STATEMENT OF CORPORATE INTENT

2016–2021

E/S/R

CONTENTS

Presented to the House of Representatives pursuant to section 44 of the Public Finance Act 1989.

The Institute of Environmental Science and Research Limited (ESR) is a Crown research institute. It was incorporated in July 1992 and is wholly owned by the New Zealand Government. The two shareholding Ministers appoint a Board of Directors to govern the organisation. ESR has science facilities in Auckland, Wellington (Porirua and Wallaceville) and Christchurch.

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We are pleased to present ESR's 2016–2021 Statement of Corporate Intent (SCI). This SCI explains our future operating environment, our strategy, the activities we will undertake to achieve our outcomes and our five-year financial outlook.

ESR is known for using the power of science to keep communities safe, healthy and prosperous. Over the next five years, we will improve the impacts we make on four outcomes for New Zealand:

- In public health we will reduce the spread of disease, provide a pandemic response capability for New Zealand, and develop our human genomics and next-generation sequencing capabilities
- In forensic science we will develop new techniques that prevent and solve more crime and invest in updates of our world-leading DNA software (STRmix™)
- In food safety we will reduce the spread of foodborne disease and use our science to help protect New Zealand's food based economy
- Our work to improve water and the environment will reduce waterborne diseases in rivers and streams, nitrate levels in groundwater and improve the safe and sustainable application of biowastes to land.

We will continue to play a key role in the 'Our Land and Water', 'New Zealand's Biological Heritage' and 'Healthier Lives' National Science Challenges and will contribute to the 'Deep South' Challenge.

ESR's strategy responds to the challenges and opportunities in our operating environment in three ways – driving growth, strengthening the core of ESR and exploring potential step-changes:

- We are driving growth by increasing STRmix™ sales, taking our science to new customers and increasing the value and effectiveness of science services we provide to key government partners
- We are strengthening the core of ESR by developing our genomics capabilities, reviewing the way we operate, developing our long term property strategy and investing in information technology to meet the growing demands of our scientific data
- We are exploring potential step-changes that could solve two big issues for New Zealand. We are examining how ESR could play a greater role in food safety and assurance to overseas authorities and how genomics and whole genome sequencing can deliver improved health outcomes for New Zealand.

Innovation and agility are critical to our strategy. We will continue to proactively review all of our activities to ensure they are focused on outcomes and generate an appropriate financial return. We will invest in the latest technology, conduct leading edge research and develop our commercial skills to successfully take new products to market. Innovative new research ideas will be encouraged through an increased allocation to our Pioneer Fund.

Investing in our people is also essential to our success. We will grow our science capabilities, strengthen leadership capabilities across ESR and create a workplace culture that encourages innovation and supports our strategy.

We will improve outcomes for Māori by undertaking science aligned with Vision Mātauranga. This includes researching whether the roots of native plants have antimicrobial properties capable of treating biowaste.

Over the next five years we will continue to improve our financial performance. Critical to reaching our target of 8% return on equity is setting our contracts with core government partners on a more sustainable basis. We are also planning to increase revenue from commercialised products, new partnerships and new international customers for our science services. Profits in the next five years will be retained by ESR, allowing us to address ageing facilities and invest in our IT systems.

Denise Church QSO
Chair

Dr Keith McLea
Chief Executive

OUR PURPOSE

ESR is a Government-owned Crown research institute (CRI) that uses the power of science to solve complex problems for our partners and customers and protect people and products in New Zealand and around the world.

ESR is unique among CRIs in that all of its leading edge science focuses on improving the lives of people and communities.

Our mission is 'keeping communities safe, healthy and prosperous through smart and sustainable science'.

Our independent scientific advice and services safeguard people's health, protect our food based economy, improve the safety of our freshwater and groundwater resources and provide the justice sector with expert forensic science.

We are known for our ability to solve complex problems using our advanced capabilities in microbiology and DNA analysis. We conduct innovative ground breaking research in collaboration with our New Zealand-based and international research partners.

Our high calibre team are the go-to scientists for authoritative, independent, trusted science solutions. Our capabilities include forensic science, health science, food science and water science, radiation science, social science and workplace drug testing.

We have a clear point of difference in each of our core businesses. In forensic science we have world-class internationally accredited forensic science capabilities. In public health we have the largest team of epidemiologists in New Zealand and provide a standing army in the event of a pandemic outbreak. We use our advanced knowledge of diseases to improve food safety, improve the quality of waterways and improve the safe use of biowastes.

Our team of 380 expert minds provides independent and trusted scientific services and research to NZ Police, Ministry of Health, Ministry for Primary Industries, Corrections, Regional Councils, food producers, Ministry of Foreign Affairs and Trade, Ministry for the Environment and other customers around the world.

Our science capabilities attract global interest. We provide science services to customers in the USA, Europe, Asia, Australia and the Pacific. Our forensic software STRmix™ is now used by 62 forensic laboratories around the world.

STATEMENT OF CORE PURPOSE

PURPOSE

ESR's purpose is to deliver enhanced scientific and research services to the public health, food safety, security and justice systems, and the environmental sector to improve the safety of, and contribute to the economic, environmental and social well-being of people and communities in New Zealand.

OUTCOMES

ESR provides research and scientific services and knowledge transfer in partnership with key stakeholders including government, industry and Māori to:

- Safeguard the health of New Zealanders through improvements in the management of biosecurity and threats to public health
- Increase the effectiveness of forensic science services applied to safety, security and justice investigations and processes
- Enhance protection of New Zealand's food based economy through the management of food safety risks associated with traded goods
- Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes.

SCOPE OF OPERATION

ESR's science capabilities have a positive impact on the health and prosperity of New Zealand communities. ESR is the lead CRI in:

- Forensic science services
- Harm prevention from drugs and alcohol
- Surveillance of human pathogens and zoonotic diseases
- Domestic and export food safety in partnership with the Ministry for Primary Industries
- Impacts of the environment on human health, including groundwater, freshwater and drinking-water quality and safe biowaste use
- Integrated social and biophysical research to support decision-making in the environmental, public health and justice sectors
- Radiation safety services and regulatory support.

OPERATING ENVIRONMENT

Over the next five years our operating environment will present challenges and opportunities for ESR. We will need to be highly agile, investing in the latest technology, addressing key challenges facing New Zealand, increasing collaboration with our research partners, meeting changing customer expectations and developing greater commercial expertise.

SCIENCE TRENDS

Genomics is a fast moving field, where changes in DNA sequencing technologies and equipment are accessing more detailed information on life's basic building blocks that can more precisely help researchers uncover the causes of diseases. Some countries have already begun to link their health data to genetic data. Miniaturised and more portable DNA equipment is being developed. There is also a trend towards increased global collaboration on complex science problems.

CHALLENGES FACED BY NEW ZEALAND

ESR's science will need to respond to the unique set of challenges faced by New Zealand. These challenges include risks to NZ's reputation as a quality food producer, increasing waterborne diseases in waterways, nitrate levels in groundwater, the threat of pandemics, antimicrobial resistance, prevention of violent crime, drug related offending and repeat offending.

NEW ZEALAND'S SCIENCE SYSTEM

Effective collaboration between key players will ensure New Zealand gets the best results from its science system. We will actively partner with CRIs, District Health Boards, Universities, Regional Councils and core government agencies and international agencies to improve public health and justice outcomes.

CUSTOMER EXPECTATIONS

Our core government partners are likely to face ongoing tight financial constraints. We will need to maintain strong partner relationships at the operational level and develop a deeper understanding of the outcomes and impacts that our partners and their stakeholders want to achieve. This will inform our longer term collaborative planning, future product development and service delivery. We will need to be agile, investigating new and innovative ways of configuring our products and services. The joint screening laboratory we operate with the New Zealand Customs Service at Auckland Airport is a good model for working more closely with our partners to better meet their needs.

COMMERCIAL FOCUS

We are embedding the key elements necessary for successfully increasing sales of our commercial products and taking new products to market. As we build our commercial expertise we will work with trusted partners, such as KiwiNet, who bring additional commercial expertise to create value from our intellectual property.

EMERGING MARKETS

We will continue to increase our presence in the food safety market and explore potential opportunities both domestically and overseas. We are already delivering science work in the US, Europe, Australia and the Pacific and we aim to become the key provider of scientific advice for Pacific Island nations. We take a multidisciplinary approach that assists projects aimed at providing safe drinking water and improved wastewater management, hygiene and sanitation. We will use our membership of FoodHQ and involvement in the Food Safety Science and Research Centre to increase collaboration with other scientific research organisations. We will continue to leverage our capability to investigate and analyse complex social issues, such as family violence, using our social science expertise.

STRATEGY

Our refreshed strategy will ensure that ESR is fit for the future. We plan to grow the business, improve our financial sustainability and reinvest in high value science to deliver better outcomes for New Zealand.

