



ChemCentre

Research and Innovation (R&I) Strategy

2019 – 2022

Final Draft V1.1

CONTENTS

Preface.....	2
1. Background	3
2. Operational Context.....	5
3. Strategic Context.....	6
4. R&I Strategic Directions	7
5. Strategic R&I Objectives	8
6. Operations and Accountability – Management & Governance.....	11
Appendices.....	15

ChemCentre's Core Characteristics



Preface

Our Vision:

ChemCentre is Western Australia's leading provider of specialised chemical and forensic science services.

Our Mission:

ChemCentre provides chemical and forensic science services for a safe and prosperous Western Australia.

OUR VALUES

Integrity We operate a sustainable business that strives to operate safely, ethically, sustainably and with integrity in all that we undertake.	Respect We respect our clients, our staff and the responsibilities that we are charged with.
Technical Excellence We advocate technical excellence and utilising excellent science to inform and improve everything that we do.	Innovation Through method development and targeted, collaborative research and development we continually seek to improve our science for the benefit of our stakeholders.

The delivery of research and innovation (R&I) for the benefit of the State of Western Australia (WA) is a key component of ChemCentre's operations.

The value of this focus was established in the Review of the Chemistry Centre (WA) Act 2007 (Tabled in the WA Parliament February 2015); and reinforced by the Review of Chemistry Centre's Community Service Obligations (November 2016) and the review of State Scientific Services in Western Australia undertaken by the Chief Scientist of WA and tabled in State Parliament in 2018.

In 2019 the ChemCentre Board formally recognised that, as the rate of technological change accelerates and client demands increase, targeted R&I has become more critical than ever.

This Research and Innovation Strategy (R&I Strategy) provides a roadmap for how ChemCentre's R&I activities will support its Mission, consistent with ChemCentre's mandated statutory obligations.

The purpose of the R&I Strategy is to clearly articulate to our external and internal stakeholders how we intend to provide chemical and forensic science services for a safe and prosperous WA, concurrent with broadening ChemCentre's commercial objectives in a way that contributes to the community and the State's economy.

1. Background

The Chemistry Centre WA, trading as 'ChemCentre', provides essential chemical and forensic services to ensure a safe and prosperous Western Australian community. As a Statutory Authority established under the *Chemistry Centre (WA) Act 2007*, it applies technical knowledge to practical problems to achieve effective outcomes for communities, government and industry.

ChemCentre operates within the scope of its five-year Strategic Development Plan and its enabling legislation, which outlines ChemCentre's six overarching strategic objectives and the operational targets to achieve them.

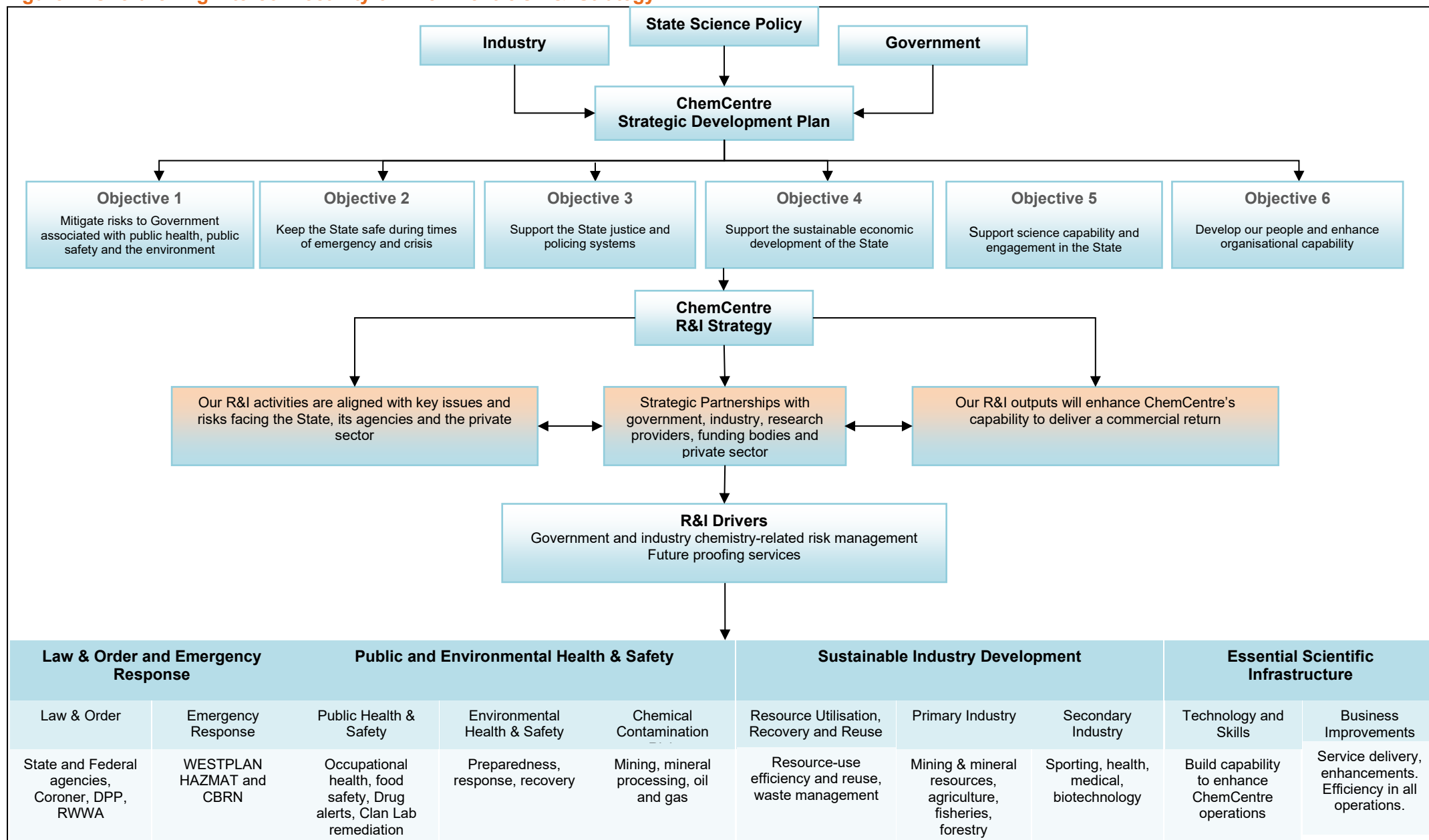
1. Mitigate risks to government associated with public health, public safety and the environment
2. Keep the State safe during times of emergency and crisis
3. Support the State justice and policing systems
4. Support the sustainable economic development of the State
5. Support science capability and engagement in the State
6. Develop our people, enhance organisational capability and financial sustainability

