Artificial Intelligence and Automation: Working for SMEs

FSB and TechWest.London
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Panel discussion

Chair: Andrew Dakers, West London Business

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Tara Furlong, Designing Futures

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Artificial Intelligence (AI) is computer programming which processes large amounts of information ('big data') to make things work better, e.g. robots, stocks or security systems. The new 'self-learning' AI is more sophisticated mathematical programming (algorithmic) which automatically processes earlier rounds of results according to set conditions for new answers. This helps a robot work out its own balance, market analysis predicts the future, and photo identification work out a face.

Automation refers to a system or process that can operate without human intervention. Automation is best for repetitive, well-defined tasks. The less human intervention, the more efficient the Automation. Automation is the best way to Scale, Duplication and Multiplication.

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AI for SMEs

Potentials and Challenges

Jaafar Almusaad, Infraflex IT Solutions

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About Me

Over 18 Years' Experience in IT

- IT Infrastructure Engineering and Support
- Software Engineering and Development
- Data and Database Administration
- IT Project Management
- And finally: Machine Learning

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Approaches to AI

Off the Shelf

Cloud Based Bots

+ Faster to implement
+ More affordable

– Inflexible
– Provider-dependency

Bespoke

In-house Developed

+ Fully customizable
+ No external dependencies

– Slower to implement
– Less affordable (short term)

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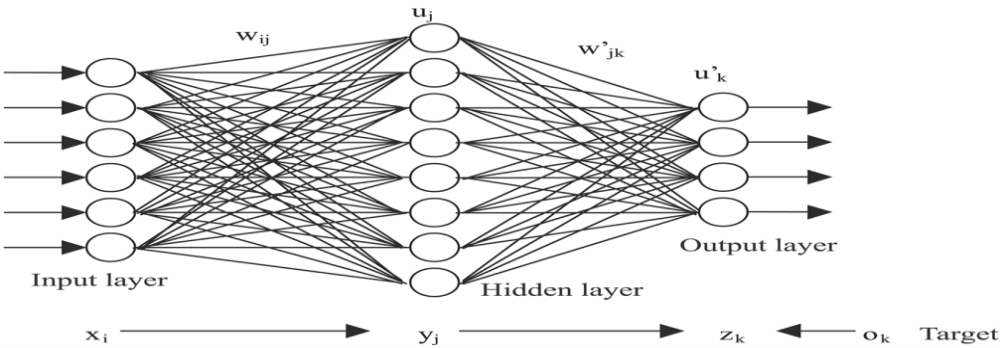
AI Use Case 1 – Inventory Forecast

- Predict next period's sales to minimise overstocking/understocking

  Reorder = predicted sales – current Inventory

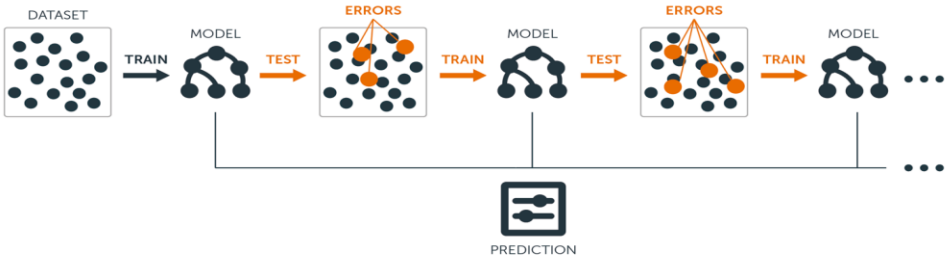
- Takes into account item categories, sub-categories, season, promotions, etc.

