

TECH SPARK



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you today? (p8)

THE
DATA
ISSUE

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Wayne Ross, editor and global CTO of Excelian, wishes you a warm welcome to The Data Issue.

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A short and simple-to-navigate introduction to the artificial intelligence, machine learning and data science landscape

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Most people are familiar with digital assistants, Siri and Alexa. But can chat bots give *your* business the edge?

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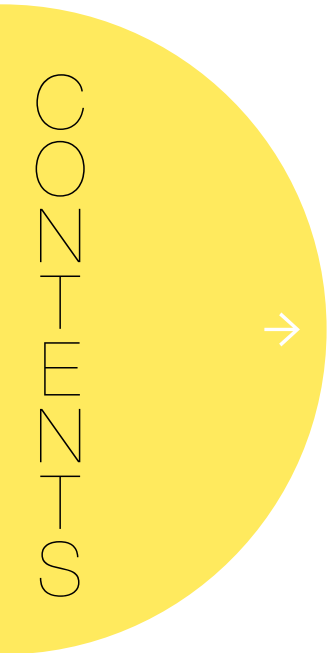
We examine and uncover the main differences between data visualisation and information visualisation

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I would like to welcome you to this edition of Tech Spark – The Data Issue. Digital transformation will increase the volume of data your business generates. This increase in data will originate from your business interactions and more importantly will be generated as a function of operating your business in the digital space.

An intelligent business knows how to harness this data to transform, present and combine it with other data sources in meaningful ways, which can be acted upon to provide insights into how to optimise your business and to provide better customer interactions.

The advance of artificial intelligence (AI) and machine learning (ML) technologies presents further opportunities to intelligently automate business interactions, driven by this data. This edition presents our view on where AI/ML might be applied to data within financial services, with a focus on virtual assistants. We discuss how to enhance your experience with virtual assistants and to provide an example of how virtual assistants might operate internally to present you with intelligent outcomes.

I hope you enjoy this edition of Tech Spark as much as we've enjoyed exploring these technologies.

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Machine learning includes cognitive capacity,
natural language processing (NLP) and
platforms for higher-level business modelling.
Bring all this together to build a virtual assistant

Discourse on the method



Data science, machine learning and AI are terms that are used interchangeably but mean different things to different people. Here we will give a short introduction into the landscape without getting too hung up on definitions. First, let's be clear, we're not really interested in human emulation. We realise that AI is, and for the foreseeable future will be, highly specialised. Computers will always be, or become, better at performing a given task than humans – but the task will always be framed. The difference with AI is that algorithms learn and evolve with the data, ultimately to do the task better, rather than be specifically pre-programmed in isolation of the data.

Right now the computing power available and the advent of the data age makes more possible. Reflecting first on data ...

A big part of data science is securing data and understanding what data features have the potential to drive insight and decisions. You wouldn't expect a human to make a solid decision without information. Humans add value by making connections across data sets – and the same applies to AI. When looking for meaning inside business data, context needs to be understood and that means looking for *alternative* data. This comes from the wider business and government communities, from people (*i.e.* social media, communications and news) and from the real world (including IoT). Once the data is in place it can be mined ...

There are many approaches to machine learning (ML): through deduction, connections, trial and error, statistics and nearest neighbour. Models produce best-fit formula through regression, neural networks and other approaches. Broadly, algorithms can be trained with given input and expected output (supervised learning) or just given data to determine patterns and categories (unsupervised learning). Lessons are then applied to new data.

The application of ML, like any domain, is layered. In this context we have: 1) cognitive capacity to map speech, images and other sensor inputs to text, categorisation and values 2) NLP and NLU to map text to (business) context, for signals, dialogue systems and language generation and 3) platforms for higher level business data analysis and modelling. Bring all this together to build a *virtual assistant*. ■

Artificial intelligence opportunities in all industries are widespread and consequently financial services must also architect for AI – or at the very least intelligent automation