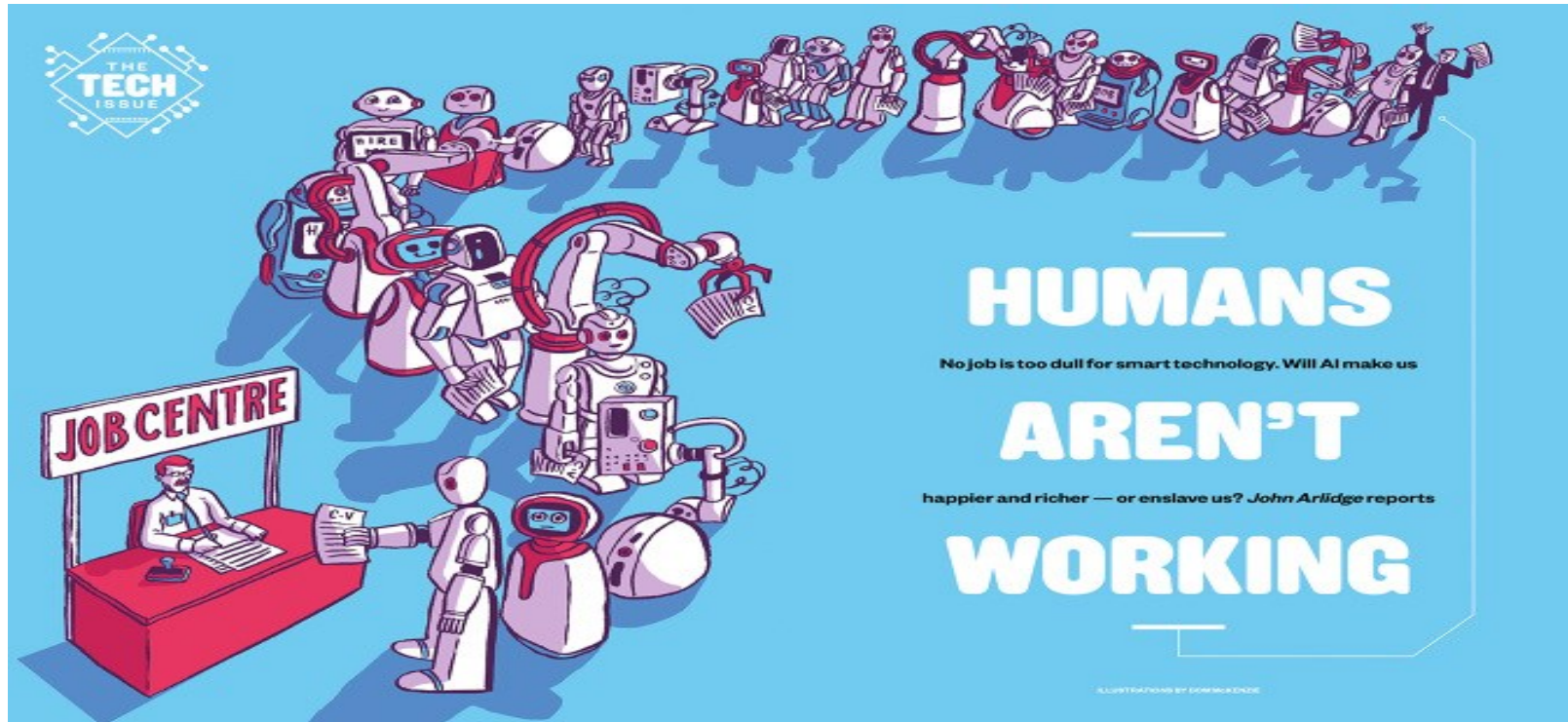# MYTH

Illustration by Dom McKenzie - dommckenzie.com

The headlines

No news like bad news

Elon Musk: artificial intelligence is our biggest existential threat
The AI investor says that humanity risks 'summoning a demon' and calls for more regulatory oversight

<div align="right">The Guardian 27 October 2014</div>

Stephen Hawking warns artificial intelligence could end mankind

<div align="right">BBC NEWS Technology 2 December 2014</div>

Artificial intelligence closes in on the work of junior lawyers
'Lawtech' sifts and summarises data with speed and precision to replace routine tasks

<div align="right">Financial Times 4 May 2017</div>

AI will create 'useless class' of human, predicts bestselling historian
Smarter artificial intelligence is one of 21st century's most dire threats, writes Yuval Noah Harari in follow-up to Sapiens

<div align="right">The Guardian 20 May 2016</div>

A.I. Is Doing Legal Work. But It Won't Replace Lawyers, Yet.
The New York Times 19 March 2017

The headlines

Rose-tinted Google glass

IBM computer Watson wins Jeopardy clash
Supercomputer outwits US quiz show champions in epic
head-to-hard drive battle

The Guardian 17 February 2011

**JPMorgan software does in seconds what took
lawyers 360,000 hours**
A new era of automation is now in overdrive as cheap
computing power converges with fears of losing
customers to startups

The Independent 28 February 2017

**In Cancer Fight, Artificial Intelligence Is A Smart
Move For Everyone**

Forbes Magazine 22 December 2016

**GOOGLE'S DEEPMIND AI
SOLVES PROBLEMS LIKE
A HUMAN**
Deepmind's breakthrough is an
important step towards
developing artificial general
intelligence that learns from
past experience the way humans
do.

Newsweek 15 March 2017

**AI predicts outcome of
human rights cases**
BBC NEWS Technology 23 October 2016

The headlines

The rise of the machines?

Deutsche boss warns staff that robots will take jobs

John Cryan says 'big number' of bank employees will lose their roles to automation

Financial Times 6 September 2017

Auditing burden to fall as accountants embrace AI

New technology helps firms automate mundane and inefficient processes

Financial Times 18 September 2017

Fraud office calls in robot to solve cases

The Times 27 June 2017

FRIEND

Artificial Intelligence is any computer program which does something that "we would normally think of as intelligent in humans"

AI Is **any** computer program or system which does something that **"we would normally think of as intelligent in humans"**

AI extends what humans can do on their own because of the complexity of the task or data, the speed to insight needed, or because traditional approaches are inefficient

AI employs technology and algorithms to automatically extract concepts and relationships from data, 'understand' their meaning, learn independently from data patterns and prior experience, and, crucially, interact with humans in a natural way

Deloitte AI Disruptor Unit

Why use legal AI?

- Could improve efficiency and accuracy

- Enables us to do 'more' (review a full set of documents rather than sampling, for example)

- Relieves lawyers from 'drudgery'

- Enables us to learn lessons and automatically apply them
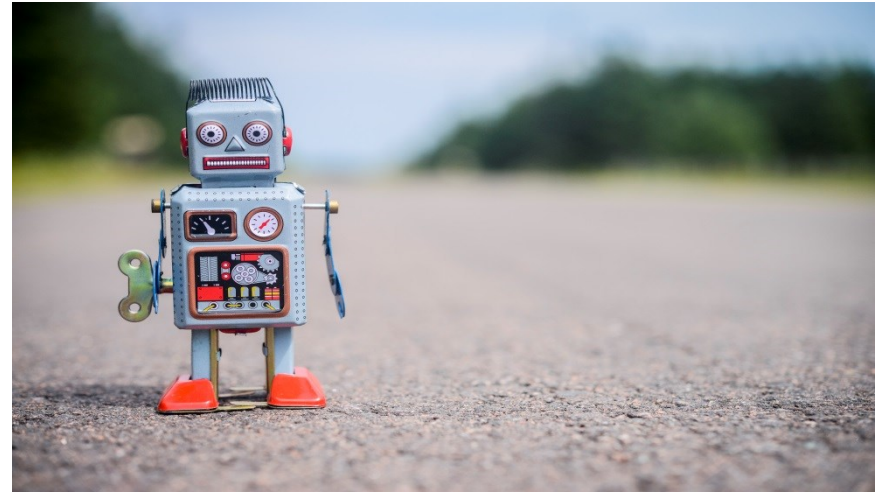
Cognitive computing

"Cognitive computing" allows us to define AI in terms of the tasks that humans commonly do. For example:

