https://trace-illicit-money-flows.eu

The human factors and AI in tracing illicit money flows and ML

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Outline /Structure of the presentation

- Overview of the project
- Use-cases (illustration on ML in Online gambling)
- TRACE AI solution as high-risk
- Safeguards in creation and use of TRACE AI solution

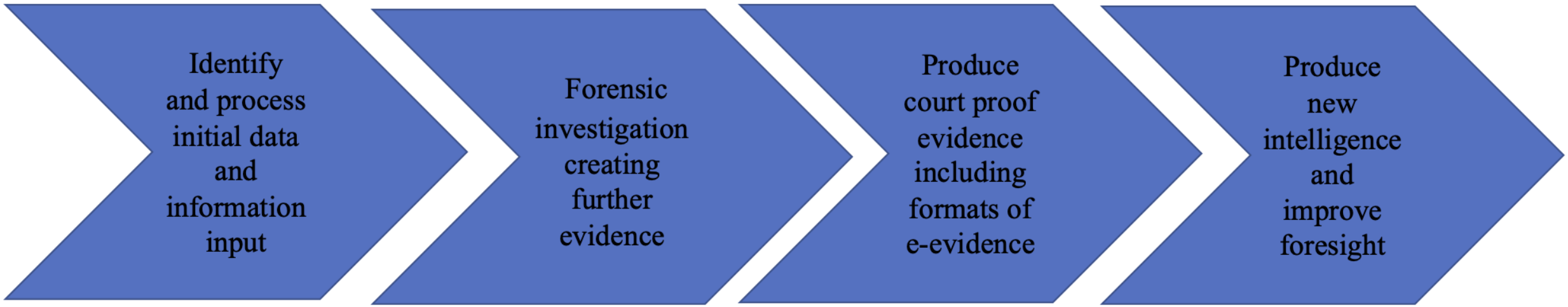
Aims

TRACE

- to better identify and follow illicit money trails;
- to analyse cross-border money flows;
- to develop, test and validate new technologies for detecting illicit money flows;
- to increase efficiency and effectiveness of information sharing among EU LEAs; and
- to develop durable solutions in compliance with *inter alia* the rule of law, fundamental rights.

* Improved investigation tools and/or systems, including tools for locating and mapping hidden service directories; tools for forensic analysis of digital media in order to identify digital currency datasets; data provenance models, etc.*

TRACE value-chain



The TRACE value chain

Risk Factors Online Gambling for money laundering

- virtuality of products,
- virtuality of cash flows,
- internationality of cash flows,
- complexity of the payment processing,
- the vast amount of legal and illegal players in the market,
- non-harmonized law and legal uncertainty,
- very high payout percentages, and
- tax-free winnings in many jurisdictions

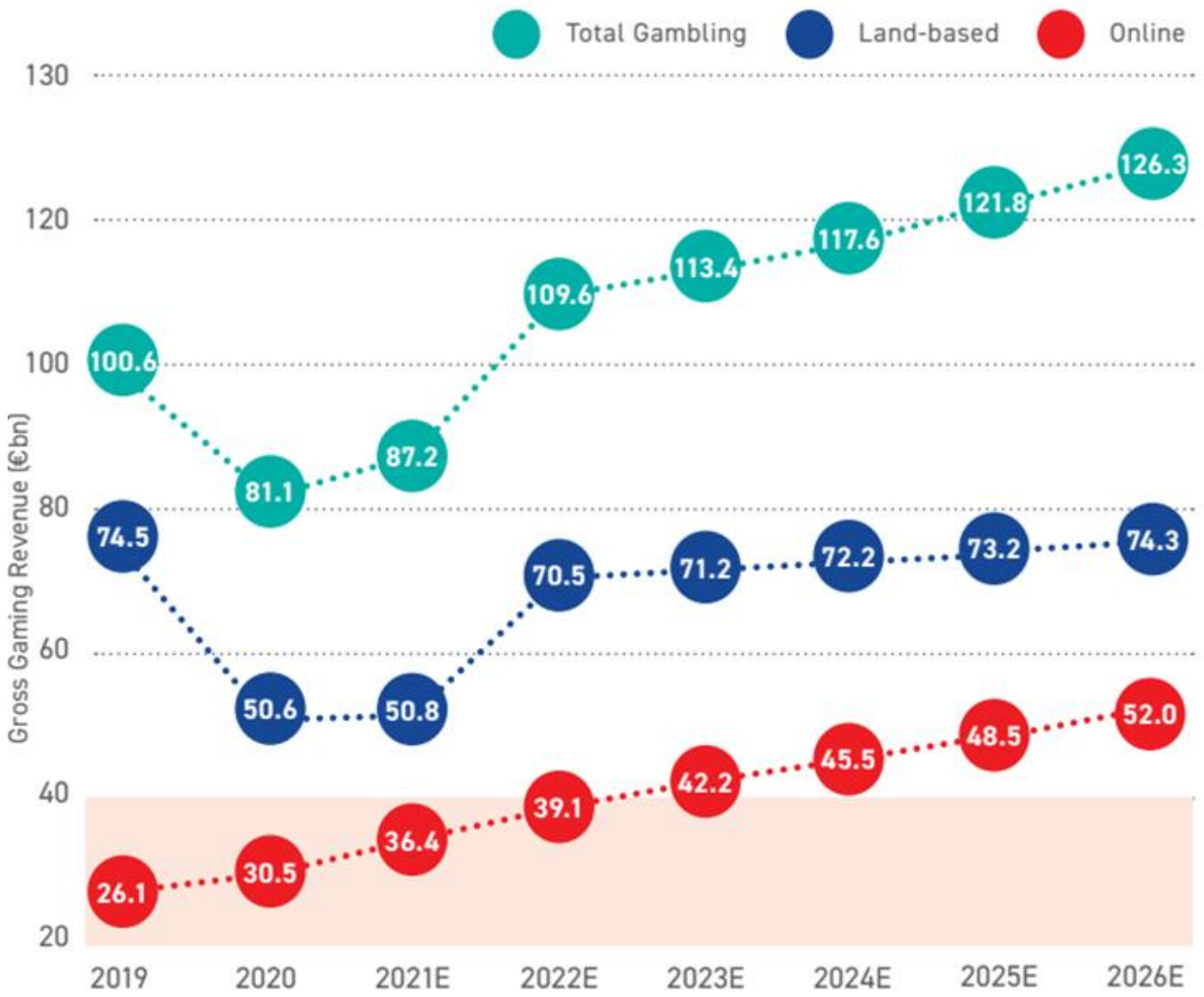
Gross Amounts of money involved in Online Gambling

