CARICHAM
Centre of Excellence

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PRIVATE SECTOR ALLIANCE FOR DISASTER RESILIENT SOCIETIES

DIGITAL TRANSFORMATION

Data, Analytics and IoT

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One of the most exciting and fast-developing areas of interest for small businesses is using existing and newly generated data for analysis and business development. It is often referred to as Data Science.

It involves using simple methods and processes to extract knowledge and insights from structured and unstructured data (see Definitions).

Using simplified tools like Tableau and PowerBI (see Tools below), you can clean, process and analyse data for patterns, insights and indicators that allow you to make better-informed decisions for your business. Despite being a specialised discipline, you can extract valuable information from some of the data you possibly already have with some practice.

Data Science is already used across industries and is now becoming available and practical for MSMEs. There are some areas where it can help you make decisions based on data and not just intuition:

- Predictive modelling - This takes past data to predict the future through hypothesis. It might help you better prepare for peaks and troughs in business.
- Visualisation - Possibly the most straightforward way any MSME can graphically represent data to understand trends and patterns in sales. Going a little further, you can display possible relationships between data. For example, footfall might not be related to overall sales per day, meaning something else possibly is.
- Machine Learning or Artificial Intelligence - Despite being a very complicated and vast subject, several services have been made available for businesses to run sophisticated analyses to learn about their data.
- Cognitive Analysis - Using these services can provide insights on things like sentiment of feedback and support requests.

BOX 1: Definitions

Structured Data: Data that is organised in a specific way. It can be a table, a database or a spreadsheet, but it is easy to sort, search and analyse. A spreadsheet containing customer information with several columns like Name, address, phone number, email, and a row for each separate customer is considered structured.

Unstructured Data: Data that is not organised in a specific fashion and not organised in spreadsheets and databases. Examples of unstructured data is WhatsApp Chats and other Social Media posts. Email and audio/video files are also considered unstructured.

Cognitive Analysis: Uses AI and Machine Learning to understand patterns and trends in data such as text, images, audio, and video. It is often used in marketing to determine things like sentiment and feelings in social media posts and reviews of a product or service.

Insights: A deeper understanding of data and/or realising things that are not immediately apparent in structured or unstructured data. For example, a particular group might be more inclined to purchase a product within 3 days of a targeted marketing campaign but not after 4 days.

As your business becomes more digitalised through the steady progress of Digital Transformation, you will see the value in using data and data analysis to help inform your decisions in the future.

Another trend you may have heard about is something called IoT. The Internet of Things (IoT) is just a set of internet-connected devices equipped with sensors and simple software, allowing them to collect and share data for analysis or real-time monitoring.

Applications in business include specific sensors in industrial manufacturing machines or intelligent monitoring cameras to rapidly estimate stock levels. These are becoming very popular in the agriculture sector, particularly for the resilience of crop growing during unpredictable rains and droughts. The sensors allow farmers to irrigate only when necessary, thus saving water from being wasted when not required and possibly allowing it to be stored for use during drier times.

IoT has the potential to transform a wide range of businesses by improving the efficiency of a multitude of tasks.

BOX 2: Tools

Visualisation Tools:

- Tableau
- PowerBI
- Qlik Sense
- Klipfolio
- Looker

Market Research/Questionnaires:

- Google Forms
- Microsoft Forms
- SurveyMonkey
- Typeform

Going Further:

- Microsoft Azure Cognitive Services
- AWS Artificiel Intelligence Services