

# Workplace Technologies of the Future

presented by  
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# About the Presenter

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(or google "Dennis Viehland")



Each of my three careers have included a focus on technological innovation – investigating what is new and what is coming next.

# Context for this Presentation

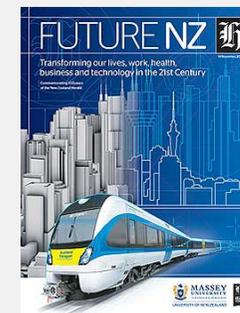
Some organisations have already started their transformation into highly mobile workplaces, while others are struggling to understand what the future means. –*Future NZ*, page 12



Professional employees will work outside the traditional office in places they choose or need to be to do their work. –*Future NZ*, page 12



Technology also puts pressure on workers to work longer hours – we already see this happening with smartphones. This trend will continue. –*Future NZ*, page 13

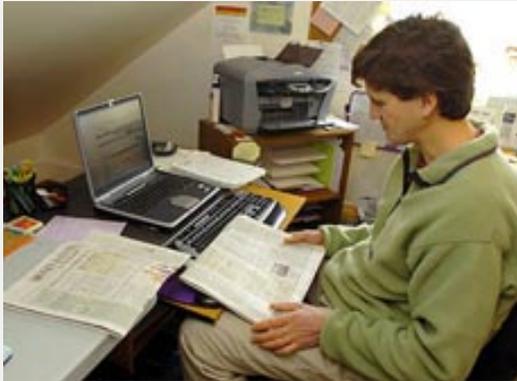


# Presentation Outline

- Remote work
  - What is remote work?
  - Drivers, benefits, challenges
- New workplace technologies
  - Broadband
  - Cloud computing
  - Smart phones: BYOD, security,
- What is next?
  - Wearable computing
- Open Forum

# Telework: The Changing Workplace

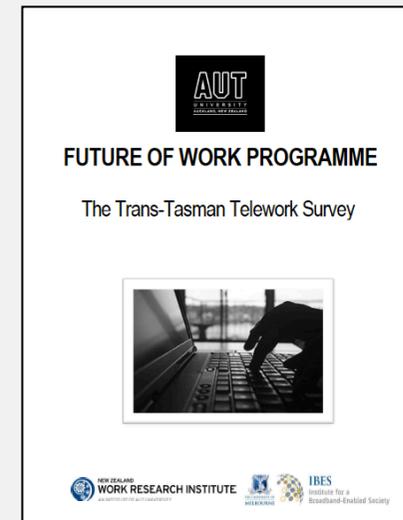
- Telework: The use of *telecommunications* technology to *work* away from the office.



- Forms of telework:
  - Telecommuting: work at home 2-3 days a week
  - Satellite office: work at CBD office or regional office
  - Remote work: work anywhere

# Telework in New Zealand

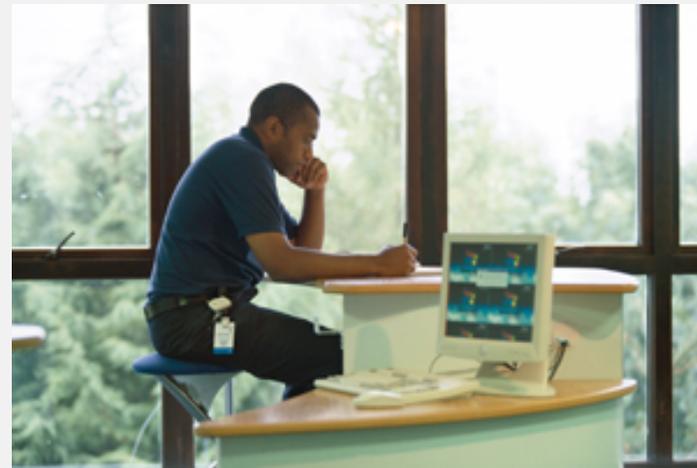
- How many teleworkers in Australia/NZ?
  - 11%: no telework
  - 35%: low intensity teleworkers (<1 day per week)
  - 38%: hybrid teleworkers (1-3 days per week)
  - 16%: high intensity teleworkers (>3 days per week)
- Where do they work?
  - 85%: at home
  - 4%: satellite centre/subsidiary office
  - 11%: elsewhere
- Does their boss know?
  - 47%: yes, but no formal agreement
  - 22%: formal agreement



Source: *Trans-Tasman Telework Survey*, AUT, October 2013.

