

# Strengthen your business by good work design

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Workplace Health and Safety Queensland

21 May 2019

# Newcastle Show – established 1902

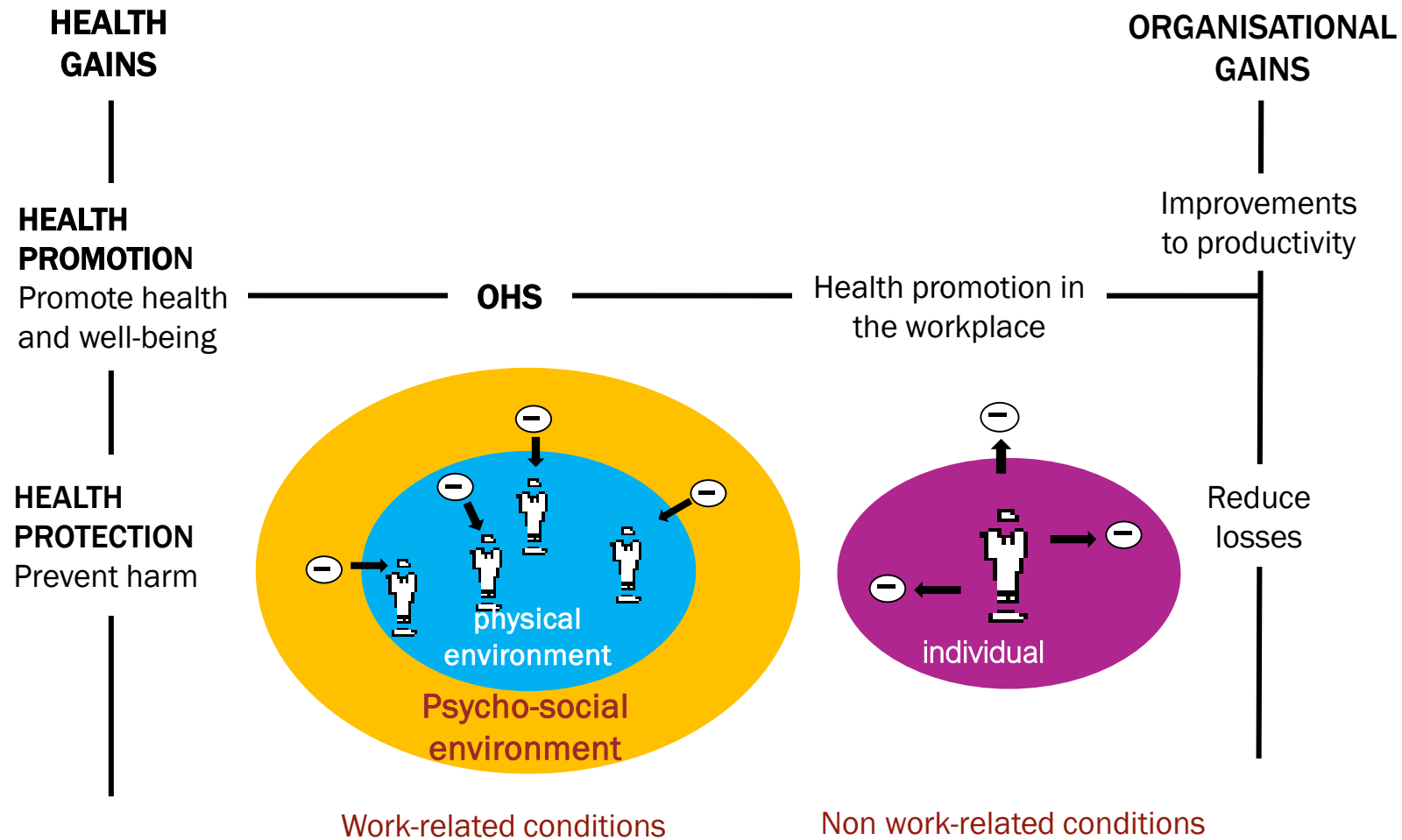
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“ As work and work environments change to meet the demands of the 21st century, comprehensive approaches are needed to address complex realities.

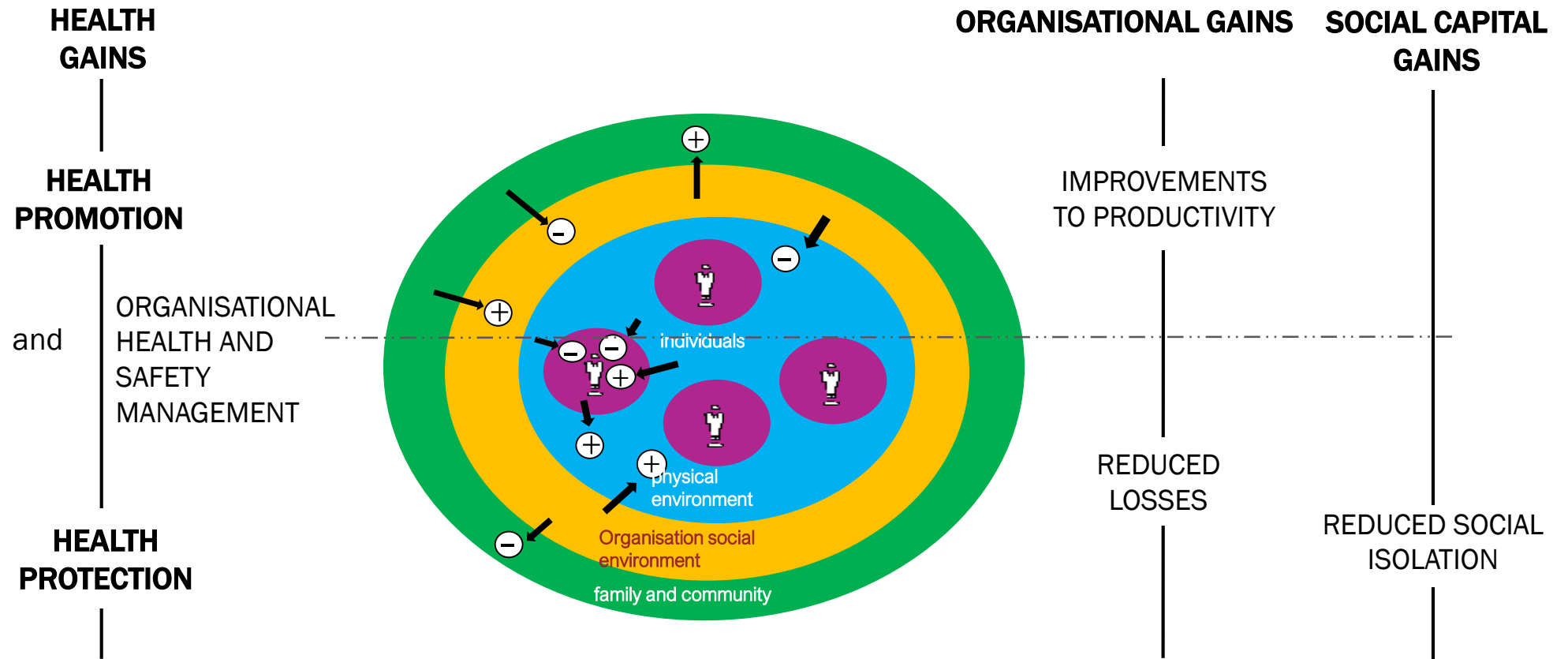
Total Worker Health website, NIOSH, CDC, Dec 2018