Within its areas of expertise, ChemCentre also contributes to scientific education and knowledge, operates a successful consulting business and conducts collaborative research and innovation activities.

The interconnectedness of ChemCentre's responsibilities necessitates the implementation of an effective R&I Strategy that underpins both ChemCentre's statutory and commercial objectives. Our pro-active approach to R&I activities builds capability and skills that enable ChemCentre to refresh its service delivery capacity, stay relevant and better position it to respond to government, client and market needs.

Figure 1 shows a diagrammatic representation of how this objective will continue to be delivered.

Figure 1: Overarching Interconnectivity of ChemCentre's R&I Strategy



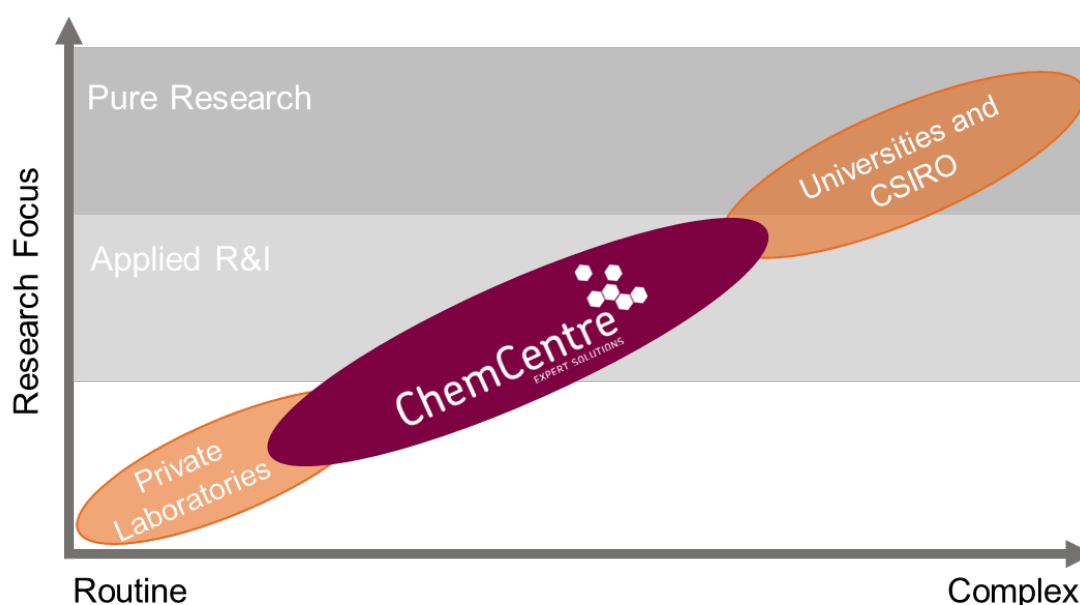
2. Operational Context

ChemCentre principally exists to provide specialised chemical and forensic services to enable the State to manage its chemistry-related risks and ensure a safe and prosperous WA. It applies technical knowledge to solve practical problems that achieve effective outcomes for communities, government and private industry.

The business model for delivering these services is continually evolving towards achieving greater financial sustainability; and ensuring ChemCentre can execute its role in mitigating chemical-related risks on behalf of the State.

