Centre for Work
Health and Safety

Research Blueprint

Our plan to take evidence-based insights
and improve work health and safety
outcomes for the NSW community.
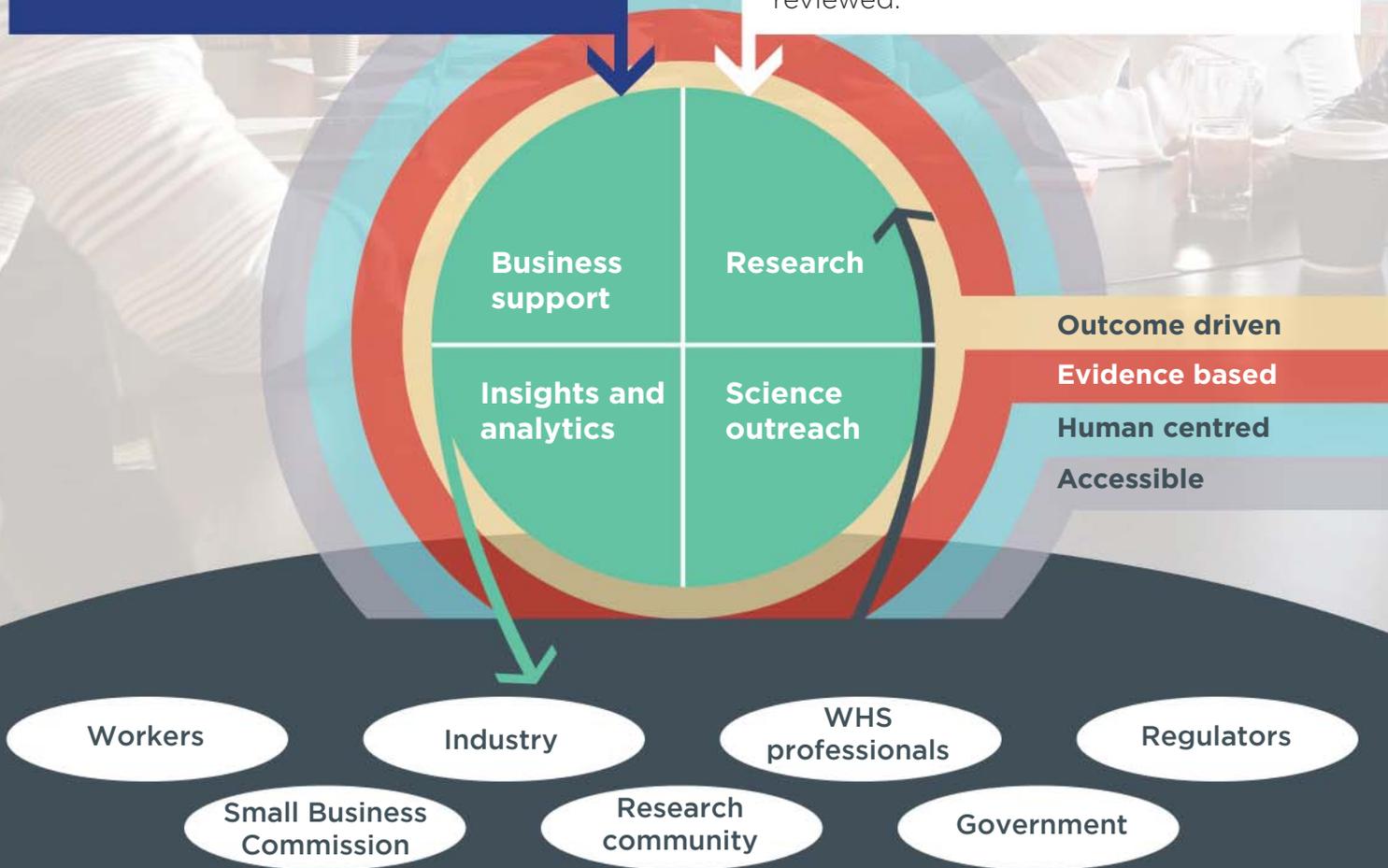
Centre
for WHS

NSW
GOVERNMENT

The Centre for Work Health and Safety is a collaborative research body that promotes a new perspective and a smarter approach to the way we think and act towards work health and safety (WHS).

NSW GOVERNMENT

We are a part of the NSW Government, giving us unique access to data and policy influencers to ensure our research turns into real outcomes.

Research Foundation

Our Research Foundation is a multidisciplinary advisory committee that provides us with world class expertise in work health and safety. By collaborating with leading academics from the nation's top universities and industry innovators from business, government and non-government organisations, we will ensure that our research is industry driven, credible, ethical, collaborative, methodologically robust, and peer reviewed.

