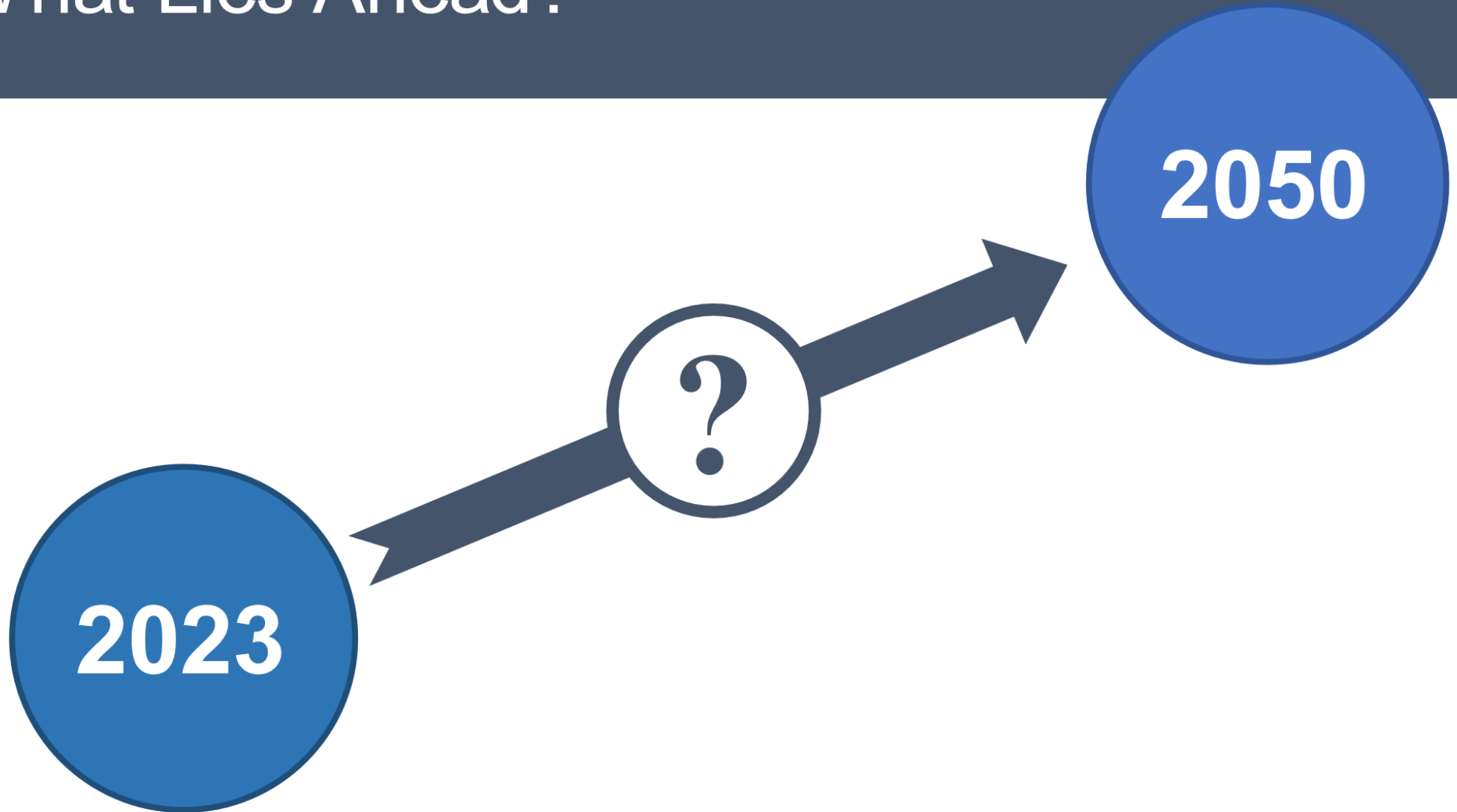


# The Future of Decent Work

12<sup>th</sup> ICOH Occupational Health for Health Workers (OHHW)  
Scientific Committee Conference  
October 25, 2023

Paul A. Schulte, Ph.D., F.A.C.E.  
Advanced Technologies and Laboratories International, Inc.  
Gaithersburg MD, USA

# What Lies Ahead?



# Decent Work



“ Employment that respects the fundamental rights of workers in terms of conditions of work, safety, health, remuneration, and respect for the physical and mental integrity of the worker in the exercise of his or her employment.

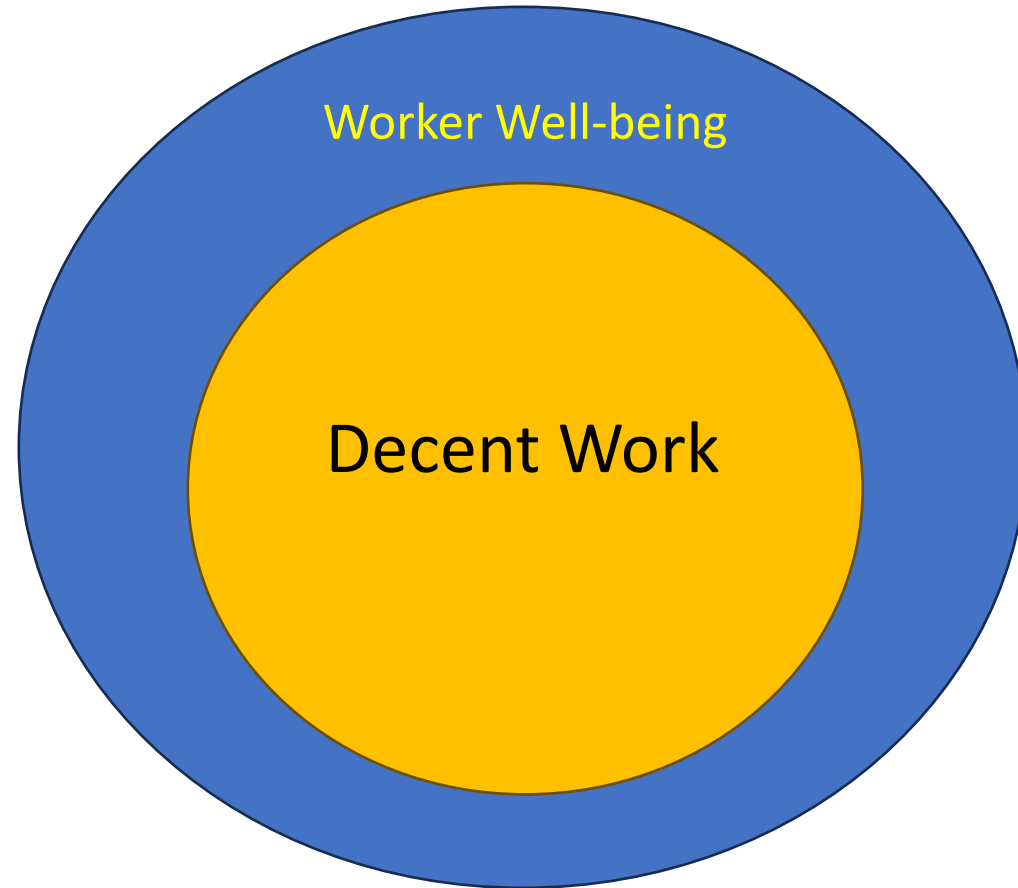
— United Nations, 2015

”

# Decent Work

- 1919 A concept that has evolved since the founding of the International Labor Organization (ILO)
- 1999 Formally promoted by the Director General of the ILO as unifying framework and central priority of the organization
- 2005 At the UN Summit Decent Work : was made a central objective of development strategies for fair globalization
- 2015 Incorporated by the United Nations in the 2030 agenda goals for sustainable development

# Decent Work: Core of Worker Well-Being



See Su and Chan 2023 for data on the link between decent work and well-being.

# Well-Being of Workers

- Aspiring to a good life
- Flourishing
- Characterized by happiness, life satisfaction, positive emotion, self-determination
- Includes health, but goes beyond it
- Related to individual, enterprise, and national productivity

# Work, Health & Well-Being

“

Strong and growing evidence that work, health, and well-being are closely and powerfully linked and need to be addressed together.

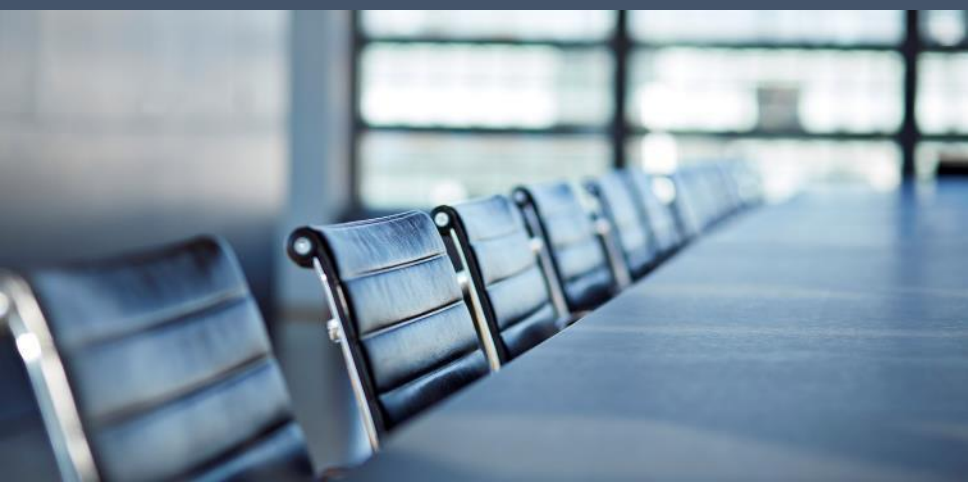
— Black, 2007

”

# Outline of Presentation

- Changing world of work
- Occupational Safety and Health (OSH) staging framework for decent work
- Model for an expanded focus for OSH
- Operationalizing decent work and well-being
- Total Worker Health® and implementation science as paths to decent work





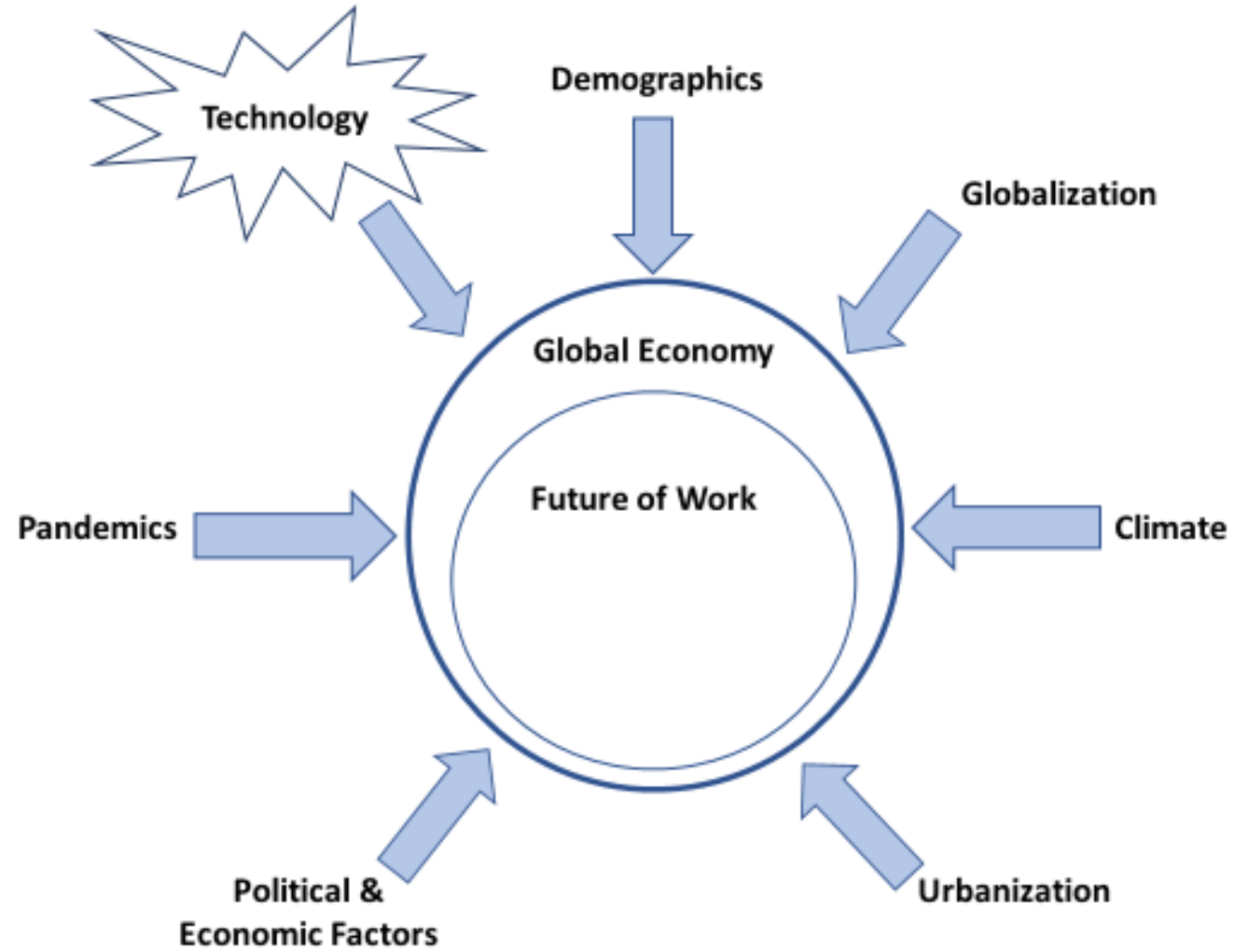
# The nature of . . .

