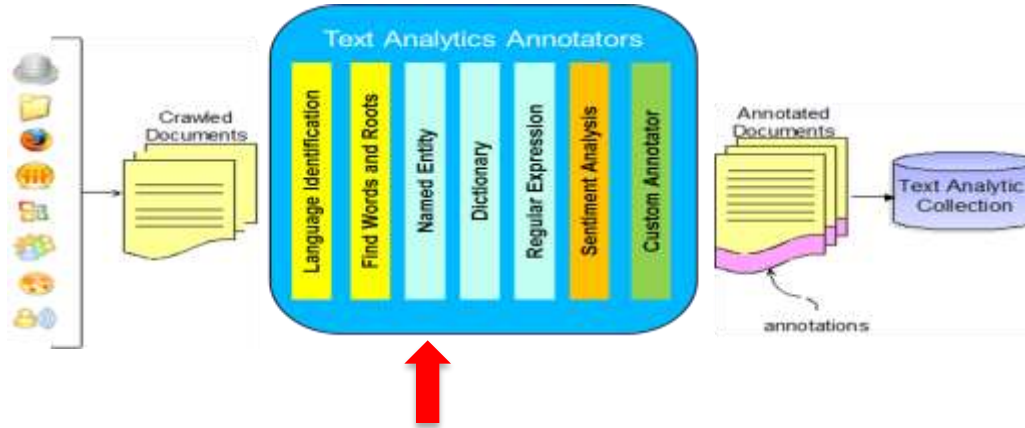
Pronoun

Etc...

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I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

Person

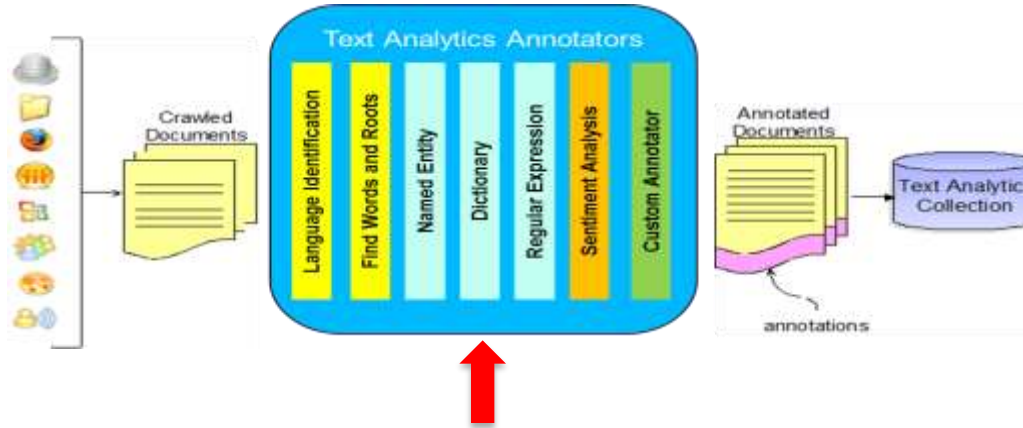
Organisation

Location

What do Content Analytics annotators do?



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I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

Car Manufacturer

Motion Identifier

Location Identifier

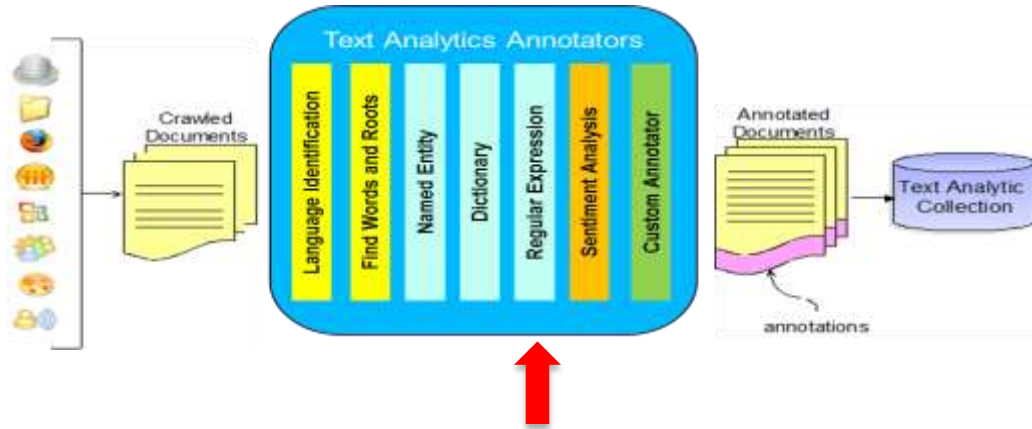
Car Model

Incident Identifier

What do Content Analytics annotators do?



