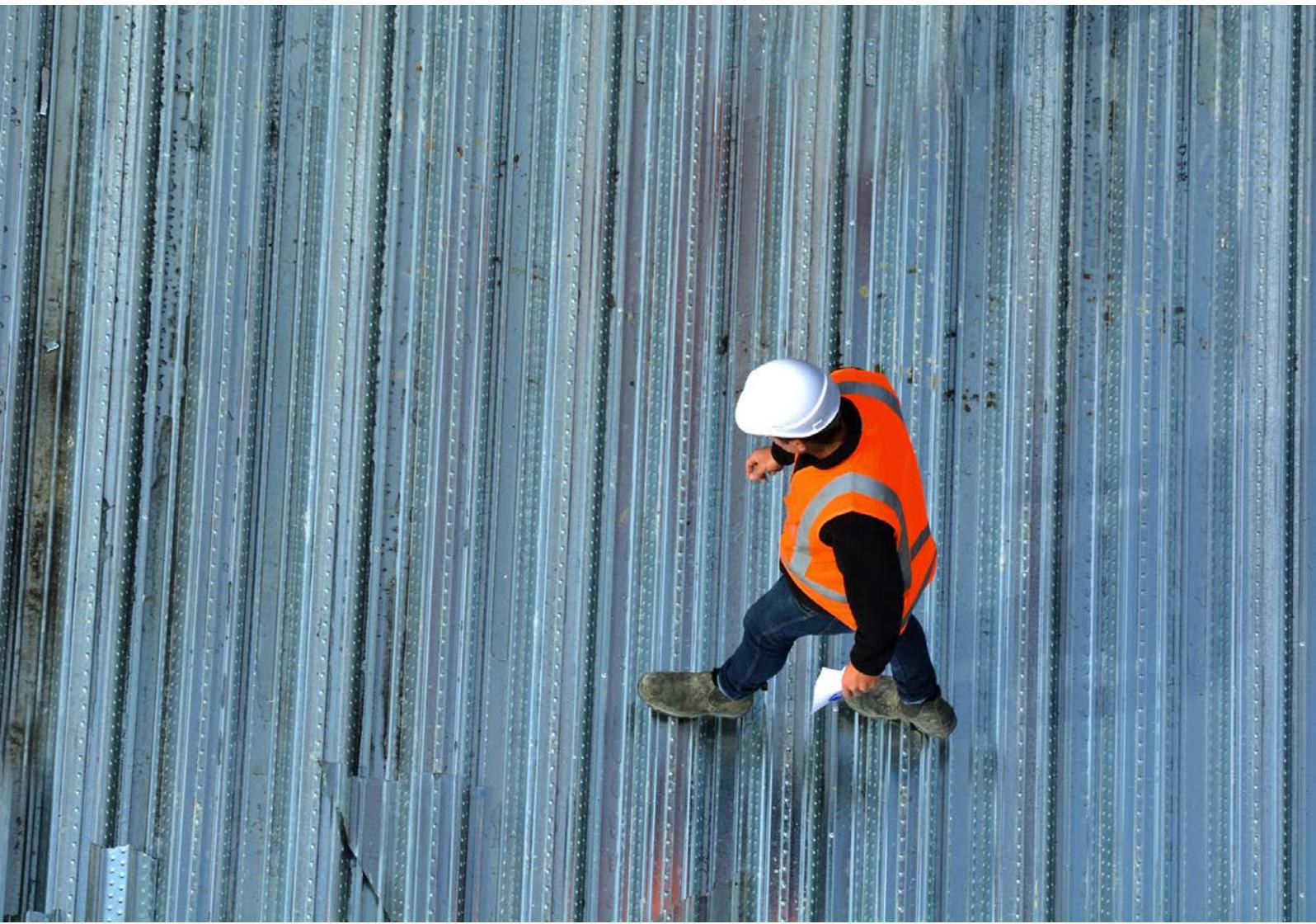




Recovering from *COVID-19*

APPLYING ASSET MANAGEMENT TO SUPPORT LOCAL GOVERNMENT IN NEW ZEALAND



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Abstract

New Zealand is in an uncertain period as it adjusts to the impacts of the COVID-19 pandemic. Whole sectors of the economy are affected by the reduction of domestic travel, severe restrictions on international travel, tertiary institutions, hospitality and leisure, agritech and tourism operators. This will have far-reaching impacts on the economy and challenges our ability to sustain the infrastructure that facilitates a thriving society: roads, water, public spaces and recreational facilities.