Business support

Research

Insights and analytics

Science outreach

Outcome driven

Evidence based

Human centred

Accessible

Workers

Industry

WHS professionals

Regulators

Small Business Commission

Research community

Government

Our mission is to be a hub of knowledge creation and application driving best practice and positive cultural change in work health and safety. Our approach is founded on open and transparent communication and information sharing. We operate from a belief that collaboration is key to being exemplar and creating break-through success.

Our team is diverse, and allows us to challenge traditional methods, foster a culture of trust and respect, and drive real change in work health and safety. We are skilled and experienced across data science, research, business and operations, science, outreach and academia.
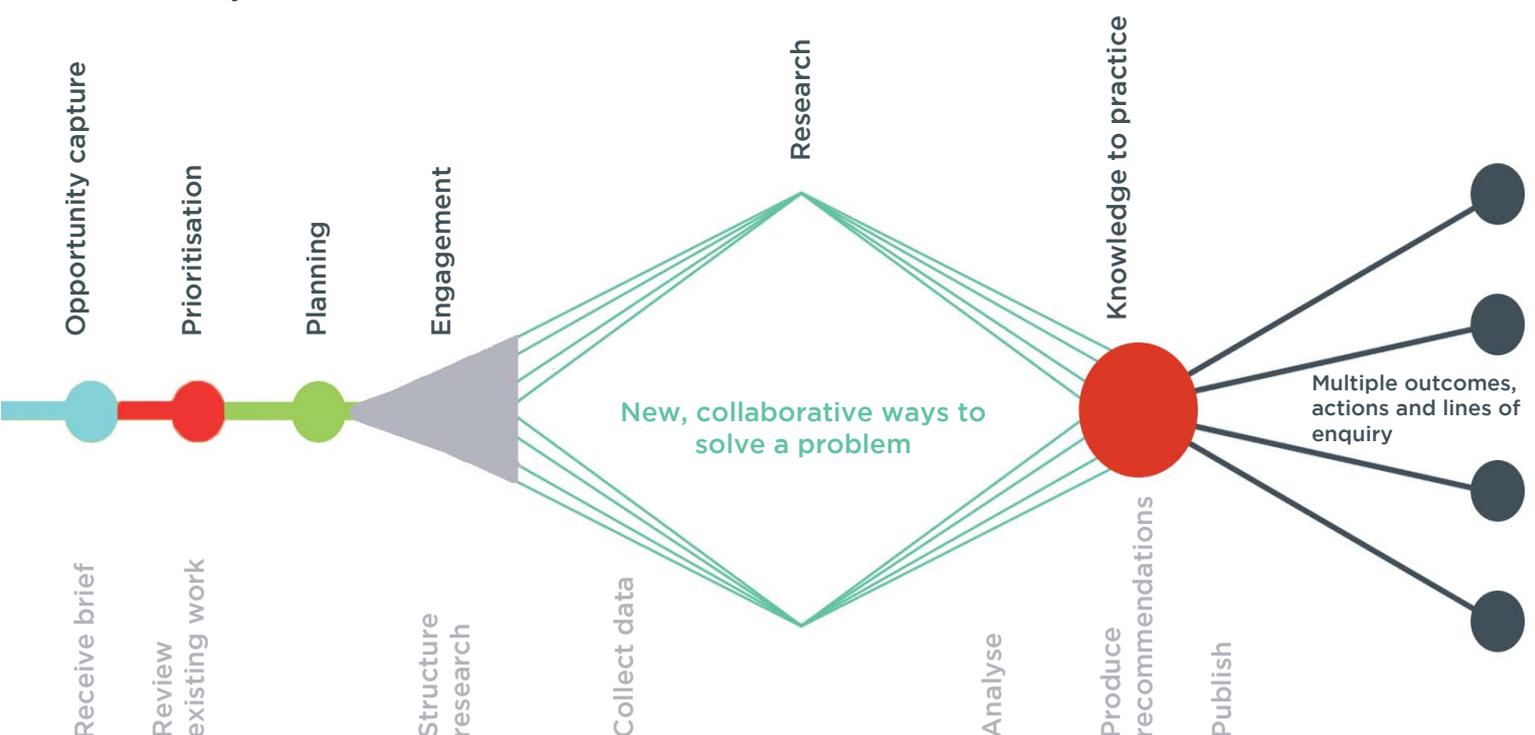
Our
FOCUS

Approach to
RESEARCH

Conducting research differently.

Every year we see work environments lead to injuries, illnesses and fatalities that could have been prevented. We use research as a tool to protect our workers from harm, and prevent such situations from occurring. We use research, data and insights to drive real change.

Existing: Much of the work health and safety research that has been done previously has been conducted using a very linear approach. Using this approach across work health and safety research has meant that often, research insights haven't been translated into anything actionable.

Receive brief — Review existing work — Structure research — Collect data — Analyse — Produce recommendations — Publish

Future: Collaboratively designed research methodologies will support a holistic understanding of work health and safety problems. This will result in new and creative research insights that are translated into something that makes a difference to work health and safety problems in the NSW community.