Computer vision	diverse applications in healthcare, for instance, and companies are using AI to analyse medical images to improve the diagnosis and treatment of diseases.
Machine learning	automatically discovers patterns in data, used in applications where 'big data' is being generated, eg: documentation review, fraud screening, inventory management, oil and gas exploration, marketing, drug discovery or public health.
Natural language processing	enables companies to discover insights and hidden value in terms of unstructured text, for example by automating discovery in civil litigation, analysing legal reports, call transcripts or customer feedback and even automatically writing news stories.
Speech recognition	automatically transcribes human speech with broad applications ranging from medical dictation to banking security

'AI' in legal

Four Main Areas of Interest
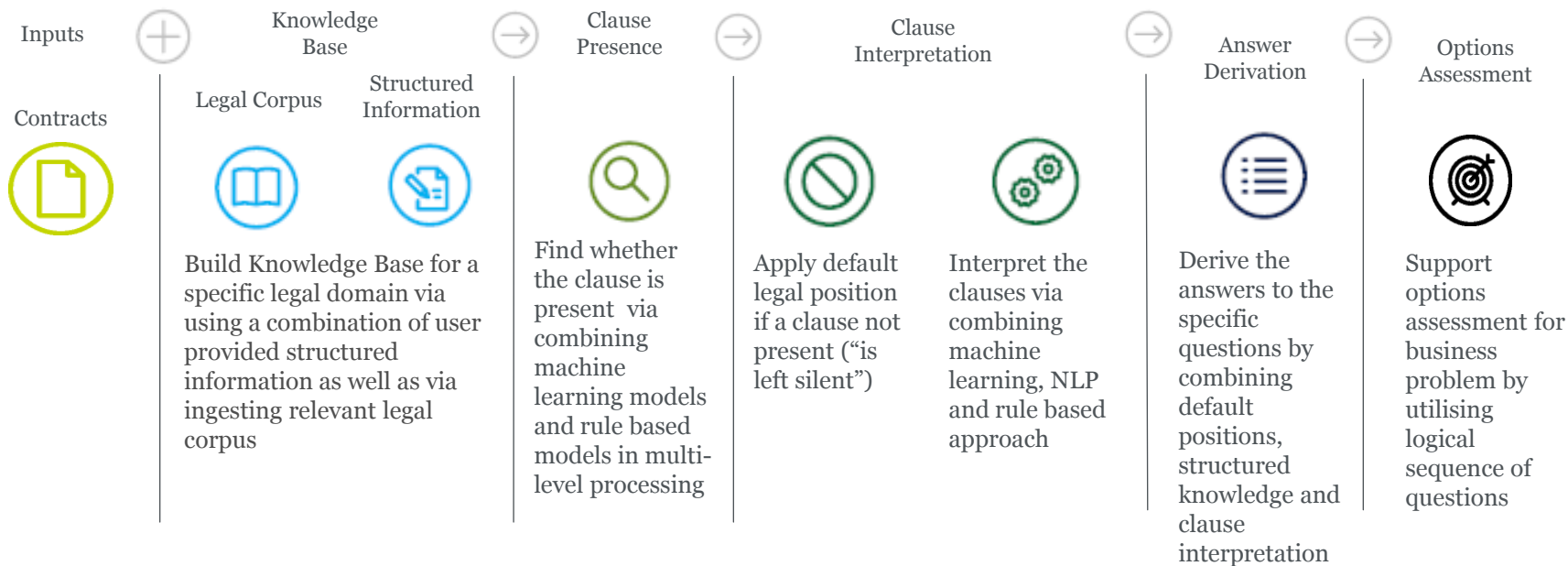
|	
Automated Document Review	Robotic Process Automation
Knowledge Management – *Legal Trend Analysis*	The Business of Law - Big Data

Automated Document Review

Using AI to innovate non-contentious document review

Inputs

Contracts

Knowledge Base

Legal Corpus

Structured Information

Build Knowledge Base for a specific legal domain via using a combination of user provided structured information as well as via ingesting relevant legal corpus

Clause Presence

Find whether the clause is present via combining machine learning models and rule based models in multi-level processing

Clause Interpretation

Apply default legal position if a clause not present ("is left silent")

Interpret the clauses via combining machine learning, NLP and rule based approach

Answer Derivation

Derive the answers to the specific questions by combining default positions, structured knowledge and clause interpretation

Options Assessment

Support options assessment for business problem by utilising logical sequence of questions

Machine Assisted Document Review

Automated document review at Hogan Lovells

- We have developed an analytical solution architecture based on a range of AI tools in order to:
  - increase the efficiency with which document reviews are carried out
  - improve review accuracy
  - enable more lawyer and paralegal time to be spent on high-value activity.

- Our overall approach is based on using the best combination of technologies for a specific use case:
  - the solution is based on a multi-layer approach which utilises various techniques and methods for identification of the relevant legal clauses and their interpretations.
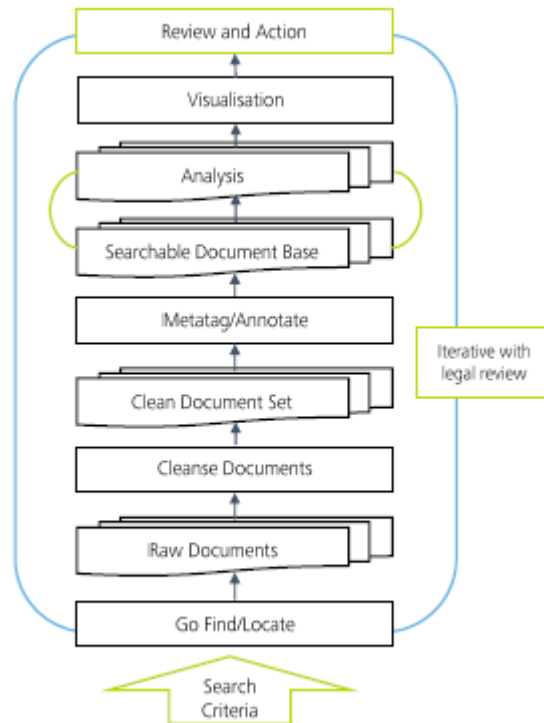
Overall approach
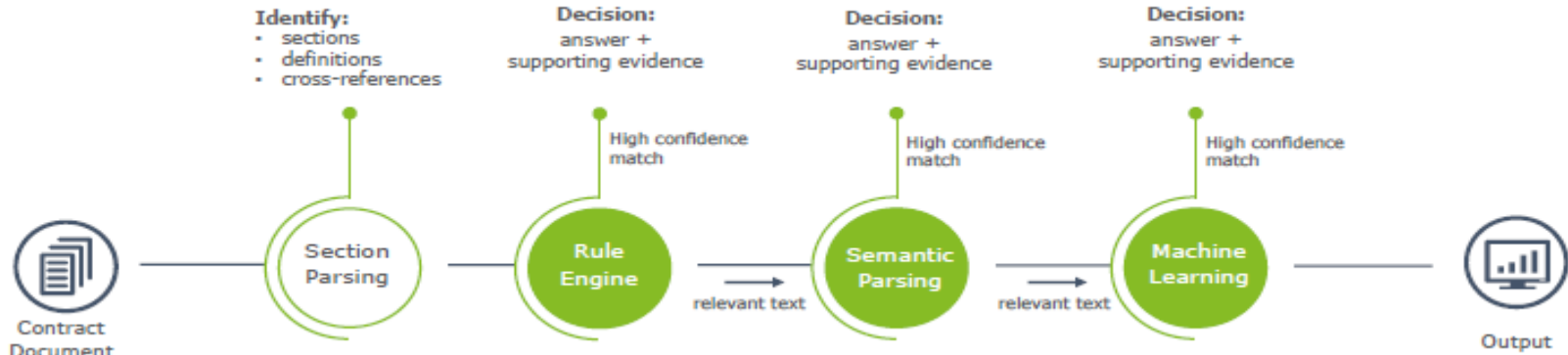
- This method uses a gateway filter approach

- Each stage in the process can either:

  - identify a high confidence match leading directly to a decision;

  - or pass relevant text to next stage for further processing;

  - if no supporting text is found (i.e. concept is not mentioned in a contract) the default answer is given + link to relevant contract sections as supporting evidence.