gross amount worldwide online gambling market
364 billion €

gross amount european online gambling market
40 billion €

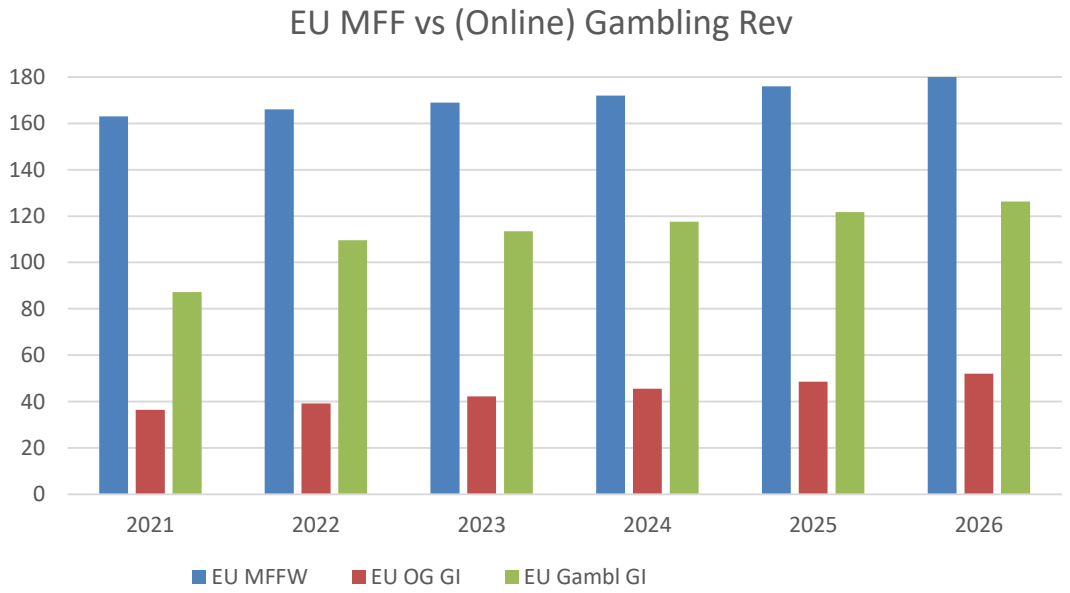
Share of sport bets in worldwide gambling market
50%

Development (Online) Gambling Revenue



Risk Factors Online Gambling

EU Multi Financial Framework vs (Online) Gambling Revenues						
	2021	2022	2023	2024	2025	2026
EU MFFW	163	166	169	172	176	180
EU OG GI	36,4	39,1	42,2	45,5	48,5	52
% OG vs MFF	22%	24%	25%	26%	28%	29%
EU Gambl GI	87,2	109,6	113,4	117,6	121,8	126,3
% Gambl vs MFF	53%	66%	67%	68%	69%	70%