Technology: Artificial Neural Network (aka Deep Learning)



AI Use Case 2 – Apartment Rate Prediction

- Predicts apartment rates with reliable accuracy
- Takes into account large number of factors
- Learns how each factor can influence the rate in the right context
- *For example, average quality apartment in Piccadilly Circus could be more expensive than above average apartment in zone 6*
- Technology: GBM (Gradient Boosting Model)



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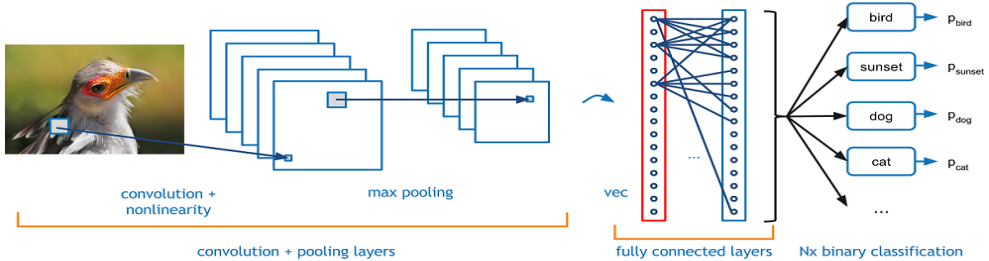
AI Use Case 3 – Property Valuation

- Instant final valuation of properties
- Takes into account 100's of factors. For example, **air quality** in a particular postcode
- More consistent than average human valuator
- Accounts for quantitative as well as qualitative attributes such as number of rooms and condition respectively
- Technology: mix of Convolutional Neural Network and others



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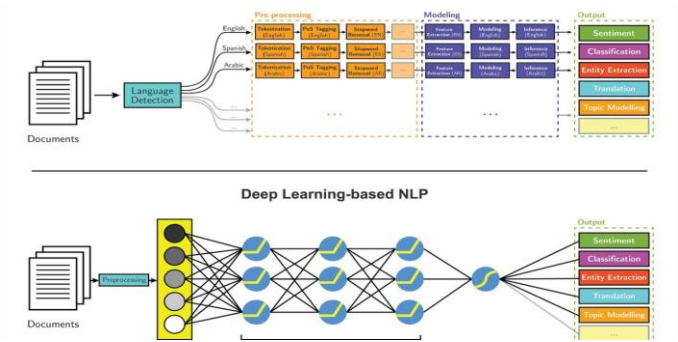
AI Use Case 4 – Talent Acquisition

- Processes CVs intelligently and matches them to advertised jobs
- Can include blogs, articles and other kinds of publications by the applicants
- Effective for automated “head hunting” in LinkedIn or similar platforms
- Technology: Natural Language Processing (NLP)



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AI Options for SMEs

Data, Data and Data

- AI technologies (aside from Google's state-of-the-art Alpha Zero) rely on proper and clean data in order to function satisfactorily

- SMEs must start thinking about the data they need to collect today to successfully develop the AI they will need tomorrow

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Rafael Bloom

Salvatore Ltd

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Artificial Intelligence

AI business functions and support services

- What is AI in this context?
- Most common new use cases
- The future…?
- The impact for SMEs

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Introducing AI in Business

What is it?

- Not true AI yet
- Machine learning / ”Augmented Intelligence”
- Big Data required
- Automation

Why do companies need AI?

- Insights and efficiencies
- Take advantage of ‘Big Data’
- Do better business

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AI Use Cases Today

- RPA (Robotic Process Automation)
  - Contact centre efficiency, trend analysis, process optimisation and automation
- Service ‘Bots’
  - Taking care of FAQs
  - Context sensitive
  - Analytics
- Pattern Detection
  - Algorythmic approach
  - Security – physical, financial
  - Business Intelligence
  - Predictive Analytics (‘Next Best Offer’ to accident prevention)

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AI for Micro and Small Businesses

- Digital Assistants
  - Integrating your calendar, emails, relevant documents, business network
  - Business management (finances, logistics etc)
  - Transcription, automatic translation
  - IT Systems maintenance / monitoring
  - Communications monitoring, knowledge acquisition
- Subject Matter Expertise
  - A virtual expert to talk to (legal, technical)
- The power of Data
  - Process Automation
  - Deep analysis leading to targeted, personal engagement
  - Image recognition and ‘computer vision’