Opportunity capture — Prioritisation — Planning — Engagement — Research — Knowledge to practice

New, collaborative ways to solve a problem

Multiple outcomes, actions and lines of enquiry

Receive brief — Review existing work — Structure research — Collect data — Analyse — Produce recommendations — Publish

Targets and
AIMS

Our aims are closely aligned with the targets outlined by the NSW Government in the *Work Health and Safety Roadmap for NSW 2022*.

Targets: The NSW Government has identified the following targets in the *Work Health and Safety Roadmap for NSW 2022*:

Fatalities

A decline* in **worker fatalities due to injury**

Serious injuries and illness

A decline* in the **incidence rate of claims**

Serious musculoskeletal injuries and illness

A decline* in the **incidence rate of claims**

Aims: In order for us to work towards the targets outlined in the *Work Health and Safety Roadmap for NSW 2022*, we have identified three key topic areas for our research.

Prevention
Identifying and assessing work health and safety issues impacting the NSW community. Keeping up-to-date with existing and emerging risks, changes in the working environment, and new knowledge in work health and safety.

Enablement
Providing the NSW community with the tools, knowledge and information needed to meet work health and safety responsibilities, and encourage healthy and safe working behaviours.

Effective regulation
Contributing to informed work health and safety policies, legislation, and effective enforcement and intervention strategies.

*This decline is measured over ten years from 2012 to 2022.

Current and emerging WHS
CHALLENGES

A number of societal and economic trends are causing new, current and emerging challenges in the work health and safety landscape.

The changing world of work

We are seeing a dramatic increase in the flexibility of our working environments. New technology and atypical arrangements are changing the way we work. These can affect our day-to-day physical actions and movement, and blur the line between working and non-working hours. It is important that we study the effect of these new patterns of behaviour on work-life balance, and health and wellbeing at work. For example, the spread of information and communication technologies, such as the internet, has changed when, how and where we work. In addition, the Australian workforce is becoming more culturally diverse. Migrant workers can be disproportionately represented in precarious employment arrangements and non-standard working times.

Automation and transformation

Digital transformation and automation are now critical for organisations who wish to remain competitive. When executed well, transformation and automation programs have the ability to reduce costs, increase revenue, improve customer experience and reduce risk. Often, these benefits are accompanied with the elimination of jobs, or transitioning of jobs to roles with different requirements and responsibilities, as well as health and safety concerns.

Health and wellness

In NSW, the work environment is constantly adapting, including changes to workplace organisation, work practices, and processes; and the crossover between our personal and professional lives. We need to examine these changes in terms of their immediate and long term effects on cognitive, mental, and physical health and wellness. This might include their effect on physical health issues such as diabetes, obesity and cancer; and on mental health and wellness issues, such as stress, depression, anxiety, nervousness, fatigue, and behaviour change. These challenges have a significant impact on affected individuals and their families, and on the NSW economy due to absenteeism, accidents and impaired performance.

Casualisation of the workforce

In NSW, 23% of workers are casually employed, with higher levels for those under 30*. While a number of these workers are employed through labour hire and agency arrangements, there has also been significant growth in "freelancing" and temporary contracts, resulting in new and different challenges in work health and safety. As work patterns change, and industries become casualised, research is required to ensure work practices adapt, to protect casual workers.

Work Health and Safety Roadmap for NSW 2022.

Current and emerging WHS
CHALLENGES

A number of societal and economic trends are causing new, current and emerging challenges in the work health and safety landscape.

Ageing demographic

Australia's population is becoming older, with a growing proportion of people aged over 65*. The working population is also ageing as the proportion of older workers in employment increases. Longer working life is likely to become an economic and social necessity. In some industries, experienced workers are choosing to leave the workforce early as a result of health and wellness problems caused by the physical demands of their work. This, combined with younger, more inexperienced and less qualified workers entering work is resulting in skill shortages. Research is required into solutions and workplace changes that will help workers remain healthy, engaged and able to extend their careers.

Globalisation of supply chains

Increasingly, globalisation of supply chains is causing new health and safety risks. We are seeing an increase of overseas plant, substances, materials and equipment being used in New South Wales workplaces, meaning that oversight of health and safety requirements and potential issues has become more challenging within the end to end process. We are also seeing companies restructure so that functions are outsourced and sent offshore, often resulting in job loss for NSW workers, communication challenges, and increasing complexity managing work health and safety obligations along the supply chain.

Small business

Small businesses are an important part of the New South Wales economy. Many are non-employing, or employ fewer than five people. They are typically independent, diverse, geographically scattered, and have short lifecycles. In addition, most small businesses don't have access to dedicated work health and safety professionals, and as such, can lack the resources and time to understand obligations, and identify work health and safety issues and risks in their work environment. Effective mechanisms to reach, help and change the culture of work health and safety in small businesses continues to be a challenge.