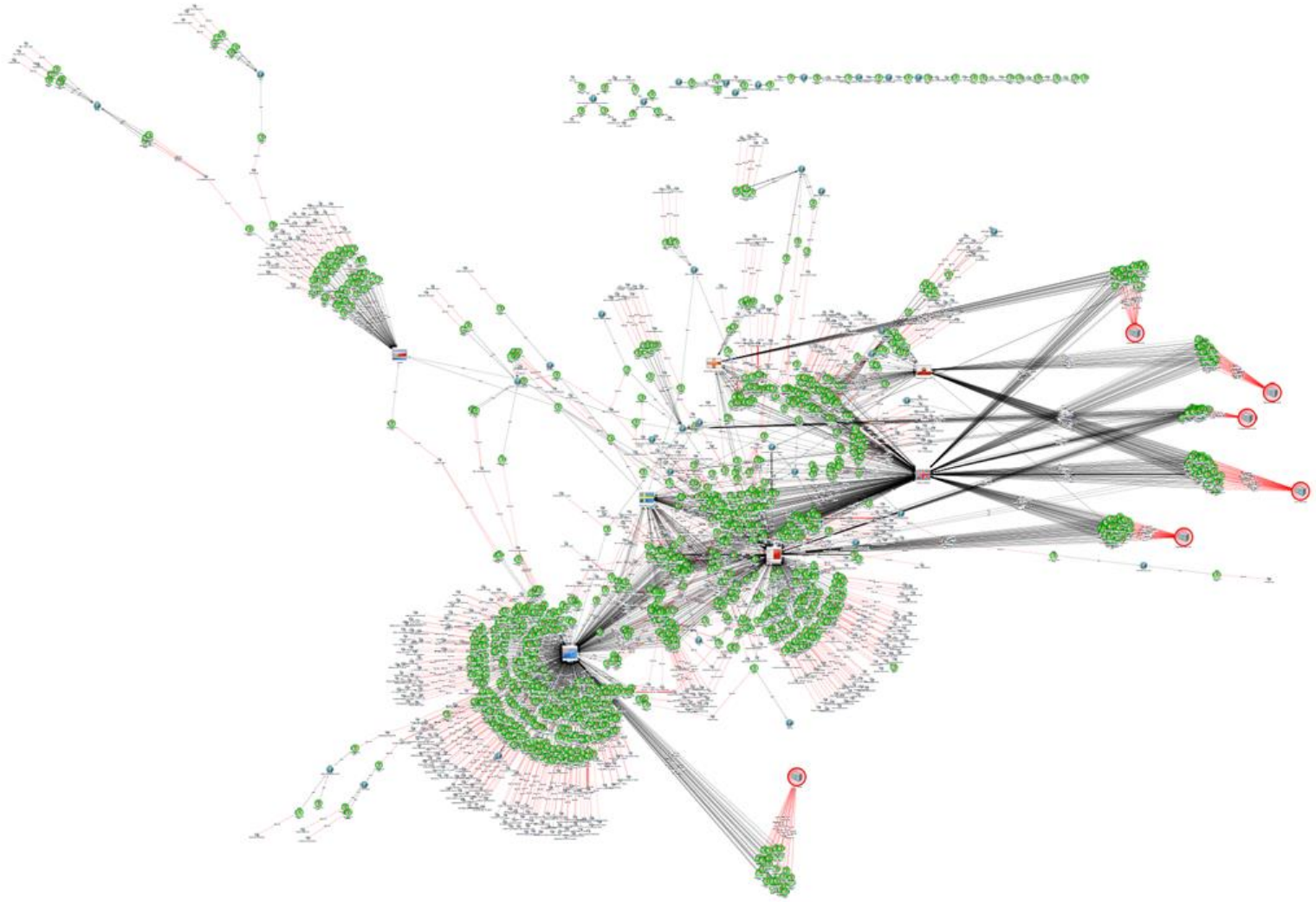
Problem vs Solution – Example Illegal Onl Gambling

- (Additional) Problem
  - Besides the crimial´s
    - „creativity“,
    - cross border operations,
    - Budgets
    - Manpower, etc.
  - Exponentially increasing amount of data
  - Decreasing human attention span
  - Magical Number 7*