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Possible Number Plate

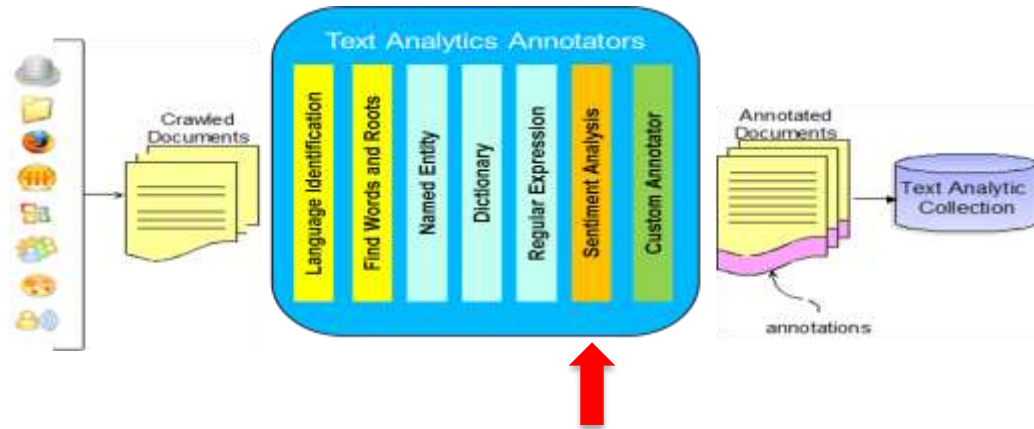
Date

Report Number

What do Content Analytics annotators do?



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I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

Negative

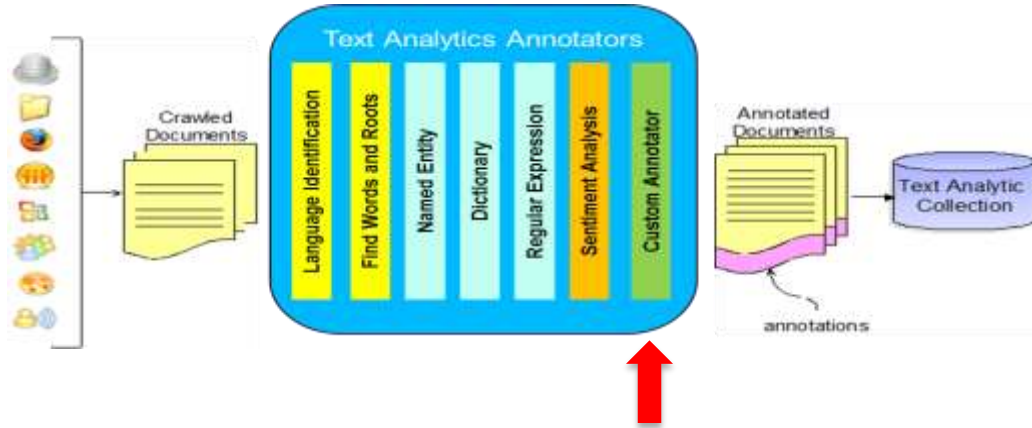
Positive

Ambivalent

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I was waiting at the traffic lights in my Audi A4 (9003EKH) at the corner of Ruckers and Wills street, when I was hit from behind by a Toyota Prius (7893THR).