- Work
- Workforce
- Workplace


. . . is changing

- Need an ***expanded focus*** for occupational safety and health to address the changes and the future of work
- That 'expanded focus' can be achieved through use of the concepts **DECENT WORK** and **WELL-BEING**

# Drivers of the Future of Work



# Changing Nature of Work

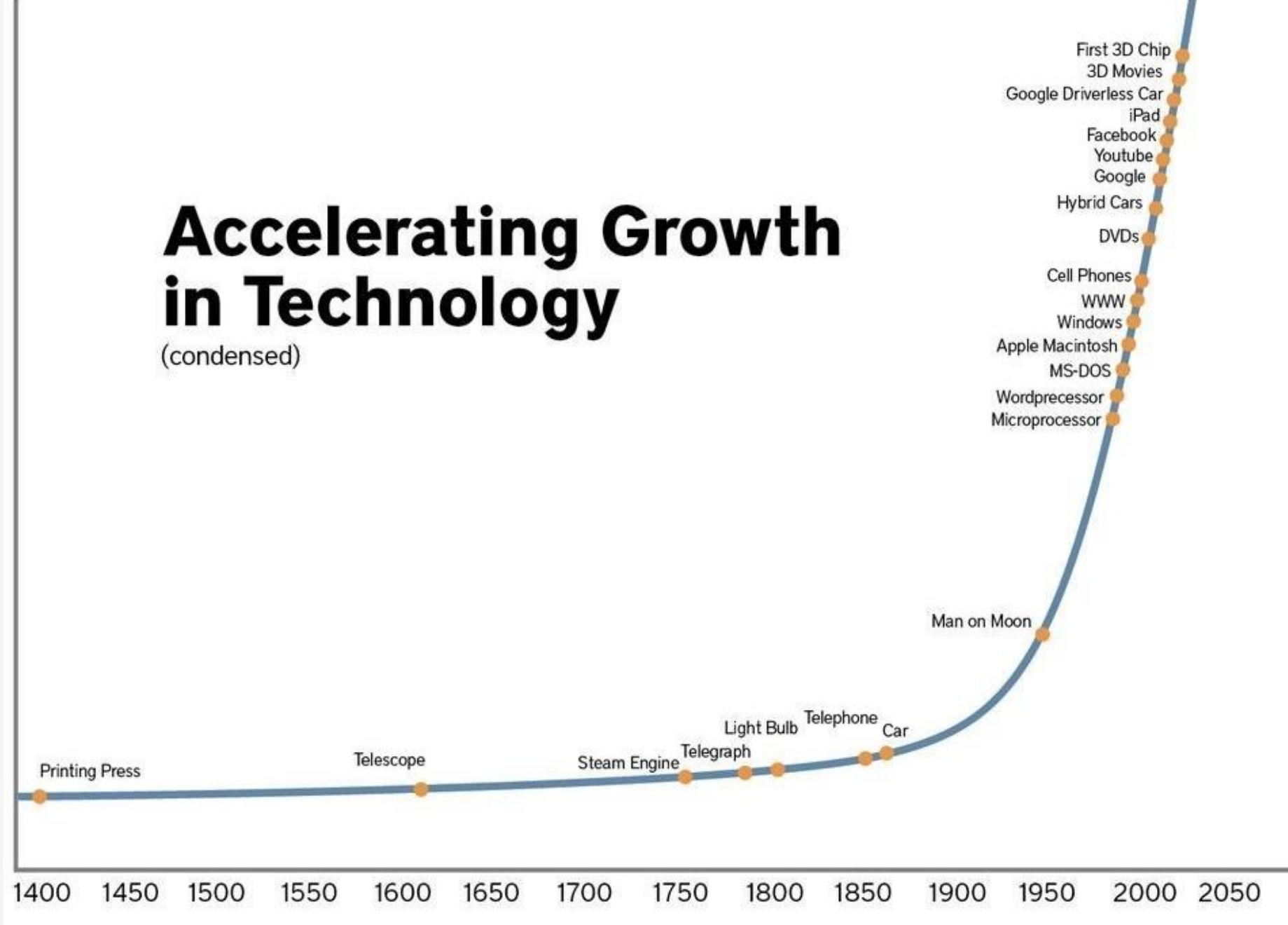
- Physical  Mental
- More Service Work
- Work Intensification
- Digitalization
- Many jobs in a working lifetime
- Accelerating-technological impacts
- Employment disruption
- Convergence of technologies

# Changing Nature of Work

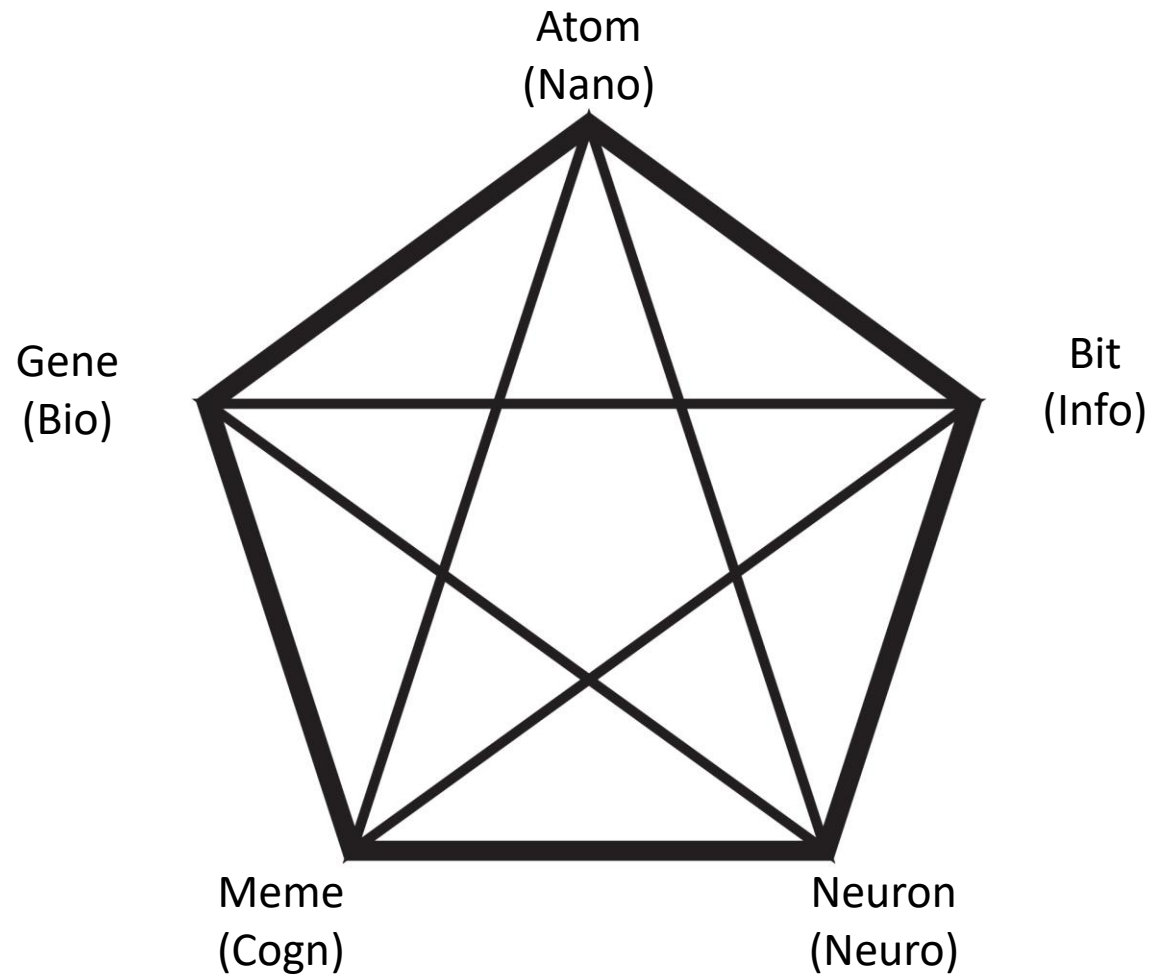
## Accelerating Growth in Technology

# Accelerating Growth in Technology

(condensed)