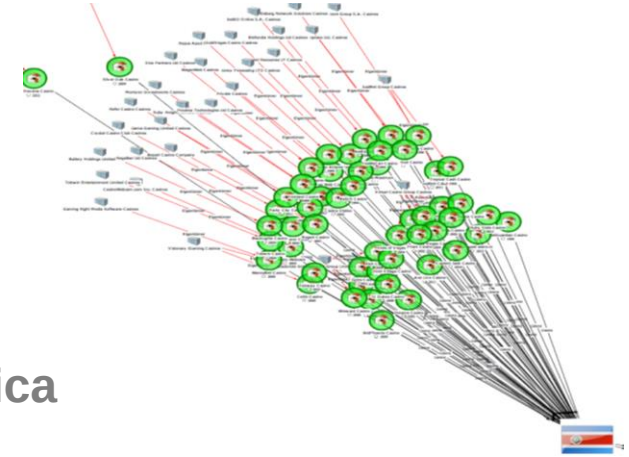
- Solution through TRACE:
  - Minimizing human errors due to early case assessment
  - Appreciation data volume
  - Natural Language Processing
  - Entity Extraction
  - Correlation Analysis
  - Visualization
  - Crowd Knowledge
  - Bridge Technology

"The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information" is one of the most highly cited papers in psychology. It was written by the cognitive psychologist George A. Miller of Harvard University's Department of Psychology and published in 1956 in Psychological Review. It is often interpreted to argue that **the number of objects an average human can hold in short-term memory is 7 ± 2. This has occasionally been referred to**