Evolving understanding of harms and impairments

Many illnesses have a long latency period. This means that a significant period of time can pass between a hazardous exposure and the detection of resulting illness or injury. An example of this might be long term exposure to noise, resulting in hearing loss. There are usually a wide variety of contributing factors to the development of diseases and disorders, including work health and safety issues, limited understanding of the impact of new technologies, lifestyle and non-work related factors. There is a need to research the work health and safety factors that have a long-term or cumulative effect on these illnesses, diseases and disorders. Factors might include examining the impact of physically demanding work, such as heavy lifting, or non-physically demanding work such as maintaining a fixed body position and physical inactivity.

*Work Health and Safety Roadmap for NSW 2022.

Three
STREAMS OF RESEARCH

What we are going to do.

CORE

Our core stream of research focuses on research projects that:

- are aligned with NSW Roadmap priorities, including high risk harms, at-risk workers, high risk workplaces, high risk industries/sectors, and supply chain safety.
- address current and emerging work health and safety challenges.
- inform effective work health and safety policy in NSW workplaces.

TIME SENSITIVE

Our time-sensitive stream of research focuses on research projects that correlate directly to a current or emerging work health and safety concern, or an immediate regulatory need.

OPPORTUNITY DRIVEN

Our opportunity-driven stream of research focuses on research projects that have the potential for significant impact on the economy, society, environment, culture, and the success of the Centre, beyond the contribution to academic research. These projects might offer us the opportunity to partner with industry experts, progress an innovative idea, or test an interesting approach to work health and safety research.
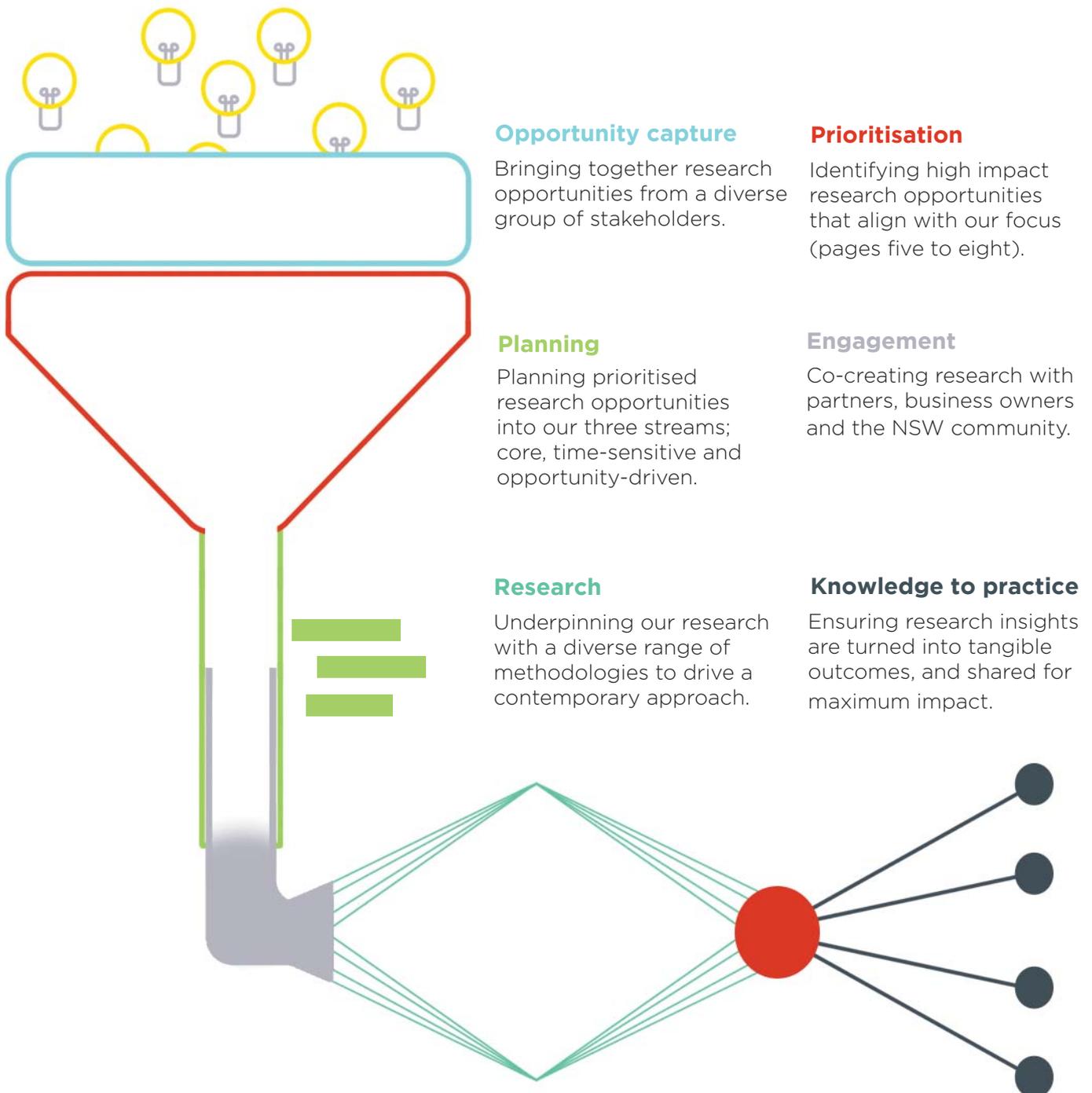
Our
METHODS