ChemCentre has historically concentrated on more complex analyses and applied research, consistent with its mandate. Figure 2 illustrates ChemCentre's analytical and R&I niche within WA.

Figure 2: ChemCentre's R&I Marketing Niche



Importantly, Figure 2 identifies what sets ChemCentre apart from private laboratories, where the emphasis has been more on high-volume and low-price analysis; and the tertiary sector, where the emphasis has been on pure/leading edge research.

ChemCentre's sustainable business model must be underpinned by continual improvement processes, targeted R&I and strategic method development to ensure continued relevance to clients and to service the State's current and future needs.

To achieve its Mission and Vision ChemCentre will:

- Open and maintain an active dialogue with industry and government to identify strategic risk reduction related R&I opportunities;
- Ensure staff have the expertise to secure and deliver contract R&I services to industry, while maintaining their capabilities to manage chemistry-related risks; and
- Deliver R&I projects to agreed milestones, on time and with scientific rigour.

3. Strategic Context

Our Strategic Development Plan 2019-2024 identifies several market forces that are likely to impact ChemCentre's business during the life of the current Plan.

1. *Legislative changes*; New laws on prohibited substances, roadside drug testing, mandatory drug and alcohol testing have already been enacted. Legislation to increase testing and surveillance and monitor mental health, fatigue and safety in the workplace is pending.
2. *Cultural changes*; The Coroner requires the provision of toxicological data for deaths within certain ethnic or religious groups faster than current systems can deliver.
3. *Population changes*; Growth and new demographics may present a disproportionate increase in the overall demand for services such as criminal and coronial toxicology.
4. *Business activity changes*; Specific campaigns undertaken by government departments and agencies and other unique/unexpected events require staff and equipment is sufficiently flexible to address these changes in real time.
5. *Client expectations*; Clients increasingly demand scientific results that are provided faster, more cost effectively and with greater robustness.
6. *Government policy changes*; ChemCentre must comply with government policy. This may require immediate responses to administrative changes or significant shifts in policy direction that have potential to disrupt operations.

Our strategic and operational planning must ensure we develop the right capabilities, capacities and resilience to meet these, and other strategic challenges, as they evolve.

To create a successful R&I culture and leadership model ChemCentre will:

1. Ensure the R&I Strategy is consistent with our mandated statutory obligations.
2. Identify emerging trends, needs and strategic R&I opportunities and form partnerships that extend our reach and capabilities accordingly.
3. Increase our effectiveness by eliminating 'silos' within our organisation and ensuring all staff understand and embrace our Values.
4. Provide formal R&I training and development programs for our staff, including theoretical, practical and on-the-job learning and experience.
5. Demonstrate our commitment to rigorous scientific standards and accountability.
6. Maintain and increase where necessary the Third Party Accreditations we hold.
7. Implement formal processes to identify, prioritise and deliver the impactful R&I opportunities that are available.
8. Increase our profile by meaningful engagement with key WA government agencies, public and private research providers and private sector businesses and peak bodies.
9. Establish SMART Key Performance Indicators that drive efficiency and effectiveness.
10. Adopt formal monitoring and evaluation processes that can demonstrate the value and economic impact of our R&I.

4. R&I Strategic Directions

ChemCentre's R&I strategic directions are determined as part of, and consistent with, ChemCentre's strategic planning and are in line with our six overarching strategic objectives.

ChemCentre's efforts focus on applied and collaborative R&I to solve difficult problems for government and the State's industrial, mining, agricultural, environmental and forensic science sectors.

In taking this approach, ChemCentre will pursue revenue opportunities with government agencies and the private sector consistent with its mandate and strategic objectives.

ChemCentre will maintain and enhance the essential capabilities required to address the State's risks and offset the overall cost to government through consultancy work for a range of clients that delivers commercial returns.

Thus ChemCentre's R&I focus over the next five years will continue to be:

- Expanding and developing scientific skills into new directions;
- Strategic method development for enhanced analytical and scientific services;
- Forensic intelligence and enhanced investigative tools for policing; and
- Business improvement and growth.

It is logical that these goals are pursued in areas that are core to ChemCentre's Mission:

- Law and Order, and Emergency Response;
- Sustainable Industry Development;
- Public Health & Safety; and
- Support for Essential Scientific Infrastructure

ChemCentre has identified three overarching Strategic R&I Objectives that will guide its R&I Strategy for the next three years, with regular reviews and updates where necessary.

1. *Our R&I activities are aligned with key issues and risks facing the State, its agencies and the private sector*
2. *Strategic Partnerships with government, industry, research providers, funding bodies and the private sector*
3. *Our R&I outputs will enhance ChemCentre's capability to deliver a commercial return*

ChemCentre will pursue the Strategies and Outputs described against these Strategic R&I Objectives in the following three tables. The overarching Outcome sought is:

ChemCentre provides targeted, high quality research and innovation in chemical and forensic sciences that underpin a safe and prosperous Western Australia.