Using AI to innovate contentious document review

Predictive coding

- **What is it?**

  – a form of technology-assisted or computer-assisted review (TAR/CAR)

  – software that helps to **identify potentially relevant documents**

- **Why use it?**

  – to **streamline** the **document review** process and save costs and time by reducing the number of irrelevant documents that are manually reviewed

- **Why now?**

  – to **tackle** the challenge of reviewing **increasing document set volumes** to tight deadlines whilst **controlling review costs**

  – latest versions do not require "up front" training and learn from each document coded as relevant

  – **High Court approval**

Predictive coding - before

Relevant

Irrelevant

Crucial

Crucial

Crucial

Relevant

Relevant

Irrelevant

Irrelevant

Predictive coding - after

Crucial	Crucial	Crucial
Relevant	Relevant	Relevant
Irrelevant	Irrelevant	Irrelevant

Automated document review tools

Use cases

- Transactional:

  - due diligence

  - lease report

  - risk management and compliance

  - contract management

- Disputes and investigations:

  - as an alternative to linear review

  - to quality check coding (eg privilege) or redactions

  - to prioritise and structure a linear review

  - to analyse the other side's documents

Robotic Process Automation

Robotic Process Automation (RPA)

Robotic process automation (RPA) is the application of technology that allows computer software ("**robot**") to be configured to 'intelligently' **process** a transaction, manipulate data, or communicate with other systems.

Document automation

Document automation utilises technology, templates and workflows to assist in the creation of electronic **documents**. These include logic-based systems that use segments of pre-existing text and/or data to assemble a new **document**.
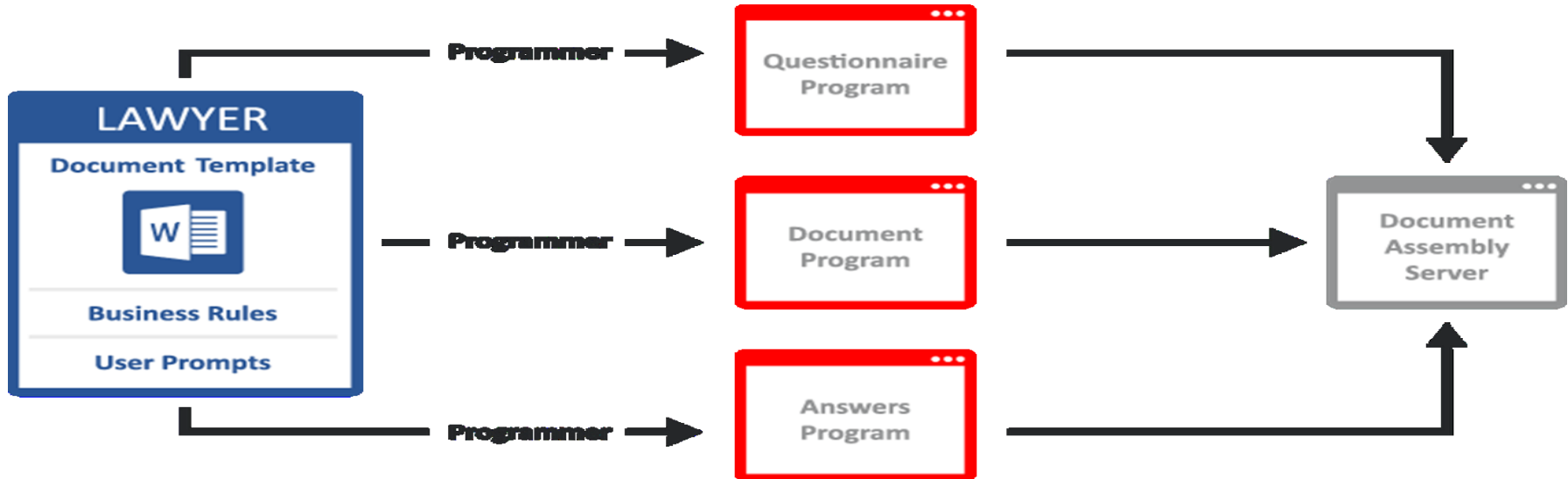
Looking forwards

- Suites of Documents

- Use of IF>THEN – selection of next steps based on rules

  – **Advice Bots**

  – **Completion Packs**

  – **Board Minutes and Corporate Actions**

  – **Reporting/Notifications**

  – **Guided knowledge**

Knowledge Management – *Legal Trend Analysis*

Legal trend analysis

Lex Machina

- Developed by Stanford University

- It mines litigation data, revealing correlation and potential insight from millions of pages of litigation information highlighting potentially meaningful patterns in data

- US focussed

- Patent litigation example

Lex Machina – landing page
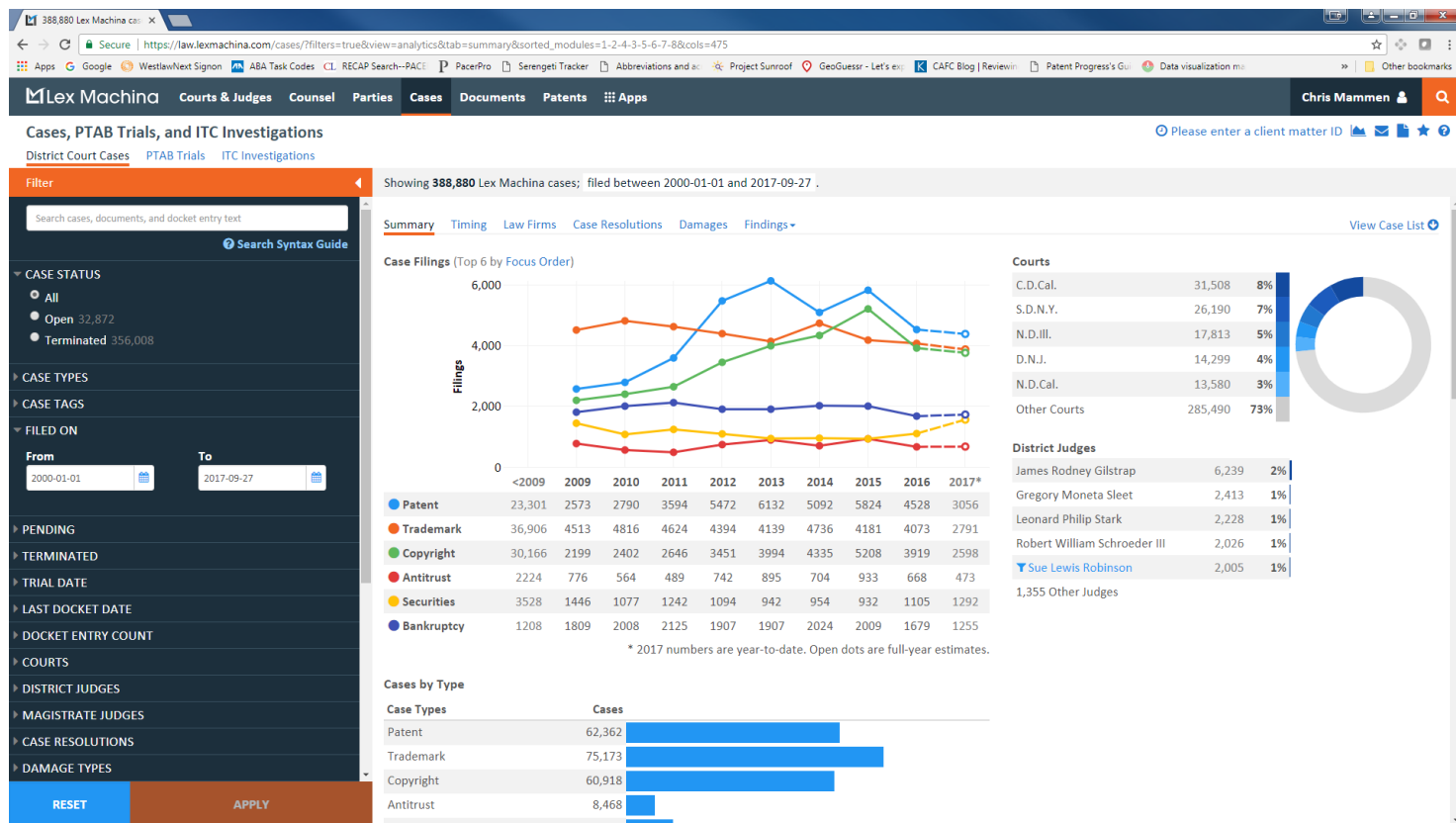
Supreme Court ruling in *TC Heartland*