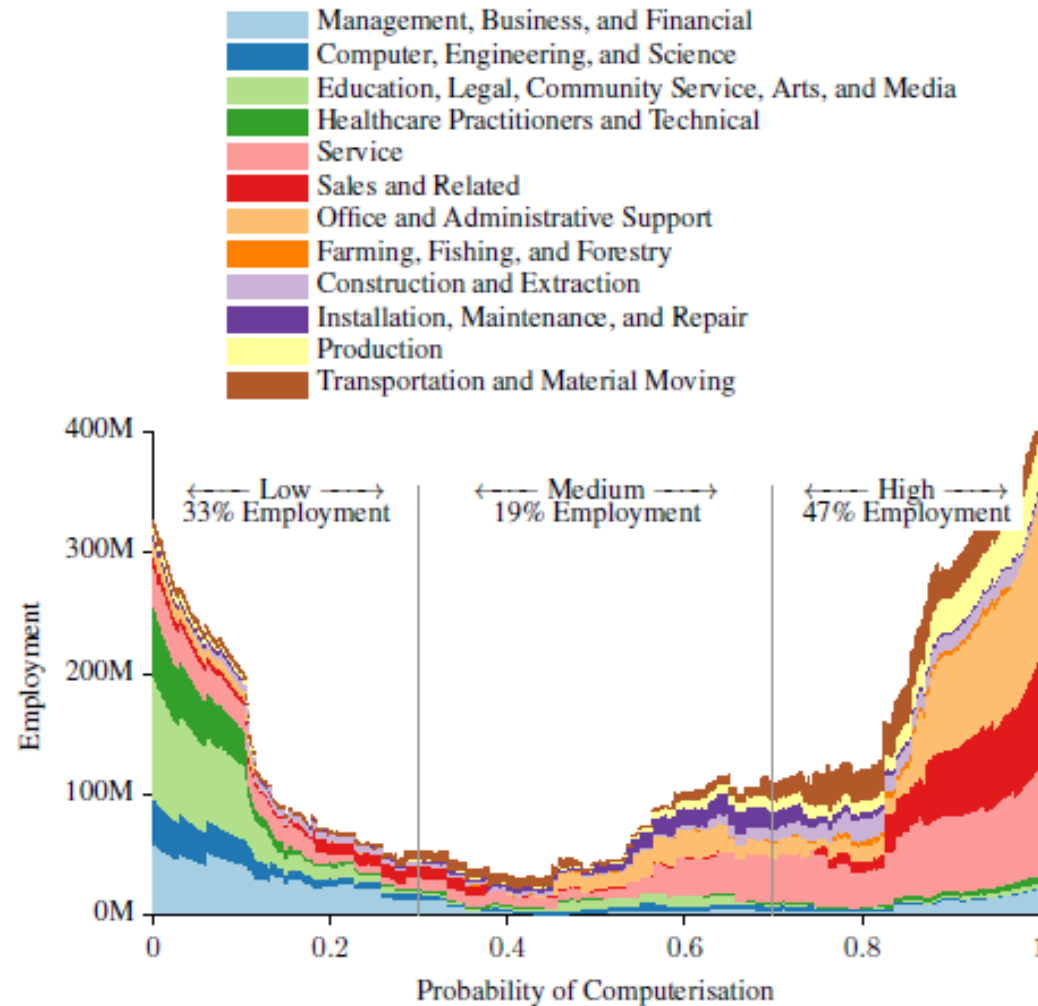


# Pathway for Convergence of Technologies



Adapted from Yankovskaya and Kukushkin 2021

# Assessment of 702 Occupations for Susceptibility to Computerization



**Possibly in the next decade or two**

# Scenarios of Work

## Overview

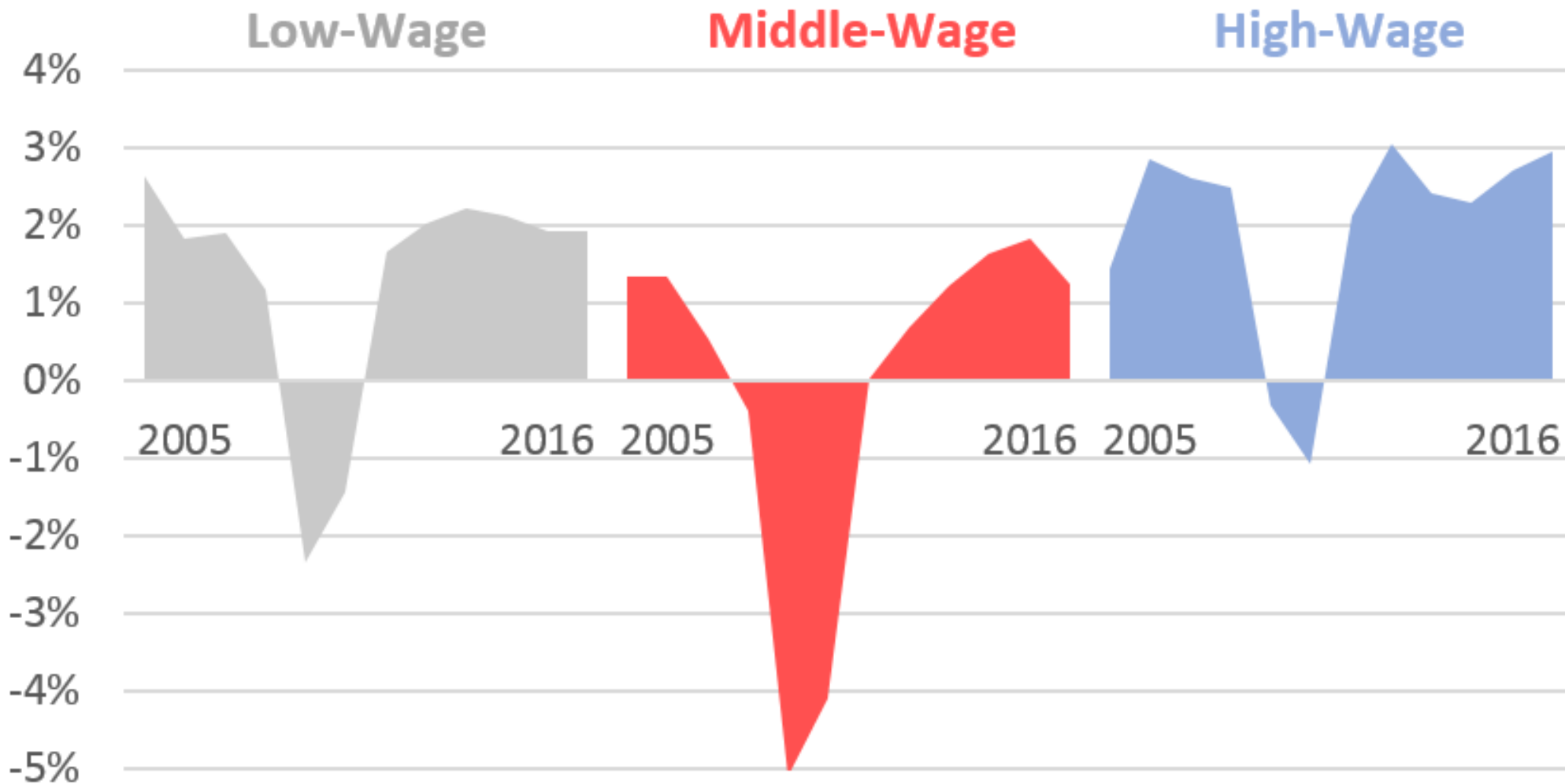
- Gradual transition from relatively standardized work and working time patterns in organizations



- More complex and diversified working environments (Perosh, 2015; Jimenez, 2016)
- More digital skills and more uses of data
- Definition of employment contracts will be different (DeBruyne & Gerritse, 2018)
- Many of the jobs of 2030 and beyond do not yet exist

# U.S. Job Polarization

Job Growth by Year



Categories based on median wage for major occupational groups as US level  
Source: BLS, Oregon Office of Economic Analysis



# Broad Categorization of Future of Work Scenarios

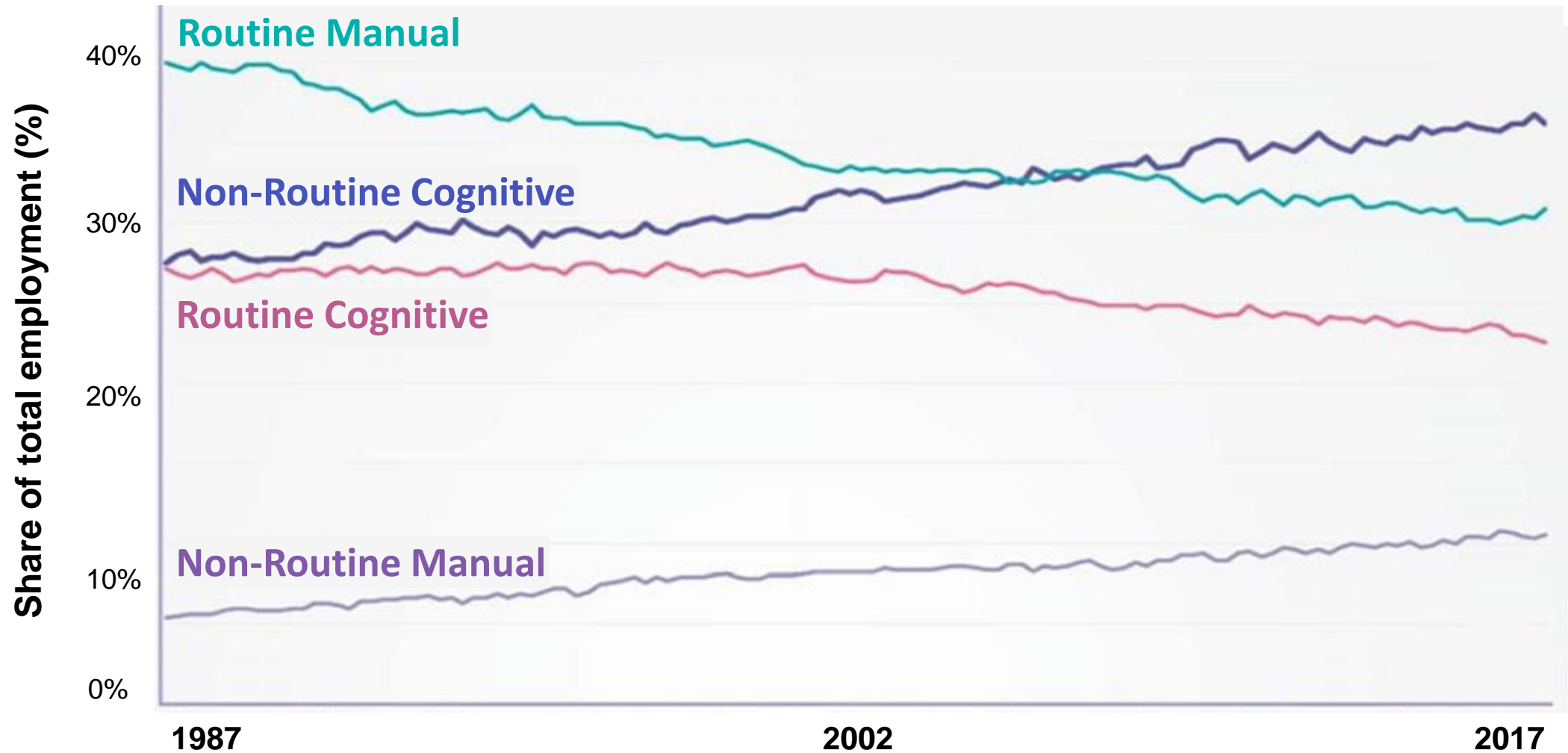
## “Routinization Hypothesis”

Nature of Tasks	Skills	
	Non-routine cognitive	Non-routine manual
	Routine cognitive	Routine manual

Autor et al., 2003

# Future of Work Scenarios

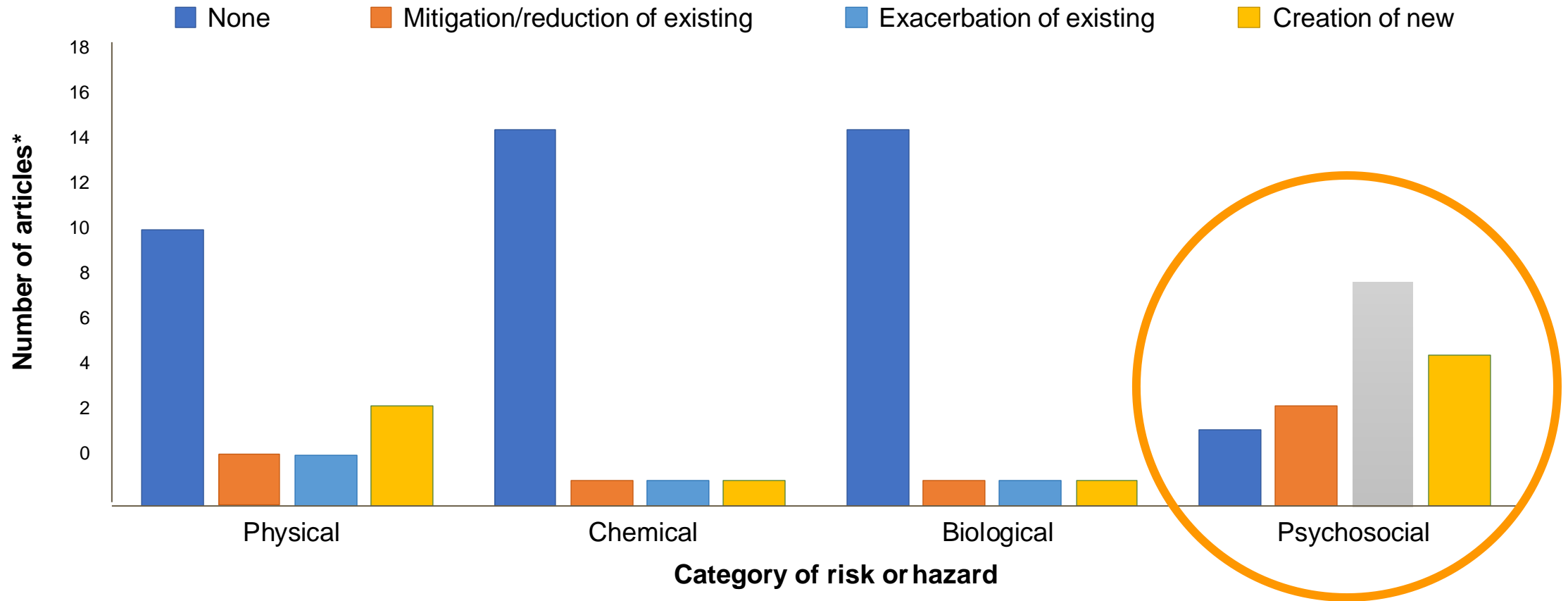
## 30-Year Change in Total Employment by Skill Type (Australia)



# Current Technological Trends May . . .

- Erode middle-class jobs
- Lead to deepening job polarization (Balliester & Elsheikh, 2018)
- Displace 400 million jobs globally (MGI, 2017)
- Create many new jobs / multiplier for human ingenuity
- Create a mismatch between technology and skills (capabilities)
- Require life-long learning

# Anticipated changes to job risks/hazards, by category and direction\*



\* Direction categories of *mitigation/reduction*, *exacerbation*, and *creation* are not mutually exclusive. Totals sum to more than 17 in each risk/hazard category. (Schulte et al., 2020)

# Current and Future Psychosocial Hazards Identified in the Literature

## Psychosocial/Organization of Work (Hazards and Effects)

- Stressful interaction with robots
- Anxiety about employment and careers
- Decreased situational awareness
- Blurred work/home boundaries
- Fast pacing of work
- Work intensification
- Privacy invasion
- Loss of social skills
- Inappropriate use of performance enhancing drugs
- Effects on dignity