5. Strategic R&I Objectives

STRATEGIC R&I OBJECTIVE #1	
R&I activities are aligned with key issues and risks facing the State, its agencies and the private sector	
Clients/Stakeholders: State Government departments; WA Police; Office of the State Coroner; Racing and Wagering WA; Department of Fire and Emergency Services; Federal emergency management agencies; Private sector businesses; and industry bodies	
Strategies	Outputs
<ul style="list-style-type: none"> • Partner with government and industry to investigate chemistry-related risks to State development • Establish a vibrant R&I program based on risks to the State and focussed on science-based solutions • Investigate and lead R&I opportunities to harness new technologies and methodologies in forensic science • Expand forensic intelligence services, based on international trends and targeted laboratory investigations, to improve the effectiveness of criminal investigations • Maintain equipment, expertise and services available to government and industry in line with risk priorities and private sector business opportunities (current and emerging) 	<ul style="list-style-type: none"> • New methods for compositional chemistry • New mass-spectrometry-based capabilities for the extension of current analytical and scientific capabilities: <ul style="list-style-type: none"> ➢ Proteomic capabilities for the analysis of 'large' molecules ➢ Capability to target 'unknown' compounds of interest ➢ Development of ICP-MS methods for the detection of nanoparticles ➢ Organic isotopic analysis by isotope ratio MS • Enhanced capabilities to prepare for, respond to and resolve hazardous material incidents • Critical advice to incident response agencies • Greater expertise to address chemical contamination issues where risk to stakeholders has been identified: <ul style="list-style-type: none"> ➢ Early identification of mining and environmental risks using sequential leaching screening tools; ➢ Perfluorinated chemicals (PFOS, PFOA etc) and Microplastics • ChemCentre positioned to undertake more complex soil and water quality related research activities.
OUTCOME - STRATEGIC R&I OBJECTIVE #1	
Current and emerging chemical-related risks to the health, justice, safety and environment of the State and its citizens are identified, assessed and mitigated.	

STRATEGIC R&I OBJECTIVE #2	
Strategic partnerships with government, industry, research providers, funding bodies and the private sector	
Clients/Stakeholders: Public and private research organisations; Cooperative Research Centres (CRCs); Industry funding bodies; Industry Growth Centres (mining; oil and gas; agriculture and food); Private sector businesses; Peak industry bodies; Government agencies	
Strategies	Outputs
<ul style="list-style-type: none"> Continue to build on the priority areas of collaborative R&I based on identified and emerging State risks and opportunities Engage with key CRCs (current and those in development) and other partners to collaborate and deliver financial benefits to the State Formalise high level engagements with key State and National science research and development groups and the private sector Leverage knowledge gained with honey industry to develop value-adding approaches for other potentially high value products 	<ul style="list-style-type: none"> Collaborations that leverage State funding: <ul style="list-style-type: none"> ➤ Formal collaboration with CRC for Honey Products ➤ Formal collaboration with CRC for Fighting Food Waste ➤ Bid for CRC for Future Battery Industries supported ➤ Bid for CRC for Achieving Sustainable Mine Closure supported Increased industry and government involvement with mining and environment risk tools Collaborations with government and industry to extend applications of LEAF tools to agronomy, mineral and other industries Partnerships with other research organisations to access analytical expertise and equipment not available at ChemCentre An effective engagement strategy with the Oil and Gas industry Business case for investment in bio-prospecting in collaboration with WA Biodiversity Science Institute Collaborations with industry players around hemp, truffles, sandalwood, abalone and/or other high-value products
OUTCOME - STRATEGIC R&I OBJECTIVE #2	
Strategic and collaborative partnerships developed through communication and engagement on a range of R&I initiatives are delivering benefits to ChemCentre, its clients and stakeholders.	

STRATEGIC R&I OBJECTIVE #3	
Our R&I outputs will enhance ChemCentre's capability to deliver a commercial return	
Clients/Stakeholders: Public and private research organisations; Rural Development Corporations; Government and industry funding bodies; Cooperative Research Centres; Industry Growth Centres; Racing and Wagering WA; National Measurement Institute; Private sector businesses and industry clients	
Strategies	Outputs
<ul style="list-style-type: none"> • Continue to identify and pursue R&I opportunities within ChemCentre's mandate • Target research associated with water, mining and the environment, primary industries, and forensic science • Offer services that assist the State to develop new, high value industries • Develop innovative and commercial products aligned to core business to provide new income streams • Plan and support staff development, including leadership capabilities, skills training, mentoring • Review and develop processes for R&I including reporting frameworks and accountability 	<ul style="list-style-type: none"> • Proteomics capabilities for priority areas, including food and compositional analysis and agricultural applications • Predictive tools and protocols to inform environmental impact, waste management and mine site closure planning and approval such as: <ul style="list-style-type: none"> ➢ Sequential leaching screening tools and customised large column kinetic leaching ➢ LEAF testing protocols and Leachate Model extended to include clean landfill, reduced tailings storage and agronomy applications ➢ Assessment of the environmental impact of food wastes • Accreditation, certification and provenance services developed: <ul style="list-style-type: none"> ➢ Laboratory based certification protocols and provenance testing methodologies to protect high-value food exports ➢ Provenance testing methodologies to protect the brand value of new products from food waste ➢ Laboratory based certification of future battery chemical components • Implementation of automation/artificial intelligence to enhance data interpretation and reporting • 'Virtual' special interest groups to develop staff capability and corporate skills in key areas (chemometrics, traceability)
OUTCOME - STRATEGIC R&I OBJECTIVE #3	
Highly skilled, engaged and flexible workforce with systems in place to facilitate a continuous learning culture, fostering individual excellence, performance and accountability.	