# Remote Work

- Welcome to the world of remote work!  
A world in which work occurs in various places.
- Vodafone NZ and Hewlett Packard NZ have introduced remote work practices in their Viaduct Basin buildings to:
  - Reduce real estate costs
  - Reduce operating expenses
  - Inspire workforce agility
- At Vodafone the staff are homers, phoners, zoners and roamers.



An office for remote work includes touchdown stations like this for brief work periods while in the office.

# What Trends are Encouraging Remote Work?

## B4 remote work (past)

- 9-5 office hours
- Landline telephones
- Desktops
- Wired network
- Hard copy storage
- Pass paper around
- Work comes first
- Banks close at 4pm

## Remote work (now)

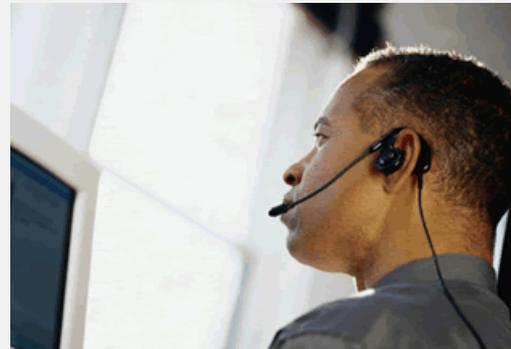
- Flexible office hours
- Mobile smart phones
- Laptops, tablets
- Wireless networks
- Online document storage
- Shared documents
- Work/life balance
- Internet banking

# How Businesses Benefit from Remote Work

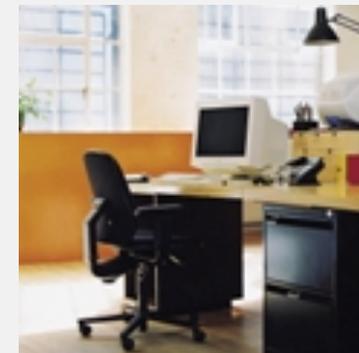
- Improved quality of work
- Increased productivity
- Enhanced recruitment and retention
- Space (real estate/office) saving
- Reduced operating costs
- Less employee absenteeism
- Better customer service



Better recruitment



Remote workers can extend customer service hours



Reduced absenteeism

# Business Continuity

Consistently, interest in remote work increases dramatically in the aftermath of a disaster

- Los Angeles earthquake of January 1994
- Auckland electricity blackout of January 1998

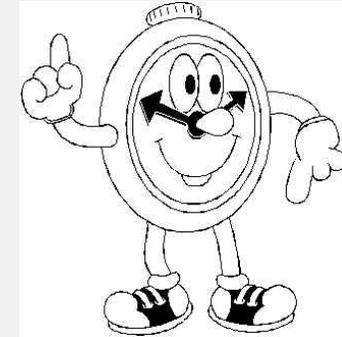


Remote work can help sustain your business through:

- A pandemic
- A disruption in power supply
- A natural disaster
- An extreme weather event

# How Individuals Benefit from Remote Work

- Time savings
  - Less commute time
- Cost savings
  - Lower petrol bills and car maintenance
  - Casual clothes and lower laundry costs
- Better health
  - Reduced exposure to sick workplaces
  - For most teleworkers, less stress
- Home and family
  - More time with family
- Taking control
  - A flexible work schedule in hectic modern life
- Overall, better work/life harmony



# What About Work/Life Balance?

- Work/life balance
  - The ability to balance the demands – time, emotion, behaviour – of both paid work and family responsibilities
- Most studies suggest remote work supports work/life balance
  - “Work-life balance has been positive.... They like the flexibility... it allows them time to do private stuff.”
- But, an inability to separate work within the home may reduce work/life balance.
  - “You can end up working too much. It’s easy to get caught up in it. You need to be self-disciplined.”