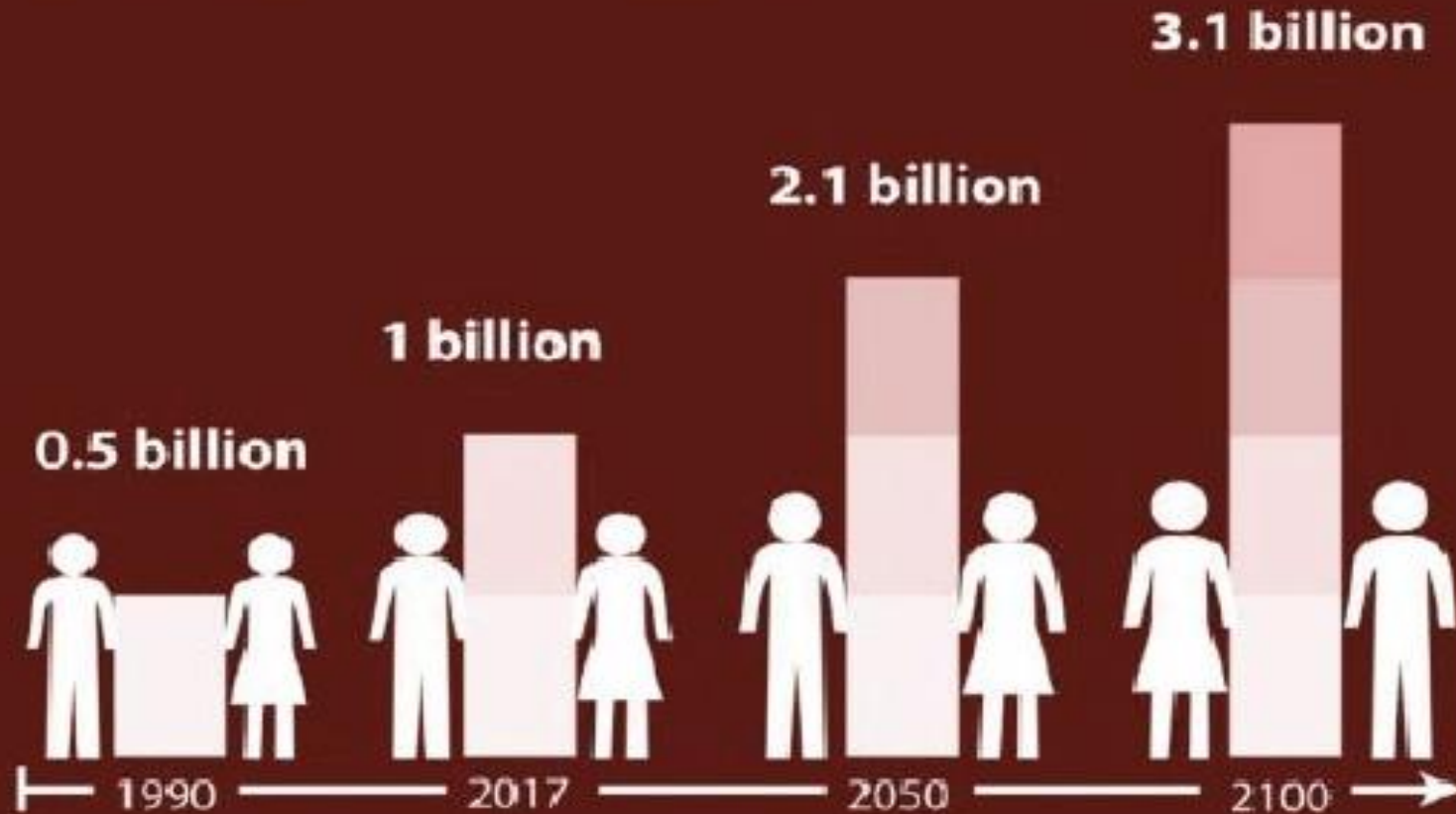
# Changing Workforce

- Older workers
- More immigrants
- More women
- More veterans
- Multigenerational
- More turnover
- Less unionization
- More with chronic disease



# Ageing Population

*Projected global population aged 60 years or over*

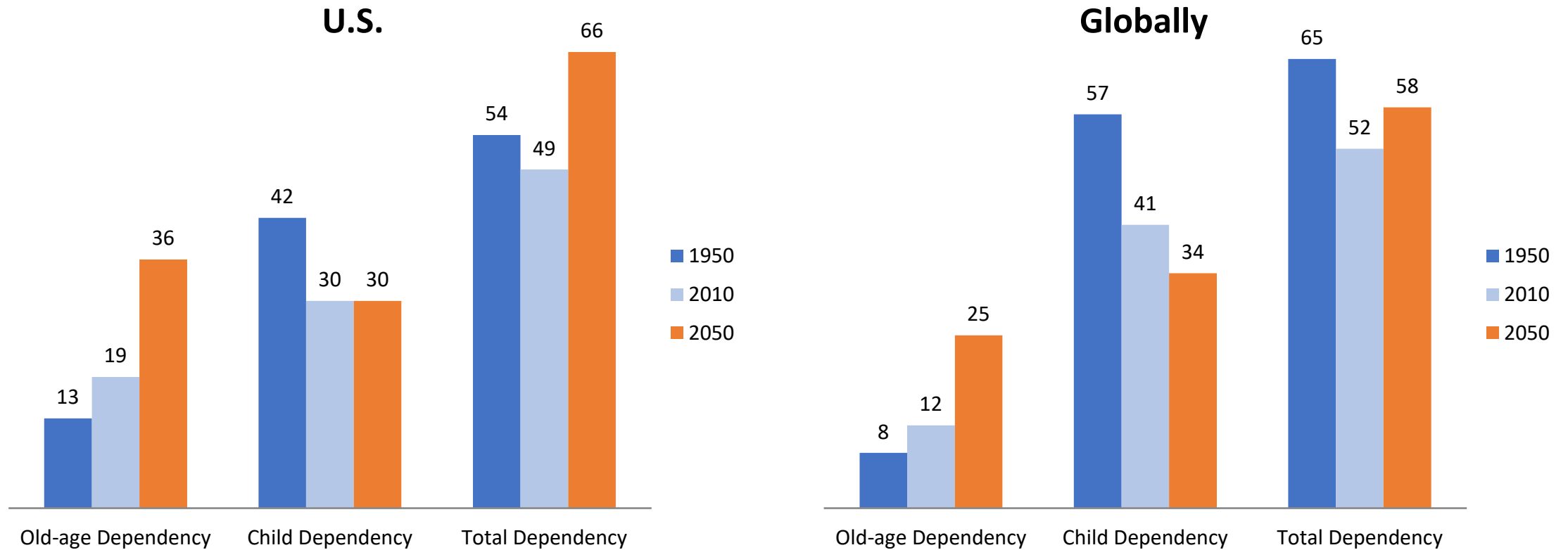


Source: United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2017 Revision*  
Produced by: United Nations Department of Public Information



# Dependency Ratios, U.S. and Globally

1950, 2010 and 2050



Note: Total dependency is the number of dependents (people younger than 15 or older than 64) per 100 people of working age. Child dependency is the number of children younger than 15 per 100 people of working age. Old-age dependency is the number of people older than 64 per 100 people of working age.

Source: United Nations, Department of Economic and Social Affairs, *World Population Prospects: 2012 Revision*, June 2013. <http://esa.un.org/unpd/wpp/index.htm>.



# Since People are Living Longer, They are Working Longer

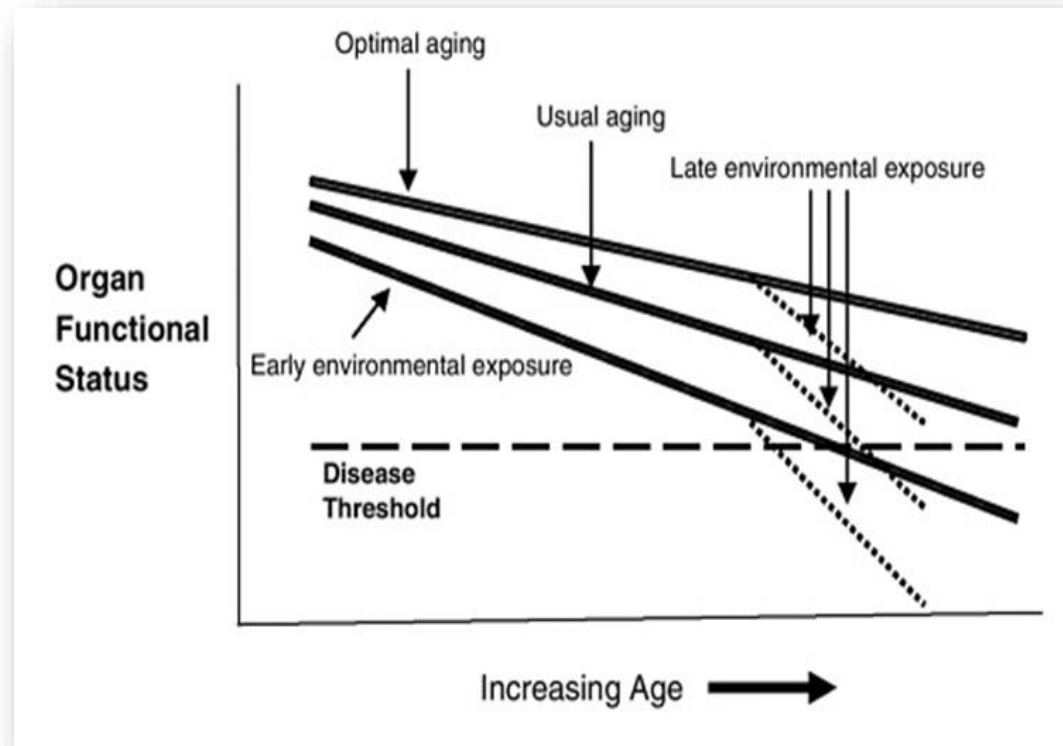
- Some countries have extended the age of eligibility for public pensions and people have to work longer
- Some people have to work longer for economic reasons
  - Pensions inadequate
  - To keep health insurance
  - Lack of savings
- Some people work longer
  - Greater work abilities
  - Sense of satisfaction and purpose

# Negative Consequences of Working Longer

- Injuries
- Burnout
- Job lock
- Age discrimination
- Job insecurity and unemployment
- Less non-work time
- Continued exposure to hazards
- Burden of chronic diseases