Crawling & Visualizing I

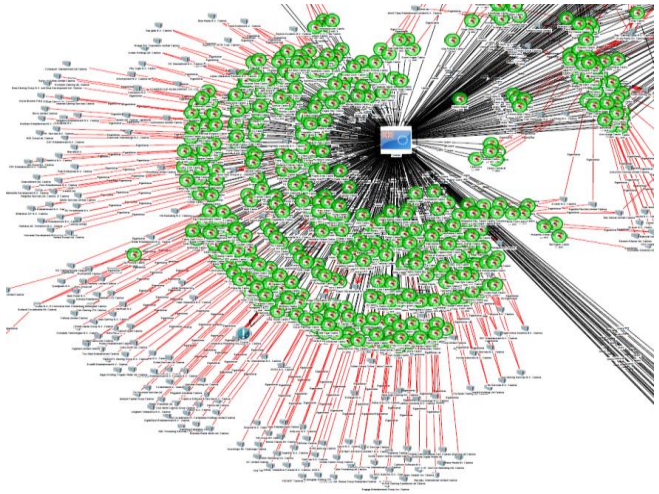


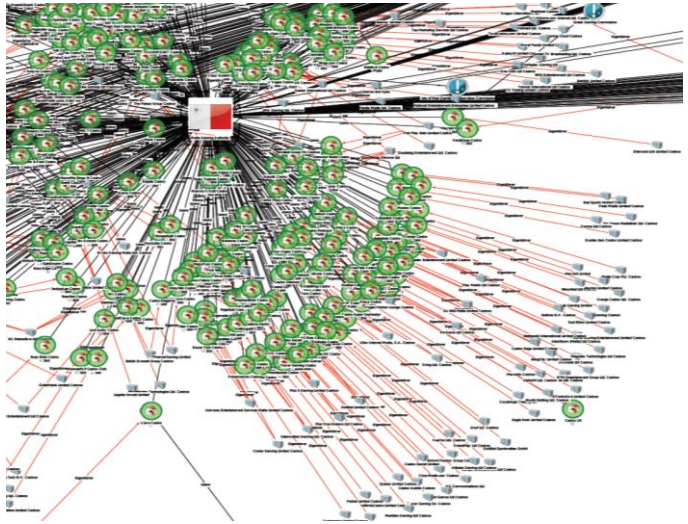
Crawling & Visualizing II