Source of quotes: *Trans-Tasman Telework Survey*, AUT, October 2013.

# How Society Benefits from Remote Work

## Benefits for community and government

- Reduced traffic congestion / air pollution
- Increased community participation
- Increased work opportunities for special people



"In a country that moans about low productivity and is searching for new ways to increase it, the single most unproductive thing we do is to transport thousands of workers back and forth across the landscape every morning and afternoon."

- paraphrased from Alvin Toffler



# Why Doesn't Everyone Do Remote Work?

- If there is such a compelling business case for remote work, why doesn't everyone do it?
  - If I let Mary work remotely, will Joe want to do so too?
  - How do I measure work that I can't see?
  - How do I compensate remote work?
  - Its never been done before.
  - What if something goes wrong?
- These are legitimate concerns. They don't prevent remote work, they just have to be managed.



# Challenges for Remote Workers

For those to do remote work, the problems include:

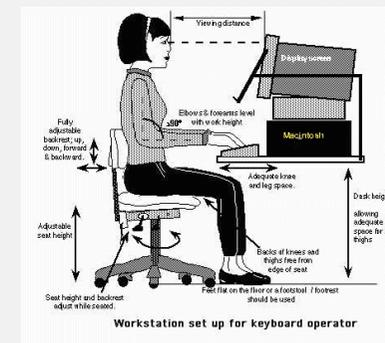
- Isolation from fellow workers
- Lack of recognition
- Distractions
- The right information technology
- Health and safety issues



Children, spouses, noisy environment, etc. create non-productive remote work.

Solutions to these problems include:

- Seek opportunities for employee contact, office visits
- Focus on deliverables, not activities
- Seek work-friendly environments
- Make IT support a priority
- Conduct regular reviews of work environments



# Technologies for Telework

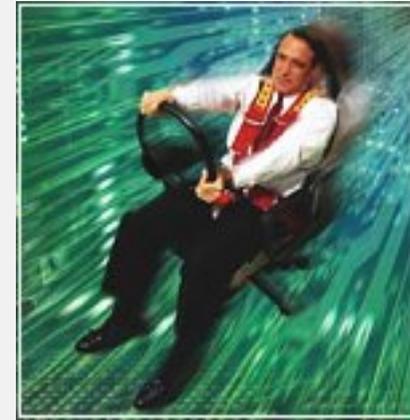
- Technologies available to teleworkers:
  - 89%: email
  - 83%: laptop or notebook
  - 76%: mobile phone
  - 75%: remote access to intranet
  - 69%: broadband connection
- Technology support:
  - 64%: provided by the organisation
  - 19%: shared
  - 17%: provided by the teleworker
  - 67%: technical support is available when I need it



Source: *Trans-Tasman Telework Survey*, AUT, October 2013.

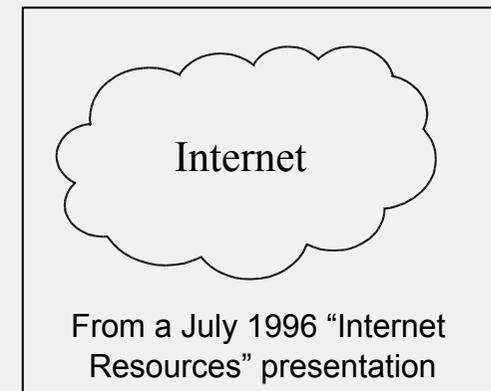
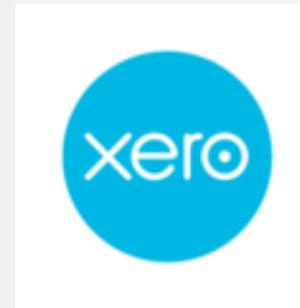
# Ultra-Fast Broadband

- What defines ultra-fast broadband:
  - Fibre optic cable to the home
  - 100Mbps download and 50Mbps upload
- Benefits for business
  - Faster exchange of large data files
  - High definition video conferencing
  - Faster and more reliable cloud computing
- Benefits for homes
  - Faster speeds, especially upload, for working at home
  - Improved access to online movies and television
  - Faster/reliable remote backup, VoIP telephone, etc.
- Schools are a major benefactor of UFB



# Cloud Computing

- What is cloud computing? Hosting ICT resources on the Internet. Forms:
  - Software as a Service (SaaS): Xero, Google Docs
  - Data in the cloud: store, share and backup data
  - Private cloud: enterprise specific, can be Infrastructure as a Service (IaaS)
  - Public cloud: shared by others
- Why “cloud”? From early depictions of the Internet as a cloud.