# Negative Consequences of Working Longer

## Schematic view of the impact of early and late environmental exposure on elder outcomes



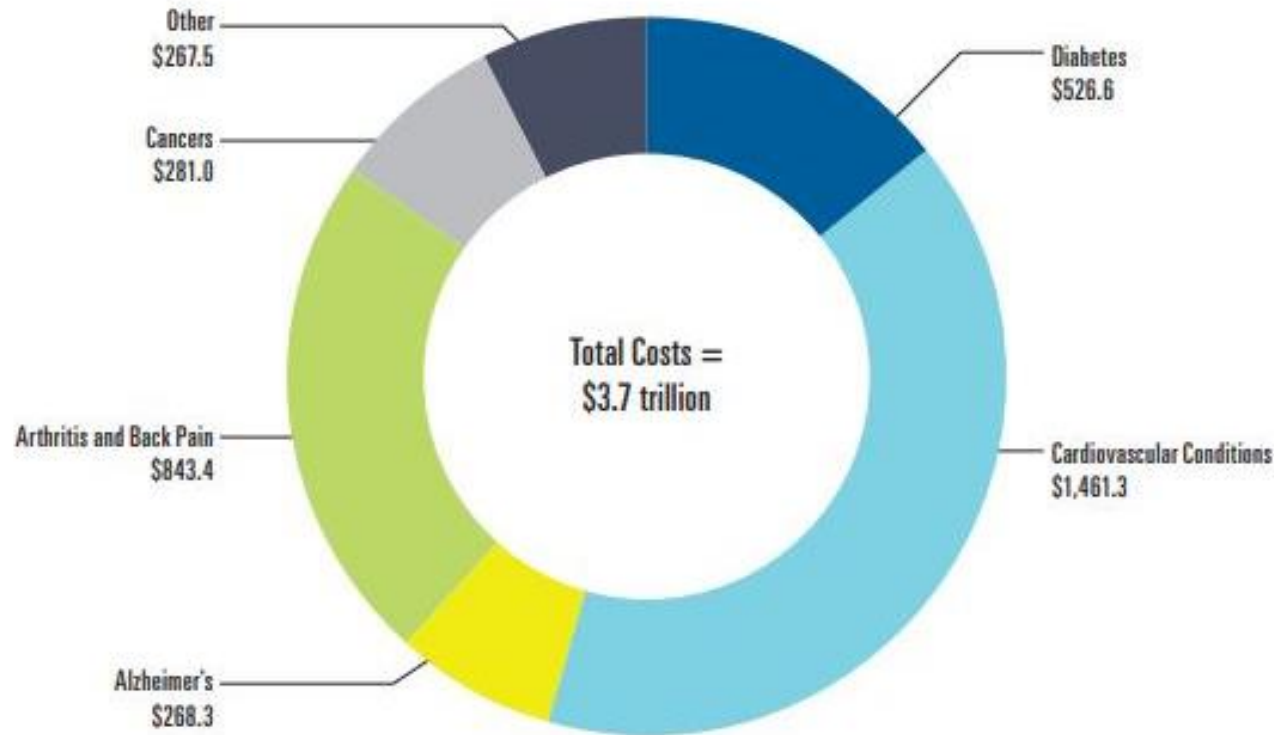
- Cumulative Risk Assessment
- Exposome



# Work + Aging + Chronic Disease

# Total Costs of Chronic Diseases in the U.S., 2016

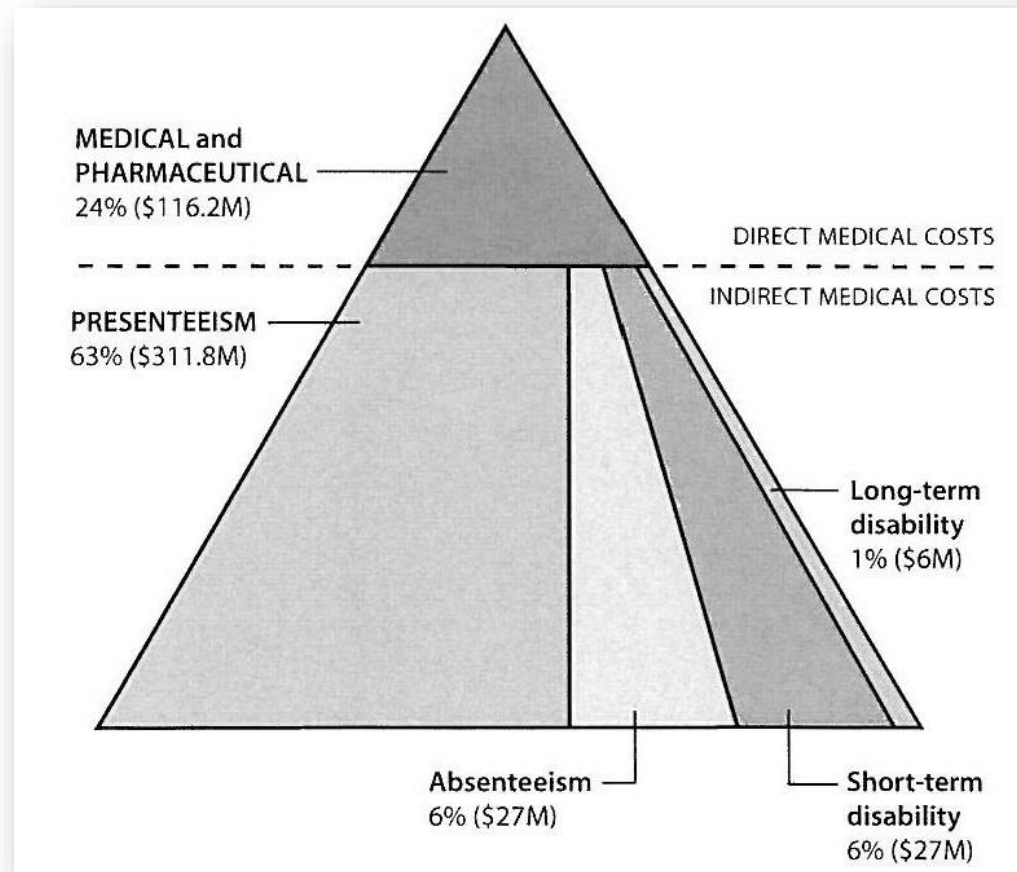
Total Costs of Chronic Diseases in the U.S., 2016



Source: Milken Institute.

Milken Institute

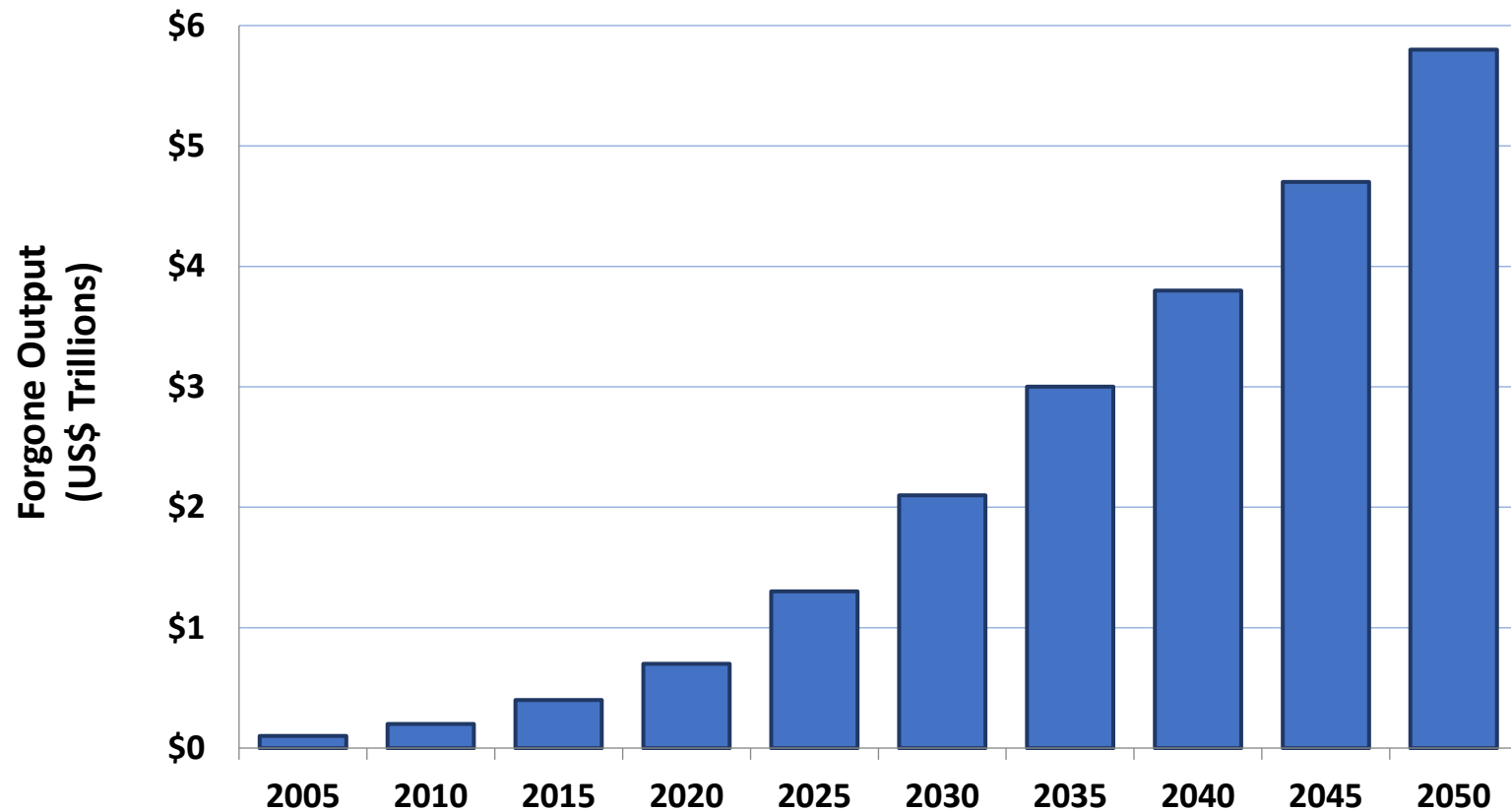
# Productivity: Presenteeism



Hemp, 2004

Data Source: Bank One. Figures are based on annual data for 2000. Worker's compensation accounted for less than 1% of the indirect medical costs

# Forgone Economic Output Due to Chronic Disease



DeVol & Bedroussian, 2007

# Young Workers

Young workers, aged between 15 and 24:

- Suffer up to 40% higher rate of nonfatal injuries than older workers
- Twice as high as workers age 25 and older



BILA, 2023



# Changing Workplaces

- New work arrangements
- More telecommuting
- Contractors/Temporary
- More small businesses
- Decrease in social protection
- Pandemics
- Climate change

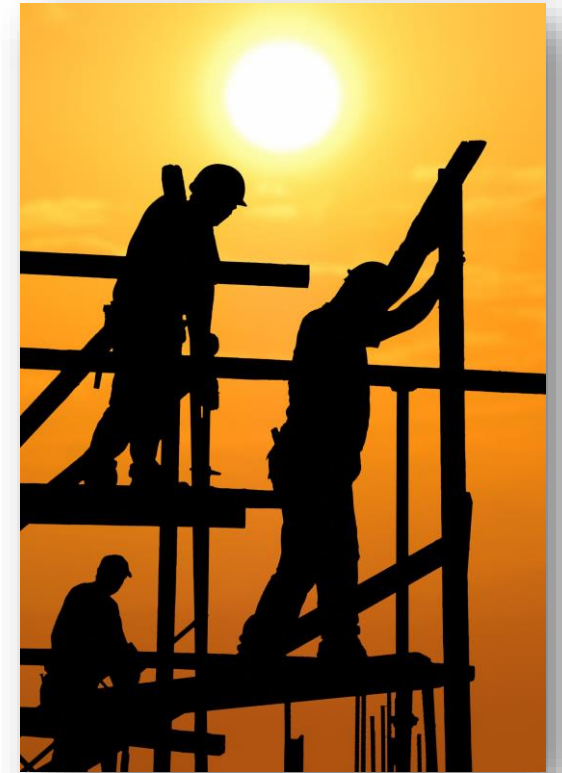


# Impact of Pandemics on Work and Well-being

- Until recently: little empirical evidence on the impact of pandemics on work
- Transforms work – decentralization
- Accelerate future trends
- Anxiety, stress, fear, and depression
- Disparate impacts by race and SES
- Impact on the “deskless” workforce ([www.quinyx.com](http://www.quinyx.com))
  - Workers on the front lines
  - Workers without the luxury of ‘working from home’

# Climate Change

- Likely to be a major influence on the workplace
- Increasingly becoming a larger occupational hazard
- Prior to 2009, the relationship between climate and occupational safety and health generally had not been comprehensively characterized
- There was a broad range of literature on individual hazards but not on the totality of climate-related hazards



# Why are workers at risk from the effects from climate?

- Likely to have more and greater exposure than general public
- Workers are not free to avoid climatic conditions
- Employers may not be sufficiently informed or prepared to institute adequate risk management
- Workers are generally not a specific part of states' and businesses' climate action plans



# The Workplace of the Future . . . will be a Mosaic of Hazards

- Changes in work, the workforce, and the workplace bring new hazards and risks
- While we still face older deadly hazards and risks
- Climate-related effects could be significant



**Decent Work  
and  
UN Sustainable Development Goals**



**8** DECENT WORK AND  
ECONOMIC GROWTH





# Elements (Pillars) of Decent Work

Employment Creation	Social Protection	Rights of Workers	Social Dialogue
<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Worker training</li> <li>• Precarious work</li> <li>• Unemployment</li> <li>• Underemployment</li> <li>• High quality jobs</li> <li>• Technological displacement</li> <li>• Adequate earnings</li> </ul>	<ul style="list-style-type: none"> <li>• Good working conditions</li> <li>• Occupational safety and health</li> <li>• Social security</li> <li>• Health insurance</li> <li>• Workers' Compensation</li> <li>• Unemployment benefits</li> <li>• Hours of work</li> <li>• Adequate rest</li> <li>• Work-life balance</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to bargain for wages and safe conditions</li> <li>• Refusal of unsafe work</li> <li>• Equality</li> <li>• Dignity</li> <li>• Nondiscrimination at work</li> <li>• No forced or child labor</li> <li>• Freedom of association</li> <li>• Safe work standards</li> </ul>	<ul style="list-style-type: none"> <li>• Exercise of workplace democracy</li> <li>• Workers' voice</li> <li>• Dialogue between workers and employers</li> <li>• Dialogue that includes workers, employers, labor unions, and governments</li> <li>• Collective bargaining</li> </ul>