6. Operations and Accountability – Management & Governance

Corporate Governance

As a statutory authority enabled under the Chemistry Centre (WA) Act 2007, ChemCentre is governed by an experienced Board, delivering the leadership that maintains our position as WA's leading chemical analysis services provider.

Under the Act, ChemCentre works under two planning documents, which are approved by its Minister and the Department of Treasury:

1. Strategic Development Plan (SDP), providing a 5-year outlook; and
2. Statement of Corporate Intent (SCI), providing a one-year outlook.

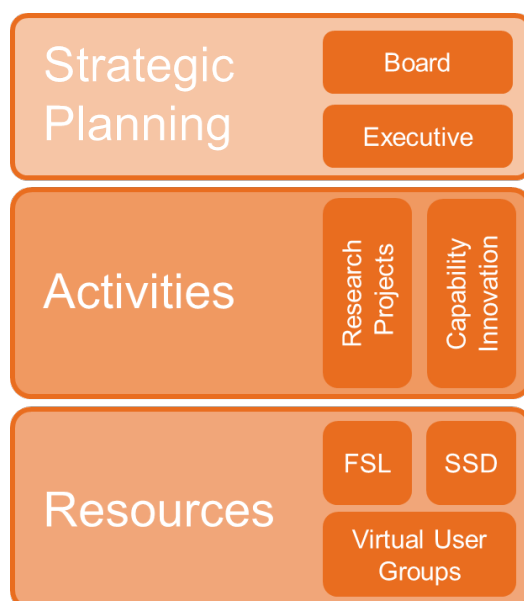
The ChemCentre Executive has developed this R&I Strategy in consultation with the Board.

R&I Functional Structure

Figure 3 describes the structure of R&I functions within ChemCentre. Implementation of R&I activities will be undertaken by the Scientific Services Division (SSD) and the Forensic Science Laboratory (FSL) R&I Management teams, either in the form of discrete research projects, or as innovation to develop capability through, for example, strategic method development. R&I management will consult with Executive and Team Leaders to agree upon R&I activities and ensure the appropriate resources are available.

Complementing the R&I Management teams will be several Virtual User Groups that exist across SSD and FSL, devised to develop staff capability and corporate skills in key areas.

Figure3: ChemCentre's R&I Functional Structure



R&I Reporting

Reports describing status of existing projects and new R&I opportunities are provided for each Board meeting. Examples of management and reporting tools used are included in the Appendices, including a proposed opportunity development pipeline (Appendix 1), analysis of current and prospective projects in terms of project life and risk (Appendix 2), and an extract from the implemented SSD Project Plan 2017-2021 (Not included in public doc).

Stakeholder Communications and Engagement

Communications and engagement are core activities for ChemCentre and are integral to the organisation's success in meeting its statutory responsibilities and aligning with the State Government's science and innovation strategy.

ChemCentre's Communications and Engagement Strategy provides the framework for ChemCentre's internal and external activities and provides an overview of the approach to communications for ChemCentre in relation to internal and external stakeholders. Tailored communication strategies are to be developed to support specific issues, initiatives, projects and events.

The Strategy aims to:

- Identify and promote ChemCentre's capabilities, achievements and value in terms of economic benefit to the State.
- Achieve a high level of positive external awareness of ChemCentre, its services, products, activities, R&I.
- Build and maintain positive relationships with key stakeholders.
- Build and support an ongoing positive ChemCentre culture through engaged staff and effective internal communications.
- Assist business development and marketing activities to build a commercially sustainable business and greater economic return on investment to the State.

The ChemCentre's *Dealing with the Media* Policy outlines the process and responsibilities for communications with the media, both proactive and reactive. ChemCentre Communications is the official point of contact for all comment to the media to ensure a consistent, accurate and timely approach.

Management of day to day communications with media is the responsibility of the Media and Communications Manager with oversight from the Chief Executive officer.

Risk Management Framework

ChemCentre's approved Risk Management Framework enables the consistent application of risk management policy and process across diverse business areas. The Framework sets out details of the organisational procedures for designing, implementing, monitoring, reviewing and continually improving risk management throughout the organisation.