In recent years ESR has faced a number of challenges including flat revenue from core government clients and ageing infrastructure. A thorough strategic refresh was undertaken in 2014 which provides the blueprint for how we will address these challenges and grow and become more sustainable in the future. The three foundation blocks of ESR's strategy are driving growth, strengthening the core and achieving step-change.

Drive growth
Provide high value science to key government partners, enhance our commercial focus and grow the business

Strengthen the core
Invest in the right people, equipment, facilities and IT for future success

Achieve step-change
Develop innovations that solve big issues for New Zealand

DRIVE GROWTH

We will work closely with current and potential partners to better understand their needs and tailor our services to meet those needs on a financially sustainable basis. We will take a strategic approach to managing our relationships with partners and key stakeholders to ensure that we deliver high value science and excellent customer service. This is partly about remaining valued and competitive as a service provider, but is also about ensuring that partners see how our science-based services can help them to achieve and improve their outcomes.

We will continue to commercialise our intellectual property, form strategic partnerships to achieve greater scale, attract new international customers for our science services and launch new services. Early results from the commercialisation of our world-leading DNA forensic software (STRmix™) have been very promising and we expect sales to increase. We are also commercialising other products including the bacteriophages we develop. For all commercialisation projects we will follow a stage-gate commercialisation process and look to supplement our own funds with co-funding. Adopting a more commercially focused business model is key to improving our financial performance.

Innovation and agility are critical to our strategy. We will continue to proactively review all of our activities to ensure they are focused on outcomes and generate an appropriate financial return. We will invest in the latest technology, conduct leading edge research and develop our commercial skills to successfully take new products to market. Innovative new research ideas will be encouraged through an increased allocation to our Pioneer Fund.

We will also seek to collaborate with others where relevant to our strategic direction. In some of the sectors in which we work (such as the food sector) there are multiple, complementary sources of expertise. This means that the best value for NZ Inc will be delivered through multilateral partnerships with other CRIs, universities, local authorities, health authorities and others. We will build collaborative partnerships to deliver better results in different sectors and apply commercial assessments to all new work.

Forecast growth in net profit after tax (NPAT) will be reinvested in improved information technology and science facilities.

STRENGTHEN THE CORE

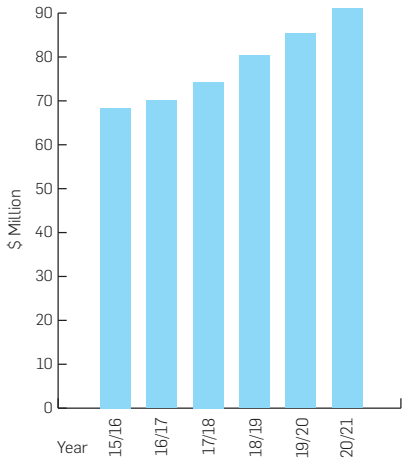
We are strengthening the core of ESR by reviewing the way we operate, developing our long term property strategy, investing in robust information technology to meet the growing demands of our scientific data, and growing our science capabilities and people.

We will continue to review the way we operate to ensure we are configured optimally for future success. The development of our genomics capabilities will be a key driver of this, as it will change the mix and quantum of traditional laboratories and office based analytics. The requirement for wet labs, which are more expensive to build and maintain, will reduce significantly. A corresponding increase in office facilities is expected. Over time genomics technology will supplant many of the current technologies for Health and Environmental Science but in Forensic will be largely an addition to the current suite of tests.

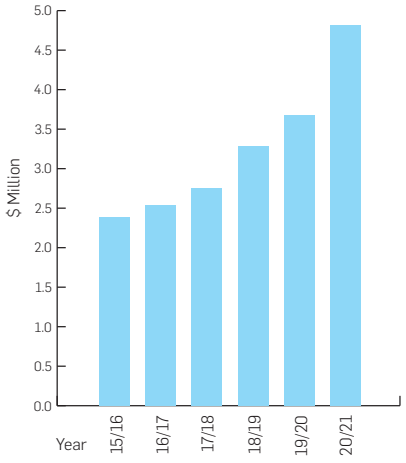
We continue to focus on maximising the efficiency and utility of our science facilities in Auckland, Wellington and Christchurch. ESR's property strategy will take account of the future operating model, proximity to major partners, access to skilled people, ability to support growth into international markets, the potential for using hubs and co-locating with other science organisations, business continuity and financial considerations. A broad range of options is being considered for addressing the ageing facilities in Kenepuru, including rebuilding on the current site and subdividing surplus land, shifting elsewhere within the region, and potentially co-locating with other CRIs.

We will optimise our IT investments so we are better able to support new and existing partners, maintain our business systems, and enhance our ability to transfer knowledge and technology to end-users. The successful delivery of our services has become inextricably linked with technology as science evolves from the workbench to the workstation. We will

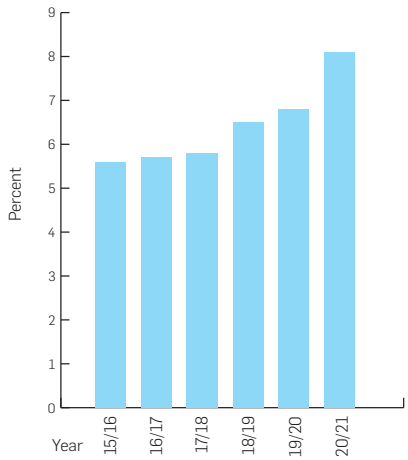
REVENUE



NET PROFIT AFTER TAX



RETURN ON EQUITY



develop a modern and robust core platform capable of supporting systems of national significance, improve access to vast amounts of data, adopt high performing technology platforms that enable our science services and ensure the optimal investment of resources in IT.

Internal systems and processes will continue to be strengthened. We will introduce stronger project management and investment processes to oversee all investments, including capital expenditure, commercialisation activities and the strategic allocation of MBIE Strategic Funding. At the same time we will focus on streamlining our cost structure.

The quality of our people is crucial to our organisational success. We will continue to develop leadership capabilities across ESR and improve the engagement of all our people. We will build a higher-performing and customer-oriented organisational culture.

ACHIEVE STEP-CHANGE

We are exploring innovative step-changes that could address two big issues for New Zealand.

International advances in human genomics now provide a wide range of new opportunities to improve patient outcomes, improve quality and reduce healthcare costs significantly. New Zealand is behind many countries in its research efforts and policy thinking on how to apply these advances to the healthcare system. Although New Zealand does not have the scale to adopt a leading position in this field, it can become a fast follower of international scientific advances. This approach will contribute to the 'A Better Start' and 'Healthier Lives' National Science Challenges.

We plan to build on our strengths in health through the health intelligence platform. This will require building expertise and services across more diseases, partnering with additional organisations that have complementary knowledge and skills, and ensuring that ESR has greater reach at the regional level. We are exploring the potential for ESR to play an active role in building the infrastructure for omics[1] technology applications for the benefit of the national healthcare system. In addition, we will partner with other key players in the industry to progress the human genomics debate in New Zealand.

We recognise that this is a long-term commitment and that the financial benefits may be some years away, but in the immediate future our work will include:

- Engaging with key stakeholders to build partnerships at the senior level
- Hosting a genomics summit in late 2016
- Contributing to the national debate on the provision of omics-based healthcare services to New Zealanders
- Attracting expertise in omics to provide advice and drive our strategy in this area
- The phased introduction of genomic technology to identification and testing of human pathogens.

The second issue we are exploring is how ESR could play a greater role in food safety and assurance to overseas authorities. If successful, ESR's science would directly contribute to New Zealand's export growth targets and Business Growth Agenda.

FOUR YEAR ROLLING REVIEW

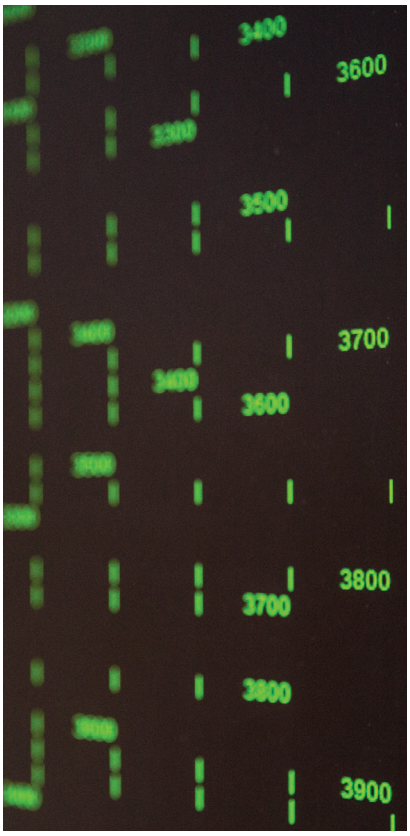
During 2014, ESR underwent a Four Year Rolling Review (4YRR) of performance against its Statement of Core Purpose. Key challenges for the Board and the Senior Leadership Team (SLT) were to determine and communicate a unifying vision, to focus on ESR's core businesses and ensure they are viable, and to address issues of scale and sustainability. The agreed actions have now largely been completed, with the exception of the overhead review and improving the financial sustainability of contracts with core government partners.