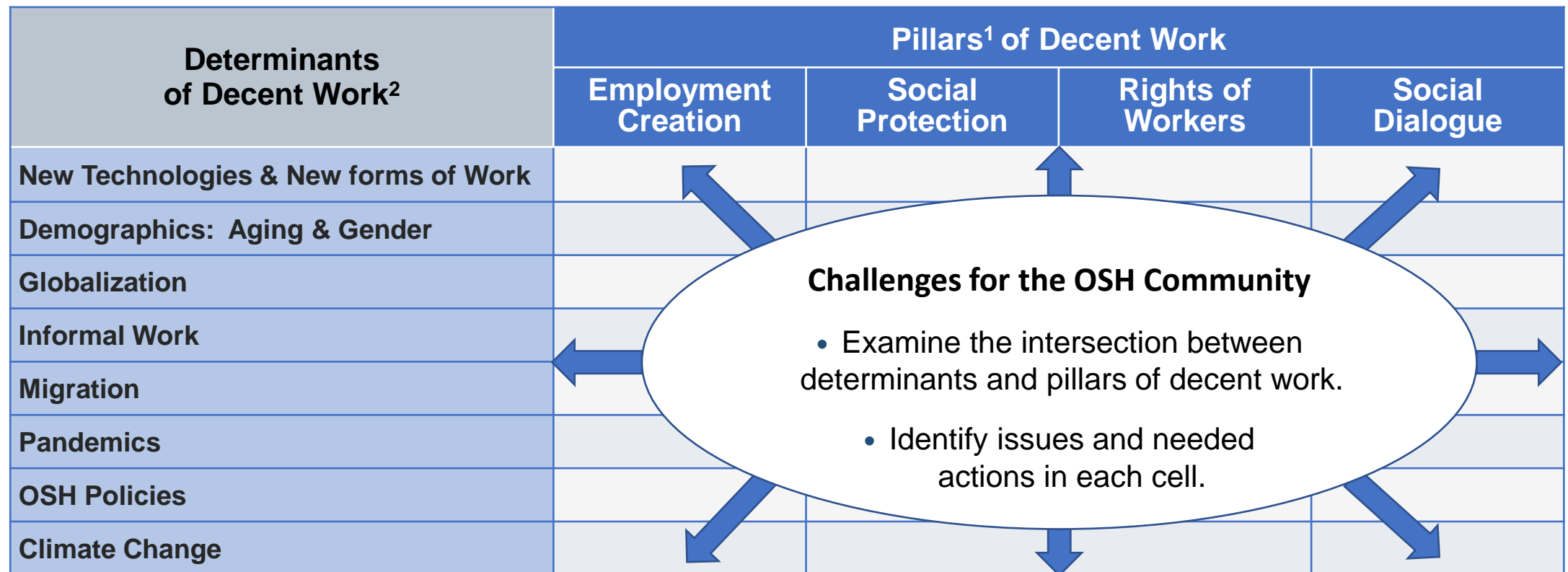


*Article*

# Occupational Safety and Health Staging Framework for Decent Work

Paul A. Schulte <sup>1</sup>, Ivo Iavicoli <sup>2,\*</sup>, Luca Fontana <sup>2</sup>, Stavroula Leka <sup>3</sup>, Maureen F. Dollard <sup>4</sup>,  
Acran Salmen-Navarro <sup>5</sup>, Fernanda J. Salles <sup>6</sup>, Kelly P. K. Olympio <sup>6</sup>, Roberto Lucchini <sup>7,8</sup>, Marilyn Fingerhut <sup>1</sup>,  
Francesco S. Violante <sup>9</sup>, Mahinda Seneviratne <sup>10</sup>, Jodi Oakman <sup>11</sup>, Olivier Lo <sup>12</sup>, Camila H. Alfredo <sup>6</sup>,  
Marcia Bandini <sup>13</sup>, João S. Silva-Junior <sup>14</sup>, Maria C. Martinez <sup>15</sup>, Teresa Cotrim <sup>16</sup>, Folashade Omokhodion <sup>17</sup>  
and Frida M. Fischer <sup>6,†</sup> on behalf of the Workgroups on the Future of Decent Work and Demographic Changes  
and Occupational Health

# Framework to Identify OSH at the Intersection of Pillars and Determinants of Decent Work



<sup>1</sup> Pillars are strategic objectives of the International Labor Organization to promote decent work.

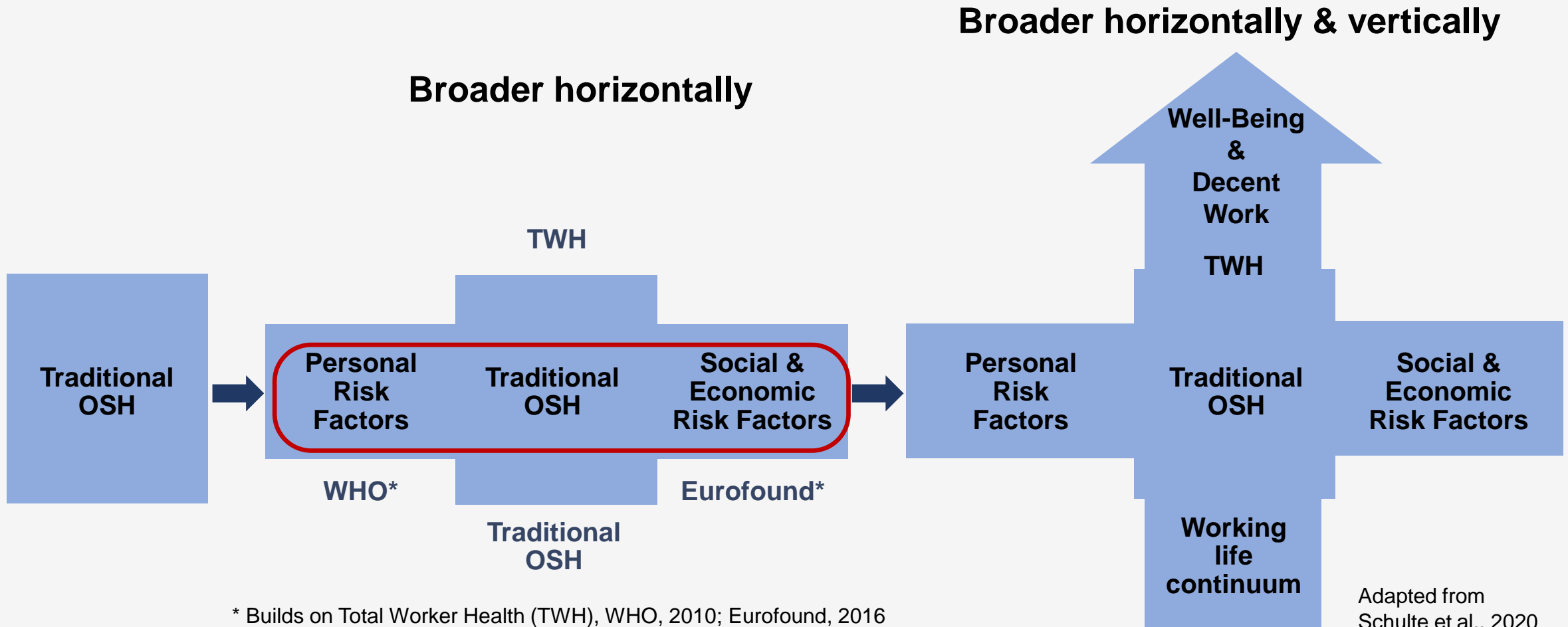
Schulte, et al., 2022

<sup>2</sup> "Determinants" means factors that positively or negatively influence the realization of decent work.

# Target Audiences to Affect Decent Work

	<b>Pillars of Decent Work</b>			
<b>Audiences</b>	<b>Employment Creation</b>	<b>Social Protection</b>	<b>Rights of Workers</b>	<b>Social Dialogue</b>
Practitioners				
Researchers				
Advocates				
Policy-Makers/ Governments				
Educators				

# Expanded Focus for Occupational Safety & Health



Adapted from  
Schulte et al., 2020

# Expanded Focus for Occupational Safety & Health

## Relation of Work and Workplace Hazards to Disease & Injury



### Occupational Disease & Injury

Primarily caused by chemical, physical, biological, and social factors in the workplace

Attributable fraction (AF)  
AF > 50%

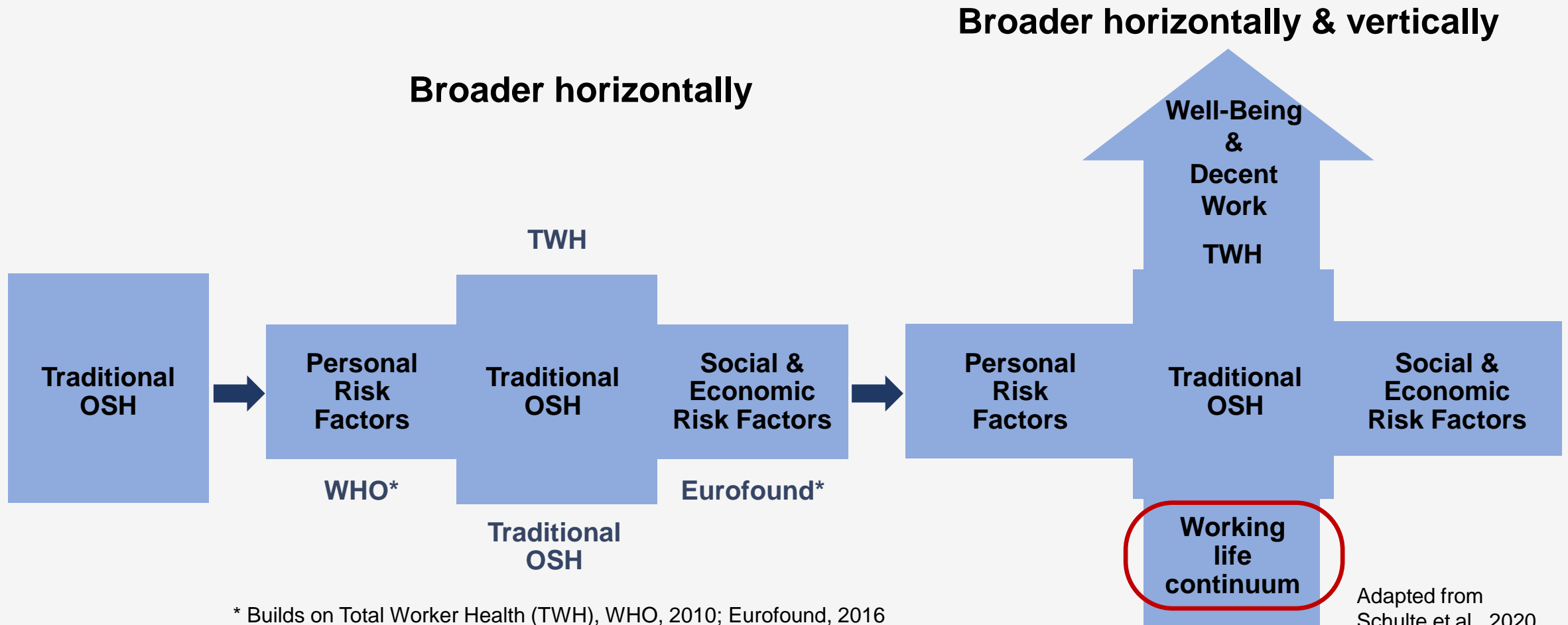


### Work-Related Disease & Injury

Occupational and other diseases and injuries whose etiology is partly affected by work-related factors

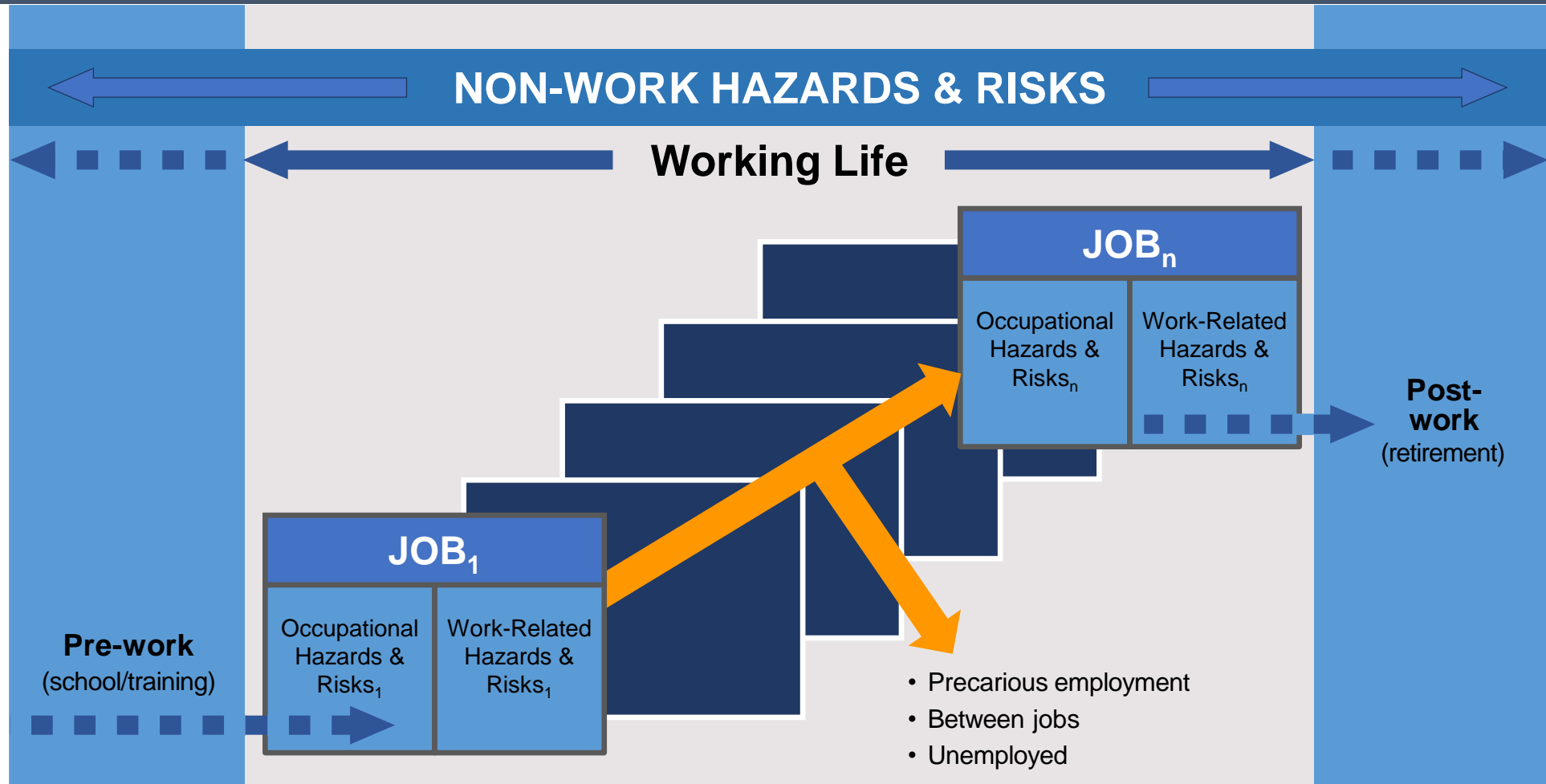
AF < 50%

# Expanded Focus for Occupational Safety & Health



\* Builds on Total Worker Health (TWH), WHO, 2010; Eurofound, 2016

# The Working Life Continuum and Dynamic Nature of Work





# Health Effects of Unemployment

- Physical and mental
- Job loss increases odds of fair or poor health by 54%
- Job loss increases odds new health conditions by 83% among those with no pre-existing conditions