- On May 22, 2007, the Supreme Court issued a ruling impacting venue in patent cases

- Simplified summary: key change was that patent cases can now be brought only where accused infringer has a regular and established place of business, not merely anywhere that they are subject to personal jurisdiction (e.g., anywhere that an infringing sale has occurred)

How did Supreme Court ruling in *TC Heartland* impact where patent cases are filed? Four months before 5/22/17 ruling:
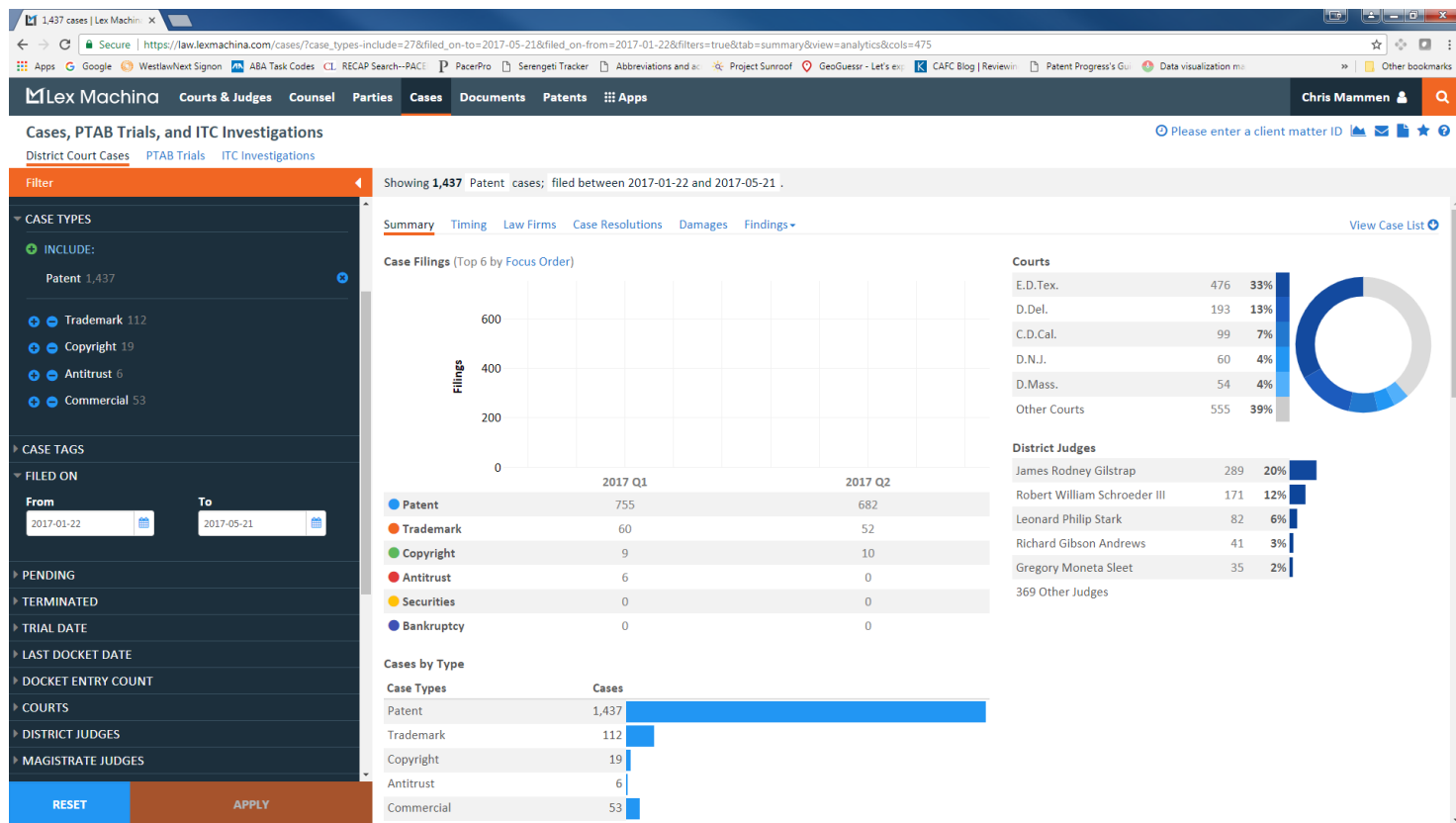
How did Supreme Court ruling in *TC Heartland* impact where patent cases are filed? Four months before 5/22/17 ruling:

View Case List

Courts

Court	Cases	%
E.D.Tex.	476	33%
D.Del.	193	13%
C.D.Cal.	99	7%
D.N.J.	60	4%
D.Mass.	54	4%
Other Courts	555	39%

District Judges

Judge	Cases	%
James Rodney Gilstrap	289	20%
Robert William Schroeder III	171	12%
Leonard Philip Stark	82	6%
Richard Gibson Andrews	41	3%
Gregory Moneta Sleet	35	2%

369 Other Judges

How did Supreme Court ruling in *TC Heartland* impact where patent cases are filed? Four months after 5/22/17 ruling:
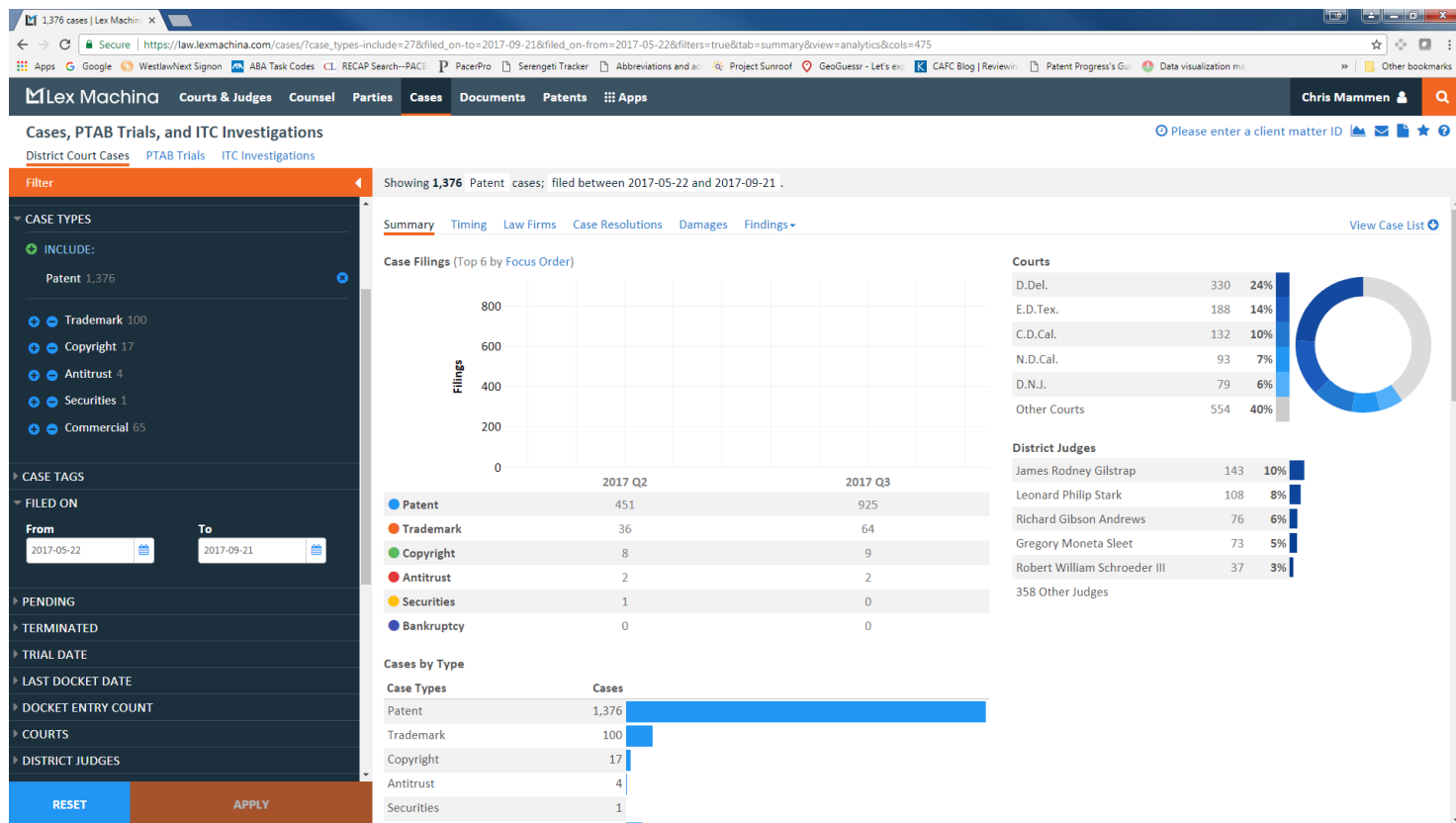
How did Supreme Court ruling in *TC Heartland* impact where patent cases are filed? Four months after 5/22/17 ruling:

Courts

D.Del.	330	**24%**
E.D.Tex.	188	**14%**
C.D.Cal.	132	**10%**
N.D.Cal.	93	**7%**
D.N.J.	79	**6%**
Other Courts	554	**40%**

District Judges

James Rodney Gilstrap	143	**10%**
Leonard Philip Stark	108	**8%**
Richard Gibson Andrews	76	**6%**
Gregory Moneta Sleet	73	**5%**
Robert William Schroeder III	37	**3%**

358 Other Judges

Key insights from 5 minutes of research on Lex Machina

- Before *TC Heartland*

  - 1437 cases

  - 476 (33%) filed in ED Tex

  - 193 (13%) filed in D Del

  - 47 (3.3%) filed in ND Cal

- After *TC Heartland*

  - 1376 cases (less than 5% drop)

  - 188 (14%) filed in ED Tex

  - 330 (24%) filed in D Del

  - 93 (7%) filed in ND Cal

The Business of Law
- Big Data

Big data

Big data and **AI** feed and finess the other. Without Big Data there would be no AI, without AI – Big Data is too big and deciphering the signal from the noise is slow, experimental if not impossible.

Set quote & scope

Monitor & manage budget

Continuously inform client

Evaluate & learn
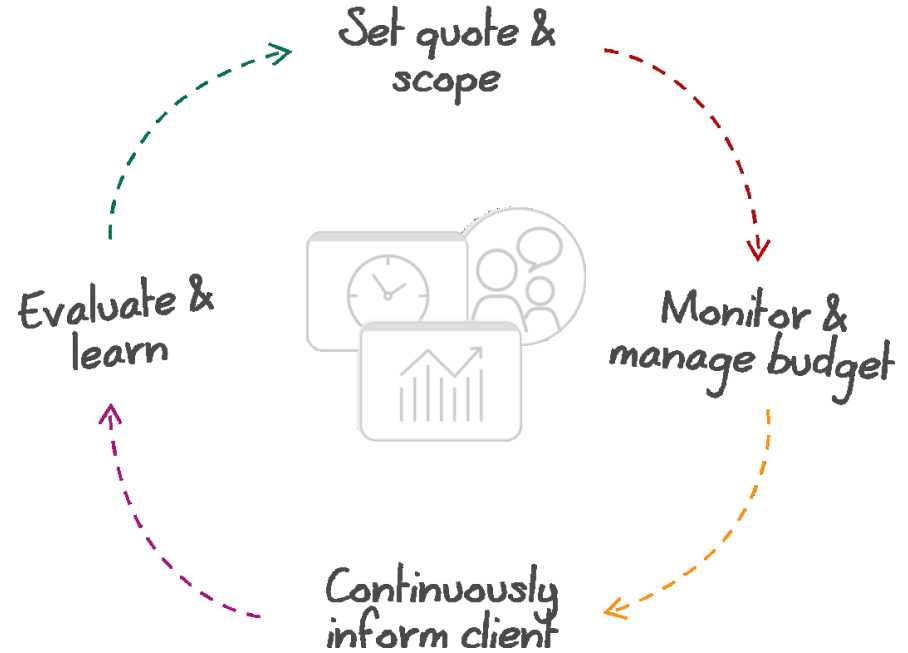
Smart analytics
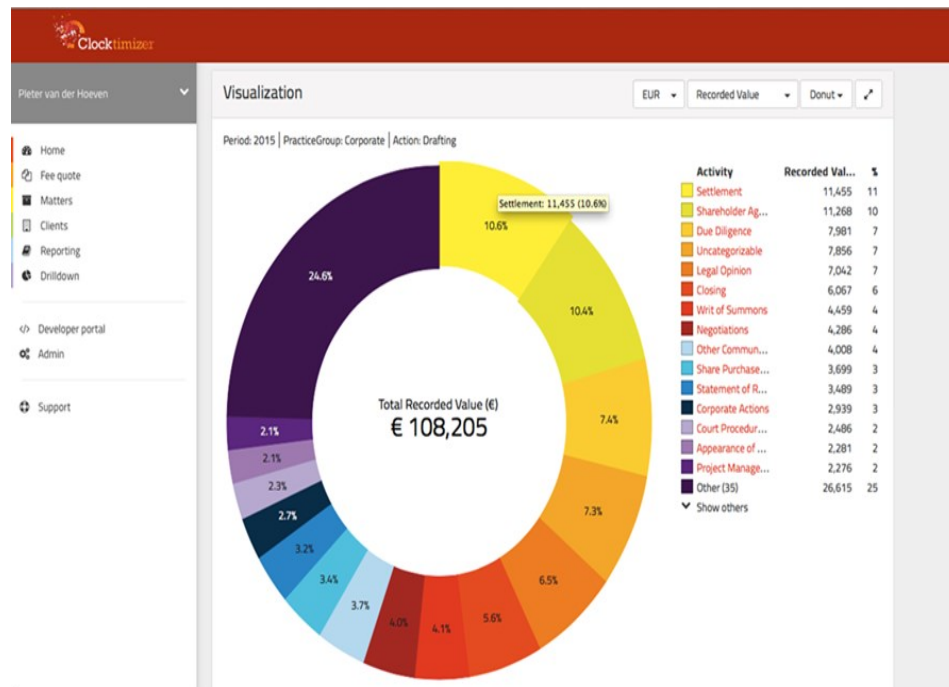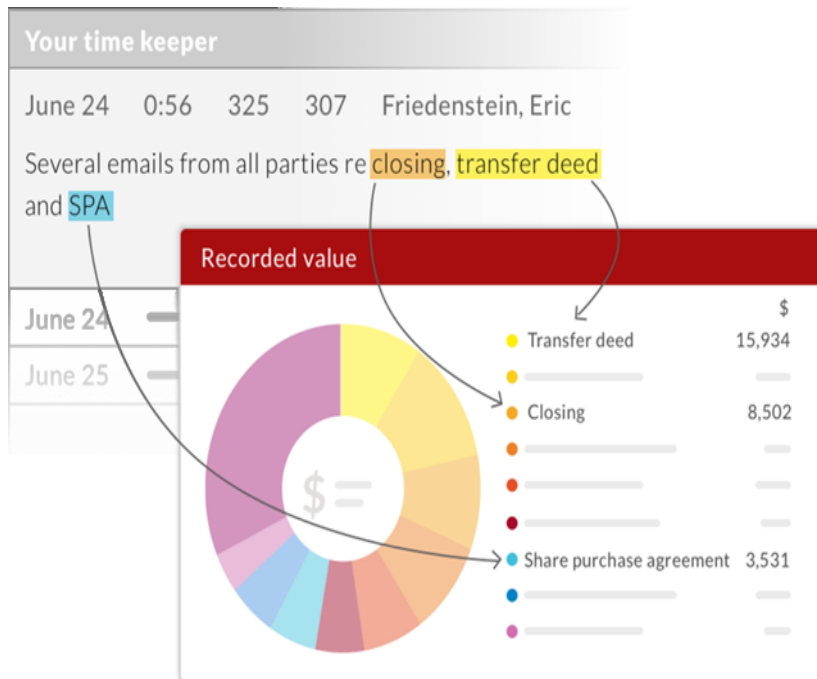
Actionable data
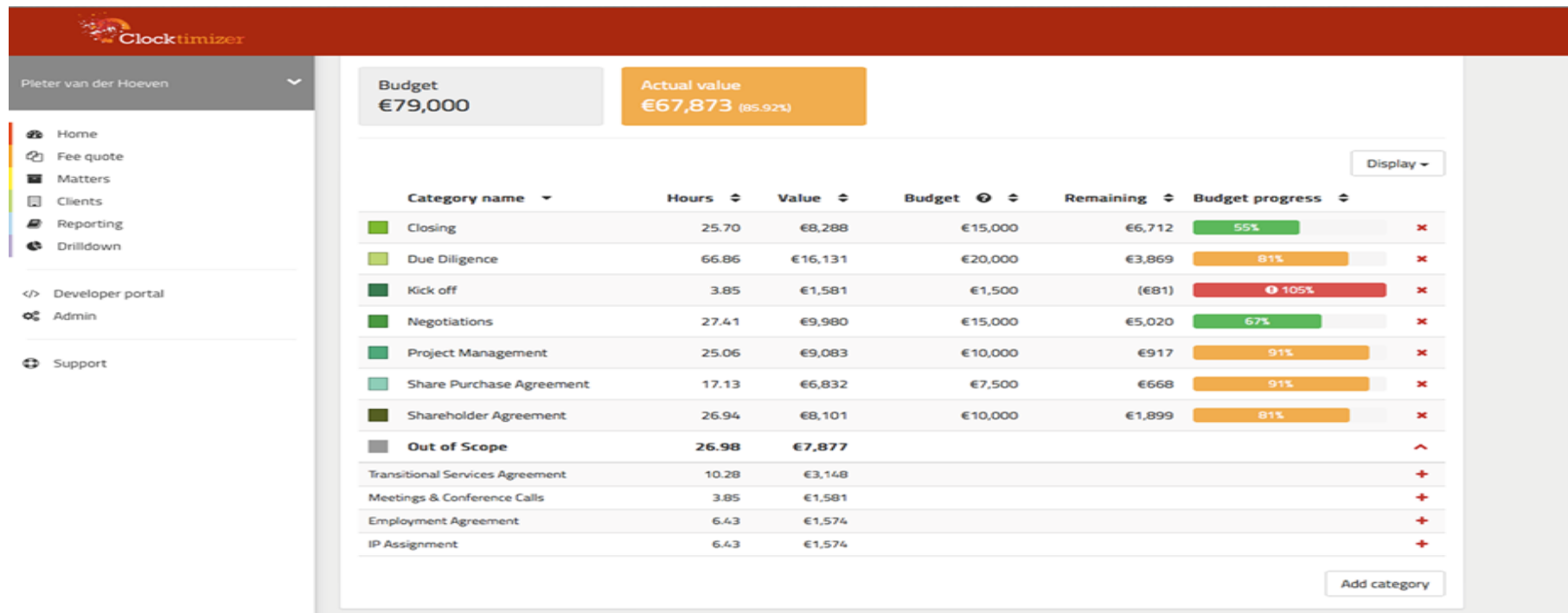
Genuine Management Information