This paper seeks to explore how the principles of Asset Management can be used to help local government navigate uncertain times and assist with making informed decisions. The embedded principles of NZ Asset Management including the focus on least lifecycle cost, needs to expand to account for rapid changes in demand due to economic migration and the impact of affordability due to reduced household income.

The overall approach provides a platform for a more sustainable future that takes a wider view of the impacts of our decision-making. This considers the provision of services using infrastructure as well as the greater impacts of demographics and affordability of the services provided by local government.

In dealing with the COVID-19 pandemic, New Zealand has shown that with strong leadership, that incorporates expert advice and fact-based information, it can be a world-leader in navigating unprecedented situations. This same process will apply to our recovery.

KEYWORDS

Asset Management, Infrastructure, COVID-19, Demand, Demographics, Affordability, Uncertainty, Valuation, Local Government

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01 Introduction

The impacts of COVID-19 on New Zealand are unprecedented and the response requires a paradigm shift in thinking.

Local and central government have a critical role to play in the post COVID-19 economic recovery through investment in infrastructure and job creation which will have flow-on benefits to society. However, even prior to COVID-19, local government was challenged to find sustainable ways to fund investments in essential infrastructure. A number of councils already operate with high debt ratios and this is likely to be heightened with reduced income from commercial ventures, rates and/or asset devaluation. Without relief there is a danger this could lead to austerity measures, which would significantly prolong recovery.

As a result, the public sector faces challenges of differing scale and impact across the country.

Infrastructure is essential to the proper functioning of society. Water services, transport, public spaces and recreational facilities provide the fabric for our communities to live and interact. The economy functions to provide the wealth required to support living standards. Therefore, continuing to support infrastructure is vital to supporting recovery and sustaining our standard of living. However, in many instances our infrastructure prior to COVID-19 was already stretched and required investment.

As we look to find the optimal solution for individual authority's there will be a number of trade-offs to navigate. Each organisation faces its own unique set of challenges depending upon its commitment to growth, exposure to tourism, industrial and primary sector activity. Key to unlocking the potential for recovery will be gathering information to support informed decision-making.

02 Increasing Complexity

Asset Management offers an approach to solving what is now a complex challenge of uncertainty and competing demands. Done well Asset Management delivers value for an organisation through the application of systems. The key premise is that data and information is generated through the system and this enables informed decision-making. The type of data and information has been built up over many years, principally looking at historic investment and outcomes, and developing trends from successive years of data. However, societal change occurring as a result of COVID-19 will mean the value of historic data is reduced – or rendered irrelevant – if sectors of the economy fail to recover. Furthermore, many of the drivers used to inform decisions have also changed.

Traditionally Asset Management in New Zealand is rooted in assessing asset consumption and determining the investment needed to deliver on strategic priorities and basic service delivery. That premise doesn't change. What changes is the breadth of information and focus areas now required to inform decisions and the quality of that data, given significant priority changes such as economic stimulus and long-term affordability as a result of the COVID-19 pandemic.

2.1 Choose any two

For many years we've strived to increase service provision, quality and reliability. These all come at a price and, in our experience, it's very difficult to achieve a perfect balance between all three without taking on additional risk in one or more areas. In a post-pandemic world, we'll be increasingly likely to make trade-offs between the competing drivers and reassess our risk appetites. If costs are to be capped or reduced further, then either infrastructure demand needs to decrease – which may happen through reduced economic activity – or service standards and associated expectation will need to change as shown in Figure 2.