PROCESS

Our process is designed to provide us with a way to govern, prioritise and engage a wide variety of stakeholders in our research. We want our decision making and research process to be transparent, so our stakeholders can see how we are supporting safe and healthy workplaces.

Opportunity capture

Bringing together research opportunities from a diverse group of stakeholders.

Prioritisation

Identifying high impact research opportunities that align with our focus (pages five to eight).

Planning

Planning prioritised research opportunities into our three streams; core, time-sensitive and opportunity-driven.

Engagement

Co-creating research with partners, business owners and the NSW community.

Research

Underpinning our research with a diverse range of methodologies to drive a contemporary approach.

Knowledge to practice

Ensuring research insights are turned into tangible outcomes, and shared for maximum impact.

Opportunity
CAPTURE

Bringing together research opportunities from a diverse group of stakeholders.

We will aggregate potential research opportunities from a broad range of stakeholders and sources. We will provide the channels, templates and tools to help people submit research ideas.

OPPORTUNITY SOURCES

WORKERS

INDUSTRY

WHS PROFESSIONALS

SMALL BUSINESS

GOVERNMENT

REGULATORS

RESEARCH COMMUNITY

DATA AND INTELLIGENCE

OPPORTUNITY POOL

PRIORITISATION

Identifying high impact research opportunities that align with our focus (pages five to eight).

We will provide clear guidelines and use a defined approach to evaluate and prioritise work health and safety research opportunities.

Filter briefs: Research opportunities are filtered based on whether they align with our focus, as outlined on pages five to eight.

Impact assessment: Once we have identified that a research opportunity is aligned with our focus, we prioritise this against others, using our **prioritisation assessment tool**.

This enables us to prioritise research opportunities in line with the needs of industry, government and the NSW community.
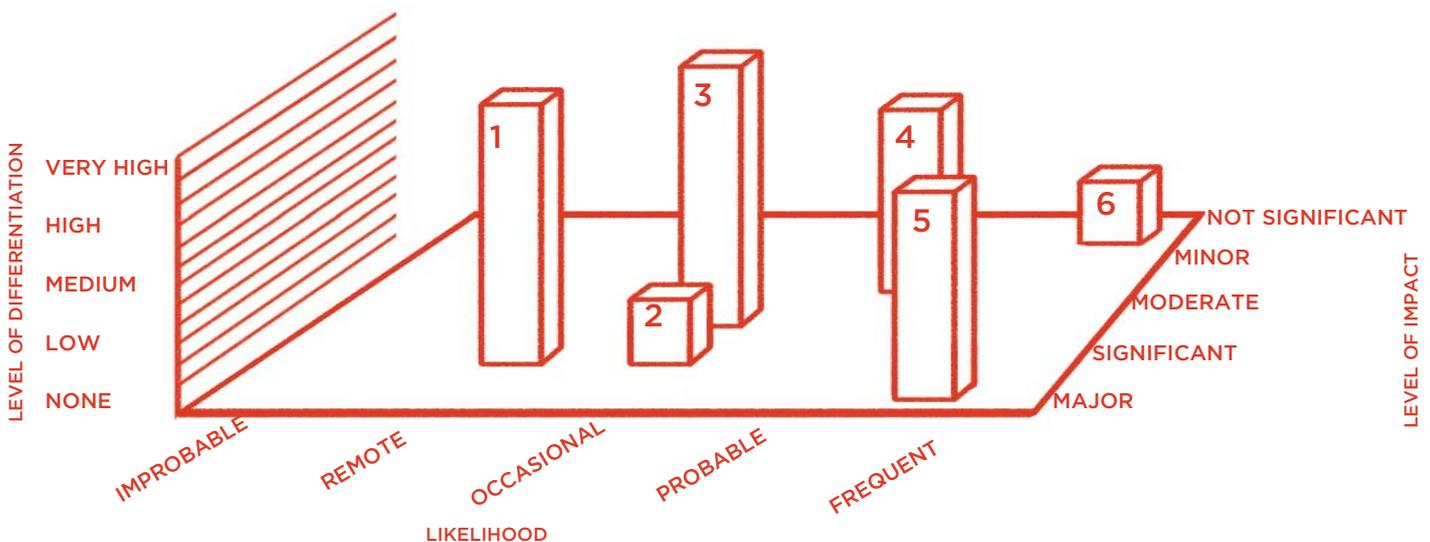
Our **prioritisation assessment tool** has three categories:

Level of impact: What impact does the problem have on the NSW community? What would be the impact if we were to do nothing with this research opportunity? A 'major' impact rating might include research opportunities that have the potential to prevent fatalities, injury or illness.