TimekeeperLevel	Hours	%
Unspecified	0	0
Other	0	0
Paralegal	1,364	18
Junior Associate	1,824	23
Associate	2,054	26
Senior Associate	1,626	21
Counsel	0	0
Partner	924	12
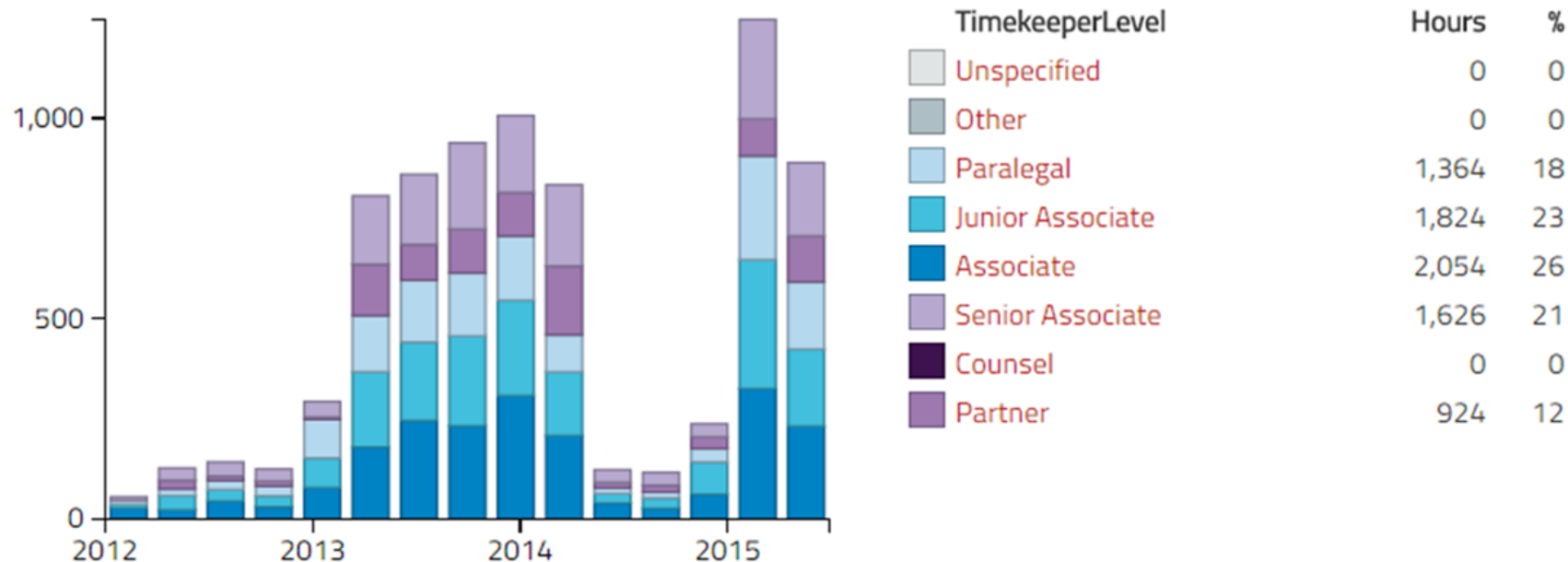
FOE

Artificial life

An eternal threat……

Existential crisis of AI in law

- No such thing as 'zero' risk….
- Who is responsible when it goes wrong
- The End of Lawyers?
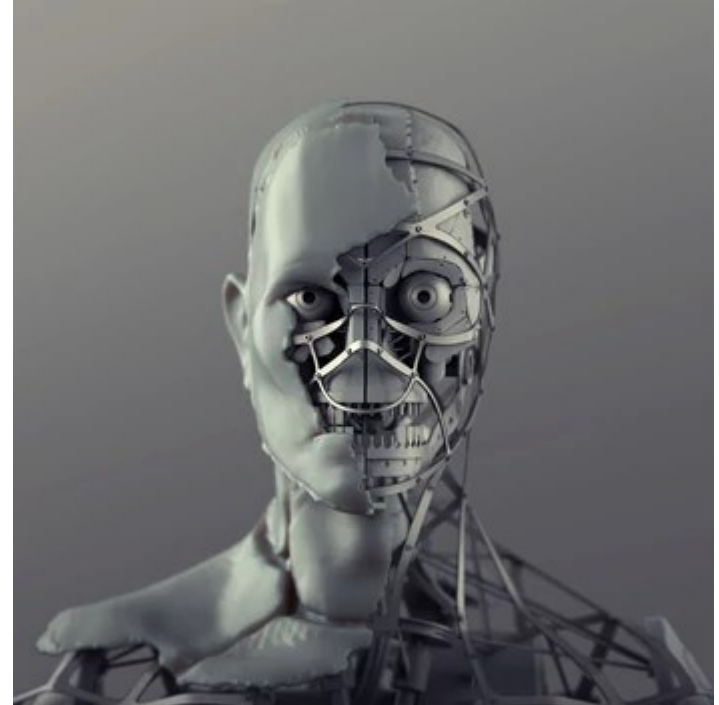
Is 80% good and, if so, good enough?