# Traditional OHS: Injury prevention



Ellis, OUP, 2001

# Integrated approach to WHS



Ellis, OUP, 2001

# Hypothesis of mechanism

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Employees who feel that workplace hazards are ignored may be understandably unreceptive to employer advice about their activities during personal time.

Conversely, managers have blamed MSDs and CVD on worker obesity, smoking, and other personal risk factors.

Combining the two sets of concerns may offer an equitable solution to this impasse by facilitating the sharing of responsibility between workers and employers.

Punnett, L. et al, A Conceptual Framework for Integrating Health Promotion and Occupational Ergonomics Programs, Public Health Reports, 2009

# WHS in the 21st century

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## AN EXPANDED VALUE CHAIN GOES BEYOND ABSENCE OF INJURY

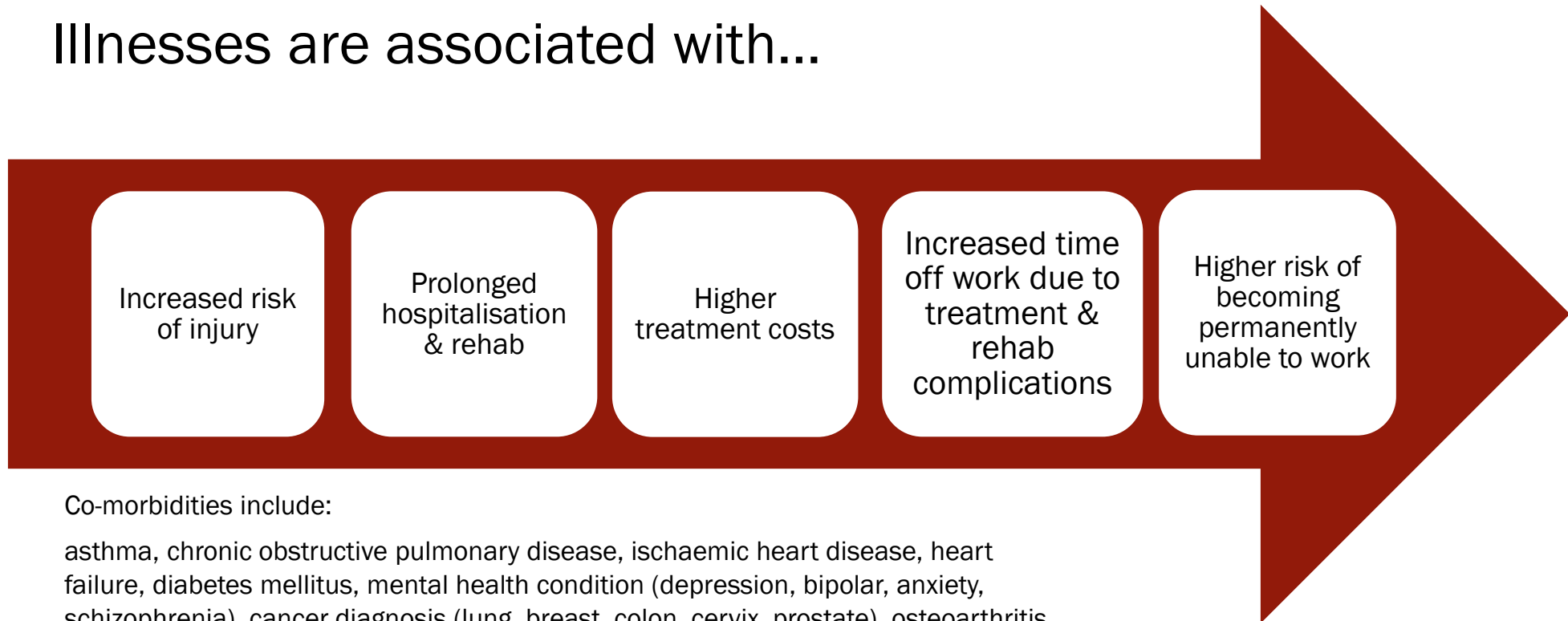


Slide courtesy of Anne-Marie Feyer

# There is a relationship between health and injury

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Illnesses are associated with...