# Cloud Computing: Pros and Cons

- Why is cloud computing important now?
  - Web applications, networks and computer interoperability are mature to support it
  - Saves money (capital investment), increases flexibility, scalable infrastructure
- What are the downsides?
  - Security: unauthorised access, data loss
  - Performance: quality of service, service outage
  - Management: loss of control over data services
  - Compliance: legal, budget and insurance
- Cloud vendors should be judged on security, scalability, availability and cost-effectiveness.



# The Cloud Rolls In

Nevertheless, cloud computing is increasing

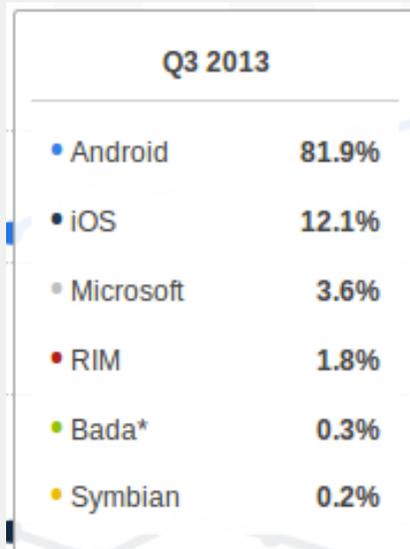
- NZ Post has put 2,000 staff on Google Drive to save \$2 million.
- NZ government has issued a notice of intention for an IaaS (private cloud) environment.
- Xero has experienced dramatic growth since 2009.
- Cloud computing will drive a shift in the application of IT, but most NZ companies will see the full impact in a few more years.



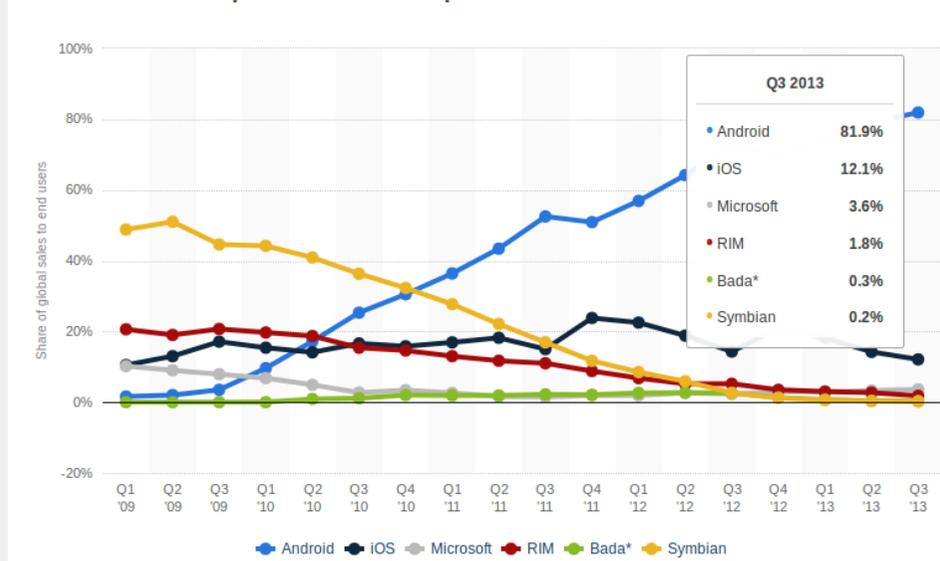
A SAAS provider, Xero has achieved very rapid growth.

# Trends in Smartphone Operating Systems

- In the international business market (2011)
  - 95% of mobile workers have smartphones (85% in 2010)
  - 42% of workers use personal phones for work (33%)
  - 45% of workers use an iPhone (31% in 2010)
- What phone?