No such thing as 'zero risk'…
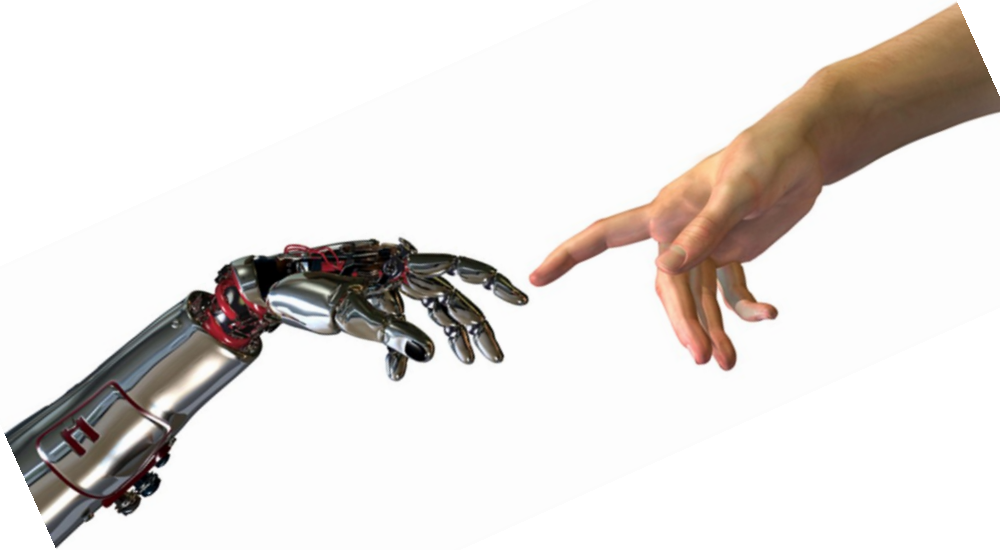
Constant Logic

- v -

Common Sense

OR

Assumption

-v-

Frailty

Whose fault is it anyway?
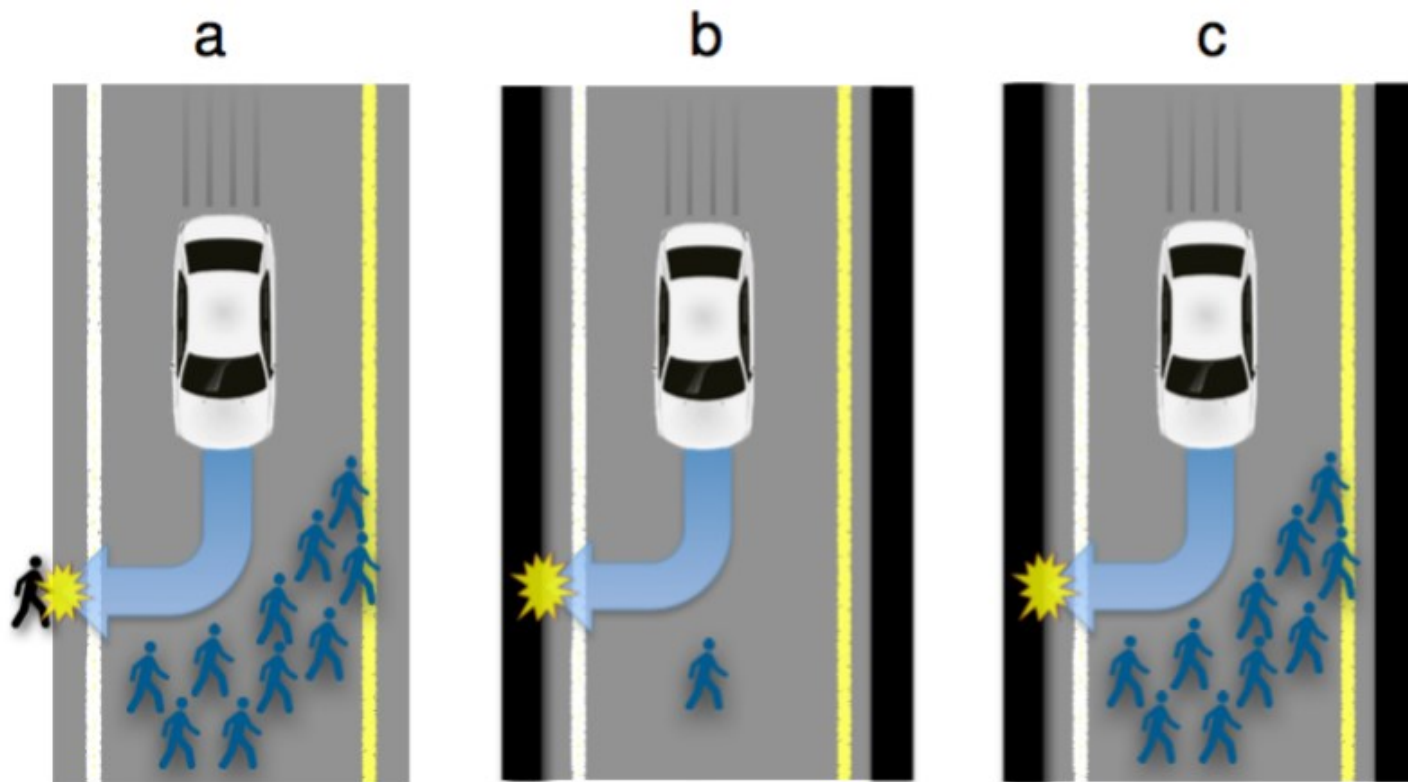
End of lawyers?
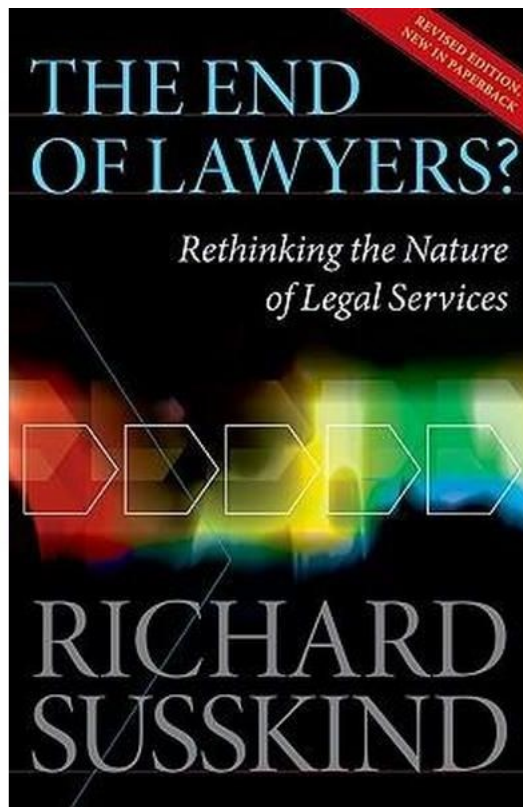
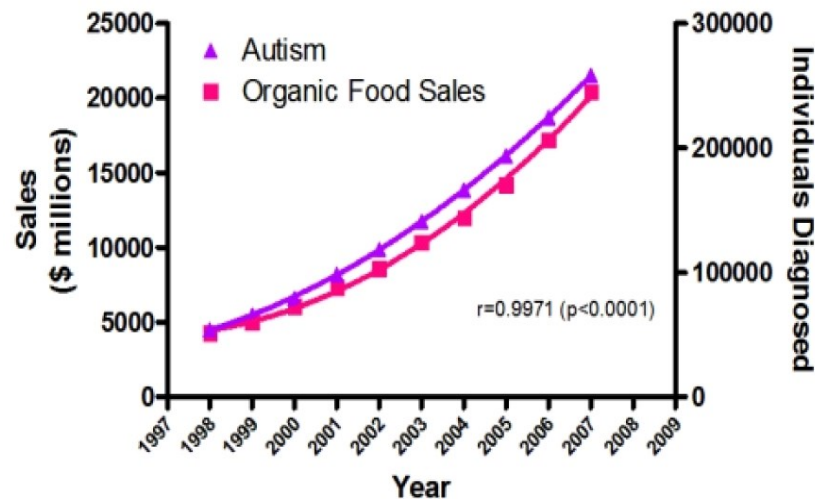# AI enables us to 'Intelligently' process vast amounts of data