[1] Omics refers to a field of study in biology ending in –omics (such as genomics). Omics characterises and quantifies groups of biological molecules to determine aspects such as the structure, function and dynamics of an organism or organisms. The term omics also describes recent advances in high-throughput technologies that could be used to lower costs and provide faster analyses of relevant omics data, as well as enable greater possibilities in delivering science based benefits.

STRATEGIC INITIATIVES

The strategic initiatives we will implement in 2016/17 are outlined in the table below

STRATEGIC THEMES	STRATEGIC INITIATIVES
DRIVE GROWTH	◤ Enhanced partnership agreement with New Zealand Police ◤ Enhanced partnership agreement with Ministry of Health ◤ Grow STRmix™ ◤ RNA patented science method ◤ Optimising research opportunities ◤ Taking our expertise to the world
STRENGTHEN THE CORE	◤ Revised operating model ◤ Property strategy ◤ EPISurv redevelopment ◤ Develop our people ◤ Drive an engaged, connected culture
ACHIEVE STEP-CHANGE	◤ Genomics and bioinformatics ◤ Green Channel™



Our forensic software STRmix™ is used by 62 forensic laboratories around the world.

OUTCOMES AND IMPACTS

OUTCOME 1: PUBLIC HEALTH

Safeguard the health of New Zealanders through improvements in the management of biosecurity and threats to public health

IMPACTS

- Reduced burden of illness and communicable diseases
- Reduced human biosecurity risks
- Reduced risks to human health from radiation
- Improved response to pandemics
- Safer medicines through pharmaceutical testing
- Better informed decisions on complex public and environmental health issues
- Reduced spread of foodborne illness

OUTCOME 2: FORENSICS

Increase the effectiveness of forensic science services applied to safety, security and justice investigations and processes

IMPACTS

- More crime prevented and solved
- Criminal investigations are supported by independent, reliable evidence
- Early elimination of the innocent and inclusion of suspects
- Better forensically informed court decisions
- Findings by Coroners are supported by reliable toxicology
- Reduced drug and alcohol dependency of offenders

OUTCOME 3: FOOD SAFETY

Enhance protection of New Zealand's food-based economy through the management of food safety risks associated with traded goods

IMPACTS

- Improved integrity and reputation of New Zealand's food exports
- Foodborne illness risks to human health and the financial burden on society are reduced
- Episodes and outbreaks of foodborne illness are diagnosed and mitigated

OUTCOME 4: WATER AND THE ENVIRONMENT

Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes

IMPACTS

- New Zealanders have assurance that drinking water is safe
- Improved water quality in rivers, streams and groundwater
- Safer use of biowastes and reduced waste to landfill
- Reduced threats to human health from chemicals, microbes and physical contaminants

OUTCOME 1: Safeguard the health of New Zealanders through improvements in the management of human biosecurity and threats to public health

IMPACTS

Our work improves public health by reducing the harm and costs of infectious diseases. Using our reference laboratory information, the Notifiable Diseases Database and the information collected from laboratories, our scientists collect, collate and analyse data and intelligence on a wide range of diseases present in New Zealand, including influenza, gastroenteritis and hepatitis.

This extensive surveillance allows us to identify and characterise individual strains and cases of disease, track any changes in them, detect outbreaks and assess the effectiveness of control measures including vaccines. With early detection, hazards and diseases can be mitigated and sometimes prevented altogether.

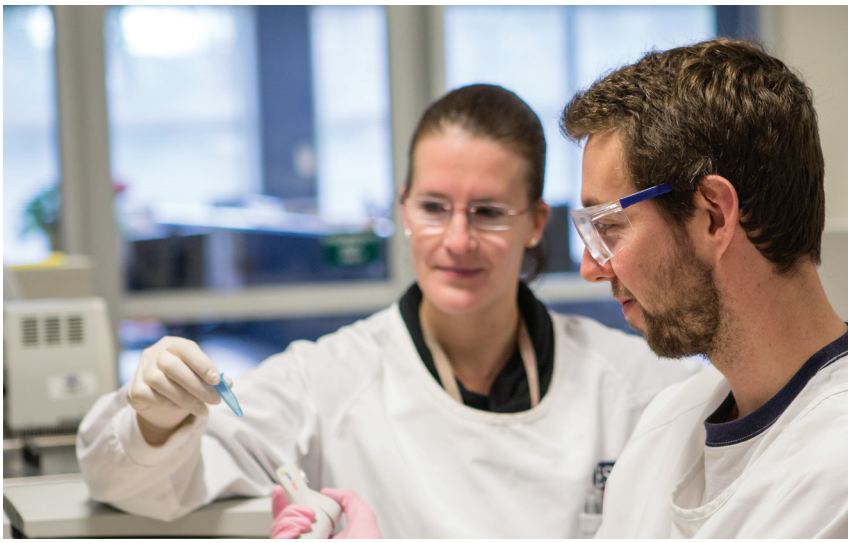
Our work is focused on the following impacts:

- Reduced burden of illness and communicable diseases
- Improved response to infectious disease outbreaks
- Reduced burden of foodborne illness outbreaks
- Reduced human biosecurity risks
- Reduced risks to human health from radiation
- Safer medicines through pharmaceutical testing
- Improved safety through workplace drug testing
- Better informed decisions on complex and challenging public and environmental health issues.

ACTIVITIES

To achieve these impacts our scientists:

- Operate New Zealand's notifiable disease surveillance system (EpiSurv)
- Study the epidemiology of infectious diseases



- Report on trends in notifiable diseases
- Conduct microbial identification and characterisation, including genomic analysis
- Maintain New Zealand's Reference Culture Collection of medically important bacteria
- Provide accredited reference laboratory services
- Coordinate national outbreak investigations on behalf of the Ministry of Health
- Plan for surge capability and capacity in the event of a major crisis
- Provide radiation testing, advice, training, calibration, regulatory support and dosimetry services
- Test the safety of medicines and other therapeutic products against international quality and safety standards, including testing to identify counterfeit and adulterated medicines
- Provide workplace drug testing services
- Assist decision-makers to address challenging problems that involve high levels of complexity and uncertainty.

We provide public health science services to central government under contracts with the key government health and biosecurity agencies. These contracts enable us to deliver core health science services at local and community levels to district health boards (DHBs), public health services and local government.

Our partnerships are centred on the DHB-based public health units, university collaborators, research partners in primary care, the Health Research Council and the United States Centers for Disease Control and Prevention. In the future we will look to strengthen and broaden our partnerships with DHBs, the primary care sector and provider partners.

PLANNED INITIATIVES

To improve public health outcomes we will:

- Complete the 5 year SHIVERS (Southern Hemisphere Influenza and Vaccine Effectiveness, Research and Surveillance) project, which is increasing the understanding of the burden of influenza and how to prevent its spread around the world. New Zealand's influenza season often predicts what will happen in the Northern Hemisphere,

so New Zealand is an ideal location to collect, collate and analyse high-quality data to share with health agencies around the world

- Develop and then leverage the capability to detect new and rare infectious agents using a new type of DNA sequencing technology. This technology allows for massively parallel sequencing of DNA. In the past a single test could only sequence one small part of a genome but now we can obtain millions of sequences covering the whole genome
- Enhance and extend our bioinformatics capabilities relating to bacterial pathogens including outbreak investigation, antimicrobial resistance and population analysis
- Investigate viral metagenomics and identify new viral pathogens affecting animal and human health
- Develop our capability in human genomics.

Initiatives relating to health information systems include:

- Develop and maintain a fully integrated notifiable disease surveillance system with health sector clinical information systems
- Enhancements to our laboratory information management system (STARLIMS Health), including mobility, new tests, analytics and improved reporting
- The phased introduction of genomic technology for identification and characterisation of human pathogens. The use of this technology will dramatically improve our ability to analyse, map and respond to the impact of human pathogens in our food chain and in community, hospital and population health. Targeted investment of MBIE Strategic Funding in our Genomics and Informatics capabilities will maximise the impact our scientists and clinicians make on health outcomes.

PERFORMANCE MEASURES

Impact indicators	**Assisting Ministry of Health to achieve their KPIs:** ◤ Results of the burden of disease and health surveys are improved ◤ Rheumatic fever is reduced by two-thirds by 2017 ◤ Improved ability to respond to unexpected events
ESR performance indicators	◤ 100% of time-critical turnaround times are met ◤ Positive customer survey results from the Ministry of Health ◤ Ministry of Health's project brief milestones and deliverables consistently met

OUTCOME 2: Increase the effectiveness of forensic science services applied to safety, security and justice investigations and processes

IMPACTS

We contribute to justice sector goals relating to reducing crime, delivering a trusted and internationally respected justice system, protecting New Zealand's security and improving the efficiency of the justice system. We deliver forensic services compliant with the international quality accreditation requirements of the Laboratory Accreditation Board of the American Society of Crime Laboratory Directors (ASCLD/LAB).