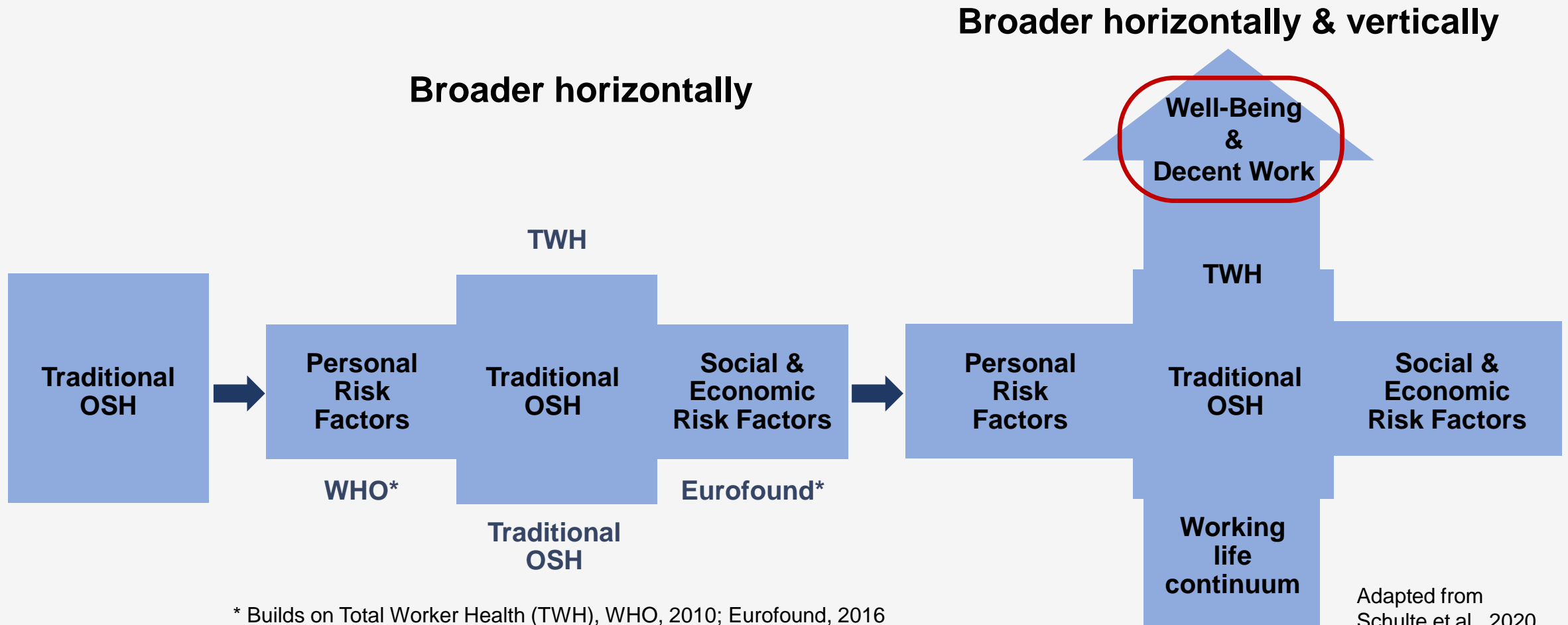
Strully, 2015

# Health Effects of Underemployment

- Underemployment (involuntary, part-time or poverty wage) seems to have health effects more like those of unemployment than adequate employment

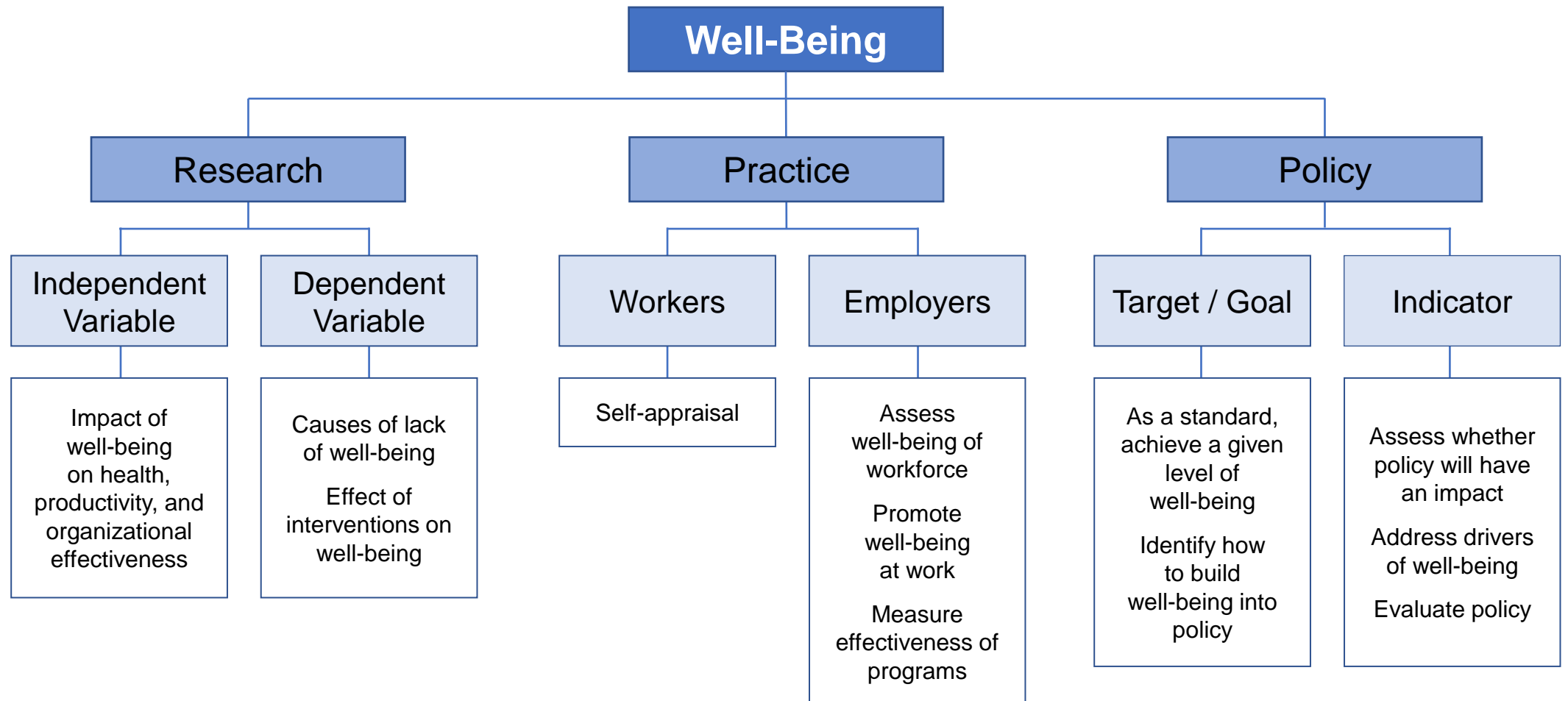
Dooley & Catalano, 1991

# Expanded Focus for Occupational Safety & Health



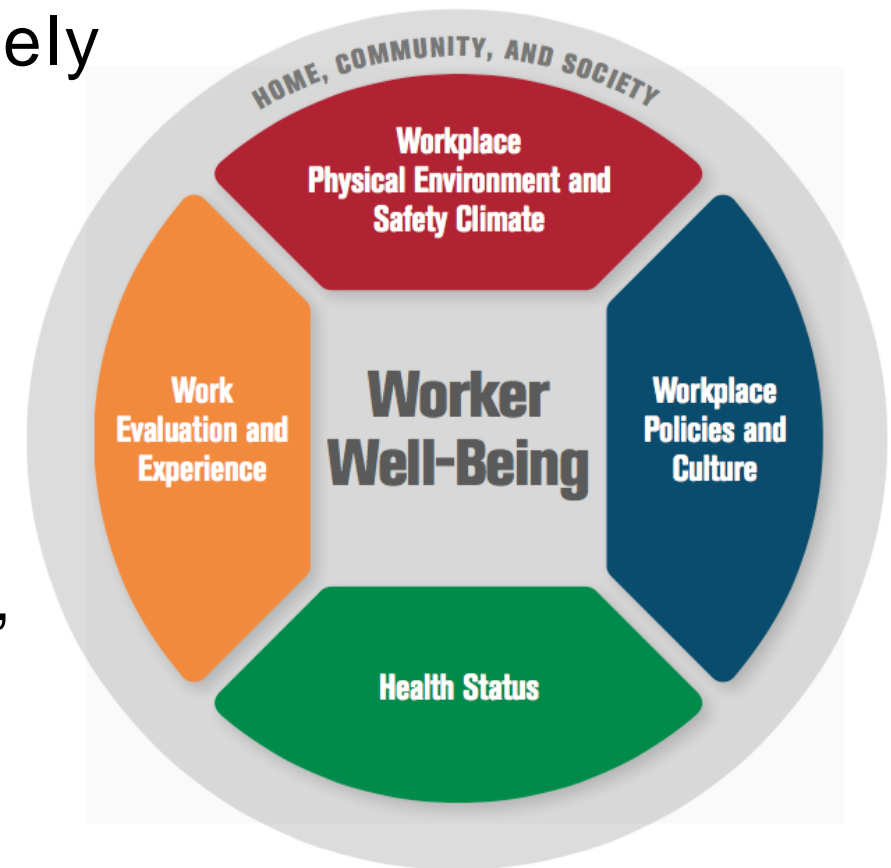
\* Builds on Total Worker Health (TWH), WHO, 2010; Eurofound, 2016

# Operationalizing the Concept of Well-being



# NIOSH Worker Well-Being Questionnaire (WellBQ) – Released April 2021

- First-ever survey to comprehensively measure worker well-being
- Characterizes quality of life by:
  - Health status
  - Work-related physical environment/safety climate
  - Work evaluation and expertise, psychosocial factors
  - Workplace policies and culture
  - Home, community, society



# Issues Relevant to Advancing Worker Well-being Using *Total Worker Health*<sup>®</sup> Approaches

## Prevention and Control of Hazards and Exposures

- Biological Agents
- Chemicals
- Ergonomic Factors
- Physical Agents
- Psychosocial Factors
- Risk Assessment and Management

## Built Environment Supports

- Accessible and Affordable Health Enhancing Options
- Clean and Equipped Breakrooms, Restrooms, and Lactation Facilities
- Healthy Workspace Design and Environment
- Inclusive and Universal Design
- Safe and Secure Facilities

## Community Supports

- Access to Safe Green Spaces and Pathways
- Healthy Community Design
- Safe and Clean Environment (Air and Water Quality, Noise Levels, Tobacco-Free)
- Safe, Healthy, and Affordable Housing Options
- Transportation and Commuting Assistance