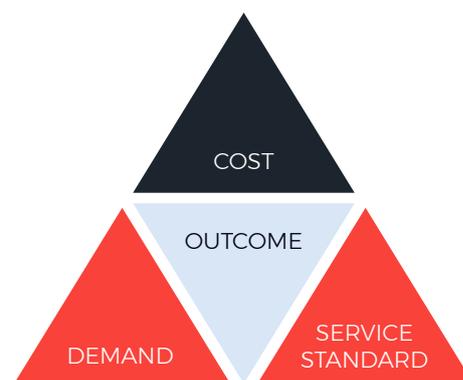


Figure 1 Choose any two

2.2 Post-Pandemic Drivers

Trade-offs will need to be made if we are to deliver a balanced and sustainable approach to meeting demand and service expectations at an affordable cost. Envisaging the three fundamental principles of Asset Management applied to a post-pandemic world leads to the following high-level factors that inform a decision-making model (also refer Figure 2):

- Demographics - which drive demand
- Infrastructure Needs - which drive service quality and reliability
- Affordability - which drives the ability to pay for the investment required to meet demand and service expectations.

There are obvious tensions between these three drivers: population changes affect the ability to pay for infrastructure, which in turn is required to support the community and sustain growth.

These are classic Asset Management challenges. What's changed is the significantly different world we will be operating in, where some sectors and communities will be fundamentally changed. We also have a significant opportunity to make the step-change in terms of wellbeing as signalled by the Coalition Government and entered in law through the Local Government Amendment Act 2019.

Asset Management can reflect community needs, the infrastructure services required to support them and presents opportunity to define the role infrastructure can play in economic recovery. Many communities will be changed and some more than others. As a result of the economic impact of COVID-19 we expect to see regional migration across the country as employment opportunities evolve to adapt to a new normal. These population changes will be reflected in demand on infrastructure, placing additional pressure on stretched systems in growth areas and impacting affordability in communities facing population decline.



03 Demographics – Demand

Community demands are almost certain to change. Based on the population migrations that occurred in the Great Depression and, more recently, the Global Financial Crisis, we anticipate people will shift to larger urban centres to pursue employment opportunities. The single counter to that in New Zealand is the Primary Sector, which could see a modest increase in employment opportunities if we can transport our products globally and our trading partners can afford to buy what we produce.