Source: Gribben & Wren, 2012



# Presence of 1+ health conditions showed:

**28%**

more claims

**346%**

higher lump sum  
payments

**59%**

higher medical  
treatment costs

**39%**

more weekly  
compensation costs

**59%**

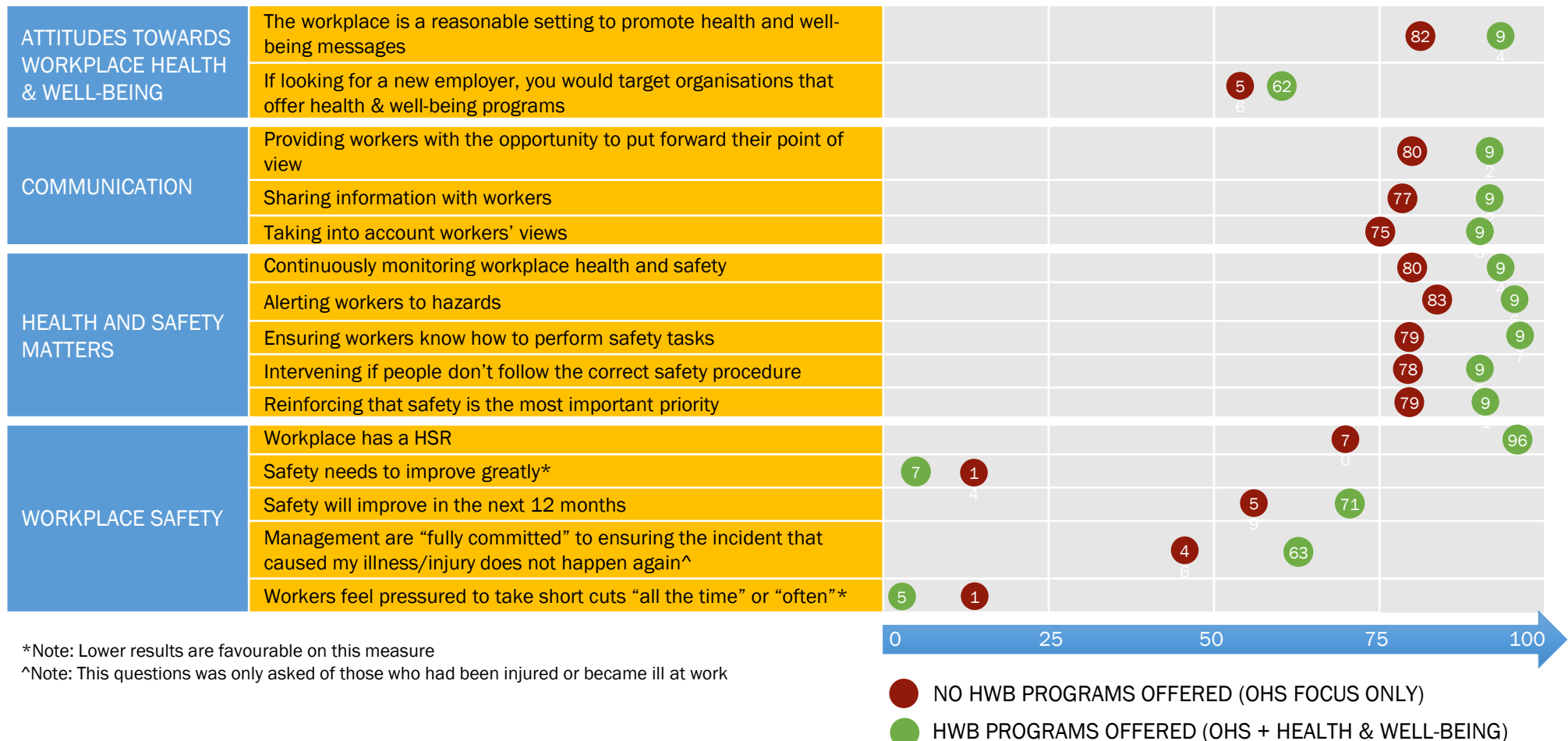
more total ACC costs  
overall across all cost  
categories

**10.7%**

of total ACC expenditure  
p.a. directly attributed to  
the presence of the most  
common co-morbidities  
(\$276m NZD 2011)

Source: Gribben & Wren, 2012

# In Victoria, workplaces with WHP as well as OHS had better safety cultures, not worse



\*Note: Lower results are favourable on this measure

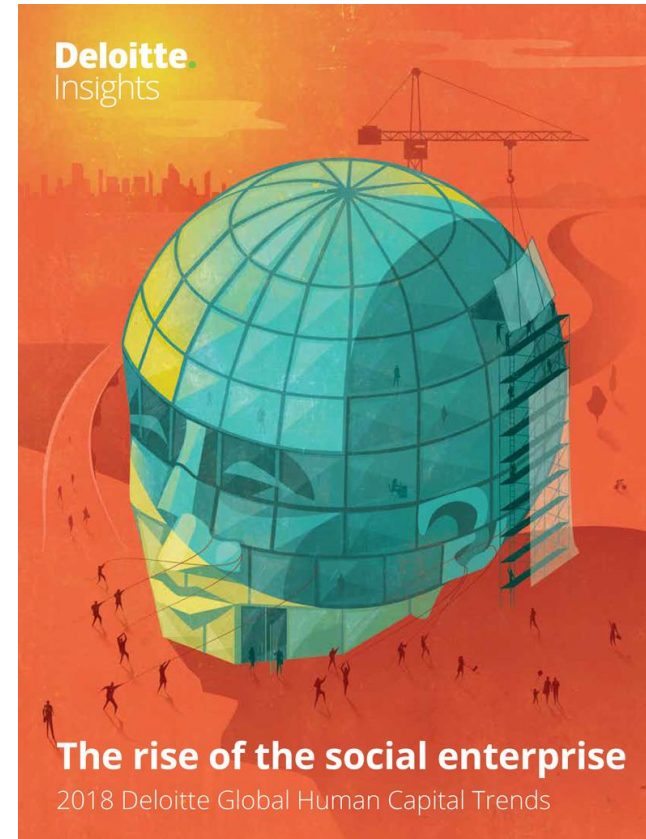
^Note: This questions was only asked of those who had been injured or became ill at work

# Benefits of integrated approach

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Business rationale:

- Increase worker productivity
- Meet new social expectation.



Source: Deloitte, 2018

<https://www2.deloitte.com/insights/us/en/focus/human-capital-trends/2018/employee-well-being-programs.html>