Through the development of mutually agreed end-to-end processes with our justice sector partners, the timeliness of forensic services delivered to New Zealand Police and to the courts is paramount.

The impacts of our work are:

- More crime prevented and solved
- Criminal investigations are supported by highly reliable, independent evidence
- Early elimination of the innocent and the inclusion of suspects
- Better forensically informed court decisions
- Reduced drug and alcohol abuse of offenders
- Inquiries by Coroners are supported with reliable toxicology.

ACTIVITIES

We provide forensic services to the justice sector including New Zealand Police, courts, the New Zealand Customs Service, Coroners, pathologists and prisons.

To achieve these impacts our scientists:

- Attend crime scenes, including clandestine methamphetamine laboratories and firearms scenes, and identify, interpret and collect evidence
- Provide analytical expertise in DNA, trace evidence, toxicology and drugs
- Maintain New Zealand's DNA Profile Databank
- Provide expert evidence in court
- Perform the drug and alcohol testing of offenders participating in the Alcohol and Other Drug Treatment Court pilot scheme.

We work with clients from multiple sectors and organisations to provide testing services for alcohol, illicit drugs and certain legal drugs that have the potential to impair performance. Our testing may indicate that an employee's ability to carry out their duties safely is compromised, presenting a danger not only to the employee but also potentially to work colleagues and the public.

PLANNED INITIATIVES

To improve forensic outcomes we will continue to develop and progress our scientific capability and expertise. New developing capabilities include:

- The development of forensic DNA capabilities and specialist expertise in DNA interpretation, particularly in the interpretation of mixed DNA samples obtained from crime scenes. As a result we have been better able to support criminal investigations by identifying up to four individual DNA profiles from a mixed sample. We have earned a reputation as a world leader in this field and are partnering with agencies in Australia and the United States to provide specialist services

- Identifying the tissue sources of biological fluids and cells with specific and sensitive new technologies such as RNA analysis and cell-specific fluorescent labelling methods, enabling both the definitive identification of cell types of forensic significance and the separation of specific cell types in mixed case samples prior to DNA profiling
- Exploring opportunities in the area of massively parallel DNA sequencing techniques to maintain our position as a world leader in forensic DNA analysis, including the prediction of physical characteristics of alleged offenders based on the DNA sequences obtained from case samples, leading to faster identification of alleged offenders
- Developing advanced crime scene recording and expert evidence presentation tools. The tools apply scene-scanning technology to record locations of evidence in a way that allows people (such as jurors) to visit a virtual crime scene and clearly see the relationships between items of evidence, and make complex forensic evidence easier to understand. These technologies will lead to faster crime scene investigations, a simplified capture of accurate data, better presentation of key issues to the jurors and a more efficient delivery of evidence at trial, saving time and cost. We are examining opportunities to commercialise the technology.

We will focus on businesses involved in commercialisation and innovation for competitive advantage in international markets.

We will continue to invest in our IT systems to better meet the casework requirements of criminal investigations and the wider needs of the justice system. This investment will improve our ability to meet customer needs, and our capability to interface with external systems.

PERFORMANCE MEASURES

Impact indicators	**Assisting New Zealand Police to achieve their KPIs:** ◤ Total crimes reduced ◤ Assaults on children reduced ◤ Violent crime reduced ◤ Youth crime reduced
ESR performance indicators	◤ 70% of DNA samples are linked to a person ◤ 33% of DNA samples are linked to other crimes ◤ Fulfilment of contractual obligations under the service level agreement ◤ Police satisfaction with ESR's timeliness and quality of service

OUTCOME 3: Enhance protection of New Zealand's food-based economy through the management of food safety risks associated with traded goods

IMPACTS

We provide advisory, monitoring and diagnostic services and research to the Ministry for Primary Industries, the Ministry of Health and the food industry to develop interventions that avoid, detect, mitigate and respond to foodborne hazards.

Our expertise spans bacterial, viral, chemical, physical and radiological hazards in food. We have extensive national and international collaborative networks and access to a suite of tests accredited against international standards to help find out how, where and when food contamination has happened, as well as identify the type of contaminant and its source.

The impacts of our work are:

- Improved integrity and reputation of New Zealand's food exports
- Reduced risks to human health from contaminated food
- Episodes of illness and outbreaks caused by contaminated food are rapidly diagnosed and mitigated.

ACTIVITIES

To achieve these impacts our scientists:

- Develop methods specifically to meet the food safety requirements for overseas market access for New Zealand's primary product exports
- Develop new methods that improve the identification and detection time and allow for better mitigation of food safety risks and spoilage
- Conduct research and provide consultancy services to mitigate on-farm and in-plant sources of food contamination
- Detect foodborne pathogens and chemical hazards (including radiological hazards) present in foods and clinical samples
- Provide an effective emergency response to foodborne illness outbreaks
- Use human health surveillance to understand the epidemiology of foodborne illnesses
- Develop early warning systems to identify emerging foodborne hazards
- Provide information on levels of essential nutrients, trace elements and contaminants in New Zealand's food supply by assisting the Ministry for Primary Industries to conduct the New Zealand Total Diet Survey
- Assist regulatory and emergency decision making with sound, independent scientific evidence
- Provide information for better national, regional and global policy development.

We will continue to work with other providers in New Zealand's science sector, including the Ministry for Primary Industries, Massey University through FoodHQ, AgResearch, AsureQuality, Plant & Food Research and the Cawthron Institute, to deliver solutions.

Through these collaborations we will seek to provide food safety science and research services as part of New Zealand's Food HQ and the New Zealand Food Safety Science and Research Centre. We have also developed international relationships with leading organisations, including the United States Department of Agriculture and the Chinese Cereals and Oils Association.

PLANNED INITIATIVES

To improve food safety outcomes we will continue to:

- Develop more biocontrol products and diagnostic tools that can reduce the risk of bacterial contamination during food processing. A continued area of focus will be the pathogenic Shiga toxin-producing *Escherichia coli (E. coli)* strains (STEC) for which the United States has declared zero tolerance through its export beef microbiological requirements
- Develop mitigation strategies for organisms of relevance to the export and domestic food sectors. This includes the continued advancement of our research on naturally occurring novel antimicrobials against foodborne pathogens including *Campylobacter*, which is a major cause of gastroenteritis in New Zealand
- Widen the effective range of the STECleanz® phage[2] to include all prohibited STEC strain types to improve the integrity and reputation of red meat exports
- Work to support better authentication of the source and quality of New Zealand products. We will continue to support the Ministry for Primary Industries with support for investigations into food quality issues and reassurance to customers through our 'Prove It'[3] capability
- Develop an assay for rapid subtyping of Listeria to support the seafood and dairy industries as part of a seafood safety project funded through the Ministry of Business, Innovation, and Employment.

PERFORMANCE MEASURES

Impact indicators	◤ Increased value of primary industry exports (the Ministry for Primary Industries' goal is to double primary industry exports by 2025) ◤ Enhanced integrity, assurance and reputation of New Zealand's primary products ◤ Reduced human health risk ◤ Reduced financial burden on society from foodborne illnesses
ESR performance indicators	◤ Turnaround times for test results and advice on contamination of food for export meet stakeholder's expectations (will vary by food type & incident) ◤ % of export radiation certificates issued within required timeframes for export ◤ Meet MPI project milestones and deliverables

[2] A bacteriophage (phage) is a virus that infects and replicates in a specific bacterium and kills it in the process.

[3] 'Prove It' is ESR's meat species' identification capability to inform the determination of animals of origin. The capability accommodates the analysis of fresh to highly processed products.

OUTCOME 4: Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes

IMPACTS

We provide scientific advice and expertise on the management of drinking water, fresh water, groundwater, wastewater and biowaste to health authorities, local and central government, industry and communities.

Our work includes the surveillance and reporting of drinking-water quality, information systems management, scientific advice on health and environment public policy, research on water quality issues related to drinking water and recreational waters through source tracking of contaminants.

Our scientists also work with other science partners that together form the Centre for Integrated Biowaste Research (CIBR) on the sustainable management of the biowaste component of waste sent to landfills in New Zealand.

The impacts of our work are:

- New Zealanders have assurance that drinking water is safe
- Improved water quality in rivers, streams and groundwater
- Safer use of biowastes and reduced waste to landfill
- Reduced threat to human health from chemicals, microbes and physical contaminants.