Witness Vehicle

Incident Type

Vehicle

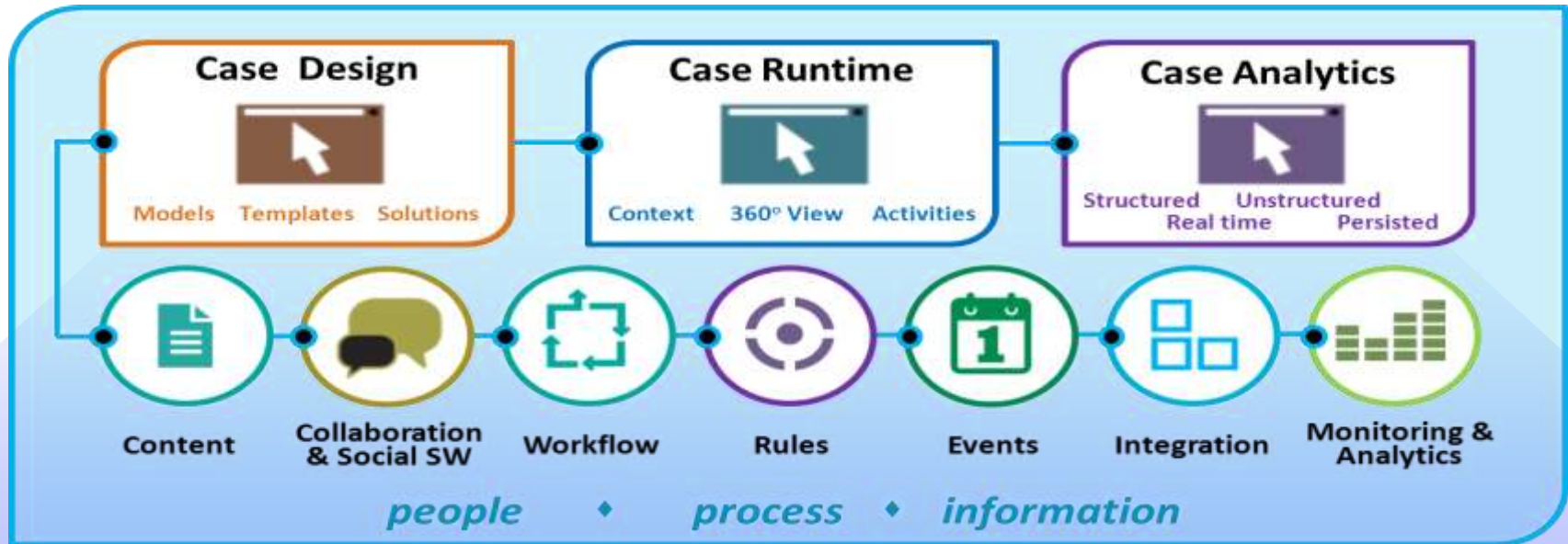
Stationary Vehicle

Incident Location

Number Plate

IBM Case Manager

Simplifying the delivery of investigative solutions



The value of case management to an investigation



Provides more efficiency and transparency to the investigative process

Provides coordination and management of overall investigation

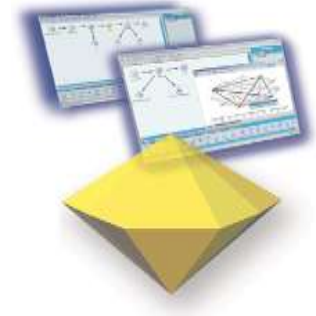
- Routing of work to investigative team
- Integration of collaborative elements
- Management of investigation documents
- Support for ad-hoc work that occurs during an investigation



Preparation of 'case ready' reports for negotiation or prosecution

Improve efficiencies

- As the investigation is occurring
- After the investigation has completed



Crossing the Investigation Team boundaries



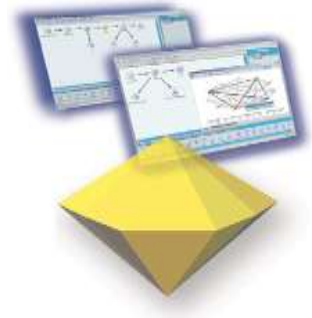
The screenshot shows the 'Review Claim' interface in IBM Case Manager. The top navigation bar includes 'Home', 'Go to Spaces', 'Manage Spaces', and 'Actions'. The main content area is titled 'Review Claim' and includes a 'Comments' section. Below this, there are tabs for 'Client Data', 'Risk Scorecard', and 'Policy Information'. The 'Client Data' tab is active, showing 'Claimant Details' with fields for Claim Number (103-0987932-012), Claim Type (Accident), Claim Date (06/16/2012), Claim Status (Investigation), and Claim Description (Minor injuries from rear-end collision). A 'Case History' section is also visible, listing previous cases.

The screenshot shows the 'Analyze Case' interface in IBM Case Manager. The top navigation bar includes 'Home', 'Go to Spaces', 'Manage Spaces', and 'Actions'. The main content area is titled 'Analyze Case' and includes a 'Comments' section. Below this, there is a 'Viewer' section displaying a network diagram with nodes representing people and organizations, such as 'Pat Tan', 'Ade Mathews', 'Shutl Perriers', 'Insurance Direct', '1540 Western Ave', 'North County', 'Florida', 'USA', 'Oscar Mengut', and 'Loan & Co'. To the right of the viewer, there is a 'Sanetina' sidebar showing a user profile for 'John', IBM Investigator, with contact information. Below the profile, there is a 'Case Information' section for 'FR_Fraud_00000100415' with tabs for 'Summary', 'Documents', and 'History'. The 'Summary' tab is active, showing a list of documents with columns for Name, Modified, and Size.

In Summary



- Provides Governance around the entire investigation process
- Enforce service levels
- Breakdown the boundaries across information silos for clearer visibility
- Provide access to information held within structured AND unstructured data sources.
- Identify correlations between information
- Pre-integrated solution stack to provide faster ROI and lower TCO
- **Most Importantly - turn information into intelligence led investigations.**





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Demonstration – Ask the experts area

Intelligent Investigation Manger

Adrian Barfield, IBM Software Solutions

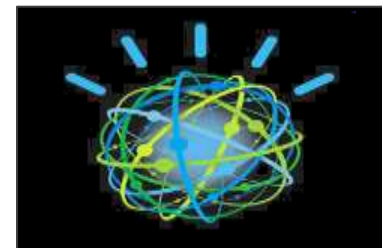
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SmarterAnalytics



Thank
You



ploszay@uk.ibm.com
adrian.barfield@au1.ibm.com

Join us to play
against Watson!



Next Session.....

The Real World Use of Big Data