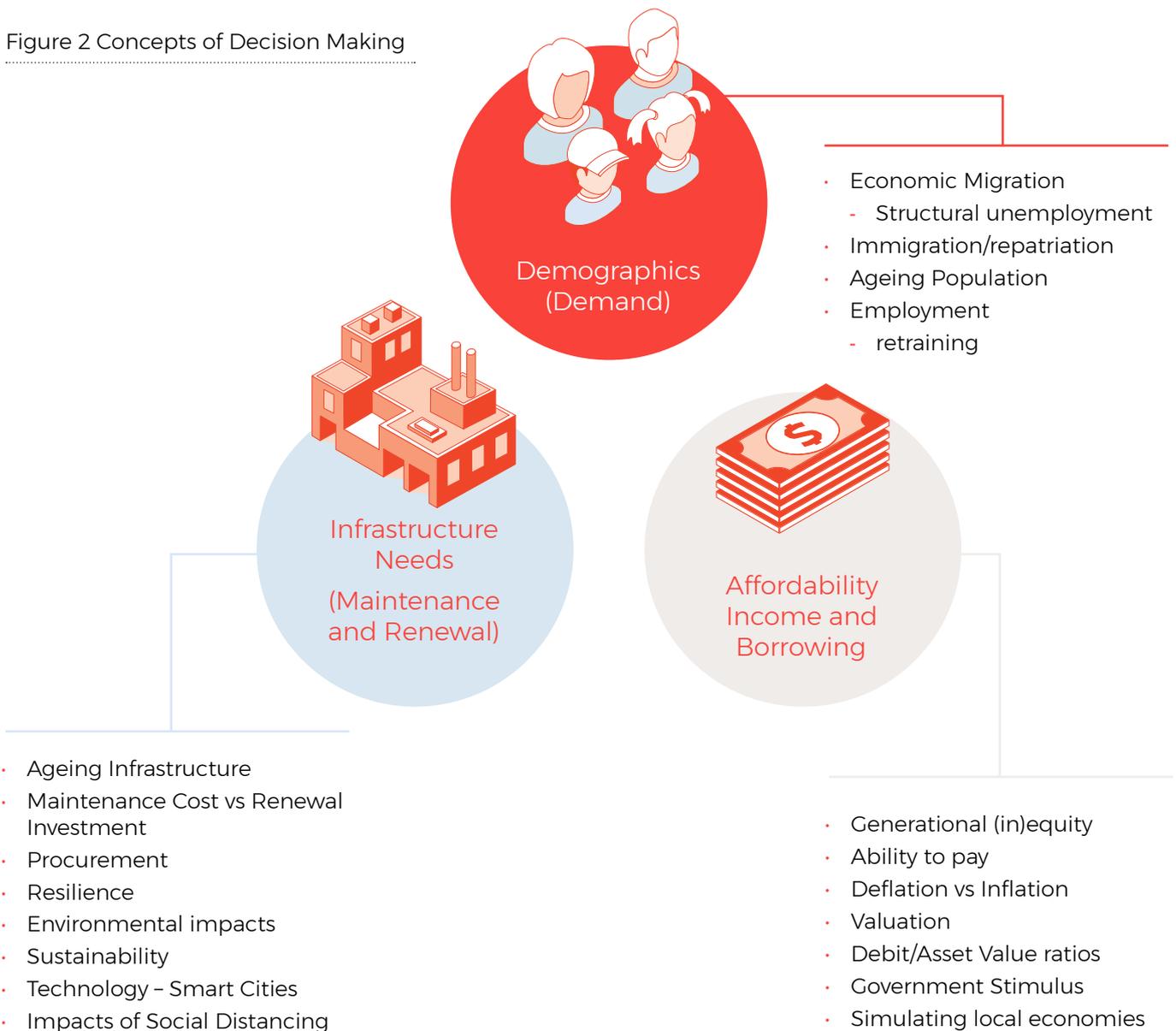
Growth opportunities will continue to occur during the recovery phase. This could occur as a result of economic migration, possibly accelerating the movement of people from smaller townships to larger centres, and further population growth from New Zealanders returning from overseas and immigration.

This growth is likely to be centred on areas of employment which will include larger urban centres.

Economic migration will change the demographic profile of regions, affecting demand and affordability. This will require reprioritisation of investment. As such, it will be vital to have a clear view of growth, both positive and negative, to understand potential demand for new infrastructure and demand and affordability of existing infrastructure.

This change has been happening within New Zealand for some time at a gradual rate. The post-COVID-19 migration and resulting issues will happen at a faster rate and bring shifts in demand into sharp focus.

Figure 2 Concepts of Decision Making



04 Infrastructure Needs

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4.1 Looking backwards to look forwards will be less reliable

Traditionally, Asset Management has relied heavily on investigating past trends to inform future needs. Given the significant change we are about to undergo, past trends are unlikely to be good future indicators. While this is an issue that's been developing for a few years, as the impacts of technology have started to be realised, COVID-19 lockdown and ongoing physical distancing has significantly accelerated this. As such, we may need to use less reliable or alternative data sources to develop information to inform our forecasts.

If affordability becomes a significant challenge and if demand changes, particularly reduced demand, it will be necessary to renegotiate target levels of service. This will lead to challenging conversations and willingness to pay will be central to these.

There are an increasing number of aspects to be considered including resilience and environmental

impacts, which should form part of the overall benefit-stream. With central government stimulus available in some areas and, recognising the need to invest that stimulus to energise the economy, it may be useful to reflect on initiatives that further enhance resilience and contribute to sustainability. The slowdown in global activity will have a small positive impact on climate change but, as economies recover, climate pressure will be as strong as ever unless we take this opportunity to make change.