ACTIVITIES

To achieve these impacts our scientists will:

- Support the surveillance and reporting of drinking-water quality by the Ministry of Health
- Provide the Ministry of Health and DHBs with analysis, advice and risk assessments in relation to environmental, water, wastewater and hazardous substance issues
- Use internationally recognised approaches for public health risk assessments of microbial (bacterial and viral) and chemical hazards in water
- Develop and use new, internationally recognised methods for the detection of human pathogens and chemical hazards present in water, sediment, soil, biowastes and wastewater
- Conduct research to characterise contaminant pathways from land into and through groundwater and surface water systems, and the connections between these systems
- Conduct research to manage the safe and sustainable use of biowastes, such as biosolids and grey-water resources
- Research the impacts of hazards in the environment on human health (including air quality, contaminated land and common chemicals)
- Operate six monitoring stations that measure radiation levels as part of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

We lead and participate in several groundwater research projects in collaboration with other CRIs and universities, and we are an active participant in work to fully integrate freshwater research in New Zealand in partnership with iwi and hapū.

We play a key role in the 'Our Land and Water' and 'Biological Heritage' National Science Challenges and support the 'Deep South' National Science Challenge.

PLANNED INITIATIVES

To improve outcomes relating to water and the environment we will continue to:

- Assess measures of groundwater assimilative capacity for the key water contaminants of nitrates and microbial pathogens. These measures are used in water management by regional councils and district councils to evaluate options for the disposal of water and waste. We will increasingly partner with engineering firms to provide solutions to, and options for, issues that local authorities face in this area, which requires a wide range of interdisciplinary skills continuing to explore the safe and sustainable application of biowastes to land
- Develop a microbial early warning system for rapidly assessing groundwater health and identifying potential contaminant causes
- Develop a low-cost molecular method for targeting microbial identification in mixed samples such as groundwater, wastewater and food
- Analyse and report data from the monitoring of drinking-water supplies in New Zealand in the form of an annual report for the Ministry of Health
- Provide advice to DHBs and local authorities on the investigation and management of issues related to air, land and water quality
- Collaborate with Pacific Island nations' governments to support improved local water and sanitation services and infrastructure
- Develop our skills in environmental genomics, including metagenomics-based approaches, to understand microbial communities in water, determine sources of contamination, and identify potential associated health risks
- Work with the University of Canterbury, Environment Canterbury, Christchurch City Council and other partners to aid the recovery of water quality and safety in Canterbury.

PERFORMANCE MEASURES

Impact indicators	◤ Quality of drinking water is compliant with the standards ◤ Freshwater ecosystems are healthy and resilient to pressures ◤ Risks to people and the environment are known, understood and well managed ◤ Decreased volume of biowaste going to landfill ◤ Harmful health impacts from people's contact with freshwater are eliminated
ESR performance indicators	◤ Meet agreed milestones in the Ministry of Health contract ◤ Increase project work related to environmental health in the Pacific with a target of two new contracts signed ◤ Provide water quality advice and advanced analytical services to help improve recreational water quality to at least 80% of regional or unitary councils ◤ Increase iwi/hapū participation in ESR's water related projects with at least 25% of projects with iwi/hapū participation

Building on the work from the previous year, ESR is beginning a period of sustained effort to advance the themes identified in Vision Mātauranga.

INDIGENOUS INNOVATION
Contributing to economic growth through distinctive research and development

TAIAO
Achieving environmental sustainability through iwi and hapū relationships with land and sea

HAUORA/ORANGA
Improving health and social wellbeing

MĀTAURANGA
Exploring indigenous knowledge and research, science and technology

Following the appointment of a Development Manager Māori Business we will:

- expand and grow our engagement with Māori to grow our understanding of, and success in, meeting Māori aspirations outlined within Vision Mātauranga
- increase understanding of Te Ao Māori across the whole of ESR to sustain engagement with Māori well into the future.

The Development Manager will implement ESR's refreshed Māori Strategy. Over the coming year the focus will be to develop relationships with a limited number of iwi. The objective is building strong relationships across ESR and making a genuine difference to the iwi we are working with.

We will also deliver a number of projects already underway:

- Researching whether the roots of native plants, including mānuka, have antimicrobial properties which can remove disease-causing microbes from biowaste applied to soil
- Working with Northland Māori researching how climate change may affect healthy collection of rainwater (this is part of our emerging role in the Deep South National Science Challenge)
- Using our understanding of 3D laser scanning to create digital records of taonga such as the interior and exterior of marae for interested whānau, hapū and iwi.

OUR PEOPLE

Our continued focus on people and culture is a critical success factor for us. To meet the science needs of New Zealand, deliver to our customers and increase revenue, we need to strengthen our capabilities by attracting, retaining and developing a high-performing and engaged workforce.

ORGANISATIONAL CULTURE

Organisational culture continues to be a major driver of performance.

The level of engagement, connection and commitment that our people experience will directly impact our performance and effectiveness. Therefore our focus is on ensuring that we have a thriving positive culture that is highly innovative, collaborative and agile and ESR is a great place to work.

Our work on developing a unifying vision and refreshing our organisational values is fundamental to defining our character and what will contribute to our success. Our shared values will help guide the behaviours of our people and ensure we are trusted advisors delivering leading edge science solutions and quality services that make a difference for New Zealand. Bringing the values to life, embedding them in all that we do, will also continue to strengthen connections across the business and increase engagement.

LEADERSHIP & CAPABILITY

Our performance as a team determines our ability to deliver on our goals. Creating a highly engaged team with the right skills, commitment, leadership and support increases our ability to deliver for our customers.

We will continue to invest in the development of our leaders to ensure they have the skills and mindset to build the capability of their teams, lead our culture, and facilitate growth, change and innovation. The introduction of our leadership programme has provided a consistent foundation for strengthening management and leadership capability across the organisation and this is being expanded to provide ongoing support and development for our managers.

It is critical that we define our workforce requirements to support areas of change and business growth and drive excellence and accountability through individual performance plans. These plans recognise delivery against key performance indicators and the demonstration of ESR's values, along with a focus on development so people feel supported to achieve their full potential.

SCIENCE CAPABILITY

The Chief Scientist and the Strategic Science Team will continue to conduct regular capability reviews to ensure we have the science capabilities and skill base to meet current and future needs. We maintain relationships with universities, other CRIs and scientific research societies and will promote new collaborations that support our outcomes. We fund post-graduate studentship opportunities, encourage active participation in national and international conferences and encourage people to undertake meaningfully aligned PhD studies. We encourage and support scientists who have new ideas for science, particularly those at earlier stages of their careers, by funding their research through our Pioneer Fund.

INFORMATION TECHNOLOGY

The successful delivery of our science services has become inextricably linked with technology as science continues to evolve. The evolution from the workbench to the workstation, combined with the exponential increase in the storage space required to support genomics science, will require significant change within our IT systems, information management and their governance.

In response we are adopting the All of Government Infrastructure as a Service offering to provide on demand access to high capacity, high performance IT resources. We will continue to enhance and optimise our Public Health service offerings, redeveloping EPISurv into a modern and robust disease surveillance technology platform that is capable of supporting a system of national significance. We will also continue to modernise our corporate systems and enhance IT service levels, supporting open data research initiatives and encouraging efficiencies and collaboration.

Our IT Strategy and Action Plan explains in more detail how we will enhance our five key technology platforms:

- Laboratory Information Management Systems Platform
- Forensic Platform
- Surveillance Platform
- Informatics Platform
- Core Business Systems.

PROPERTY AND FACILITIES

ESR continues to focus on maximising the efficiency and utility of its science facilities in Auckland, Wellington and Christchurch. Earlier this year ESR consolidated its two Christchurch facilities into one. The next step is to develop the property strategy based on the optimal real estate footprint. The property strategy will take account of the future operating model, proximity to major customers, access to skilled people, ability to support growth into international markets, the potential for using hubs and co-locating with other science organisations, business continuity and financial considerations. A broad range of options is being considered for addressing the ageing facilities in Kenepuru, including rebuilding on the current site and subdividing surplus land, shifting elsewhere within the region, and potentially co-locating with other CRIs.

The overarching goals of our strategy are to:

- Determine the most efficient and effective site use to meet business needs
- Ensure that facilities support the specialised scientific capabilities required for excellent customer service
- Apply whole-of-life asset management practices to ensure that the assets remain robust and reliable to support our core business functions and long-term strategic science goals.

INTELLECTUAL PROPERTY

We have policies and procedures in place relating to the access, use, maintenance, enhancement, exploitation and transfer of intellectual property and know-how. These policies and procedures ensure effective product and service development and the effective management of intellectual property. They also maximise the application of the results of research and technological developments, including transfers to end users and other third parties for the benefit of New Zealand. We are undertaking a review of our policy to ensure that the policy is congruent with our strategy. General principles and procedures relating to the intellectual property, research and benefits of research held by ESR meet the requirements of the Transfer Agreement between ESR and the Crown.