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AI for Tomorrow

- Beyond current state to true AI
- Ethical and moral implications
- First practical applications?
  - Massive Co-ordinated Autonomous Driving
  - Assisted Living / Care
  - AI for Governance – corporate, financial, physical security

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Impact for SMEs

- What profile of SME is put at risk by AI?
  - Threat from larger companies with ability to leverage AI to squeeze rivals
  - Operating in niches where AI will eliminate need

- How do SMEs approach the opportunity
  - Leverage size and agility to disrupt using AI
  - Understand the world of data itself and the opportunity it brings
  - Start small and don’t take undue risks
  - Be part of the network

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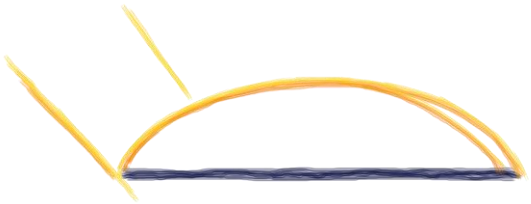

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Tara Furlong
Designing Futures Ltd

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Automation potential

Box 1: Key findings from our RSA/YouGov survey of UK business leaders

Business leaders on average believe 15% of jobs in their organisation have the potential to be automated:

- 22% see zero prospect for automation in their business
- 38% predict a low impact (between 1-15% of jobs automatable)
- 27% a medium impact (between 16-30% of jobs automatable)
- 13% a high impact (more than 30% of jobs automatable).

Estimates of high impact automation vary widely by sector:

- 15% of business leaders in retail
- 21% in transport and distribution
- 4% for hospitality and leisure.

The adoption rate of AI and/or robotics is low among UK business leaders:

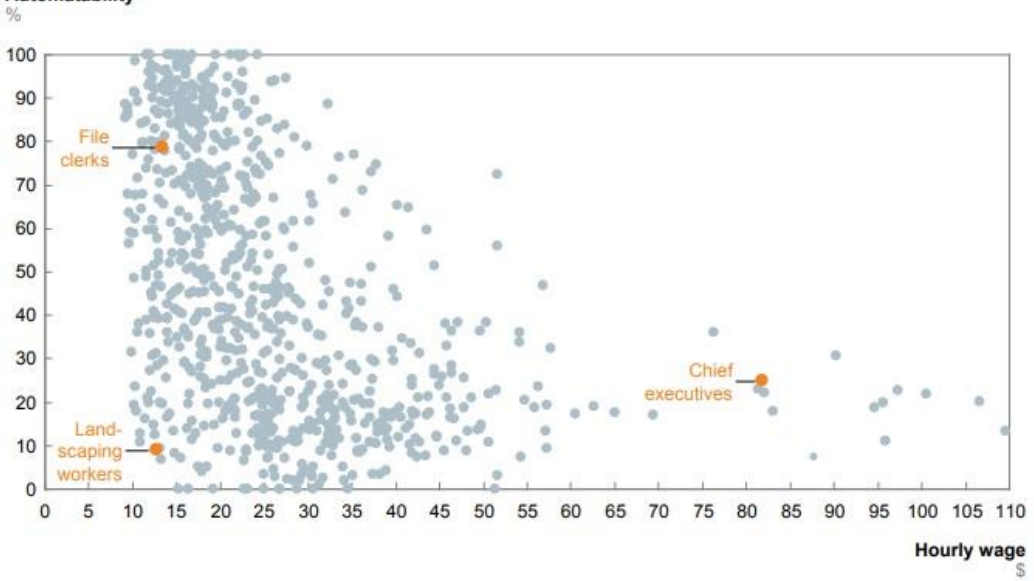
- Just 14% have already invested in AI and/or robotics, or plan to in the near future
- 20% say they want to invest but that it will take several years before they will 'seriously' do so
- 14% are aware of the technology but believe it is too costly
- 15% are aware of the technology but do not believe it has been properly tested.