One of the features of our approach to mitigating the spread of COVID-19 has been the need to physical distance. Prior to this event little thought has been given to the provision of sufficient capacity or space within our systems to allow this to occur efficiently. Going forward, most likely for essential infrastructure provision, these types of consideration may need to be included.

4.2 Increased applications of Technology

Technology is a powerful Asset Management tool that has the potential to give us previously unimagined levels of data in real time. Bridges can transmit data related to structural integrity, preventing failures. Buildings can include sensors to monitor operating systems. For example, sensors can quickly identify a leaking ceiling issue that needs to be addressed promptly, and the appropriate sequence of actions will be triggered to minimise additional risk to building structure, sustainability, or occupants. In a smart city, sensors monitor and track huge amounts of data; cloud-based apps translate that data into useful intelligence and transmit it to machines on the ground, enabling mobile, real-time response.

This technology isn't new, but until now it's been a nice-to-have. In the new normal it may be a key requirement for projects, although issues of security need to be considered and overcome.

Technology applications are the foundations of a smart city, where data is monitored, information assessed and actions are taken remotely, in real time. This is likely to be increasingly desirable within infrastructure service providers, especially as insights emerge on how existing infrastructure systems have performed through the lockdown period. Many will have functioned as designed but it's expected that some systems were unable to be operated remotely or failed to perform to expectations.

05 Infrastructure Needs

The affordability challenge arises when:

- Demand changes
- Infrastructure is required to meet changing social priorities or
- Infrastructure requires replacing to meet service expectations.

These challenges will be more acute over the short- and medium-term. The main issues affecting affordability revolve around demographics – particularly those households on fixed or reduced income. It will be important to invest in communities to support economic recovery by sustaining and creating employment and at the same time maintaining infrastructure and delivering services to agreed minimum standards.

5.1 Borrowing

Reduced revenue will compound the challenge for many councils. A significant number of councils have traditionally received income from commercial activities based on travel (e.g. airports) and tourism which will continue to be severely impacted for the foreseeable future. In addition, some councils have investments which may have reduced returns.

If demand remains unchanged, and communities aren't prepared to accept reduced service expectations, then the only viable alternative is to borrow to meet the difference between revenue and cost. Many organisations have already been borrowing to meet their capital investment needs. Further reductions in borrowing interest rates may make borrowing more attractive but, in many instances, existing amounts borrowed are already relatively high. In addition, the organisations who have committed to long-term fixed interest rates will now find themselves paying higher than market interest rates. This climate may require rethinking of council borrowing limitations to allow them to continue to sustain service expectations and stimulate their local economies.

5.2 Avoiding Austerity

As a way of managing cashflow, councils may adopt austerity positions such as delaying or cancelling investment in infrastructure. However this can be a false economy. Infrastructure that isn't sustained leads to serviceability issues (leading to increased lifecycle costs) resulting in a decrease in infrastructure network value without a corresponding decrease in depreciation. This results in debt ratios increasing – even without increased borrowing. Furthermore, a reduction in capital activity may lead to a more competitive construction market i.e. a reduction in construction costs will lead to a further reduction in asset value further increasing debt ratios.

Access to government stimulus or other forms of external capital such as infrastructure bonds will be essential to limit borrowing and avoiding a spiral of decline.

Any stimulus needs to support local construction companies as they contribute to sustained employment opportunities. Furthermore, owners and employees are able to contribute to community infrastructure costs and debt servicing if required.

The factor of intergenerational inequity is likely to become an issue of contention. Increased borrowing will mean it will take longer for total debt to be repaid and if growth is limited – which is likely in many cases – future generations will be saddled with a greater debt-servicing burden than current generations. This may also be exacerbated should the global economy recover – which it eventually will do – ahead of New Zealand and benchmark interest rates increase accordingly.

06 Dealing with Risk and Uncertainty

The trend in recent years has been towards increasing understanding of risk and uncertainty. However, this may bow under the pressure of significant extra uncertainty during the post-pandemic recovery. Therefore, it is worthwhile reviewing the impact of uncertainty on decision making.