But remember the difference: Correlation –v- Causation

Correlation: spots a relationship between two variables

Causation: context, cause and effect – is relationship 'direct'
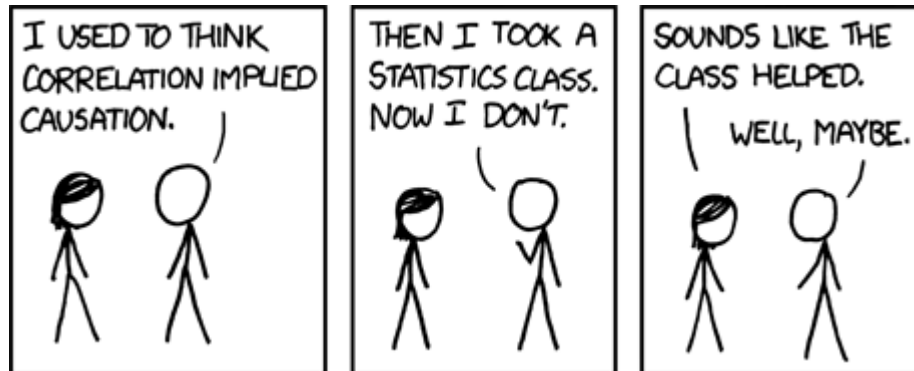
Statistical anomalies

Finding a genuine signal amongst the noise

Sources: Organic Trade Association, 2011 Organic Industry Survey; U.S. Department of Education, Office of Special Education Programs, Data Analysis System (DANS), OMB# 1820-0043: "Children with Disabilities Receiving Special Education Under Part B of the Individuals with Disabilities Education Act
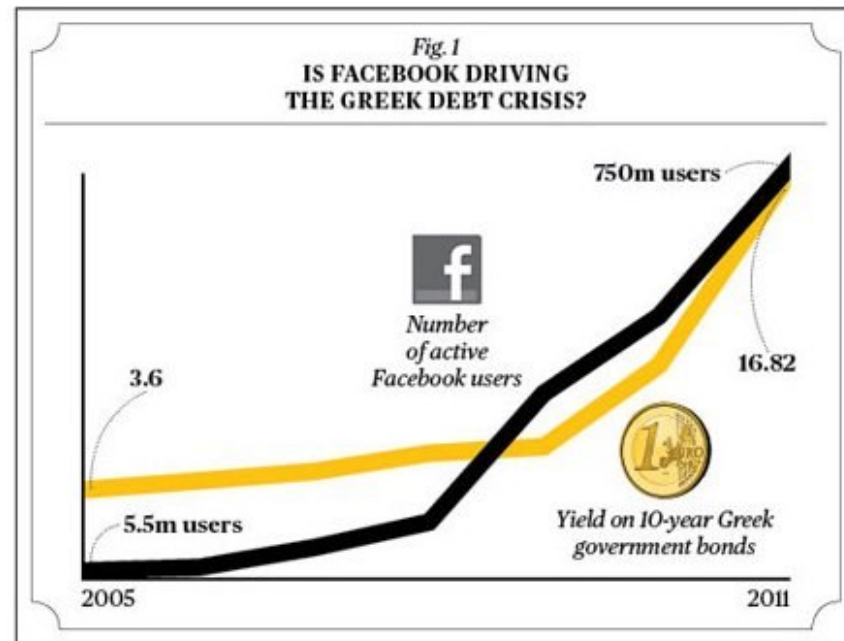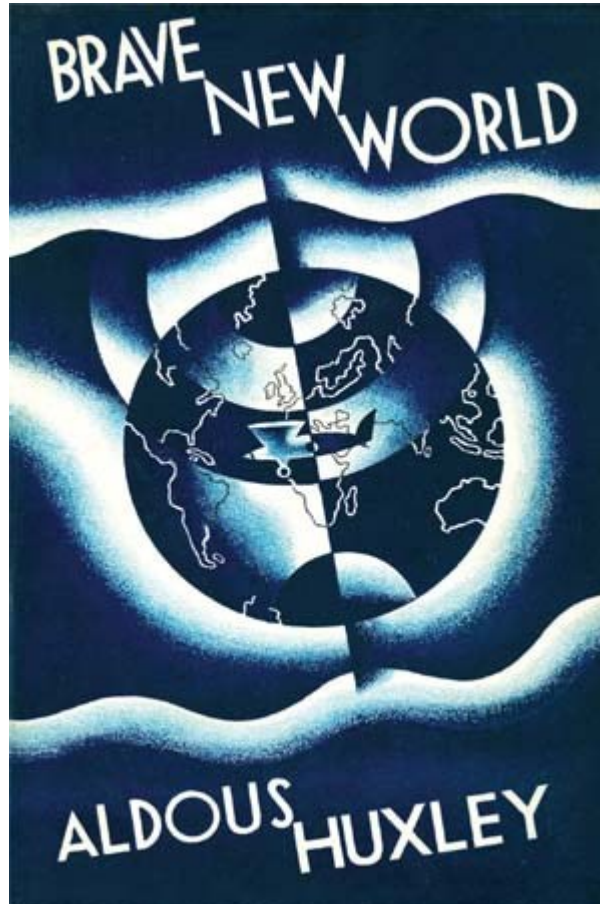
A lesson from the past

A caution for the future

"He uses statistics like a drunken man uses lamp posts--for support rather than illumination."

Andrew Lang
Poet, Novelist and Literary Critic

Proceed, with caution

Speakers

Stephen Allen
Head of Legal Services Delivery, London
T +20 7296 5219
Stephen.Allen@hoganlovells.com

Stephen is a former lawyer who has devoted his career to delivering legal market change. Internationally recognized as a leading innovator, most recently by *Legal Business*, who named him the 2016 Legal Innovator of the Year, Stephen joined us just over a year ago from DLA Piper. At DLA, he created the Service Delivery & Quality Function, and before that he led the legal market advisory practice at PwC. Today, he is focused on delivering quality, efficiency and innovation to our own legal service delivery, with a particular focus on legal project management, legal service centers, flexible resourcing, service insight and machine learning.

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Areas of focus
Litigation, Arbitration and Employment

Emma is a Senior Professional Support Lawyer in the Litigation and Arbitration practice. Emma works with our lawyers and clients in relation to their training and knowledge management needs and supports client and business development initiatives in relation to litigation before the English courts.

As the London office's dedicated Litigation Support Lawyer, Emma has significant experience of navigating the challenges presented by e-disclosure and of the appropriate use of technology, at every stage of the process, to support the cost effective management and resolution of disputes. Emma was previously a senior associate in the firm's Construction and Engineering team, handling a variety of complex, high-value disputes for leading international corporations with a focus on the transport and energy industries. Emma's experience ranges from advising a leading international rolling stock supplier on a high profile public procurement challenge before the English High Court, to acting for an Asian multinational in an ICC international arbitration seated in London concerning a joint venture dispute. Emma also has experience of adjudication and ADR.

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