Likelihood: How often does this particular problem occur? This might look at the frequency of a particular incident type. It might also consider harms or illnesses that have a long latency period, as described on page seven. A 'frequent' likelihood rating might include an incident that happens several times a week in the NSW community, such as falls from height.

Level of differentiation: How different is this research opportunity from other research in this area? Has the proposed research approach been tested? Were there any recommendations? This might look at whether similar research questions have been asked in the past. A 'very high' level of differentiation rating might suggest that this research opportunity presents an innovative approach to finding solutions to a specific work health and safety problem.

Planning and
ENGAGEMENT

Planning prioritised research opportunities into our three streams; core, time sensitive and opportunity driven. Co-creating research with partners, business owners and the NSW community.

Planning: Research opportunities are evaluated and allocated as **research projects** to one of our three streams; core, time-sensitive and opportunity-driven. We work with key stakeholders to determine when research projects will be carried out, and ensure a well balanced portfolio of research. Research projects may be done internally, or procured from our partners.
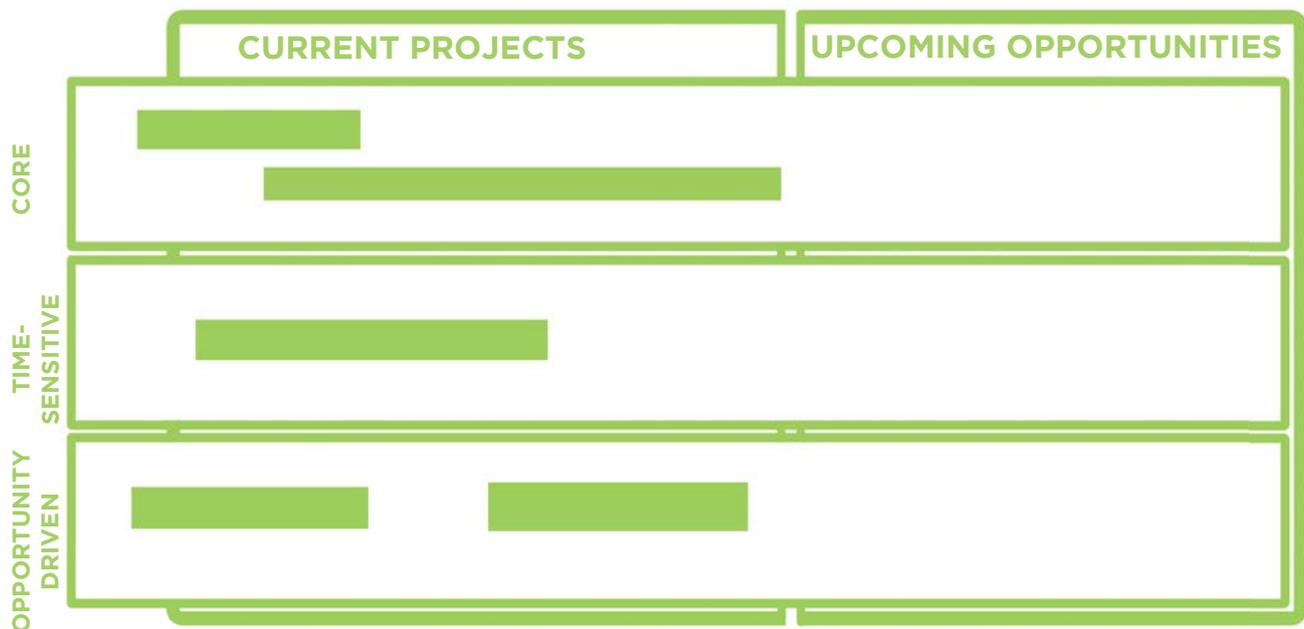
For more information about our streams of work, see page eight.

