

Technology

'Big data' gets all the attention but 'small data' can be sexier

Michael Snowden

"Big data" is the buzz phrase being used by all the big computer companies today.

The confluence of fast-falling costs for sensors and computing, a renaissance in the application of mathematical and statistical tools in business, together with innovative software to harness them, is generating a powerful new opportunity for competitive advantage in data-driven decision-making.

Sexy examples of increased profitability, such as calculating on-the-fly optimal individual price offers based on actual consumer buying behavior gain widespread attention. Sorting through billions of unstructured particles of "Big Data" to drive better business outcomes, while elusive for most firms, has a tantalising appeal.

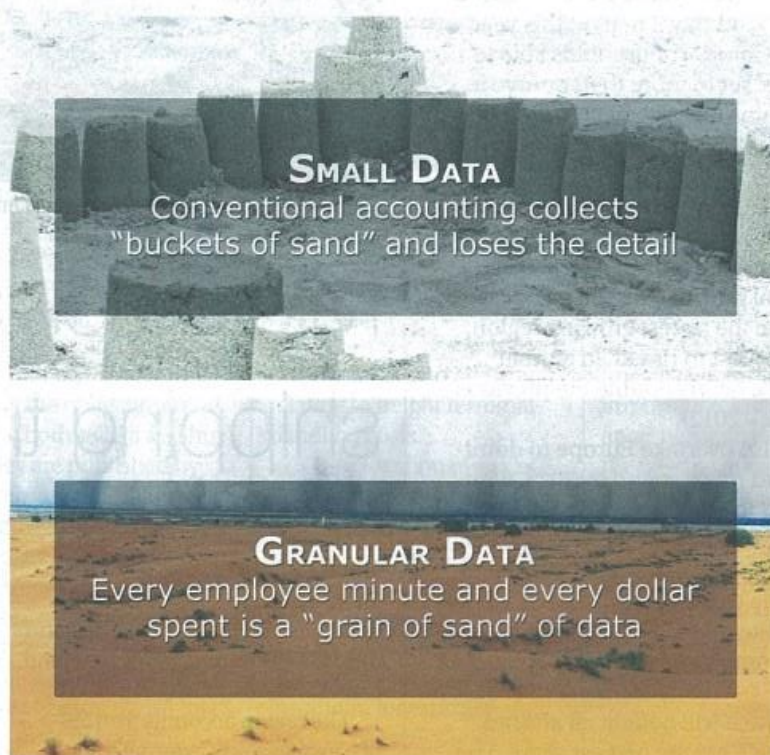
Think small

However, what is usually overlooked in the effusive "big data" vendor spiel is that all firms have structured "small data" which, when exploded into their atomic elements, can tell a very different story about what is happening right now and what is likely to happen next.

A classic example of "small data" is conventional management accounting reports which tell us, through a "rear view mirror" what has happened.

One way to think about being in business is to imagine that you are in a sandstorm with grains of sand swirling around you. In the middle of the storm, it is difficult to understand what is happening.

Extend the metaphor to think of each grain of sand being an element of "big data, representing, say, a minute of an employee's time, a minute of a machine's usage or a



dollar spent.

At the end of a selected time period, conventional accounting processes aggregate each "grain of sand" into "buckets of sand" according to the firm's code of accounts. The obvious problem is that the summary "bucket" information loses the benefit of granularity.

Even in exemplary world-class implementations, this is woefully inadequate. Conventional accounting does not look to the future. Subtle, fast-changing trends will usually be "invisible" until enough time has elapsed and damage is done before it becomes recognisable.

If, however, those data "grains of sand" could be easily and economically measured and repositioned into different dimensions, powerful new insight can be gained.

Valuable outcomes may include

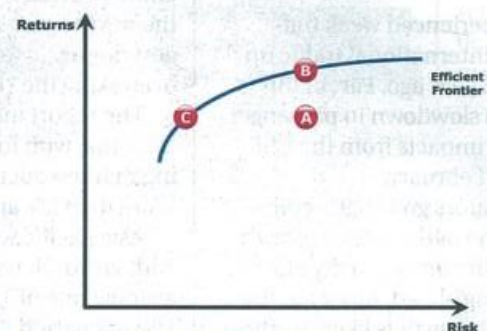
much more accurate measurement of the profitability of product or service SKUs, the profitability of individual customers or the profitability of alternate distribution channels.