The Framework is aligned to Australian/New Zealand International Standard 31000:2009 Risk Management – Principles and guidelines (AS/NZS ISO 31000:2009), which defines risk as the effect of uncertainty on the ability of an organisation to meet its objectives.

ChemCentre has taken this approach because managing risk adds value to the activities of ChemCentre by increasing the probability of success in achieving strategic and operational objectives.

Effective risk management involves identifying major risks and mitigating them. When the management of risk goes well, it often remains unnoticed. When it fails however, the consequences can be significant.

From ChemCentre's perspective, effective risk management is an essential requirement to mitigate major risks including:

- Loss of life
- Loss of disruption to operational capability
- Loss or damage to reputation, including organisational or political embarrassment
- Financial loss, including theft and fraud
- Legal liability

Project Management

ChemCentre's approved Project Management Framework enables the consistent application of project management policy and process across diverse business areas. The Framework sets out details of the organisational procedures for initiating, planning, approval, executing, monitoring, controlling and closing projects, including review steps, throughout the organisation.

The Framework is aligned to the project management methodology described in the Project Management Institute's (PMI) *Guide to the Project Management Body of Knowledge* (PMBOK Guide).

Through deploying the Framework and associated procedures, ChemCentre aims to reflect best practice including:

- High quality training and experience of project managers;
- Setting clear expectations and managing them accordingly;
- Strong leadership, focused on business and client needs;
- Rigorous scope documentation, with appropriate Change Request procedures;
- Formal plans and planning processes;
- Accurate resource and effort estimation;
- Cultural and ethical understanding;
- Common understanding among project teams, management and clients; and
- Excellent communications, including progress tracking and reporting.

Quality and Accreditation

ChemCentre has maintained continuous, comprehensive NATA accreditation since 1950 (Registration number 8) and is currently accredited to AS ISO/IEC 17025 for laboratory

practise and AS/NZS ISO 9001 for quality management. ChemCentre is also accredited for forensic analysis under AS 5388 and specimen collection and the detection and quantification of drugs of abuse in urine (AS/NZS 4308) and oral fluid (AS/NZS 4760)

ChemCentre values its independent status and has policies and procedures to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgement or operational integrity. ChemCentre operations are guided by the ChemCentre Quality Manual, which includes Corporate position statements on Independence and Confidentiality.

Occupational Safety and Health

ChemCentre is in a modern purpose-built laboratory complex on Curtin University's Bentley campus, on lease through to 2029 (with additional options).

ChemCentre is accredited under the Best Practice Certification AS4801 OHS Management System and has also achieved JAS-ANZ Safety Accreditation against AS/NZS 4801:2001 and AS1885.1, demonstrating its ongoing commitment to quality and safety.