Engagement: Our engagement incorporates expertise from across diverse academic disciplines, business owners, research partners and the NSW community. This will enable our research projects to be multi-disciplinary and co-designed with the end-user in mind.
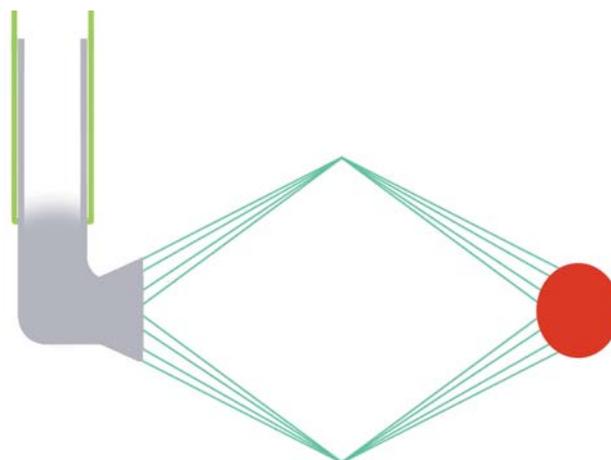
RESEARCH

Underpinning our research with a diverse range of methodologies to drive a contemporary approach.

Exploratory research

Explores and understands a problem or opportunity that is not yet well understood. Results in a strong understanding of the topic. Informs Generative Research

Generative research

Builds on exploratory research. Aims to define, design and test solutions using a 'fail fast and learn quickly' mindset to get to the right solution quickly.

Evaluative research

Makes sure our solutions have impact and that we can learn from real-world situations. We share results so that everyone can learn.

Literature review: Understanding what has already been done

When we take on a research opportunity, we review all relevant information, so that we can fully understand the problem. This **literature review** could include a review of previously published research about the problem, or a review of available 'grey literature'. 'Grey literature' is information that has not been formally published, such as government reports, private sector thought leadership, or the results of unpublished research.

Reviewing existing information ensures that we don't invest in research opportunities that already have robust solutions. Instead, we are able to build on existing research, propose a mixture of research methods, and identify knowledge gaps before starting research.

Qualitative research: Understanding more about what people think

To understand human behaviour, and the motivations behind an action or an attitude, we might invest in **qualitative research**. This could include surveys, or conversations with people. Their answers to our questions can help us to understand knowledge gaps, myths and misconceptions, barriers to change, and attitudes to work health and safety. We might also review narrative information, such as transcripts of investigations, to help us to get a broader understanding of a particular problem.

An example might be sending a survey to small business owners to ask questions about their understanding of flexible work arrangements, and how they have been applied in their workplace. The results of the survey might highlight where understanding could be improved, and how small business owners could be supported to improve flexible work arrangements in their workplace.

Quantitative research: Using data to better understand a problem

To understand the scale of a particular problem, or to accurately compare perceptions and attitudes, we might invest in **quantitative research**. This research uses data and evidence to identify patterns, trends and comparisons.

We work with data from a variety of sources, including open data, to identify insights that support strategic decision making, evidence-based policy development and improved service delivery.

An example might be linking data in multiple systems to identify employers who have experienced the same work health and safety incidents across different companies.

RESEARCH

Underpinning our research with a diverse range of methodologies to drive a contemporary approach.

Product and service development: Using creative solutions to develop new products/services

To take information about a problem, and turn it into a financially sustainable product or service, we will investigate creative solutions to **product and service development**. We will ensure that we control the outcome of this development. This might include traditional and non-traditional forms of funding, such as crowd sourcing. Or, working with industry providers to realise a commercial outcome by investing in a product or service that addresses a work health and safety challenge.

An example might be where a new technology has been identified as a solution to an existing problem, but there is insufficient funding to develop it. We could work with stakeholders to source funding from multiple industries, to enable the development and testing of this new technology.

Industry engagement: Working directly with industry to tailor solutions

To identify, test, evaluate and re-assess potential solutions within the work environment, the Centre will **work with industry** and safety professionals directly on specific research opportunities. This will help us to develop solutions to work health safety challenges with direct involvement from the NSW community. By evaluating potential solutions on a 'fail-fast' basis, we can tailor solutions to problems in a way that fits in with existing habits.

An example might be working with an employer to develop a key statement, advising workers in writing, upfront, about what they need to do with a new piece of technology and the consequences of not using it as instructed. We can then test the statement's impact, by comparing how those who were exposed to the statement use the technology, compared to those who were not.

Predictive analytics: looking at the past to better understand future problems

To understand where work health and safety problems are likely to occur in the future, the Centre might use **predictive analytics**. Predictive analytics uses different data to understand where, why and how problems have occurred in the past. As we begin to understand the historical relationship between incidents and potential contributing factors, we can use our findings to predict where problems are likely to occur in the future.

An example might be analysing a cross-section of data around business demographics, historical WHS performance and other data, to predict where, how and why falls from heights will occur in the future. The Centre can then work with relevant stakeholders to put in place preventative actions.

Real-time behavioural data analysis: Understanding what triggers particular incidents

To quickly contextualise a safety incident, the Centre might use **real-time behavioural data analysis**. This analysis uses immediate data collection from multiple sources, to understand what environmental data might have contributed to a particular incident. This can include telemetry, participation, proximity to assets, as well as hundreds of other possible variables. We can use this data to better understand the individual components that contribute to a particular incident, and develop possible preventative actions with industry experts.