# Let's say you are a medium-sized logistics company

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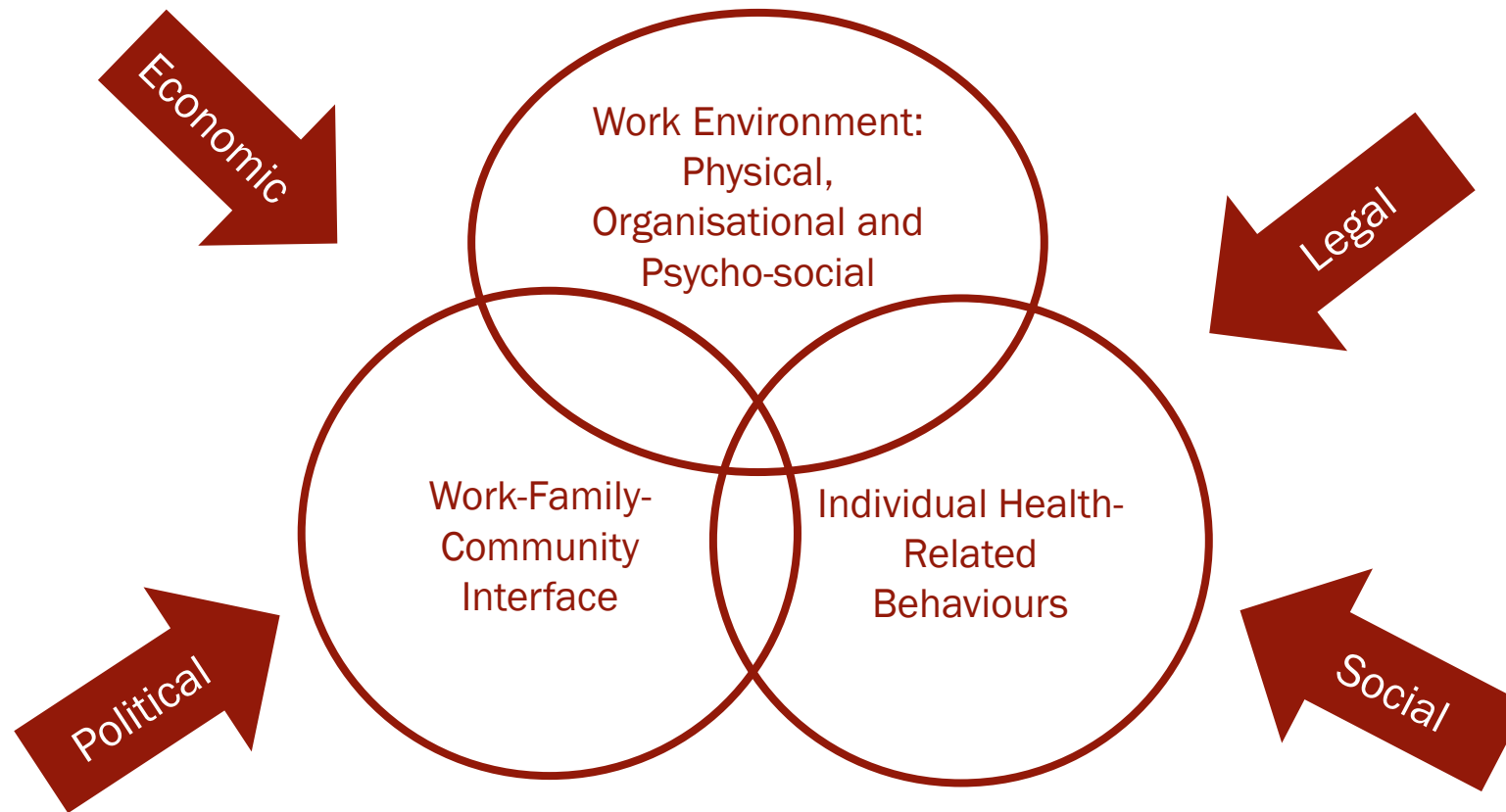
- Your LTIFR is OK, but it has plateaued
- Keeping it there is becoming a problem – people are becoming complacent
- Your safety program is pretty good. The drivers and pickers are ageing; you do health checks for them, and you know the results are not good, but the mainly middle-aged men are not really interested in the workshops and pamphlets on diet, exercise and quit smoking and sensible drinking
- Your WHS is largely oriented to the warehouse and trucks, you would like to do more for the admin staff
- The organisation has just been rocked by a suicide...

**What do you do?**

# Evidence based model for an integrated approach

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## INTERVENTION TARGETS FOR WORKER HEALTH AND WELLBEING



Source: NIH and CDC workshop, 2010, Am J PH

# An integrated approach to work-related stress could include:

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- Implementing policies for more flexibility and control over their work and schedules for workers, as well as opportunities to identify and eliminate root causes of stress
- Providing training for supervisors on approaches to reducing stressful working conditions
- Providing skill-building interventions for stress reduction for all workers and providing access to Employee Assistance Programs.

Source: <https://www.cdc.gov/niosh/twh/default.html>

# An integrated approach to MSDs could include:

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- Reorganising or redesigning the work to minimize repetitive movement and awkward postures
- Providing ergonomic consultations to workers to improve job and workstation design and interfacing, along with ergonomic training and opportunities for workers to participate in design efforts
- Evaluating the age profile and health needs of the workforce to provide education on self-management strategies (including preventive exercise) for arthritis or other musculoskeletal conditions.

Source: <https://www.cdc.gov/niosh/twh/default.html>

# Work health and wellbeing toolkit

Strengthen your business



1. Plan

2. Implement

3. Evaluate

WorkCover  
QUEENSLAND





“ As work and work environments change to meet the demands of the 21st century, comprehensive approaches are needed to address complex realities.

Total Worker Health website, NIOSH, CDC, Dec 2018

# Six megatrends important for WHS

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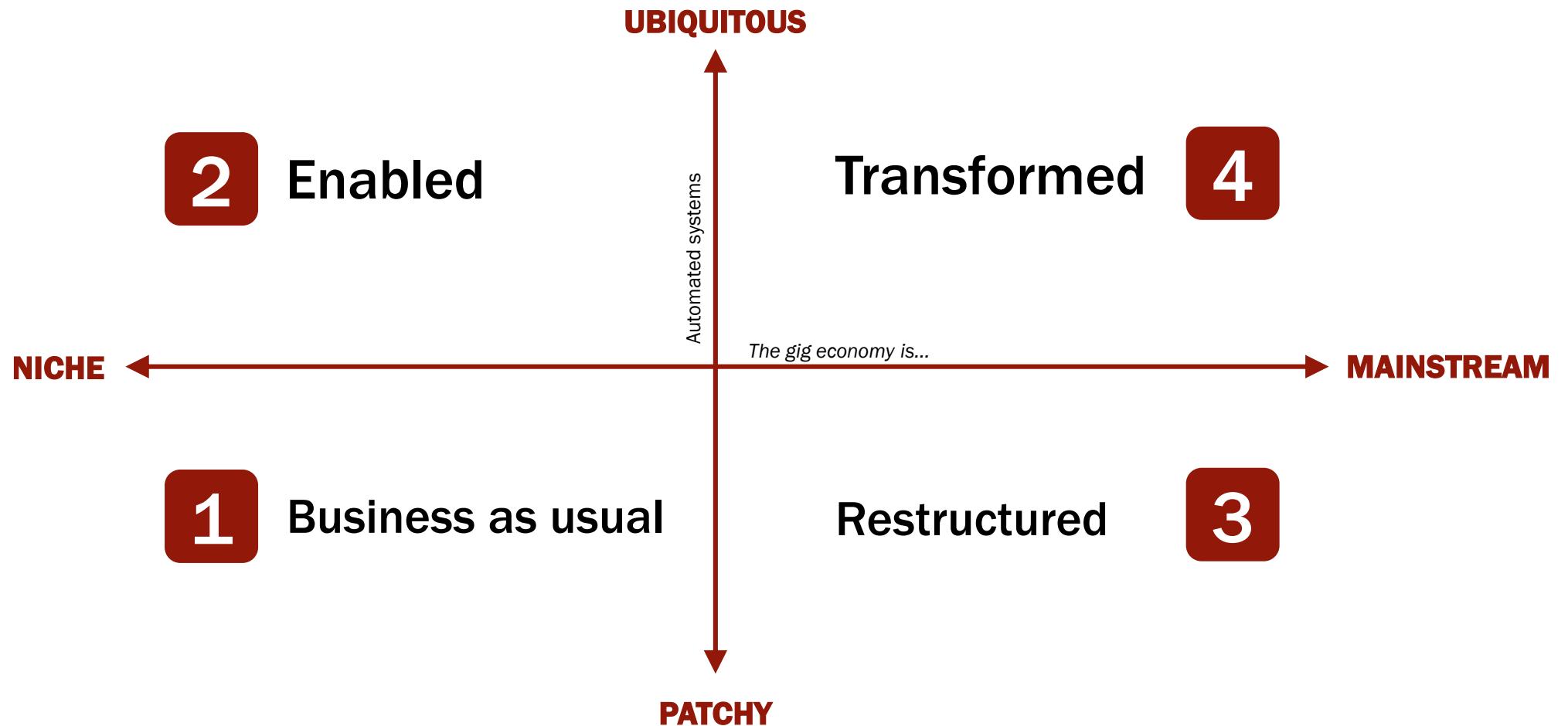
1. The extended reach of automated systems and robotics
2. Rising issue of workplace stress and mental health issues
3. Increasing screen time, sedentary behaviour and chronic illness
4. Blurring the boundaries between work and home
5. The gig and entrepreneurial economy
6. An ageing workforce



