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EPISODE 14: ACCELERATING AGRICULTURAL DIGITAL TRANSFORMATION THROUGH AI AND IOT

A SOCIOLOGICAL & COMMERCIAL PERSPECTIVE

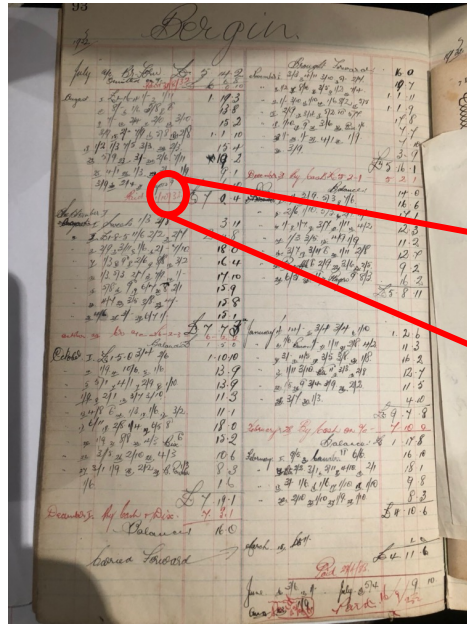
VIRTUAL MEETING, 28 MARCH 2022, 1400 CEST



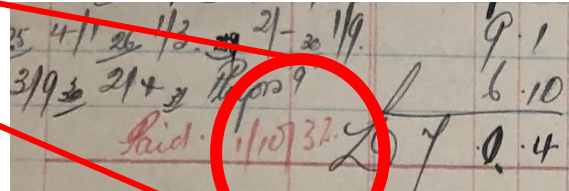
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A FAMILY STORY FROM NEW ZEALAND



This ledger book is from a grocer's shop in New Zealand, hand-written in 1932 by the then 17-year-old daughter of the grocery shop owner.



The owner then was the gentleman in the dark suit, Mr W D Bauckham, my grandfather.



By 1958, the 17-year-old was my mother who with my father, had taken over the family business.

In this family photo, top left, is my brother, who became the third-generation owner of the grocery shop in 1974.

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A FAMILY STORY FROM NEW ZEALAND

By 1990, my brother had grown his grocery business into three large, modern supermarkets, part of New Zealand's Foodstuffs Group.

By 2000, he had become chairman of Foodstuffs, a co-operative of almost 400 supermarkets across NZ with \$NZ14 billion in total revenues.



From 2006, supermarkets around the world, including my brother's supermarkets, began implementing self-scanning technology, not just doing away with long-forgotten ledger books, but integrating the entire value chain from source to customers.

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WHY?

- Because (at least in part) while globally there are some 6,000 airlines, 18,000 print media organisations, and 25,000 major banks, and roughly 20,000 supermarket groups that have digitised over the last 30 years...
- there are 540* **million** farms, of which 470 million are smaller than 2 ha/5 acres
- Leaving aside notable large corporate farming businesses, farming is largely a small-business operation, lacking both the capital and the technological expertise on-farm to select, pay for, implement, maintain, and use, their own multi-million-dollar Farm Management Information System (FMIS) on a stand-alone basis.
- Even US farmers do not have the financial resources, simply put, to develop their own FMIS. (*“89% of American family farmers today do not generate the majority of their family income from their farm” (US Secretary of Agriculture Tom Vilsack stated in Feb 2022)*)
- And beside the technological and financial considerations, how do we address the sociological and commercial aspects of primary sector digital adoption?

* Proudfoot, I; Global Head of Agribusiness, KPMG

A GLOBAL PERSPECTIVE – THREE GENERATIONS OF AGTECH

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First Generation PRECISION FARMING

Increased accuracy e.g.

- GPS, Autosteer
- Precision planting
- Variable rate fertiliser application

= Improved efficiency

Second Generation DIGITAL FARMING

Sensor-originated data e.g.

- Soil moisture & temperature
- EM Mapping
- Milk vat monitoring
- Cow collars

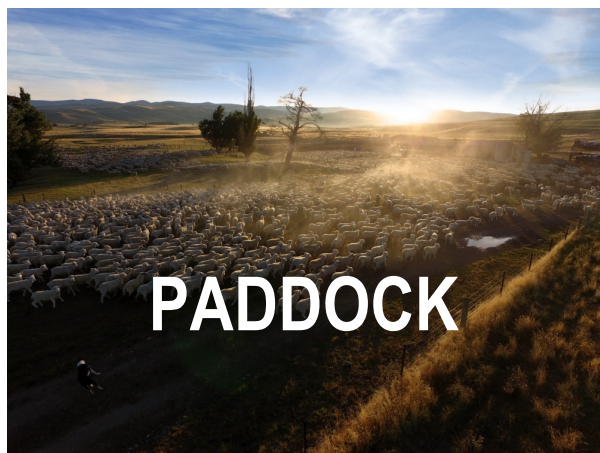
= evidence-based decisions

Third Generation SMART FARMING

Environmental sustainability

- Nitrogen
- Phosphorus
- Energy
- And especially, Carbon

= demonstrable sustainability



PADDOCK



PROPERTY



PLANET

Farmers and growers could with some justification claim what happens inside their paddocks or property is “their business” and so whether they digitised or not, really affected only them.