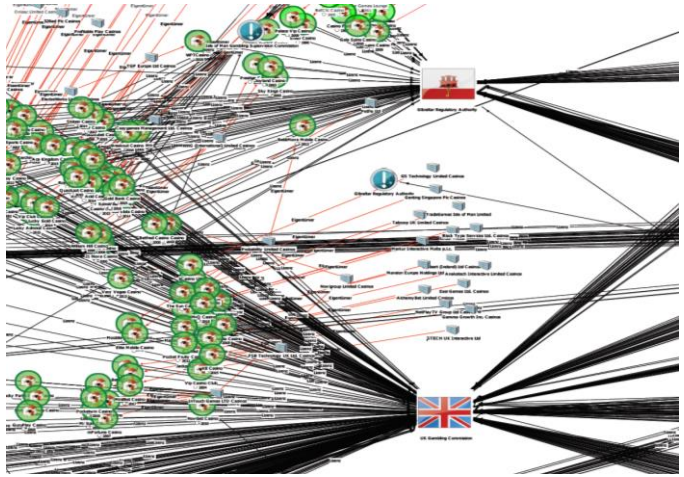
Costa Rica

Curacao





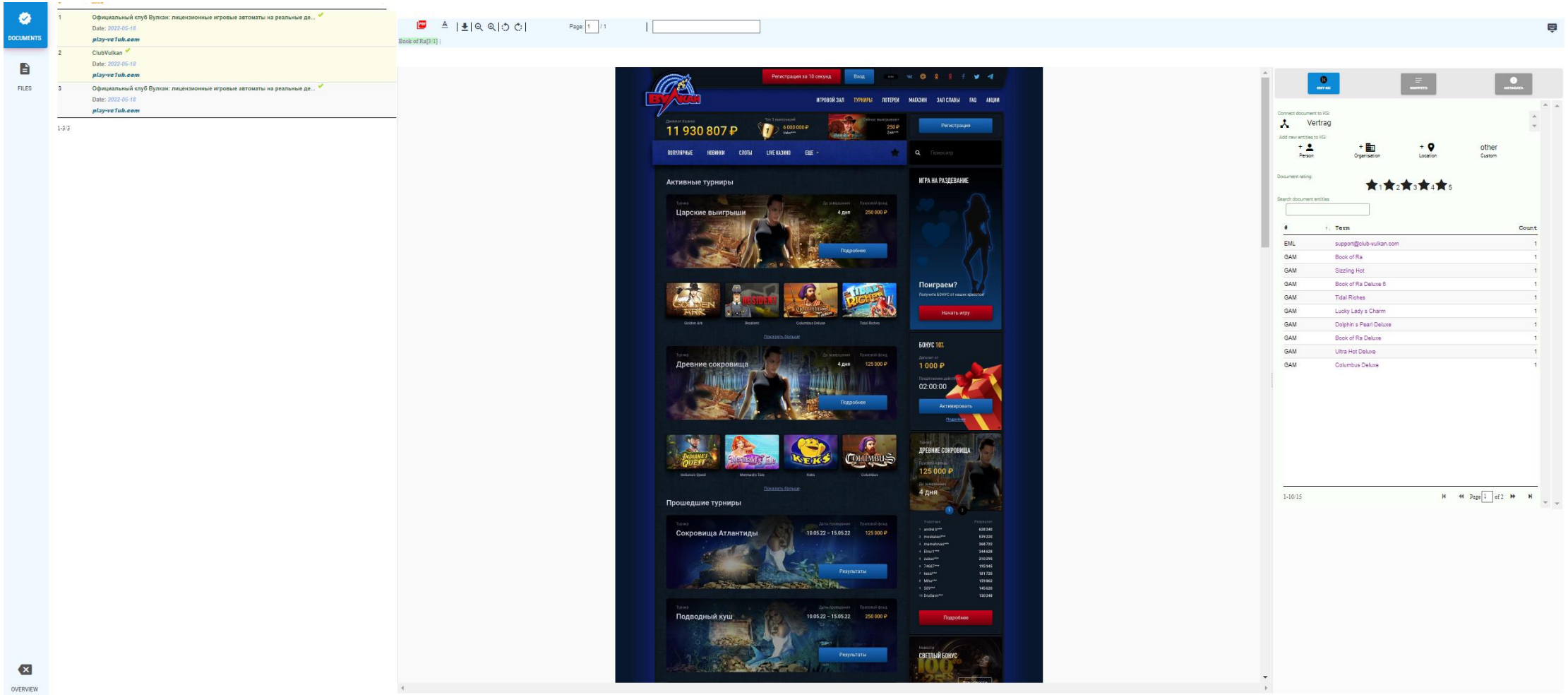
Malta