Most business leaders take a positive stance towards the arrival of new technologies in their sector (including but not limited to AI and robotics):

- 46% think new technologies are more likely to alter jobs than to eliminate them, and lead to greater prosperity in the long run

Exhibit 6

Both low and high-wage occupations have significant technical automation potential



1 Our analysis used "detailed work activities," as defined by O*NET, a program sponsored by the US Department of Labor, Employment and Training Administration.

SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

Man versus machine

Technological development

Off-the-shelf products v. custom v. subscription and service level agreements

- Robots interacting in their environment with
- Algorithmic ‘self-learning’ artificial intelligence crunching large data sets
- Improving workflow processes

Social development

Productivity maintained through

- adaptation and training,
- quality of life indicators, and
- aging population profiles.

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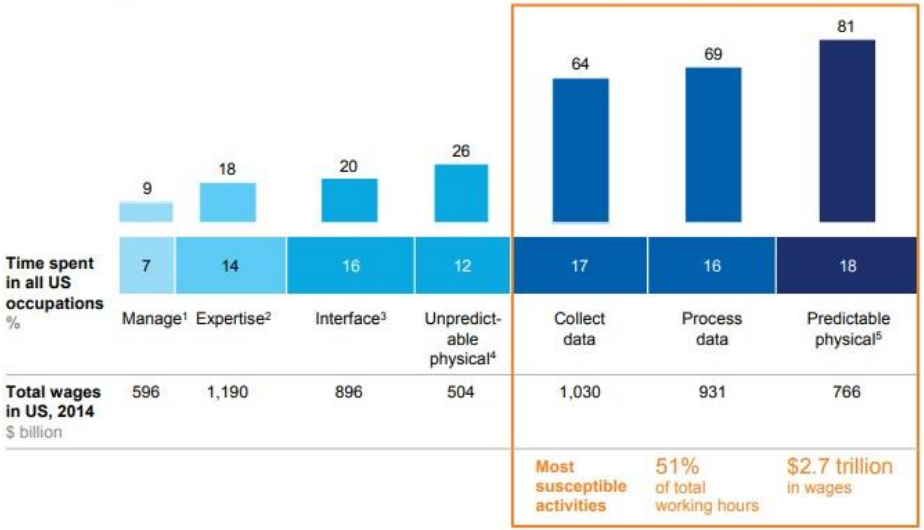
Higher Technical Automation Potential

Exhibit 8

Three categories of work activities have significantly higher technical automation potential

Time spent on activities that can be automated by adapting currently demonstrated technology
%



1 Managing and developing people.
2 Applying expertise to decision making, planning, and creative tasks.
3 Interfacing with stakeholders.
4 Performing physical activities and operating machinery in unpredictable environments.
5 Performing physical activities and operating machinery in predictable environments.
NOTE: Numbers may not sum due to rounding.

SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

What 'predictable' routinised activity occurs in your business?

Which mass data collection and processing occurs?

Where is your business straining or high error rates presenting?

How can work processes be amended?

How well can staff adapt to working with technology?

Change Management

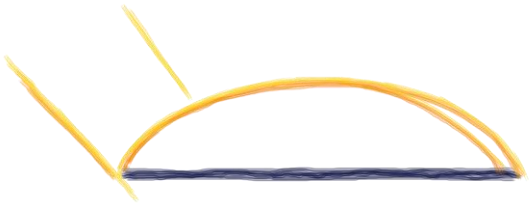
Labour substitution: less routine and repetitive work based on rules-based activities

Humans and technology interacting: significant performance and quality gains

Human resources implications: how the workplace is structured and organized

Specifying technical projects implies human resources adaptations which emphasise ‘higher order’ social, emotional, cognitive and creative functions, for example around specialist forms of analysis, communication and complex manipulation.

Source include: Oxford University, the RSA and McKinsey reports



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Tara Furlong

http://designingfutures.uk/

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Specific AI tools that were introduced through panel Q&A discussion:

- https://azure.microsoft.com/en-gb/services/bot-service/
- https://www.microsoft.com/en-us/cognitive-toolkit/
- https://www.tensorflow.org/
- https://www.fin.com/

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