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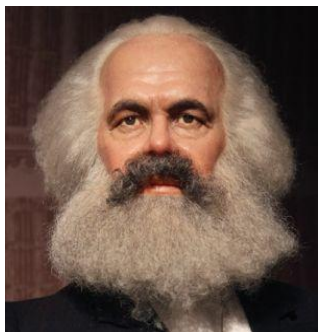
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# Digital Asset Management

**Richard Arrowsmith**

Technical Director – Digital Asset Management

*The transition from one epoch to another will be a period of intense fear, confusion and upheaval for everyone who is involved..... as the old order is replaced by the new.....*



*Karl  
Marx*

A personal perspective on the challenges and opportunities surrounding Digital Asset Management.

A period of revolution and significant change.

Hugely challenging human factors.

- › Data Volume
- › The digital mindset
- › Machine learning & AI

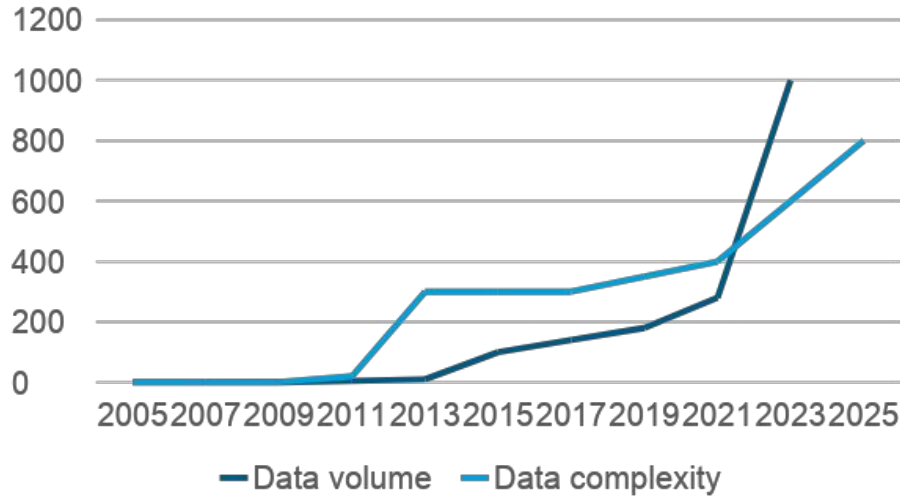
*This presentation will;*

Explore some basic digital issues that are all too often overlooked.

Take a brief look at the sector leading digital services Atkins is currently delivering.

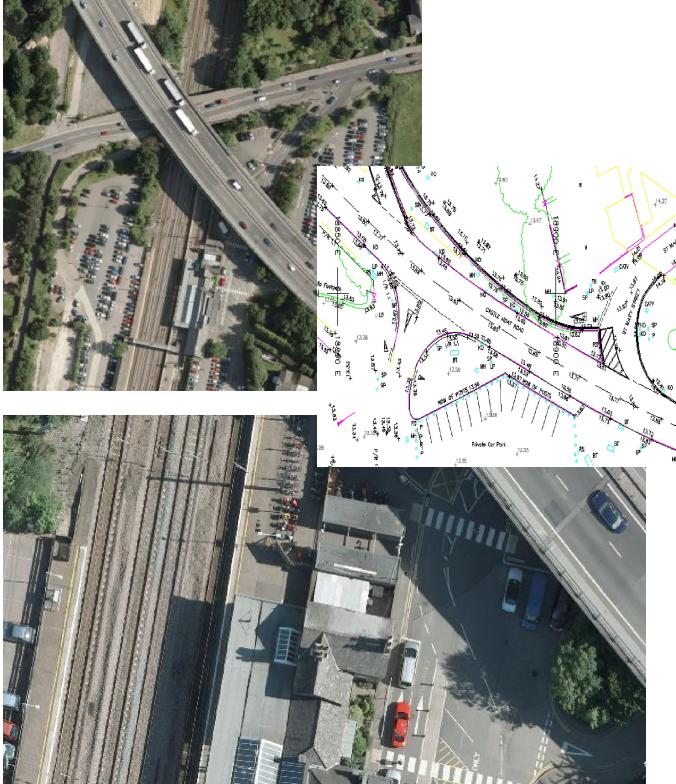
Pose a challenge to everyone to strengthen our mutual digital capability.

# Increasing asset data volumes and complexity -



- Human factors
  - Meaningless
  - The Human interaction with unprocessed data sets is impossible
- Pace of change
  - Technology
  - Data culture
- Asset data & information volumes are increasing exponentially
  - Significant hard & software challenges
  - But the technology will resolve these.