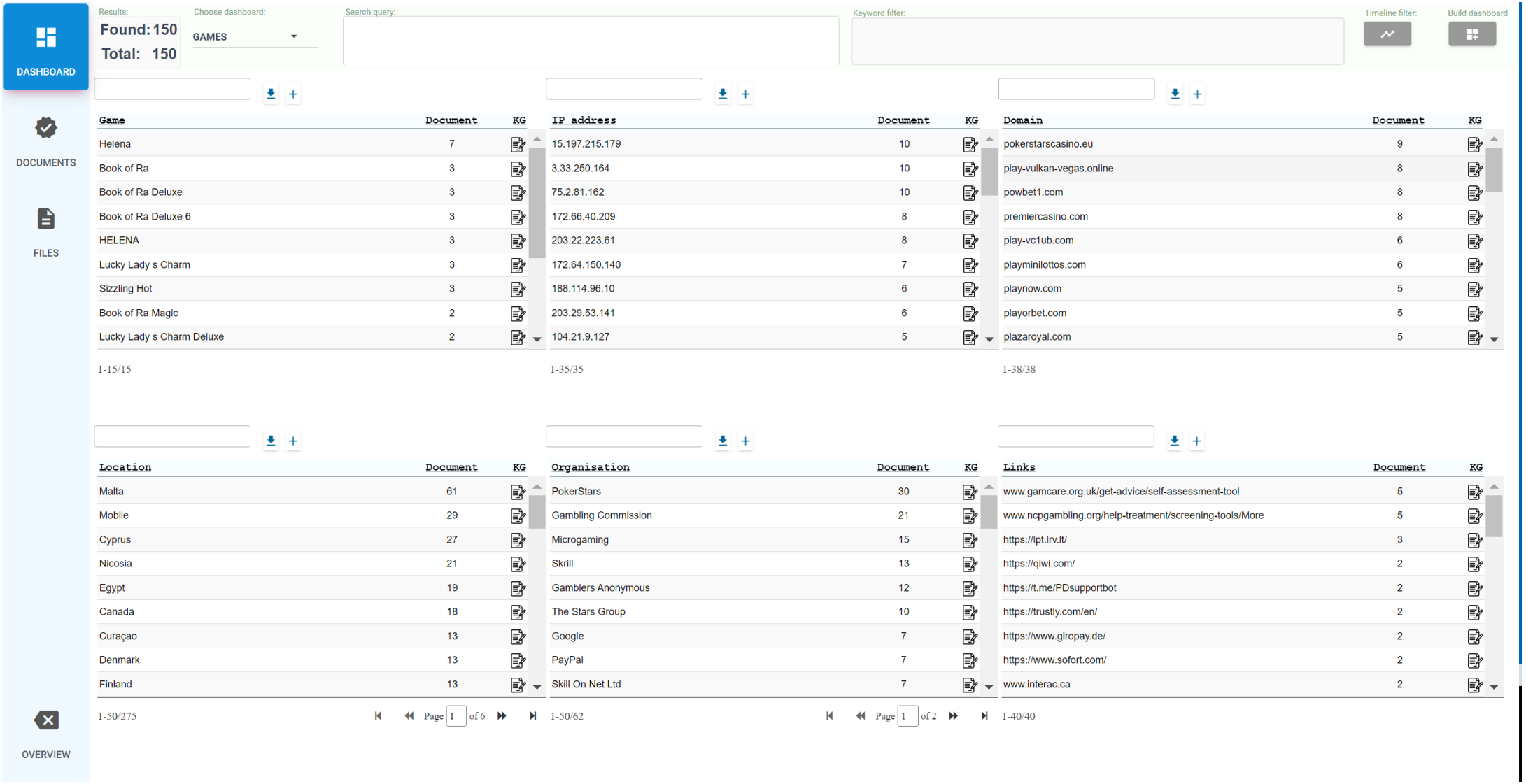
Gibraltar

UK

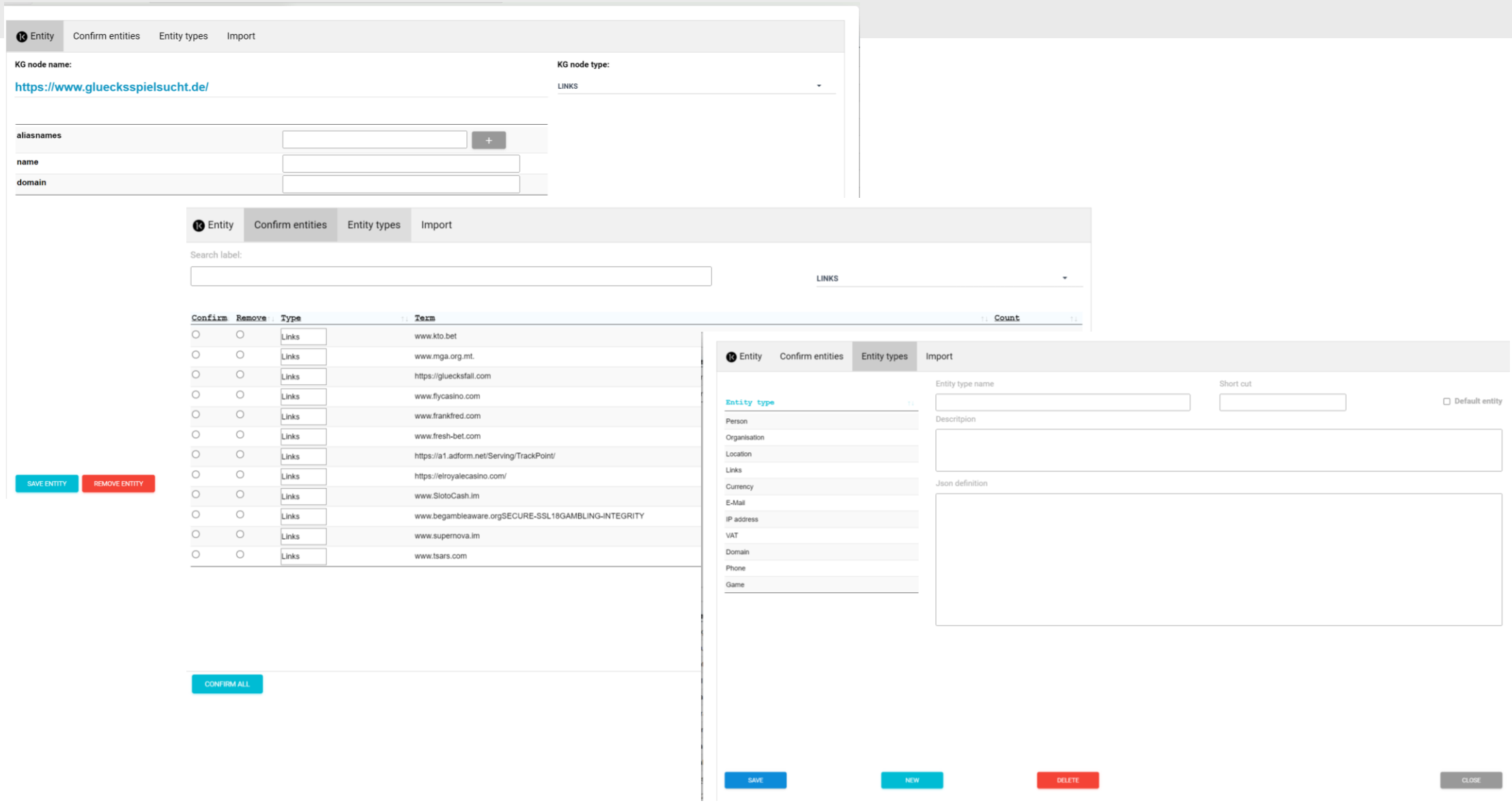
Crawling and AI supported analysis of dynamic HP