## Compensation and Benefits

- Adequate Wages and Prevention of Wage Theft
- Affordable, Comprehensive, and Confidential Healthcare Services
- Chronic Disease Prevention and Management Programs
- Continual Learning, Training, and (Re-)Skilling Opportunities
- Disability Insurance (Short- and Long-Term)
- Employee Assistance and Substance Use Disorder Programs
- Equitable Pay, Performance Appraisals, and Promotions
- Minimum Guaranteed Hours
- Paid Time Off (Sick, Vacation, Caregiving, Parental)
- Prevention of Healthcare Cost Shifting to Workers
- Retirement Planning and Benefits
- Work-Life Programs
- Workers' Compensation Benefits

## Healthy Leadership

- Collaborative and Participatory Environment
- Corporate Social Responsibility
- Responsible Business Decision-Making
- Supportive Managers, Supervisors, and Executives
- Training
- Worker Recognition, Appreciation, and Respect

## Organization of Work

- Adequate Breaks
- Comprehensive Resources
- Fatigue, Burnout, Loneliness, and Stress Prevention
- Job Quality and Quantity
- Meaningful and Engaging Work
- Safe Staffing
- Work Intensification Prevention
- Work-Life Fit

## Policies

- Elimination of Bullying, Violence, Harassment, and Discrimination
- Equal Employment Opportunity
- Family and Medical Leave
- Human and Natural Resource Sustainability
- Information Privacy
- Judicious Monitoring of Workers and Biomonitoring Practices
- Optimizing Function and Return-to-Work
- Prevention of Stressful Job Monitoring Practices
- Reasonable Accommodations
- Transparent Reporting Practices
- Whistleblower Protection
- Worker Well-Being Centered
- Workplace Supported Recovery Programs

## Technology

- Artificial Intelligence
- Robotics
- Sensors

## Work Arrangements

- Contracting and Subcontracting
- Free-Lance
- Global and Multinational
- Multi-Employer
- Non-Standard
- Organizational Restructuring, Downsizing, and Mergers
- Precarious and Contingent
- Small- and Medium-Sized Employers
- Temporary
- Unemployment and Underemployment
- Virtual

## Workforce Demographics

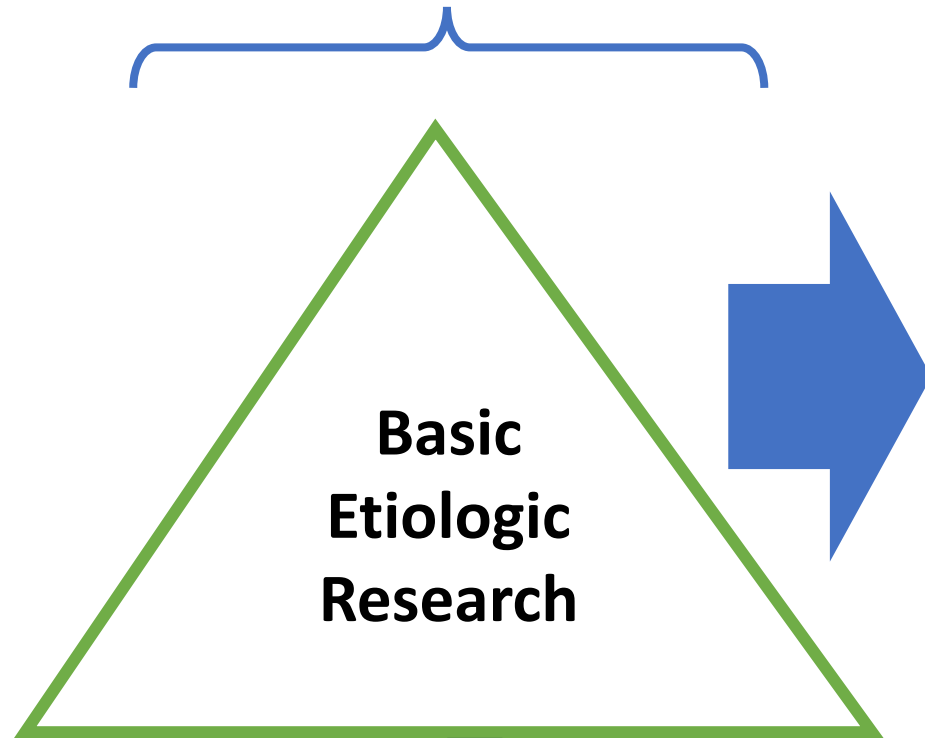
- Diversity and Inclusivity
- Multigenerational
- Productive Aging across Lifecourse
- Vulnerable Workers
- Workers with Disabilities



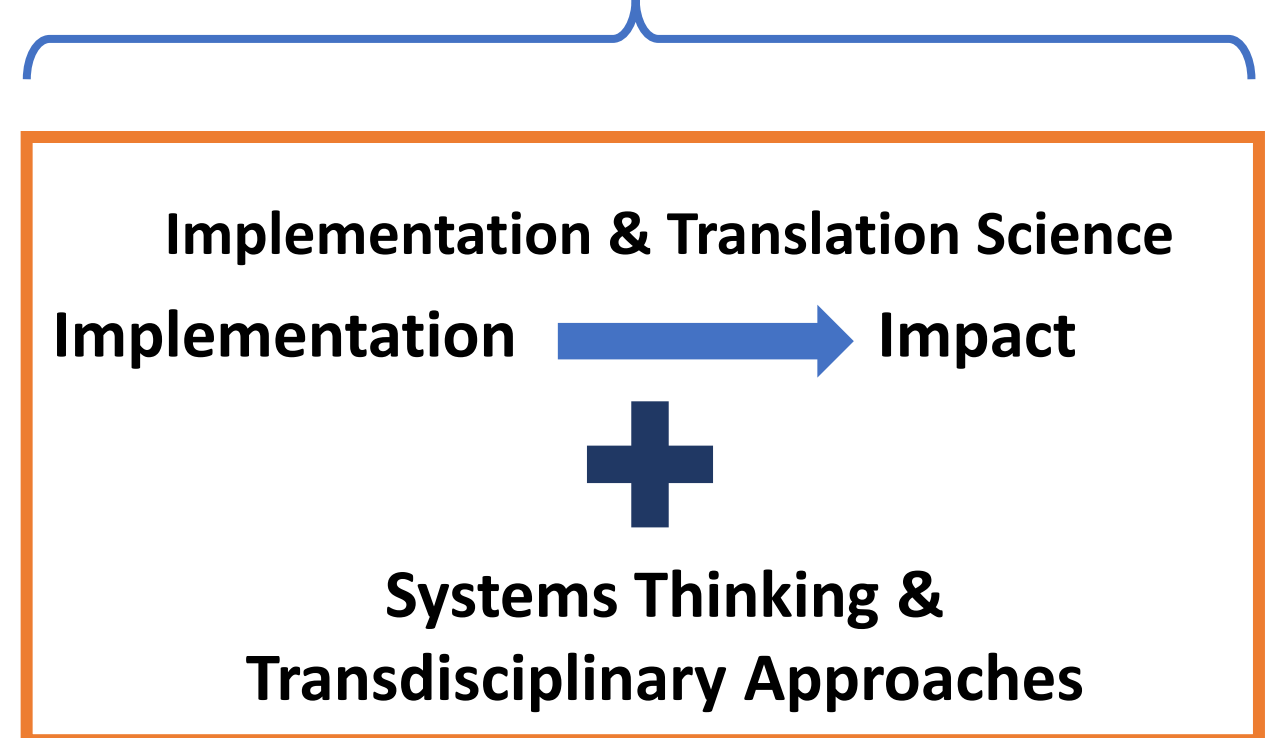
Updated January 2020

# New Emphasis

**Historic Focus of  
Occupational Safety and  
Health Field**



**New Focus: To Promote  
and Realize Decent  
Work**



**Multi-level modeling  
Socioeconomic and  
contextual factors**

# Translation & Implementation Science

...the application of scientific investigative approaches to study how the outputs of basic and applied research can be effectively translated into practice and have an impact.

Schulte, et al., 2015

...comprehensive applied research that strives to translate the available knowledge and make it useful.

Narayan, et al., 2000

...approach that considers multilevel contextual factors... in an increasingly dynamic and complex global economy.

Guerin, et al., 2021



# Systems Thinking

Understanding the interconnections of a system in such a way as to achieve a desired purpose.

Distinguishing problems, symptoms, and trends from underlying or root causes.

The relationship between problems and their causes is sometimes indirect and not obvious.

Seeing the big picture.

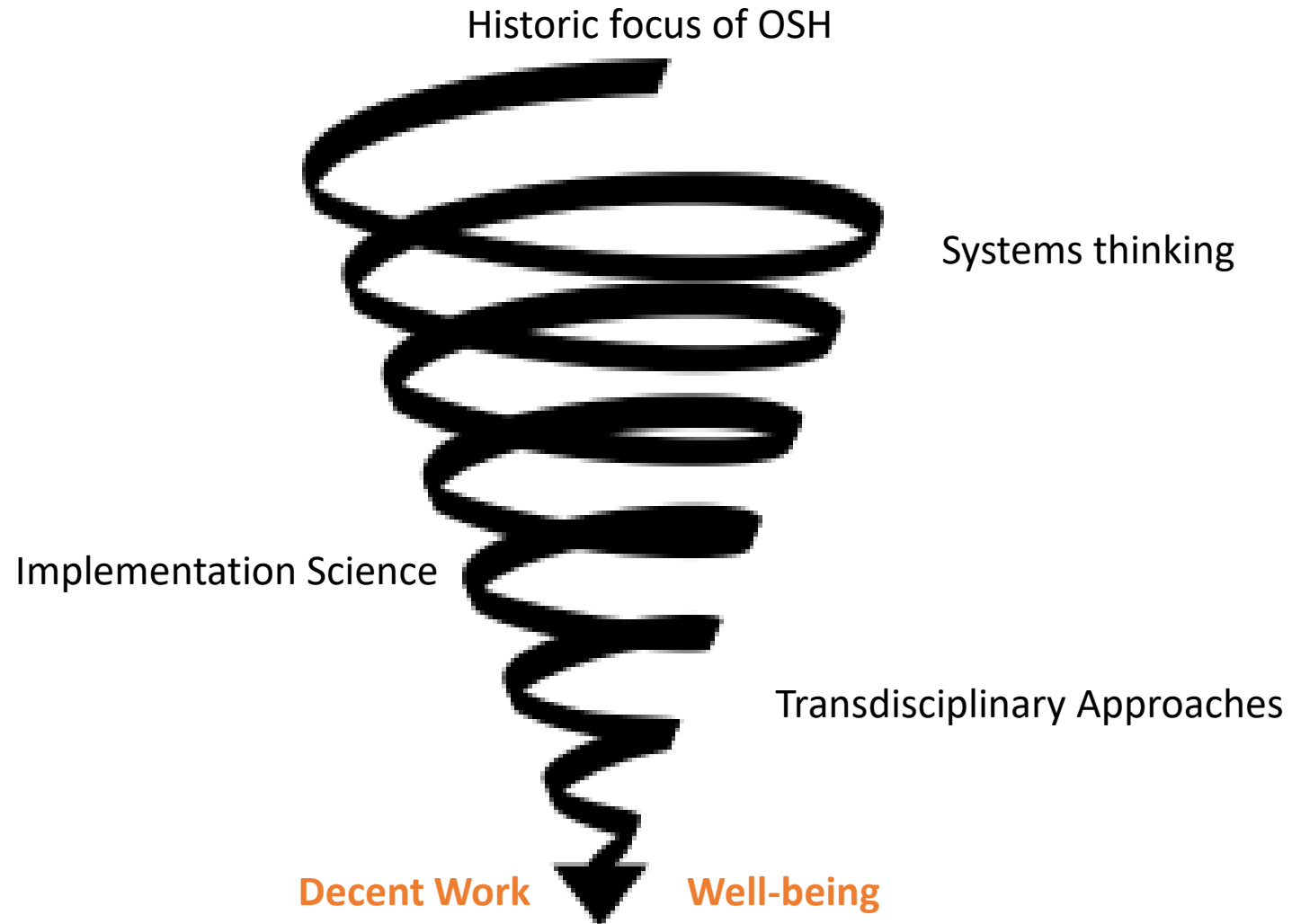
Stroh, 2015

# Transdisciplinary Approaches

- A process in which team members representing different fields work together
- Over extended period
- Develop shared and conceptual framework
- Integrate and transcend their disciplinary perspectives

Stroh, et al., 2008

# Evolution of OSH



# Questions to Consider

- How does the OSH field adapt to having decent work & well-being as the focus rather than health?
- What are the practical implications of this adaptation?
- How do we train new professionals to investigate, promote, and foster decent work and well-being?
- What are the next steps?

# THANK YOU



- Paul A. Schulte, Ph.D., F.A.C.E.
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The findings and conclusions in this report are those of the author and do not necessarily represent the views of the National Institute for Occupational Safety and Health.