But now with 540 million farms needing to increase output by 70% while reducing inputs, we need rapidly-accelerating adoption of technologies including AI & IoT

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HOW HAVE BIG CORPORATIONS IN MAJOR INDUSTRIES DIGITIZED?

Thinking back to the large corporations in major industries, like aviation, that digitised 20-30 years ago, what was their approach?

Being large corporates with specialised senior management, they had CIOs and their teams to implement ERP and other systems.

Certainly, when for example SAP installs an ERP system for an airline, they don't sell it to a pilot – they sell to a CIO.

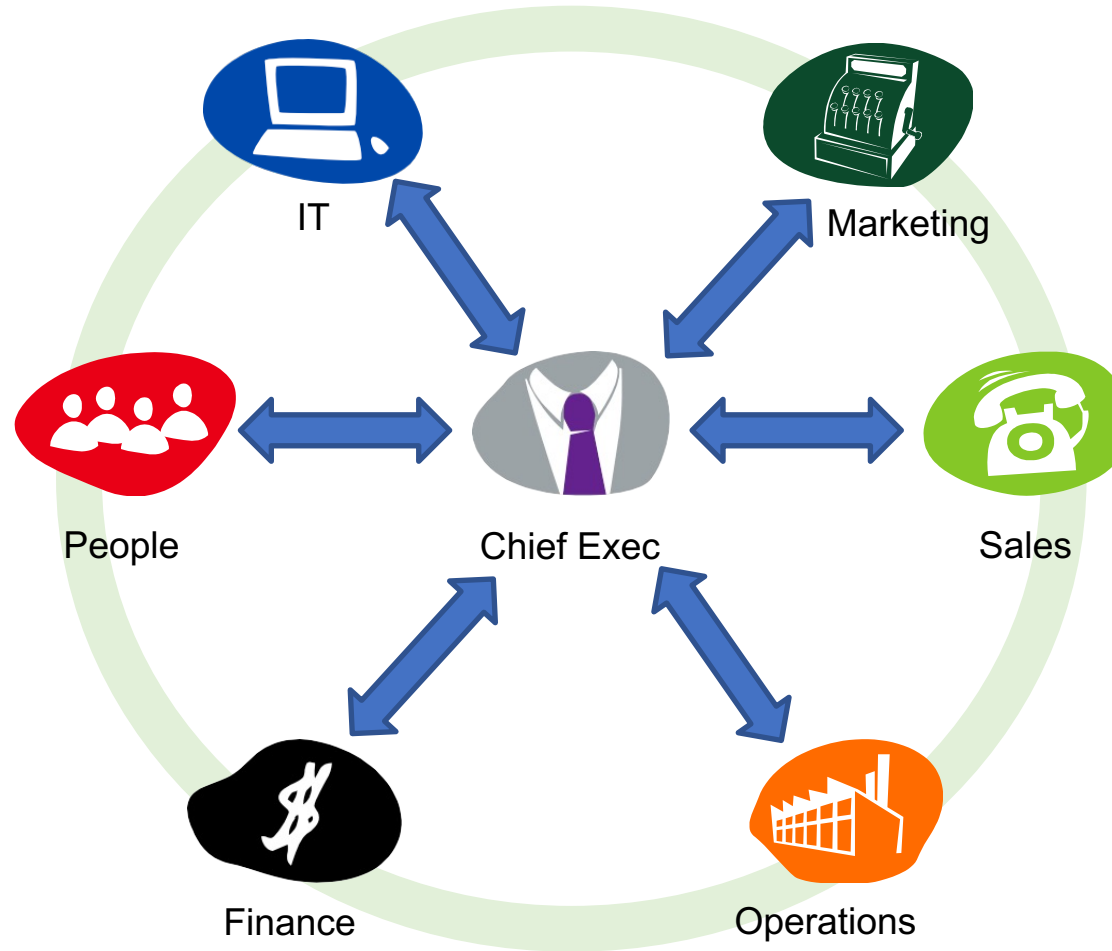
So in order to accelerate digital adoption in the farming sector, how can we mirror relevant aspects of the large corporate model, scaled down to meet smallholder farmer needs?



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HOW DO SMALL BUSINESSES MANAGE COMPLEXITY?



Small business owners generally, and small farming business owners in particular, already have enough complexity to deal with.

But in small farming businesses, they also have soil management, crop growth and health, pest control, weather uncertainty (getting even less predictable with climate change), being price takers rather than price makers, and more...

So what is an alternative approach we can look at to stimulate fresh thinking, fresh perspectives, and fresh resources, to bring about an increase of digital adoption in family-owned farms globally, at pace and scale?

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A PROVOCATIVE QUESTION TO STIMULATE FRESH THINKING



Traditional Approach



Move expertise to the person with the job to be done



Contrarian Approach



Move the job to be done to the person with the expertise



This is Consulting, Mentoring, Coaching

This is Delegation

Consider this – what if rather than mainly focusing on getting farmers to understand, comprehend, analyse, afford, implement, maintain and use technology, we were to add the option of a new market sector of specialists delivering technology outcomes to 10, 20, 50, 100 farms, on a “time-share” basis?

Might that enable 50 million, 100 million, 200 million more farms to extract maximum value from AI and IoT across the world, at minimum cost, time and risk? A concept to ponder...

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