NATIONAL REFERENCE COLLECTIONS

We maintain the New Zealand Reference Culture Collection (Medical section). We also assist other CRIs, universities and laboratories by providing access to the cultures in the collection on a cost-recovery basis. We will provide access to the reference collection except where access is clearly not to the benefit of New Zealand. The costs of collection, archiving and maintenance will be recovered only to the extent that they have not been paid for from public funding. Costs for retrieval of information from databases and reference collections will be recovered where a third party wishes to obtain large portions of information from a database or reference collection for direct commercial use. In this case we reserve the right to negotiate a copyright, royalty or licence fee. We will not dispose of any national database or reference collection without the prior written consent of shareholding Ministers, and will immediately notify shareholding Ministers if, in the Board's view, we cannot reasonably maintain the integrity, security and quality of any national database or reference collection. We will remain responsible for the reference collection until after shareholding Ministers have notified the Board of their determination regarding the future maintenance of, or access to, the database or reference collection. We will advise shareholding Ministers in a timely manner of any disputes over access to, or the use of, the reference collection held by us. Under the terms of the Transfer Agreement, shareholding Ministers can appoint a person with relevant expertise to decide the matter.

MBIE STRATEGIC FUNDING

MBIE Strategic Funding allows ESR to invest in science research projects that keep communities safe, healthy and prosperous.

ESR's research projects are assessed by the Strategic Science Team based on science merit, impact and alignment with ESR's strategy. These align well with the science excellence and impact criteria in the National Statement of Science Investment.

RESEARCH THAT DELIVERS BETTER OUTCOMES

Areas in which we are currently investing MBIE Strategic Funding to drive better outcomes include investigating bacteria and viruses, developing surveillance tools, modelling solutions for forensic science, developing our phages to protect New Zealand's food exports and developing groundwater modelling methodologies.

STRATEGIC PROJECTS

Two strategic projects are currently being funded – the development of bioinformatics and statistics capabilities at ESR and a bacterial genomics project for implementing massively parallel sequencing to better support the Ministry of Health and improve public health outcomes.

PIONEER FUND

The Pioneer Fund was established to provide a seed fund for innovative new research ideas. The small amount of funding (up to $50,000 per project) allows scientists to rapidly assess ideas that could be of financial benefit to ESR. Projects are selected based on science merit, alignment with strategy and potential revenue. To encourage innovative research ideas we have increased the amount we allocate to the Pioneer fund from $300k to $500k per annum.

NATIONAL SCIENCE CHALLENGES

We will continue to play a key role in the 'Our Land and Water', 'New Zealand's Biological Heritage' and 'Healthier Lives' National Science Challenges and contribute to the 'Deep South' Challenge.

We will engage with the Challenges and ensure our research contributes to the Challenges for the benefit of New Zealand.

MEASURING PERFORMANCE

NON-FINANCIAL PERFORMANCE MEASURES

		2016 forecast	Target 2016/17
End user collaboration	Revenue per FTE from commercial sources	$31,000	$36,000
Research collaboration	Publications with collaborators	65	65
Technology and knowledge transfer	Commercial reports per scientist FTE	0.45	0.45
Science quality	Impact of scientific publications (measured using Web of Science citations for the previous calendar year)	3.1	3.1
Financial indicators	Revenue per FTE	$188,400	$192,800
	Commercial revenue	$11.2m	$13.1m

Performance measures relating to the outcomes for forensic, health, food and water are included in the respective outcome sections of this report. We also monitor our performance against the generic CRI performance indicators.

FINANCIAL PERFORMANCE MEASURES

Our five-year financial plan has been prepared based on capital expenditure and revenue growth assumptions that are congruent with our strategic direction.

REVENUE

Revenue is forecast to grow from $70.2m in 2016/17 to $91.0m in 2020/21 as a result of commercialising our intellectual property, forming new partnerships and attracting new customers for our science services. As two of our clients provide 60% of ESR's revenue (Ministry of Health and New Zealand Police) we will continue to broaden our revenue base to mitigate commercial risks.

OPERATING EXPENDITURE

Operating expenditure is budgeted to increase from $60.7m in 2016/17 to $75.6m in 2020/21. Operating expenditure budgeted in the out-years reflects the activities needed to drive revenue growth.

PROFITABILITY

NPAT is forecast to increase from $2.5m in 2016/17 to $4.7m in 2020/21. We expect to achieve a return on equity of 8% by 2020/21.

BALANCE SHEET MANAGEMENT

The major items of capital expenditure reflect our IT and property strategy. This includes providing a long term property solution for our ageing facilities in Christchurch and Kenepuru (between 2017 and 2020).

CASH FLOW

ESR continues to generate strong operating cashflows. Debt of $5m will be required in 2018/19 and 2019/2020 to fund the property strategy. We expect to repay this debt in 2020/21 and return to a positive operating cash surplus.

DIVIDEND

It is not anticipated that ESR will be in a financial position to have funds available for distribution due to the planned reinvestment in IT and property.

RISKS

The main financial risks are that actual revenue may differ from that forecast and actual property costs may differ from current estimates.

FINANCIAL PERFORMANCE MEASURES

	Forecast 15/16	Budget 16/17	Plan 17/18	Plan 18/19	Plan 19/20	Plan 20/21
Revenue ($000s)	68,375	70,163	74,319	80,413	85,382	90,987
Revenue Growth	–	2.6%	5.9%	8.2%	6.2%	6.6%
Operating Results ($000s)						
Operating Expenses	59,245	60,692	64,061	67,937	71,528	75,596
EBITDAF	9,130	9,471	10,258	12,476	13,854	15,391
Depreciation and Amortisation	5,863	6,049	6,451	7,652	8,477	8,924
EBIT	3,267	3,423	3,807	4,823	5,377	6,467
Net Profit after Tax	2,386	2,540	2,749	3,287	3,681	4,682
Total Assets	57,201	59,938	62,503	70,990	74,872	74,153
Closing Shareholders Funds	43,534	46,074	48,823	52,110	55,791	60,473
Capital Expenditure	6,594	7,692	13,915	19,539	12,241	5,442
Capital Expenditure % to revenue	9.6%	11.0%	18.7%	24.3%	14.3%	6.0%
Liquidity						
Current Ratio	1.6	1.6	1.1	0.8	0.8	1.1
Quick Ratio (Acid Test)	1.4	1.5	1.0	0.6	0.6	0.9
Profitability						
Return on Equity	5.6%	5.7%	5.8%	6.5%	6.8%	8.1%
Return on Total Assets	5.5%	5.8%	6.2%	7.2%	7.4%	8.7%
Operating Margin	13.4%	13.5%	13.8%	15.5%	16.2%	16.9%
Operating Margin per FTE ($)	25,155	25,057	27,507	32,496	35,531	38,390
Operational Risk						
Profit Volatility	–	2.6%	6.0%	14.6%	18.5%	21.7%
Coverage						
Interest Cover	N/A	N/A	N/A	20.7	22.5	N/A
Growth/Investment						
Capital Renewal	1.1	1.3	2.2	2.6	1.4	0.6
Dividend	–	–	–	–	–	–
Financial Strength						
Gearing (Debt/Debt Equity) %	N/A	N/A	N/A	9.1%	8.8%	N/A
Equity Ratio (Equity/Total Assets) %	72%	76%	78%	76%	74%	78%
Cash and short term deposits ($Ms)	8.2	9.1	4.2	0.8	0.9	3.7
Debt ($Ms)	–	–	–	5.2	5.4	–

APPENDIX 1: BUSINESS POLICIES

Business policies and principles as stated in the Crown Research Institutes Act 1992 and have statutory obligations under other acts, including the Companies Act 1993 and Crown Entities Act 2004. Significant services are performed for New Zealand Police under the

Land Transport Act 1998 and the Misuse of Drugs Act 1975.

Policies and procedures are in place to ensure we meet all of our statutory obligations. Our business policies include:

- Risk management
- Shareholder consent for significant transactions
- Dividends
- Information to be disclosed
- Databases and collections
- Health and safety
- Intellectual property
- Information management.

APPENDIX 2: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

REPORTING ENTITY

ESR is a Crown Entity incorporated and based in New Zealand. Its registered office is at 34 Kenepuru Drive, Porirua.

ESR is a Crown research institute that provides specialist scientific services and research, particularly to the health and justice sectors.

BASIS OF PREPARATION

The financial statements are Parent (ESR) and Group financial statements. The subsidiary of ESR is a dormant non-trading entity; consequently there is no difference between the financial statements of the Group and those of the Parent.

The financial statements have been prepared in accordance with the requirements of the Crown Entities Act 2004, the Crown Research Institutes Act 1992, the Companies Act 1993 and the Financial Reporting Act 1993.

The financial statements have been prepared on the basis of historical cost, except for financial instruments as identified in the specific accounting policies and accompanying notes.

The financial statements are presented in New Zealand dollars and all values are rounded to the nearest thousand dollars ($'000).

CHANGES IN ACCOUNTING POLICIES

Accounting policies have been applied on a basis consistent with the prior year.

STATEMENT OF COMPLIANCE

These financial statements have been prepared in accordance with New Zealand Generally Accepted Accounting Practice. They comply with New Zealand equivalents to International Financial Reporting Standards (NZ IFRS) and other applicable financial reporting standards, as appropriate for profit-oriented entities. These consolidated financial statements comply with International Financial Reporting Standards.