Global market share held by the leading smartphone operating systems in sales to end users from 1st quarter 2009 to 3rd quarter 2013



# BYOD: Bring Your Own Device

- What is BYOD?
  - Use of employee-owned devices to access business data (also known as consumerisation of IT)
- A 2011 survey of 25 large NZ businesses found:
  - 35% of companies allowed BYOD
  - 51% of employees were practising BYOD
  - “unofficial bring-your-own-technology is rife”
- BYOD occurs across the enterprise, but is critical in remote work considerations



Source: “Boss and Workers at Odds on New Tech”, *Computerworld*, 16 September 2011.

# Drivers for BYOD

- The consumerisation of IT is driven by:
  - Workers already have latest, most powerful devices
    - In this century, consumer IT leads business IT
  - Tech-savvy employees push back against IT department
  - The line between work and home is increasingly blurred
  - In tight budgets, BYOD is seen as cost effective
    - Total cost of ownership is anecdotal, at best
- **BYOD is seen as enviable. What to do?**



We want to use our  
consumer technology at  
work, and we want it now!

Source: "Why CIOs Can't Ignore Consumerisation of IT", *CIO New Zealand*, 3 March 2011.

# Solutions for Mobile BYOD Management

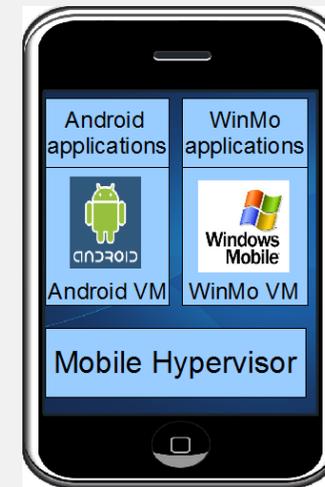
- Have a policy.
  - An ostrich approach won't work
  - “No BYOD” may increase risk
- Support a small range of the most popular devices
- Define approach to ownership
  - Shared management allows BYOD access on IT's terms
- Don't treat every employee the same
  - Implement user profiles for different levels of control
- Plan for 6-9 months refresh rate
  - Acquisition of new device will be driven by employee



Sources: *Mobile Device Management Deep Dive*, InfoWorld Special Report, November 2011.  
*Bring Your Own Device (BYOD) to Work....?* by Farida Bambot, 3 February 2012.

# Security in a BYOD World

- Broad principles of a secure policy:
  - Set different security for different classes of employees
  - Balance access versus security
- Security measures to consider:
  - Device password security
  - Encryption
  - Allow data processing, not storage
  - Desktop virtualisation for dual use
  - Over-the-air device wipe
- Deploy mobile device management software
  - Gartner recommends Sybase, AirWatch and MobileIron



Virtualisation software allows personal and business apps to run on the same phone.

Sources: *BYO Device: How to Handle Consumer Gadgets in Your Workplace*, Silcon.com, not dated.  
*Magic Quadrant for Mobile Device Management Software*, Gartner, 13 April 2011.

# Securing Your Smart Phone

What can you do to protect your own phone?

- PIN lock: activate PIN security and keep the PIN secure.
- Antivirus app: your smartphone is a computer; it needs protection.
- Locate and lock software: if lost or stolen, be able to lock it, find it and/or wipe it.
- Back it up: or risk losing contacts, photos, calendar, etc.
- Approved apps: install apps only from reputable app stores – Google, Microsoft, Apple are best



Source: "Rise of the Machine", *New Zealand Herald*, 22 February 2014.

# Get Ready for Wearable Computing

The next technology cycle will be wearable devices – part of ubiquitous computing

- Google Glass
  - Internet access on your face for face recognition, take a picture, driving directions, translation, etc.
- Wearable wristbands
  - Activity tracking, phone hook-up, basic information
- Smart watches
  - Check email and texts, weather, what time is it



COURTESY: GOOGLE



A video on wristbands:  
Razer Nabu: Live Smarter



# Open Forum

- Questions?
- Comments
- Discussion