New Zealand is currently faced with some fundamental uncertainties:

- Demand for services: e.g. will traffic volumes increase or decrease? We may get a reduction in car sharing (more one-person per vehicle traffic) but we might get more remote working. Which effect will dominate?
- Inflation or deflation: Government stimulus pushing inflation up, shrinking of the economy pushing inflation down
- High versus low discount rate: Risk premiums increasing the discount rate, low risk-free borrowing rates reducing the discount rate. (Let alone the impact of the inverted yield curve).

Almost every industry is faced with uncertainty – will demand remain low? Will it surge? Will it be something in-between? When will it return to normal? Will it ever return to normal? All this uncertainty clouds our ability to make effective decisions. When faced with this much uncertainty there is a strong tendency, known as the “Paradox of Choice”, to either not decide or choose the easiest alternative.

To avoid these reactions, decision-makers need to address the complexity of the decisions they face and implement decision support tools to bring structure to the decision-making process.

Uncertainty, as it affects decision making, tends to fall into three categories as shown in Figure 3:

- **Environment Uncertainty:** We don't know something about how things work, the consequences of actions, whether an event will happen, or what else might happen to affect the outcomes of the decisions. In the current environment this is represented by not knowing how long it will take for economic activity to recover which will affect demand and potentially long-term affordability. We need to gather more evidence
- **Objectives Uncertainty:** We don't understand aspects of the objectives we are aiming to achieve. We don't know all the objectives, the relative importance of the objectives or how they can be traded off against each other. This is representative of what we currently face. Should we be pursuing employment, growth, environmental goals, the need for infrastructure resilience etc. In this changed world what is it your community needs? We need to clarify the objectives of the community
- **Related-Choices Uncertainty:** We don't understand how a single decision affects other decisions, how a choice may or may not constrain another activity or outcome remote from the current issue or challenge. We will be faced with competing priorities, at least in the short-term, between central government stimulus and local initiatives to sustain serviceability as well as the immediate demands of communities that may lead to unexpected consequences that need to be avoided. We need to investigate and define the relationships between the current decision and others that could be affected.