The Group has adopted the External Reporting Board Standard A1 Accounting Standards Framework (For-profit Entities Update) (XRB A1). XRB A1 establishes a for-profit tier structure and outlines the suite of accounting standards that entities in different tiers must follow. The Group is a Tier 1 entity. There has been no impact on the current or prior year financial statements.

ADOPTION STATUS OF RELEVANT NEW FINANCIAL REPORTING STANDARDS AND INTERPRETATIONS

The Group has elected not to early adopt any of the new standards and amendments to existing standards that have been issued as at 30 June 2015 but are not yet effective. It is not anticipated that standards not yet effective will significantly affect the financial statements of the Group with the exception of NZ IFRS 15 [see below].

NZ IFRS 15, Revenue from contracts with customers (effective for annual periods beginning on or after 1 January 2017)

NZ IFRS 15 addresses recognition of revenue from contracts with customers. It replaces the current revenue recognition guidance in NZ IAS 18 *Revenue* and NZ IAS 11 *Construction Contracts* and is applicable to all entities with revenue. It sets out a five-step model for revenue recognition to depict the transfers of promised goods or services to customers in amounts that reflect the considerations to which the entity expects to be entitled in exchange for those goods or services. The Group has yet to assess NZ IFRS 15's full impact. The Group will apply this standard from 1 July 2017.

ACCOUNTING ESTIMATES AND JUDGEMENTS

The preparation of financial statements in conformity with NZ IFRS requires judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates.

Management's judgements, which have the most significant effect on amounts recognised in the financial statements, are found in 'Revenue' and 'Employee benefits'.

Revenue

The Group uses the stage of completion method in accounting for its fixed price contracts to deliver scientific services. The stage of completion method requires the Group to estimate the services performed to date as a proportion of the total services to be performed. The stage of completion is calculated and reviewed monthly, and significant variances are investigated to ensure that the stage of completionestimate is reasonably in line with the overall project plan, estimated completion date and prior measurements of progress.

PRINCIPLES OF CONSOLIDATION (SUBSIDIARIES)

The consolidated financial statements incorporate the assets and liabilities of all subsidiaries of ESR as at 30 June 2015 and the results of the operations of all subsidiaries for the year then ended.

Subsidiaries are those entities controlled, directly or indirectly, by the Parent. Subsidiaries are consolidated from the date on which control is transferred to ESR. They are de-consolidated from the date that control ceases.

The acquisition method of accounting is used to account for the acquisition of businesses by the Group. The cost of an acquisition is measured as the fair value of the assets given, equity instruments issued and liabilities incurred or assumed at the date of exchange. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date, irrespective of the extent of any non-controlling interest. The excess of the cost over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the Group's share of the fair value of the identifiable net assets of the subsidiary acquired, the difference is recognised directly in the statement of profit or loss and other comprehensive income.

PROPERTY, PLANT AND EQUIPMENT

Items of property, plant and equipment are initially recorded at cost, and subsequently at cost less accumulated depreciation and impairment. The cost of property, plant and equipment includes the value of the consideration given to acquire the assets and the value of other directly attributable costs that have been incurred in bringing the assets to the locations and condition necessary for their intended use.

The carrying amounts of property, plant and equipment are reviewed at least annually to determine if there is any indication of impairment. Where an asset's recoverable amount is less than its carrying amount, it will be reported at its recoverable amount and an impairment loss will be recognised.

Losses resulting from impairment are reported in the statement of profit or loss and other comprehensive income.

Realised gains and losses arising from the disposal of property, plant and equipment are recognised in the statement of profit or loss and other comprehensive income in the periods in which the transactions occur.

Depreciation is charged on a straight-line basis at rates calculated to allocate the cost of an item of property, plant or equipment, less any estimated residual value, over its estimated useful life, as follows:

Type of asset	Estimated useful life
Land	Not depreciated
Freehold buildings	20 – 50 years
Leasehold improvements	10 years
Plant, equipment and vehicles	3 – 10 years
IT equipment and internal software	3 – 10 years

INTANGIBLE ASSETS

Computer software

Items of computer software that do not comprise an integral part of the related hardware are treated as intangible assets with finite lives. Intangible assets with finite lives are recorded at cost, and subsequently recorded at cost less any accumulated amortisation and impairment losses. Amortisation is charged to the statement of profit or loss and other comprehensive income on a straight-line basis over the useful lives of the assets (between 3 and 10 years).

Customer contracts

The intangible asset 'customer contracts' represents the fair value of future revenue streams from customer contracts acquired under business combinations. The initial recognition of the intangible asset is stated at fair value. Subsequent to initial recognition, acquired intangible assets are stated at initially recognised amounts less accumulated amortisation and any impairment. Acquired intangible assets are amortised according to the straight-line method over their estimated useful lives, not exceeding 10 years.

Research and development costs – internally generated intangible assets

Expenditure on research is expensed when it is incurred.

Development expenditure incurred on an individual project is capitalised if the process is technically and commercially feasible, future economic benefits are probable and ESR intends to and has sufficient resources to complete the development of and to use or sell the asset.

Any expenditure capitalised is amortised over the period of expected future sales from the related project from the point the asset is ready for use.

IMPAIRMENT OF NON-FINANCIAL ASSETS

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which an asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of the asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units).

TAXATION

The income tax expense for the period is the tax payable on the current period's taxable income based on the national income tax rate for each jurisdiction. This is then adjusted by changes in deferred tax assets and liabilities attributable to temporary differences between the tax bases of assets and liabilities and their carrying amounts in the financial statements, and unused tax losses.

Deferred tax assets and liabilities are recognised for temporary differences at the tax rates expected to apply when the assets are recovered or liabilities are settled. The relevant tax rates are applied to the cumulative amount of deductible and taxable temporary differences to measure the deferred tax asset or liability. An exception is made for certain temporary differences arising from the initial recognition of an asset or a liability. No deferred tax asset or liability is recognised in relation to temporary differences if they arose in a transaction, other than a business combination, and at the time of the transaction did not affect either accounting profit or taxable profit or loss.

Deferred tax assets are recognised for deductible temporary differences and unused tax losses only if it is probable that future taxable amounts will be available to utilise those temporary differences and losses.

Deferred income tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

CASH AND CASH EQUIVALENTS

Cash means cash on hand, demand deposits and other highly liquid investments in which ESR has invested as part of its day-to-day cash management. The following definitions are used in the statement of cash flows:

- Investing activities are those activities relating to the acquisition, holding and disposal of fixed assets and investments.
- Financing activities are those activities that result in changes in the size and composition of the capital structure of ESR and this includes both equity and debt not falling within the definition of cash. Dividends paid in relation to the capital structure are included in financing activities.
- Operating activities are the principal revenue-producing activities and other activities that are not investing or financing activities.

TRADE AND OTHER RECEIVABLES

Trade receivables are stated at their estimated realisable value after providing against debts where collection is doubtful. An estimate of the value of doubtful debts is made based on a review of debts at year end. Bad debts are written off in the periods in which they are identified.

INVENTORIES

Stocks of consumables and work in progress are stated at the lower of cost and net realisable value. Cost is determined on a first in, first out basis.

TRADE AND OTHER PAYABLES

These amounts represent the best estimate of the expenditure required to settle an obligation arising from goods or services provided to ESR prior to period end. These amounts are unsecured and are usually paid within 30 days of recognition. Liabilities and provisions to be settled beyond 12 months are recorded at their present value.

EMPLOYEE BENEFITS

Wages, salaries and annual leave

Liabilities for wages and salaries, including annual leave, that are expected to be settled within 12 months of the reporting date, are recognised in respect of employees' services up to the reporting date and are measured at the amounts expected to be paid when the liabilities are settled.

Obligations for contributions to defined contribution retirement plans are recognised in the statement of profit or loss and other comprehensive income as they fall due.

Long service leave, retirement leave and service leave

The liability for long service leave, retirement leave and service leave is recognised as an employee benefit liability and measured as the present value of expected future payments to be made in respect of services provided by employees up to the reporting date. Consideration is given to the expected future salary levels, experience of employee departures and periods of service. Expected future payments are discounted using market yields at the reporting date for Government bonds with terms to maturity and currency that match, as closely as possible, the estimated future cash outflows.

LEASES

Finance leases transfer to ESR, as lessee, substantially all the risks and rewards incidental to ownership of a leased asset. The initial recognition of a finance lease results in an asset and a liability being recognised at amounts equal to the lower of the fair value of the leased asset or the present value of the minimum lease payments. Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate of finance charge over the term of the lease. Property, plant and equipment acquired under a finance lease are depreciated over the shorter of the assets' useful lives and lease terms.

Leases in which a significant portion of the risks and rewards of ownership is retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to the statement of profit or loss and other comprehensive income on a straight-line basis over the period of the lease.