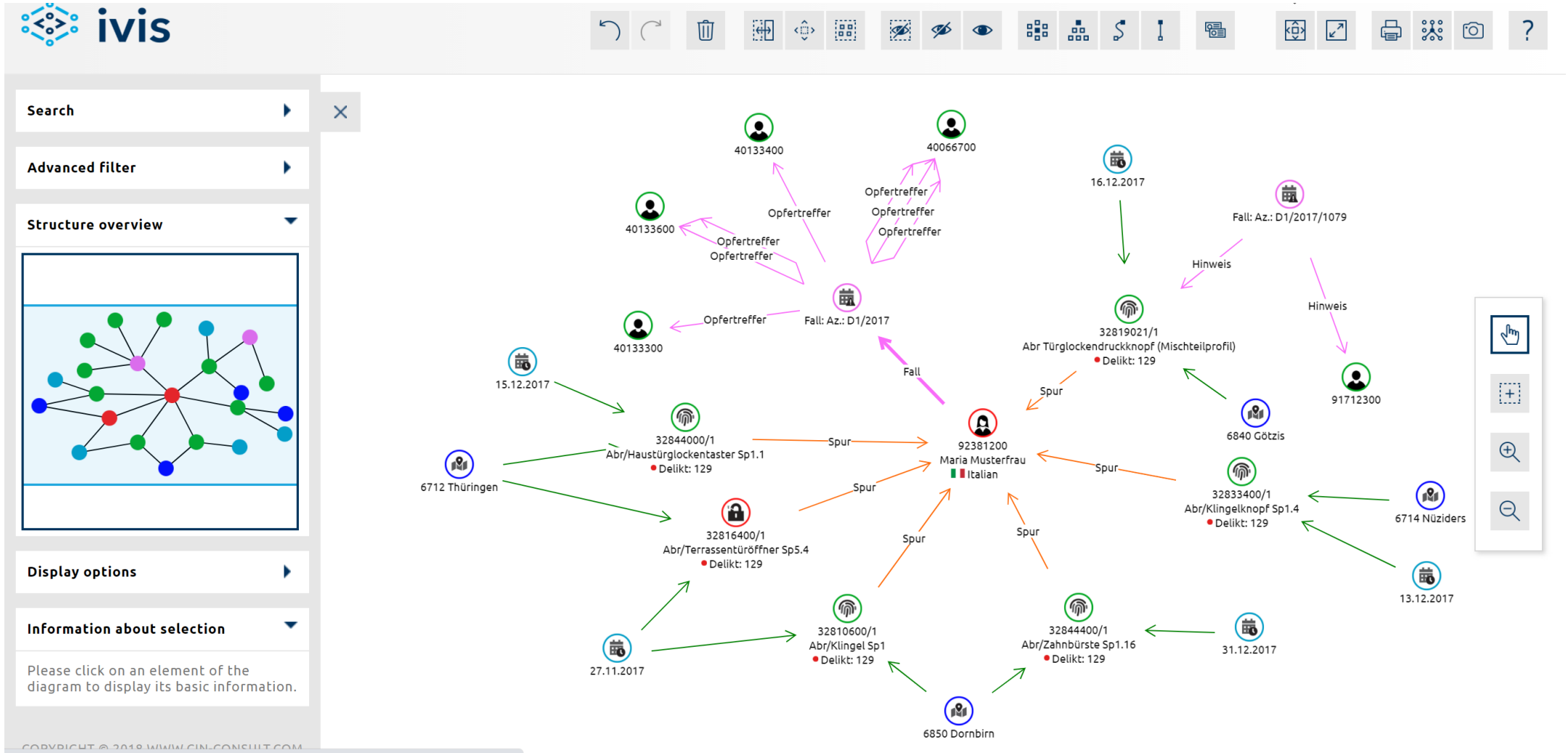
AI supported entity extraction, NLP



Knowledge Graph & Bridge Technology



Knowledge Graph - Visualization



Ethical and legal safeguards for the use of AI in law enforcement

- Transparency,
- Justice and fairness,
- Non-maleficence,
- Responsibility &
- Privacy.

TRACE AI solutions as high-risk

- With the use of specialised algorithms, AI can be used to detect money laundering and terrorist financing in many ways.
- TRACE develops AI solutions to identify, track and document IMFs. This will pave the way for recovering the proceeds of crime and to disrupt the IMFs.
- TRACE applies its AI solutions in use cases on terrorist financing, web forensics, cyber extortion, use of cryptocurrencies in property market transactions, money laundering in arts and antiquities (and NFTs), and online gambling.
- Using AI technology requires mitigation of certain risks including potential algorithmic/data bias/unfairness due to bad/poor data, breach of fundamental rights including violation of privacy, and malicious application of AI (compromising digital security, for instance) .
- These risks and intended purpose qualify any AI solutions for law enforcement as high-risk given the fundamental rights implications under Section 5.2.3 of the proposed AI Regulation by the EU.

Legal principles informing development and use of AI in law enforcement in EU

European Convention for Protection of Human Rights and Fundamental Freedoms.
- (rights to liberty, fair trial, respect for private and family life, freedom of thought and conscience, freedom of expression, freedom of assembly and association, right to effective remedy, prohibition of discrimination).

Charter of Fundamental Rights of the European Union
- Article 7, respect for private and family life, Art 8- protection of personal data, Art 21 non-discrimination, but also others

Case law European Court of Human Rights

The General Data Protection Regulation – Regulation (EU 2016/679)
- Legal basis, proportionality, transparency, data minimization, data protection by design and default
- Data subject rights
- Relevant for non-LEA developers/researchers and LEA in some circumstances.

Law Enforcement Directive (LED) Directive (EU) 2016/680 and it's national implementations

Proposed AI regulation / AI Act
- Applies to public and private providers/developers/users where AI system placed on Union market or affects people in EU
- Risk-based approach
  - New obligations on providers/developers of high risk AI systems
  - Many LEA activities identified as as high risk (justice, immigration, law)
  - Annex II – further specifies high risk LE AI (e.g. individual risks assessment, polygraphy, emotion detection, evaluation of reliability, predictions, identifying previously unknown patterns in complex data sets)
- LEA have some exemptions from prohibited uses of AI.

Proposed Data Governance Act

Safeguards in creation and use of TRACE AI solutions

- **Risk management system** (Art 9): Identify and evaluate known and foreseeable risks, evaluate possibly arising risks, adopt suitable risk management measures etc. TRACE has a risk manager and incorporates risk management elements in all its deliverables.
- **Data governance and management**(Art 10): In relation to training, validation and testing of data sets. The "privacy by design" under the GDPR requires. TRACE AI solutions shall incorporate privacy considerations. TRACE has a data management plan, conduct data impact assessment etc.
- **Ensure transparency in data** input, processing and output to users (Art 13): TRACE will develop reliable and transparent artificial intelligence services in WP5.
- **Technical documentation** (Art 11): General description of AI system in line with Annex IV of the Proposed Regulation. TRACE has comprehensively described its AI systems.
- **Human oversight** (Art 14): Guaranteed right to challenge a decision made by the AI systems. With TRACE AI solutions, LEAs will allow decisions to be challenged.
- **Record-keeping** (Art 12): TRACE is obliged to keep records and other supporting documentation under Article 18 of the TGA.
- **Accuracy, robustness and cybersecurity** will be ensured (Art 15).
- The TRACE technologies are regularly audited/evaluated to ensure that its AI systems are in compliance with international, EU and national ethical, policy and legal standards on AI creation and application. Detected non-compliant elements shall be finetuned to conform to standards and fundamental rights as established in Section 3.5, proposed regulation).

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