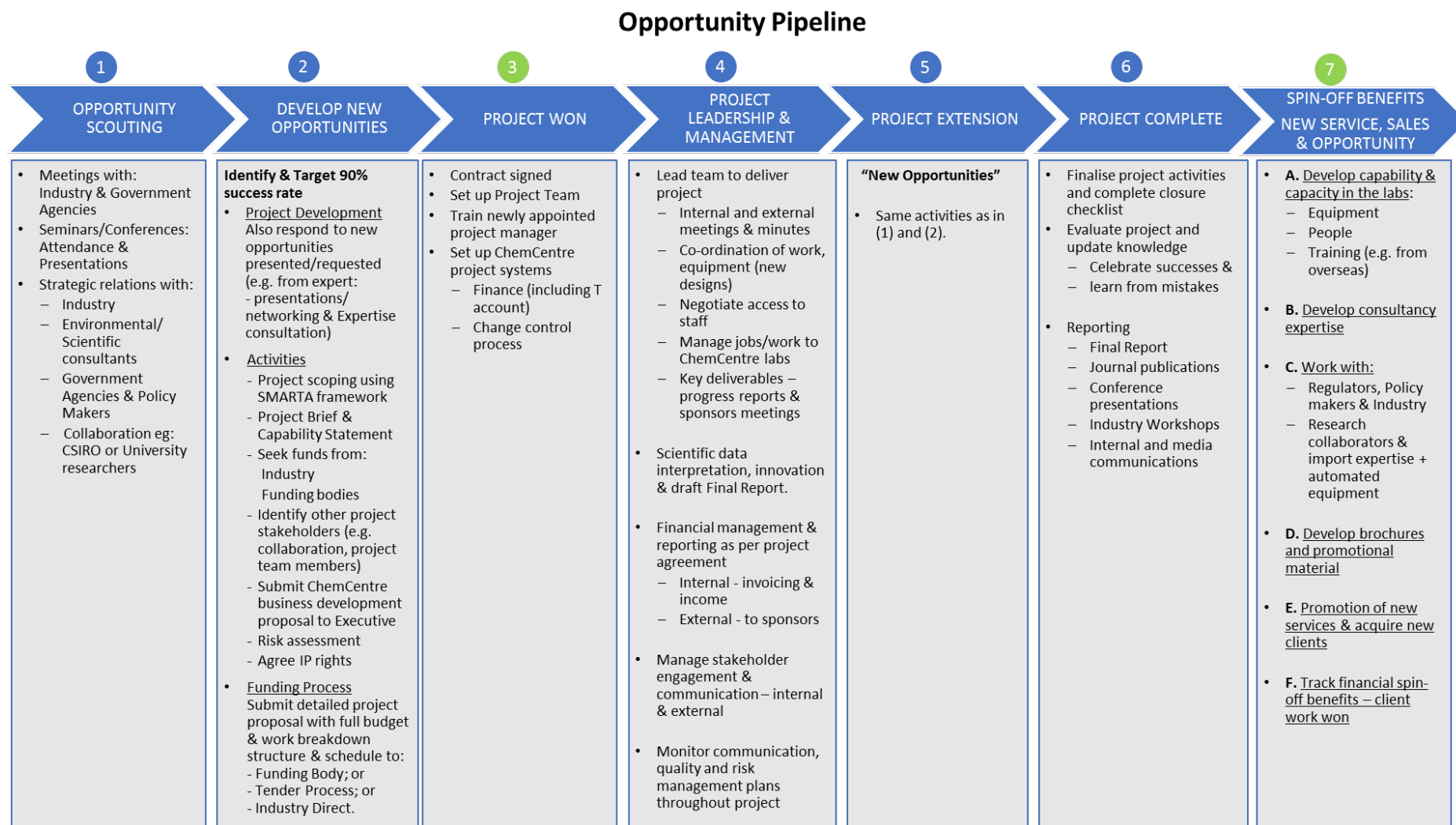
Intellectual Property Management

ChemCentre is committed to the protection, management, use and commercialisation of intellectual property (IP) generated by its activities, guided by ChemCentre's Intellectual Property Policy

Any intellectual property generated by R&I activities will be reviewed on a project to project basis and recommendations made.