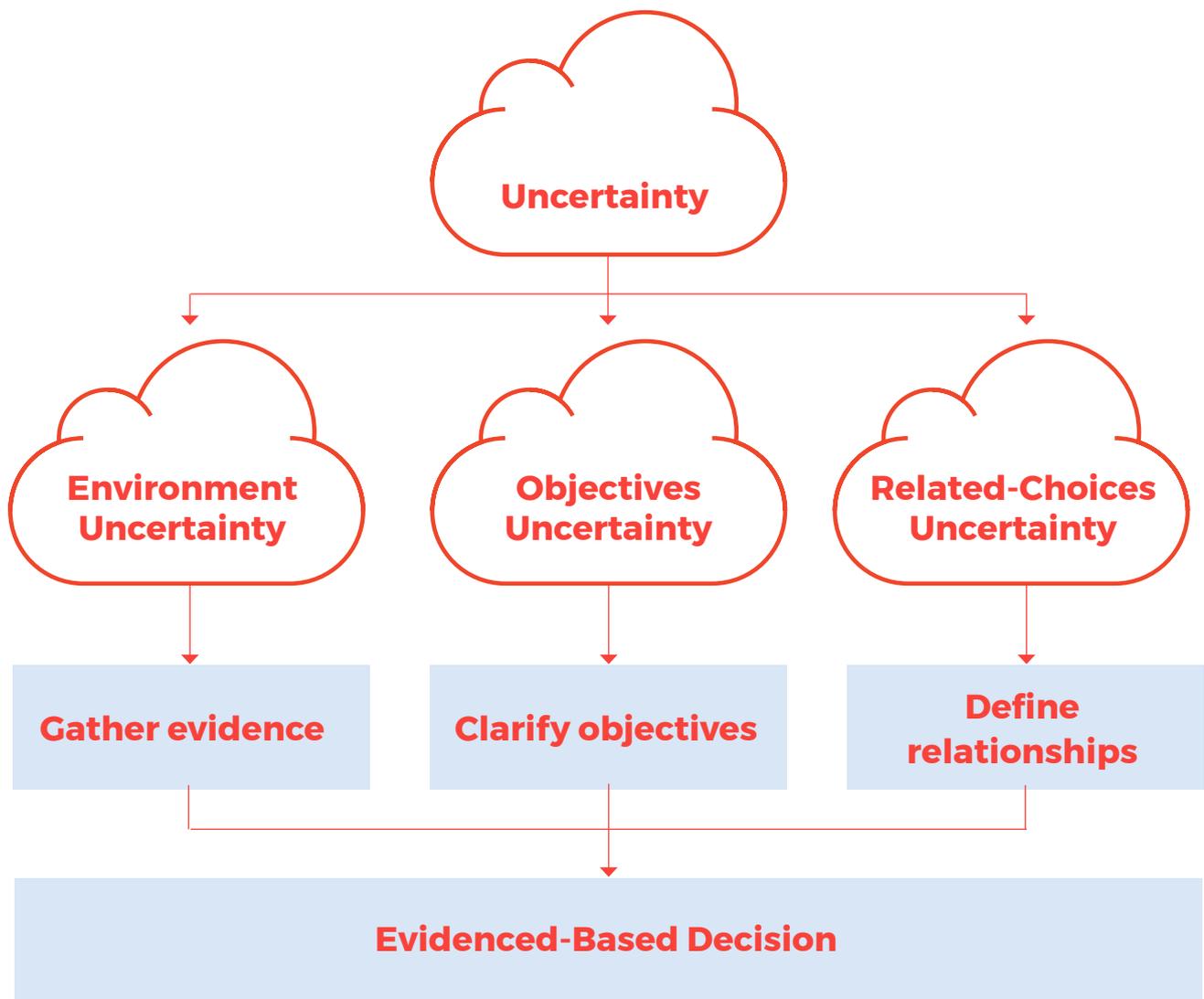


Figure 3 Uncertainty Categories

Strategies for effective decision making under uncertainty include:

- Keeping options open: Avoid committing early. Rather, defer decisions where possible and where the outcomes are unclear. Seek out ways to keep options alive that could lead to enduring outcomes
- Robust decisions: Seek options that offer benefits across a wide range of possible futures
- Seek out what you don't know, you don't know. Look to other communities, sectors and world views
- Don't assume all the relevant issues, constraints and goals are defined in advance or are uncontroversial. There will be gaps as we look to respond with urgency.

Asset Management includes the tools and techniques to plan under uncertainty and provide the information necessary to make informed decisions as we seek to recover.

07 Conclusions

We haven't got the money, so we'll have to think. – Ernest Rutherford.

The impacts of COVID-19 and our response to minimising its impacts on the health and wellbeing of New Zealanders will be profound. The social and economic affects cannot be under-estimated even when compared to the remarkable success New Zealand has had in containing the virus to date. Whole sectors of the economy will for many years be recovering from the curtailment of travel, particularly those reliant on international tourism. These will affect our ability to sustain the infrastructure essential to our communities.

Asset Management offers an approach to help decision-makers identify the key information upon which to make informed decisions. This will ensure balanced outcomes that are affordable, maximise serviceability and stimulate local economies. However, to do this requires significantly more diverse thinking viewed through the lens of changing demand, demographics and affordability.

The rate of these changes means we are less able to rely on historical data to inform our decision-making and suggests we need to embrace other or new data sources.

In addition, a greater emphasis on affordability needs to be applied. Specific care needs to be taken though to continue to invest in infrastructure to: sustain performance and hence depreciated replacement values and; avoid deflation which will significantly compound problems of debt ratios leading to potential issues of intergenerational inequity.

Using the systems and processes of Asset Management, and expanding the type and breadth of information we currently use within New Zealand, has significant opportunity to help us navigate what is clearly an uncertain future.



08 Acknowledgements

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