New ways of measuring a firm's performance become feasible, such as the idea of viewing customers as investments, with a life-time value, comprising an acquisition cost, a stream of future returns and a risk profile.

Applying optimisation algorithms, well established in stock portfolio decision-making, to a firm's customer "investments" can identify the initial less-than-optimal combination of customers, represented by point A in the graphic.

With a targeted change in customer portfolio mix over time, it will be possible to move toward an optimal position anywhere on the efficient frontier. For example,

Optimise your portfolio of customers



TARGETED

CHANGE: It will be possible to move toward an optimal position anywhere on the efficient frontier

higher returns can be earned for the same risk (point B) or the same returns can be earned for less risk (point C).

The internet of things

The rapid growth and enormous potential of the "internet of things", with low-cost embedded sensors measuring all types of activity and wirelessly communicating those results, is inextricably entwined with this idea.

Highly granular data can be collected from sensors tracking human activity, plant usage and the expenditure of each dollar. Each "grain of sand" of data will probably have different speeds and trajectories. Threshold reporting, with pre-determined trigger alerts, focuses attention on what matters, clear of the fog of massive data sets.

Predictive analytics, employing statistical forecasting tools, can cut through a firm's dynamic data as it unfolds, telling us about where and how fast those elements are moving. Confidence rises about what we think may happen next.

Cloud computing is an essential partner, providing supercomputer capability at the end of a credit card, used only when needed, processing

an avalanche of data, all with rapidly declining costs.

How does one get started in applying these tools to a typical firm? Firstly, it is important to begin with a manageable low risk project and prove the return on investment.

Software tools are rapidly emerging that allow firms to effectively run a "parallel" accounting system which focuses on granular analytics, without any changes to the existing code of accounts or reporting processes.

This lowers the barriers to entry and risk, as well as providing an easy reconciliation between the existing and new reports, thus gaining a high level of confidence in the outcomes.

It is important to understand that becoming a data-driven firm is a journey, not a one-off transition. Internal cultural adoption is vital and may take some time for many firms. Committed leadership from the top is the most important prerequisite.

Analytics presents a compelling competitive advantage opportunity. Start now, or be left well behind.



Dr Snowden is owner of cloud computing company OneNet

Toy box

Magellan Cyclo 505hc

- HOT:** Wireless sensors and connectivity, altimeter, wi-fi, waterproof, excellent mounts, fully customisable dashboards, heart rate monitor
- NOT:** Needs to add more online services
- TECH SPECS:** GPS, wifi, Bluetooth, ANT+, 12 hour battery, IPX7 waterproof
- PRICE:** \$579 (a step-down version without the heart rate monitor, the Cyclo 505, costs \$479)

The full colour, touchscreen, GPS-equipped Cyclo 505hc cycling computer comes with maps preloaded for both Australia and New Zealand, offers turn-by-turn navigation and a raft of route tracking options. Being the premium model in the range, the \$579 Cyclo also sports an altimeter, thermometer, compass, ANT+ wireless soft-strap heart rate monitor, wireless cadence and speed sensor and no less than three different handle bar mounts in the box.

Mountain bikers and winter cyclists will also appreciate the IPX7 waterproofing, which means it will survive a dunking in water up to one metre deep for up to half an hour.

A shake-and-share feature allows you to share tracks wireless with other Cyclo 505 and 505hc users. Simply shake the device alongside another Cyclo device and the route is wirelessly transferred.

Making sense of all this data is key, so when you're home and dried off, the built-in wifi will simply and automatically sync your rides with Strava.com (a website for sharing rides, and comparing performance, with others).

This is a tough, compact and feature rich specialty device that data-



loving cycle enthusiasts will adore.

While just about any old smartphone will let you record and upload your rides, if you're a serious cyclist, a dedicated task device like the Cyclo not only brings with it a bunch of high end features a typical smart phone lacks, but it spares your phone's battery during long rides.

If cycling is your cup of tea and you want a 'speedo' to make your cycling buddies jealous, the Cyclo 505hc deserves a long hard look.

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Scott Bartley is a former reviews editor for NZ PC World and home entertainment and gadget title >>>FFWD.