Source: Workplace Safety Futures, Safe Work Australia, Data 61, CSIRO, 2018

# Scenarios for Australia's workforce in 2037

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Source: Workplace Safety Futures

# Scenario 1. Business as usual

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In this scenario:

- Automated systems have had limited and patchy impact
- Gig economy not disrupted models of employment significantly.

BUT this does not take into account disruption occurring now because of the rise of mental health and ageing workforce.

# Productivity Commission Inquiry: Social and Economic Benefits of Improving Mental Health, Oct 2018

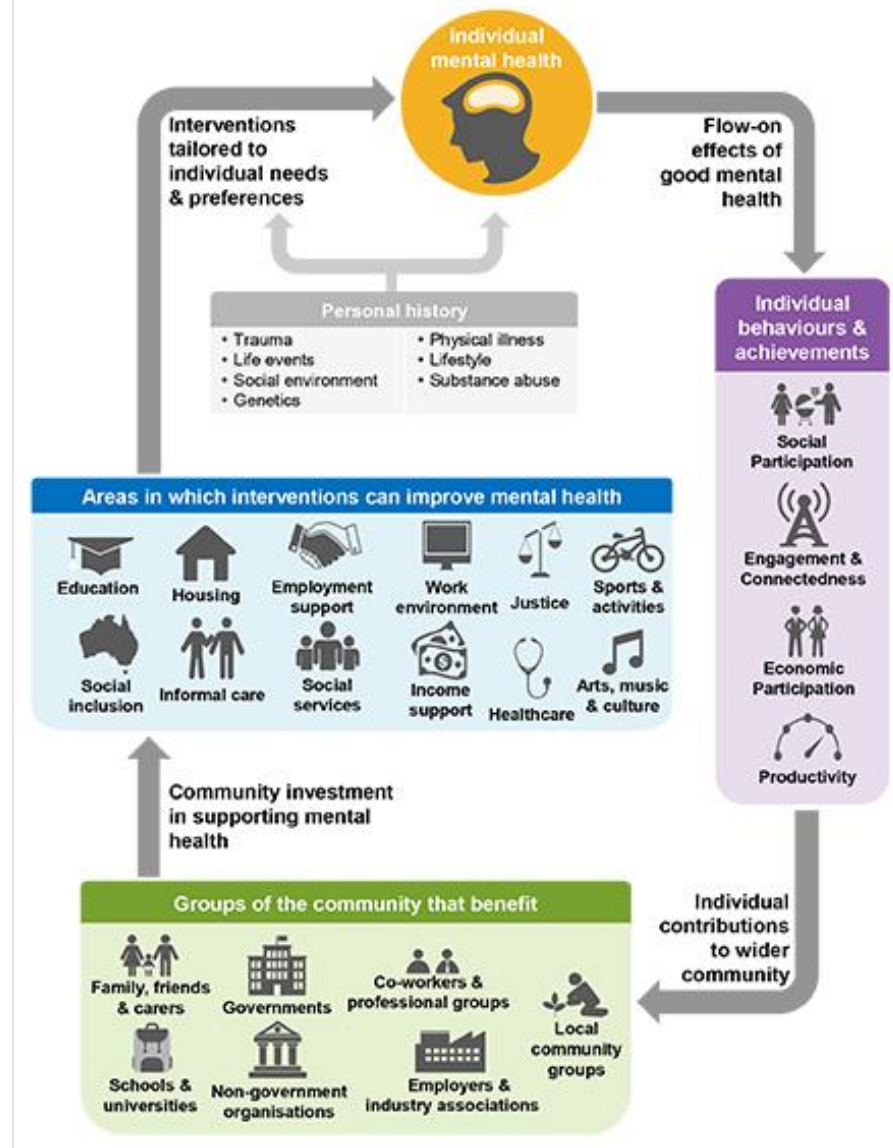
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- 4 million Australians experienced common mental illness 2014–15
- Single largest contributor to years lived with illness.



Source: Productivity Commission issues paper, Jan 2019  
<https://www.pc.gov.au/inquiries/current/mental-health/issues>,

Figure 1 Improvements in mental health can benefit both individuals and the wider community