# Upgrade of the A14 through Huntingdon



- Delivered by Atkins for Highways England.
- Highly accurate (>10mm) topographical surveys required for L3 design.
- Complex road and rail interaction, zero possessions of either asset permitted.
- Night works severely restricted because of location.
- Low cost, minimal access, rapid turn around.
- 5cm resolution rectified orthophoto mosaic imagery provided.
- 0.0005% of asset generated nearly 100GB of mixed format data.
- Significant cost savings over ground surveys (circa 25%) and huge benefits in safety and downstream design & maintenance.

# The digital mindset -



People aren't really equipped for “big data”

- › Tsunami of data
- › Simplification to the lowest practical level
- › Trust
- › Difficult to apply real world understanding

Engineering and technical communities find “big data” particularly challenging.

- › Relative v absolute data sets
- › Micro v macro data sets
- › Cynicism derived from past digital failures.

Data & information management become siloed

- › Seen as an IT problem
- › Can lack business understanding leading to confidence issues
- › The criticality of appropriate working practices and rulesets are not recognised
- › Low levels of integrated strategy (Data standards, integration, digital footprint)
- › C-level challenges

<b>52.5 %</b>			
<b>ISTJ</b> 22.5%	<b>ISFJ</b> 2.5%	<b>INFJ</b> 5%	<b>INTJ</b> 2.5%
<b>ISTP</b> 2.5%	<b>ISFP</b> 0%	<b>INFP</b> 0%	<b>INTP</b> 2.5%
<b>ESTP</b> 2.5%	<b>ESFP</b> 2.5%	<b>ENFP</b> 17.5%	<b>ENTP</b> 2.5%
<b>ESTJ</b> 25%	<b>ESFJ</b> 5%	<b>ENFJ</b> 2.5%	<b>ENTJ</b> 5%

# Artificial intelligence -

Given the volumes of asset data now emerging, artificial intelligence and machine learning are key enablers.

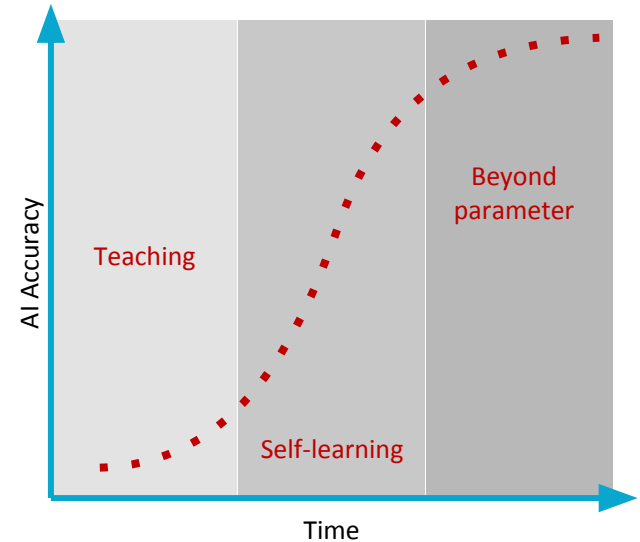
AI is not a cure-all, poor data remains poor data.

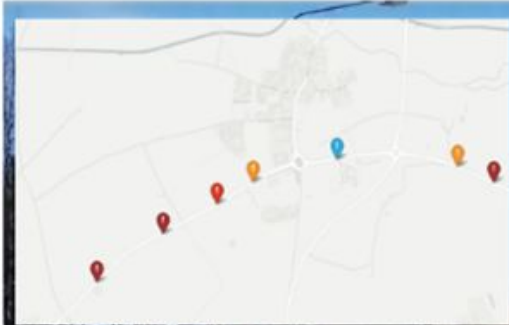
- › Dumb technology
- › The capability is misunderstood by many
- › Explained by the AI S-curve
- › Must be underpinned by effective data standards and rules sets.

Pace of progress is staggering.