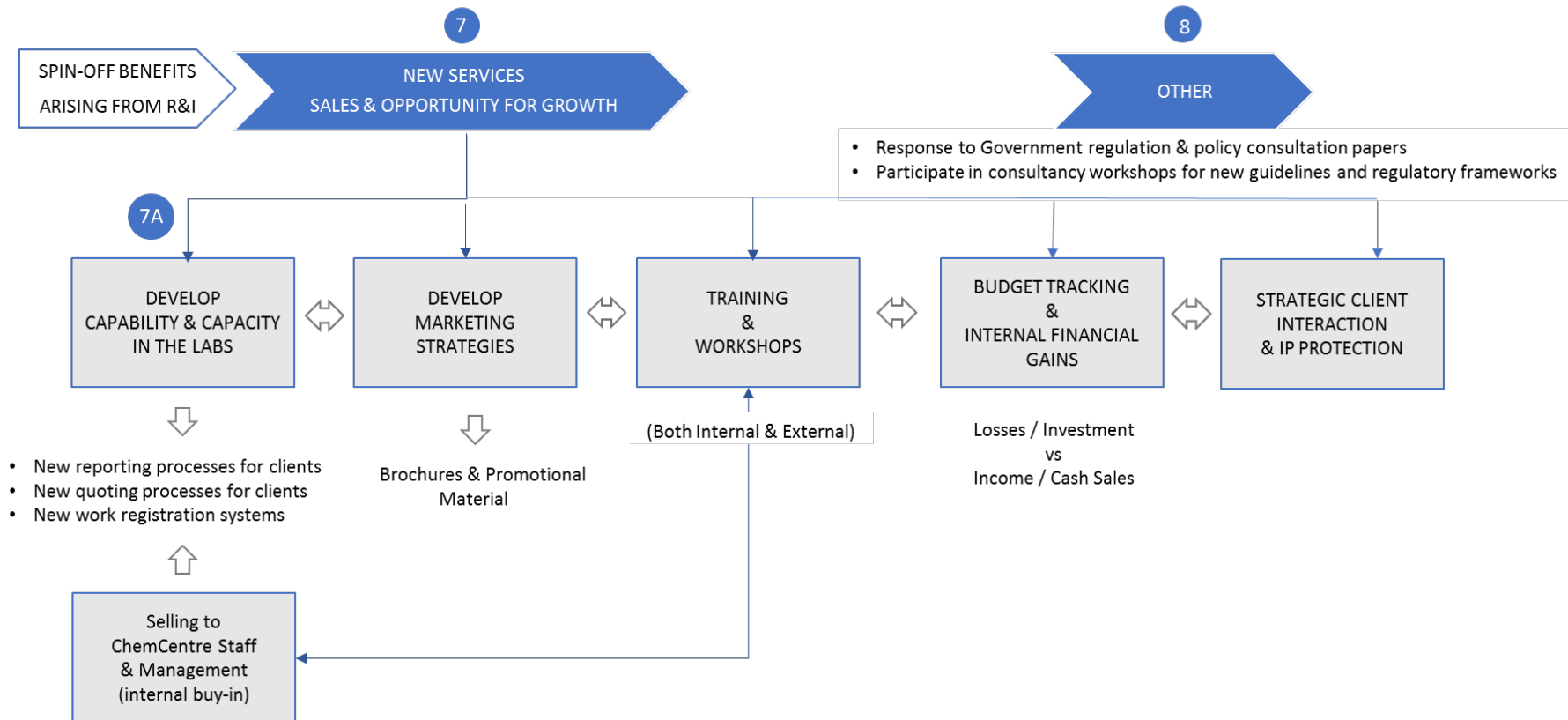
Appendices

Appendix 1: R&I Business Development Opportunity Pipeline and Spin Off Benefits

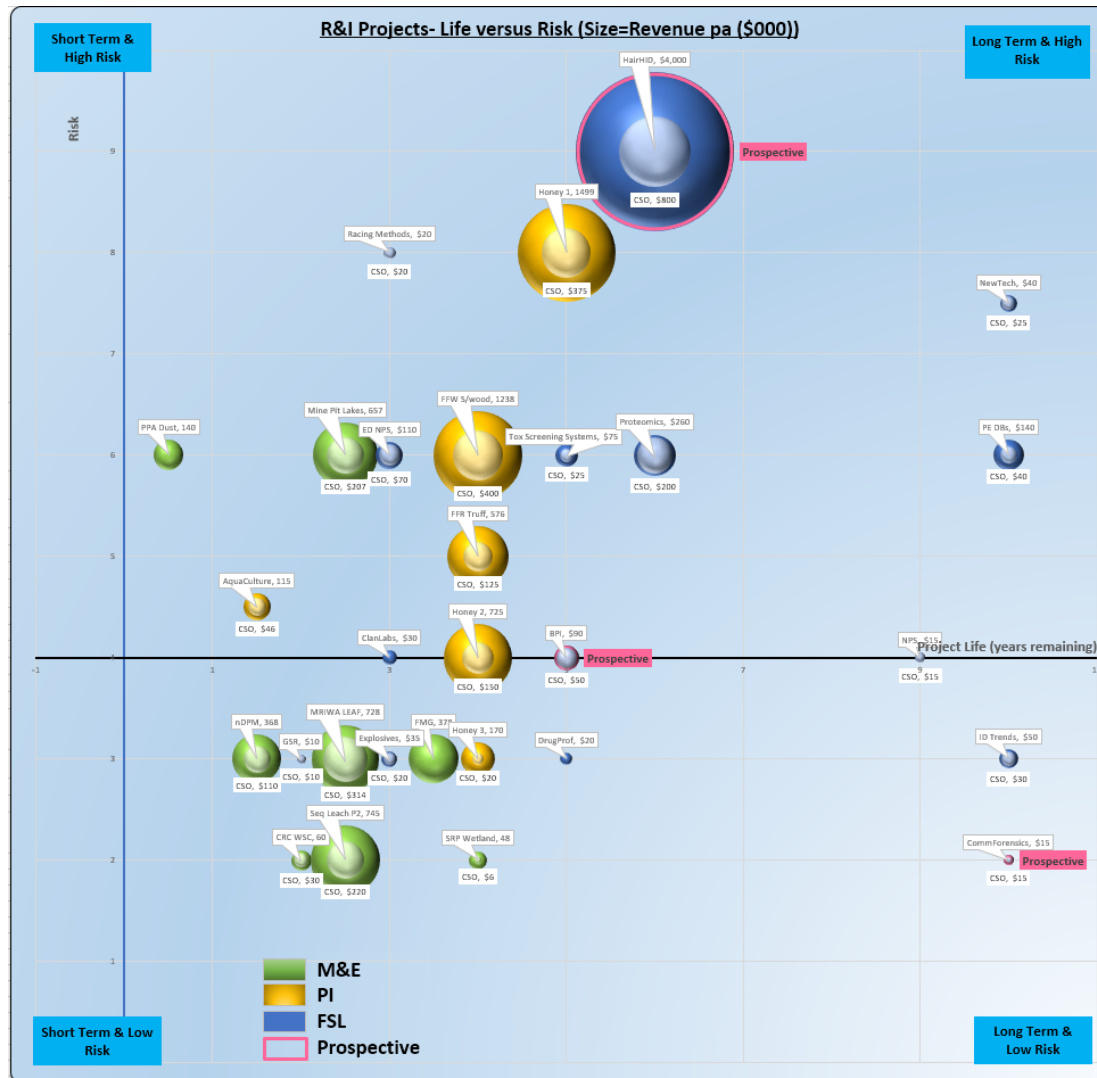


“Internal & external Communications” – for (3) (4) & (5) in: e-News, ChemCentre Newsletter & Invited Presentations. E.g. to government work groups/ CME/ Industry/ Technical Seminars.

R&I Spin-off Benefits



Appendix 2: Example R&I Project Analysis – Project Life vs Risk of Project Failure



Appendix 3: Example Extract of R&I Project Plan 2017-2021

Not included in public doc.