Source: Productivity Commission issues paper, Jan 2019

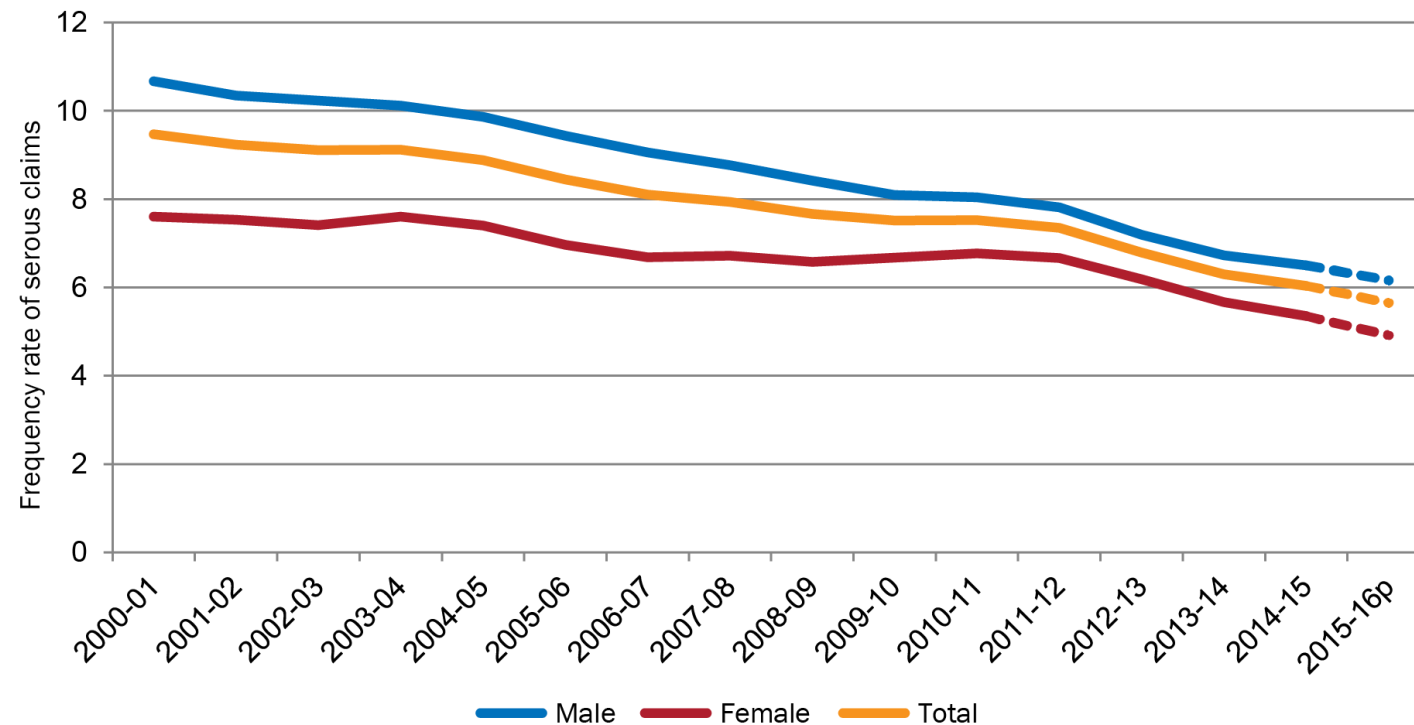
# Scenario 2: Enabled

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Work is changed significantly by digital and other technologies which automate a large number previously performed by humans, but employment models are roughly the same.

# Historically automation has helped our cause

2000/01 – 2015/16



Source: Australian Workers' Compensation Statistics 2015/16, Safe Work Australia

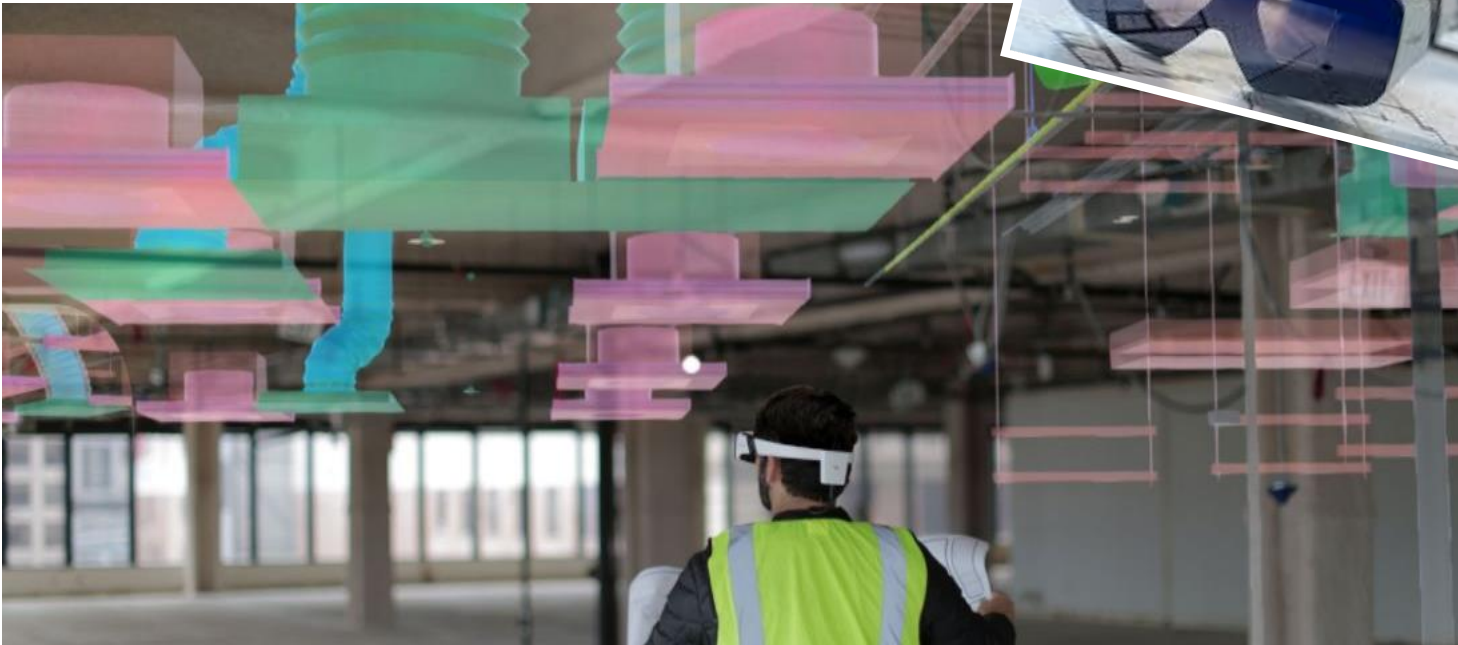


# In the future IoT can help eg: Daqri AR

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Augmented reality solution:

- Glasses
- Scan of the environment and models
- Central computer & supervisor.



Slide courtesy of Monica Schelessinger

# But it can go badly wrong

**Repetition strain injury: medicine barking up wrong tree**

By a senior surgical specialist working in the AGT

ONE of the recurring themes in medicine is how mislabeling of diseases leads to incorrect treatment. "Malaria" (Latin meaning "bad air" came from the idea that the cause of the disease was a "miasma" which emanated from, for example, malarious swamps. In order to prevent malaria, people were encouraged to close their windows at night. We now know that malaria is caused by an infection.

Much of the same can be said for that group of diseases best described as occupational strain injury.

"Tenosynovitis" was the first moniker applied to the condition. It led to a whole series of inappropriate treatments. The same applies to the concept embodied by the latest moniker — repetitive (or repetition) strain injury. This has led to the focusing of attention on the wrong aspects of what is in fact a disease of muscles caused primarily by interference with their blood supply.

Whether the impairment produced by such prolonged isometric contraction is one affecting muscle fibres, or the nerves as they join the muscle fibres or the blood vessels, is something which is as yet undetermined. My own hunch is that there is some permanent impairment in the ability of small blood vessels to supply blood as required during activity as the result of prolonged isometric contraction.

Let us test this hypothesis. If the concept is correct, the muscles most affected would be those which are involved in repeated contraction and relaxation (isotonic contractions). And that is precisely what we find to be the case.