An example might be assessing the environmental factors that contributed to historical crane incidents, (e.g. wind, temperature, location, fatigue) and using that information to actively prevent and alert sites to possible undetected risks in future.
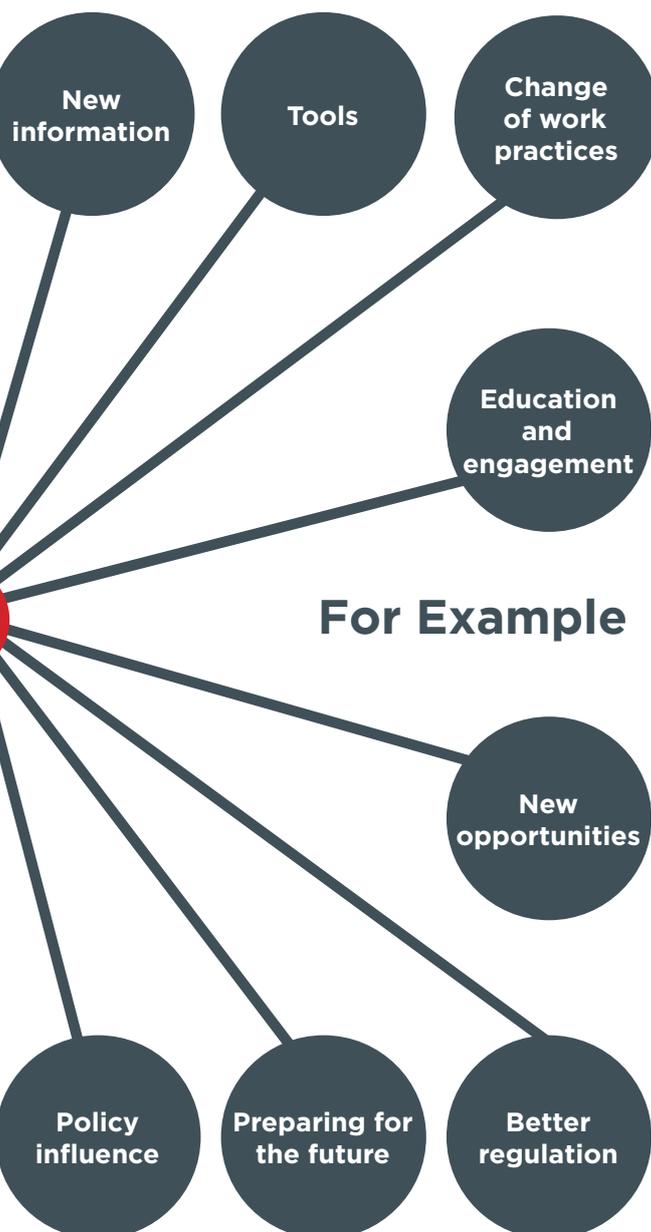
Knowledge

TO PRACTICE

Ensuring research insights are evaluated, turned into practical outcomes, and shared for maximum impact.

Evaluation: Research undergoes a robust evaluation process, including peer review, in line with our comprehensive research and project governance frameworks.

Practical outcomes: The insight gained from research is translated into a practical outcome that is usable either by workers, employers, policymakers or any of our other stakeholders. Consideration is given to the consequences and feasibility of any recommendations.

Insight →

New information

Tools

Change of work practices

Education and engagement

For Example

New opportunities

Policy influence

Preparing for the future

Better regulation

Outreach: Once we have clear insights, we use appropriate skills, activities, and dialogue to raise interest and awareness to change the culture of work health and safety in the NSW community.

We will use the strength of our relationships across industry, government, professional bodies and the academic community to maximise the influence of our messaging.

Our
MEASURES

Expected
OUTCOMES

What does success look like?

We will measure the success of our research portfolio through lead indicators associated with our three aims; prevention, enablement, and effective regulation.

We will also measure our contribution to the broader targets identified in the *Work Health and Safety Roadmap for NSW 2022*.

Centre for Work Health and Safety benchmark	
Prevention	**We will measure our research contribution to current and emerging risks, changes in the working environment, and new knowledge.**
Enablement	**We will measure our research contribution to providing the NSW community with the tools, knowledge and information needed to meet work health and safety responsibilities, and encourage healthy and safe working behaviours.**
Effective Regulation	**We will measure our research contribution to inform work health and safety policies, legislation, and effective enforcement and intervention strategies.**

Safety is a shared responsibility.

Disclaimer

This publication may contain work health and safety and workers compensation information. It may include some of your obligations under the various legislations that SafeWork NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website (www.legislation.nsw.gov.au).

This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice if you need assistance on the application of the law to your situation.