BORROWINGS

Borrowings are initially recognised at fair value, net of costs incurred. Borrowings are subsequently measured at amortised cost. Any differences between the proceeds (net of transaction costs) and the redemption amount is recognised in the statement of profit or loss and other comprehensive income over the period of the borrowing using the effective interest rate method.

Borrowings are classified as current liabilities unless ESR has an unconditional right to defer the settlement of a liability for at least 12 months after the balance date.

SHARE CAPITAL

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new shares or options are shown as appropriate in equity as a deduction, net of tax, from the proceeds.

REVENUE

Sales of goods and services

Revenue is earned by ESR in exchange for the provision of outputs (services) to third parties.

Revenue from the supply of services is measured at the fair value of the consideration received. Revenue from the supply of services is recognised in the accounting periods in which the services are rendered, by reference to the stage of completion of the specific transactions assessed on the basis of the actual services provided as a proportion of the total services to be provided. Any revenue for which services have not been supplied as at the reporting date but for which payment has been received is deferred within the statement of financial position as revenue in advance.

MBIE Strategic Funding

ESR receives MBIE Strategic Funding from the Government in order to perform scientific research activities. MBIE Strategic Funding (Government grants) is recognised in the statement of profit or loss and other comprehensive income when the requirements under the grant agreements have been met.

Interest income

Interest income is recognised in the statement of profit or loss and other comprehensive income on a time proportion basis, using the effective interest rate method.

FOREIGN CURRENCY

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates. The Group financial statements are presented in New Zealand dollars, which is ESR's functional and presentation currency.

Foreign currency transactions are recorded at the foreign exchange rates in effect at the dates of the transactions. Monetary assets and monetary liabilities denominated in foreign currencies are translated at the rates of exchange ruling at the end of each reporting period. Non-monetary assets and non-monetary liabilities denominated in foreign currencies that are measured at fair value are translated to the functional currency at the exchange rate at the date that the fair value was determined.

GOODS AND SERVICES TAX

Items in the statement of profit or loss and other comprehensive income and statement of cash flows are disclosed net of Goods and Services Tax (GST). All items in the statement of financial position are stated net of GST with the exception of receivables and payables, which include GST invoiced.

A provision is made for the amount of any dividend declared on or before the end of the financial year but not distributed at balance date.

FINANCIAL INSTRUMENTS

The designation of financial assets and financial liabilities by ESR into instrument categories is determined by the business purposes of the financial instruments, the policies and practices of management, the relationships with other instruments and the reporting costs and benefits associated with each designation. The designations applied by ESR are reflected in the financial statements.

Financial assets

The Group classifies its financial assets as loans and receivables and at fair value through profit and loss. Management determines the classification of its financial assets at initial recognition.

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for those with maturities greater than 12 months after the reporting date. These are classified as non-current assets. ESR's loans and receivables comprise 'trade and other receivables' and 'cash and cash equivalents' in the statement of financial position.

Regular purchases and sales of financial assets are recognised on the trade-dates – the dates on which the Group commits to purchase or sell the assets. Financial assets are derecognised when the rights to receive cash flows from the investments have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership. Loans and receivables are carried at amortised cost using the effective interest method.

The Group assesses at each reporting date whether there is objective evidence that a financial asset or a group of financial assets is impaired.

Financial liabilities

Financial liabilities held by ESR include trade and other payables and derivatives.

Such financial liabilities are recognised initially at fair value less transaction costs and subsequently measured at amortised cost using the effective interest rate method. Financial liabilities entered into with durations less than 12 months are recognised at their nominal value.

Derivatives

Derivative financial instruments are recognised both initially and subsequently at fair value. They are reported as either assets or liabilities depending on whether the derivative is in a net gain or net loss position. ESR does not use hedge accounting, and as such derivatives are classified as held-for-trading financial instruments, with fair value gains or losses recognised in the statement of profit or loss and other comprehensive income. Such derivatives are entered into for risk management purposes.

APPENDIX 3: DIRECTORY

DIRECTORS

Denise Church – Chair

Marion Cowden – Deputy Chair

Dr Helen Darling

Professor Bill Denny

Richard Gill

John O'Hara

Tahu Potiki

CHIEF EXECUTIVE

Dr Keith McLea

SENIOR LEADERSHIP TEAM

Dr Keith Bedford, General Manager, Forensic

Dr Graeme Benny, General Manager, Health

Hamish Findlay, General Manager, Commercial & Business Development

Dr Libby Harrison, General Manager, Environmental Science

Bryan Lau Young, General Manager, Business Services

Steve Pyne, Chief Information Officer

Celia Wellington, General Manager, People and Communications

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Fax: +64 4 914 0769
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AUDITOR

Chris Ussher of PricewaterhouseCoopers on behalf of the Auditor-General

BANKER

ANZ Bank New Zealand Limited

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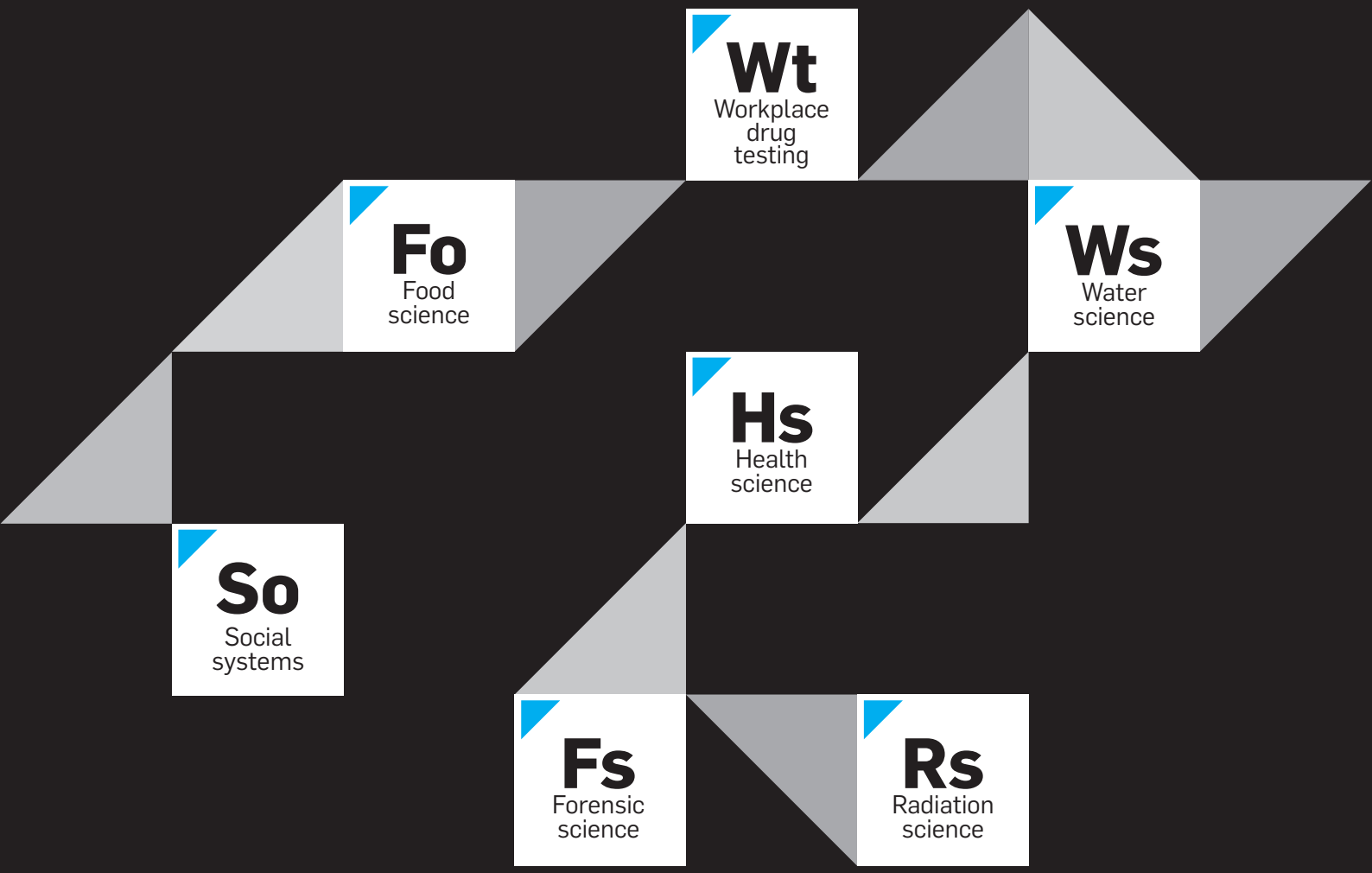
THE SCIENCE BEHIND THE TRUTH.


Wt
Workplace drug testing
Fo
Food science
Ws
Water science
Hs
Health science
So
Social systems
Fs
Forensic science
Rs
Radiation science