Thus, the main muscle groups affected are those which produce extension of the wrist joint, flexion of the elbow and slight separation of the arm from the trunk (abduction at the shoulder joint). It is not these muscles that are most affected.

(this is a particularly badly designed piece of equipment). Musicians also use a kind of keyboard. Woodwind players hold their arms away from the sides of their bodies for hours on end. Some forms of incessant writing or checking work. Biro pens require a lot of pressure during use. Thirdly, it suggests that there would be an easy method of avoiding this condition altogether by radically changing work methods.

**A matter of changing work style**

LEFT: Getting RSI without even using a keyboard. RIGHT: Arm rests and a place to rest the wrists — essential to avoiding RSI.



Source: <https://trove.nla.gov.au/newspaper/article/132374593>

“ It strikes me that having spent nearly 70 years focusing on technical systems, we should be seeking to explore the human and ecology systems more. I think it is a conversation where we absolutely have to .... (put) those pieces back together again, the way people imagined that we should have started in the 40s...”

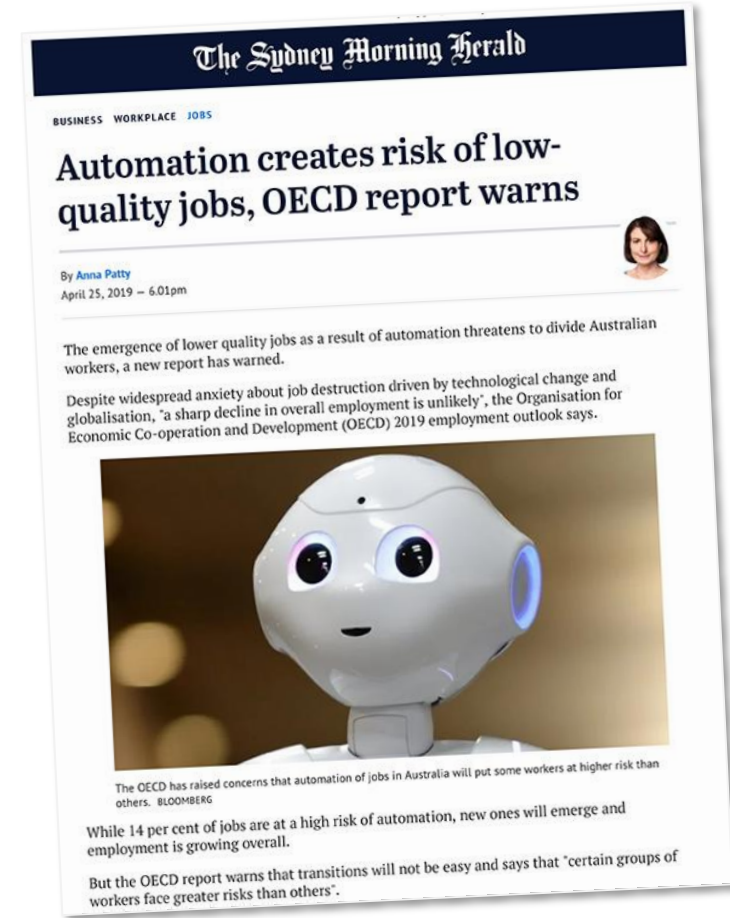


**Genevieve Bell**, Florence Violet McKenzie Chair and Director, Autonomy, Agency and Assurance (3A) Institute, ANU

# OECD warning of decline in quality of work with automation

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- 14% of jobs at risk of automation, but new ones will emerge
- “There are concerns about the quality of some of the emerging new jobs and, without immediate action, labour market disparities may grow”



Source: Warning over automation jobs risk, SMH 25 April, 2019



# Work design

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Source: Safe Work Australia, Good Work Design Handbook

# Scenario 3: Restructured

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- Technology has not had the predicted impact
- However employment changed – most workers have multiple employers, freelancing is the norm, small start-ups generate new jobs.

## Terminal silicosis: Six cases in three weeks prompts urgent government warning to workers

By Josh Bavas and Kristian Silva  
Posted Tue 18 Sep 2018, 4:03pm



PHOTO: Since his diagnosis, silicosis sufferer Garry Moratti has lost motivation and avoids using his tools. (ABC News: Kristian Silva)

**Garry Moratti doesn't mince his words when he explains what will happen if his silicosis gets any worse.**

"It's either a lung transplant or six foot under," he said.

Mr Moratti, 50, has worked as a stonemason his entire career but was forced off the job after he was diagnosed.

Silicosis is an aggressive form of pneumoconiosis, a disease with no cure that traditionally affects coal mine workers.

Mr Moratti had been using engineered stone to build kitchen benchtops and vanities, unaware of the dangers associated with cutting the stone dry.

Even though he wore a mask, he would come home covered in the silica dust after a day's work.

His symptoms now include difficulty breathing and chest pains — he also blames the material for scabs on his arms that regularly flare up.

There was no warning he suffered from silicosis until the day he collapsed on the job.

"It's always in the back of my mind. I don't know if one day I'm going to wake up and be in hospital," he said.

### What is silicosis?

- An incurable and often fatal lung disease caused by breathing dust containing fragments of crystalline silica
- Silica in concrete, masonry, sandstone, rock, paint and other abrasives is released by cutting, drilling or blasting
- Three types of silicosis: chronic (most common) from at least 10 years of exposure; accelerated, from higher exposure levels and 5-10 years of exposure; acute (fatal) from weeks or months of very high exposure

“

...maladies that attack stone-cutters, quarrymen and other such workers...they often breathe in rough, sharp, jagged splinters ...hence they are usually troubled with cough and some of them contract asthmatic affections and become consumptive”

– Ramazzini

# 1713

# Historical and emerging workplaces affected by silica exposure since the 1930 Johannesburg conference on Silicosis

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Factors leading to slow uptake of risk management in the construction industry:

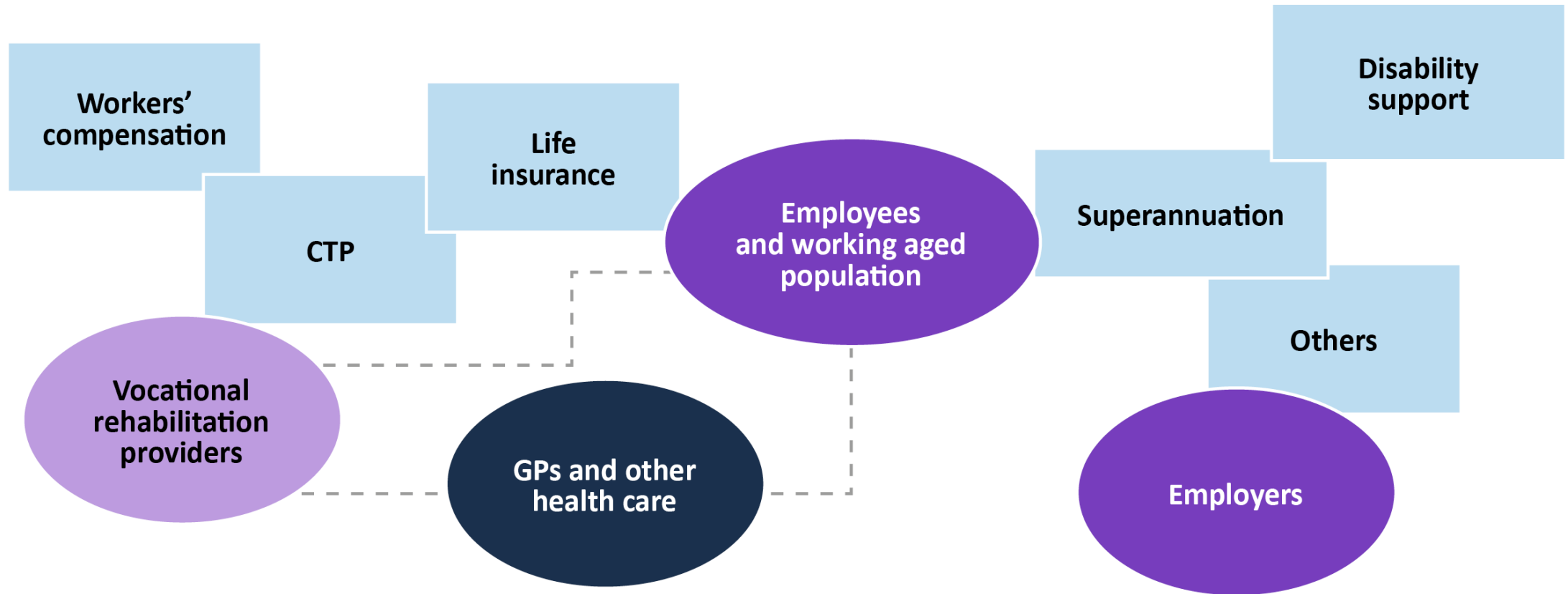
1. A highly mobile and temporary workforce is involved.
2. Construction sites are temporary.
3. Construction firms tend to have five or fewer employees.
4. Silica content of building materials tends to vary, making it difficult to identify both the risk and who's at risk.

Source: Suave, American Journal of Industrial Medicine, 2015  
<https://onlinelibrary.wiley.com/doi/full/10.1002/ajim.22507>



# Systems thinking

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# Partners

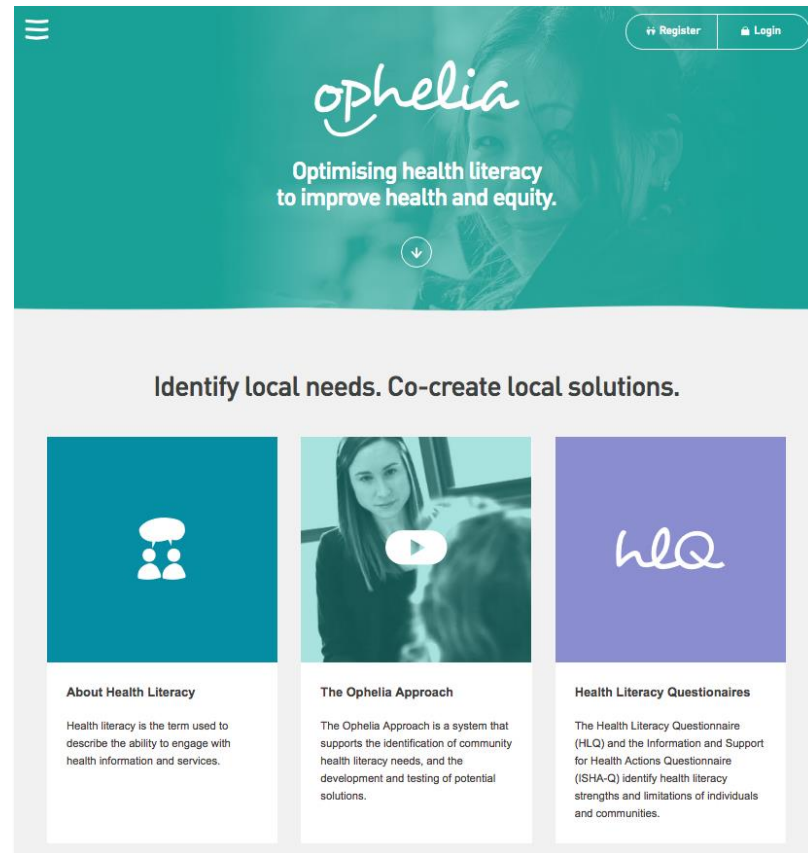
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the  
**COLLABORATIVE**  
Partnership  
*to improve work participation*



# Health literacy theory and practice: potential to be used to empower workers

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[www.ophelia.net.au](http://www.ophelia.net.au)

# Scenario 4: Transformed

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Technology and new employment models have had transformative impact on WHS:

- Peer to peer business models common, most people earn through freelancing and gig work
- Human roles are supervising automated systems, and tasks that focus on creativity, empathy and lateral thinking
- Many organisations are virtual networks
- Mental health and co-bot issues exist, but confounded by changed employment structure.

# Policy issues in WHS and workers compensation

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- WHS laws in the gig economy? Especially allocation of responsibilities
- Collection and use of relevant data?
- Provision of information to gig workers?
- Adequacy of control measures to address use of robots in workplaces?
- Obligations of designers, suppliers etc in advancing autonomous systems, e.g. self-programming autonomous systems?
- Leveraging new and emerging technologies to improve WHS and workers compensation, especially mental health.

Source: Workplace Safety Futures, Safe Work Australia, Data 61, CSIRO, 2018

# Conclusion

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- **The rise of mental illness and the ageing workforce are already disrupting WHS**
  - going beyond the obligation of a PCBU to provide a safe and healthy working environment, a shared responsibility for WHS is emerging.
- **The integrated approach requires a more strategic approach**
  - the Work, Health and Well-being tool kit provides guidance on how to undertake such planning.

Continued...

# Conclusion contd...

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- **Automation is posing a threat and an opportunity to WHS**
  - we are being urged by academics and policy makers to do more to protect/improve the quality of work
  - design of good work is a key issue.
- **Industrial relationships are altered**
  - and the gig economy is likely to see this persist
  - we need to rethink how we deliver WHS
  - enabled, direct to worker solutions likely to become more important
  - we are likely to work in partnerships for collective action.



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