- › Obsolescence before embedment

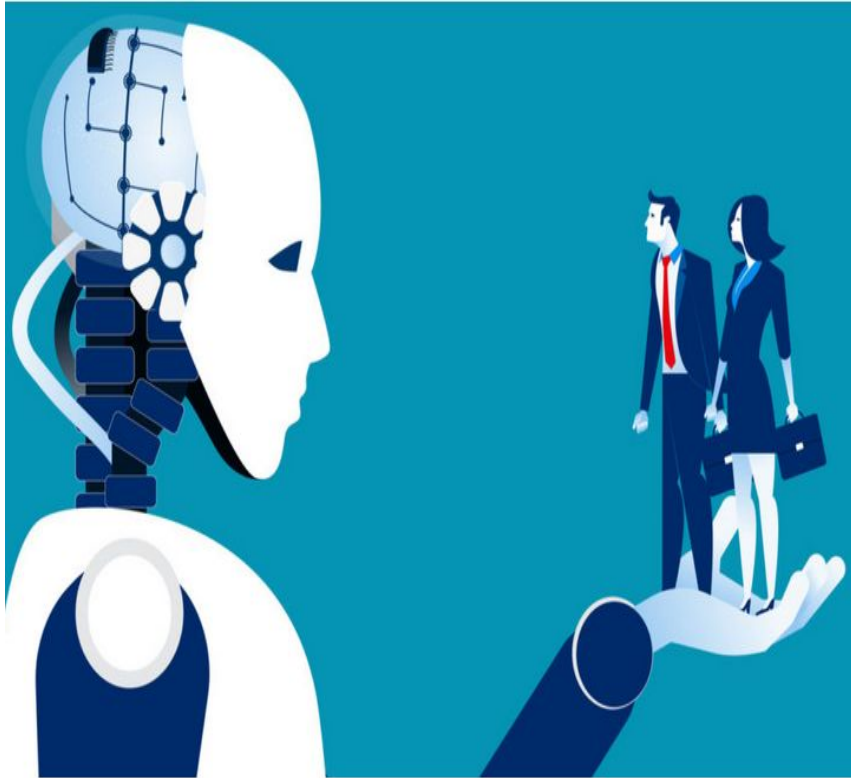
- ›  Commit or wait?  
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- Bumps
- Annotations
- Vomiser devices





## Business integration

- › Decision making, Who carries the risk?
- › Blind obedience or decision support?
- › Ethics
- › Loss of workforce competence & confidence
- › Workforce support or resistance

## AI programming

- › Reflect biases & beliefs
- › Absence of tacit knowledge

## Data-rules and rule-sets

- › Who has control?
- › Who has oversight?

# Atkins & SNC Lavalin – leading the way.

Our class leading capability covers the whole spectrum of Asset Management.

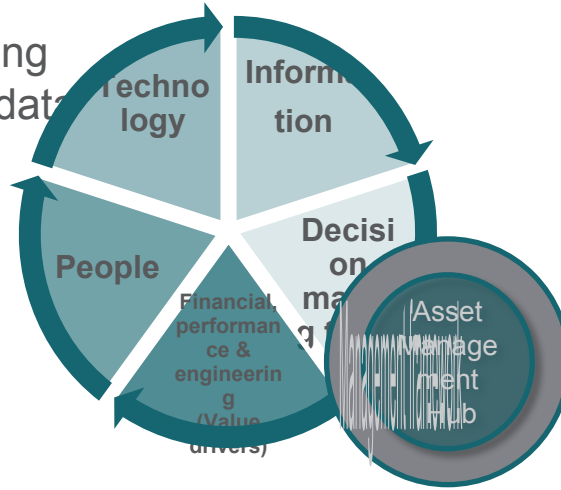
- › Aerial surveys & UAVs.
- › Vehicle based, measurements, ultra HD digital imagery & LIDAR.
- › Latest generation DST's and digital software solutions.
- › Sustainable AI & prognostics by service.
- › Digital AM integration into operations.
- › Unified data management and AM working practices.
- › Production and embedment of holistic AM policy, strategy, process and procedure.

- **Network Rail** – Intelligent Infrastructure, alignment and integration of asset/maintenance/data policy/standards.
- **Highways England** – Asset Information group and Asset Management Office, holistic approach to aligning asset data to decision making and operational needs.
- **Transport Scotland** – Helping them deliver their multi-modal asset management improvement programme.
- **UK Local Authorities** – Development of the new Code of Practice for Highways Asset Management.
- **HS2** – Monitoring of supporting highway infrastructure.

# The Atkins Asset Management Hub / Office -

A single focal point for integrating and co-ordinating the 5 critical data elements under a robust **management framework**.

- . Value drivers
- . People
- . Technology
- . Information
- . Decision making tools



- Direct Services
- Working practices
- Improvement programmes

# Finally an appeal.....

Common asset data attributes between asset sectors and organisations.

Especially geo-spatial referencing.

Plenty of initiatives such as BIM, but in reality the will and the solution must come practitioners.

Atkins are supporting this ambition through our work within.

- › Highways England
- › Transport Scotland
- › Network Rail
- › HS2
- › Local Authorities

We must recognise the opportunities and embrace the challenge for the benefit of all.



"**ask** not what asset data can do for you, **ask** what you can do for asset data."