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Whakapapa Economics Impact Modelling.

A theoretical and technical report for quantified pathway valuation — situating Māori-grounded relational, reciprocal and intergenerational value inside a specified modelling architecture.

MATATIHI

DATE

JUNE 2026

FRONT MATTER — 0.1

Note on terminology and reader support.

Whakapapa economics is used in this report as a contemporary applied framing for economic reasoning grounded in whakapapa, relational obligation and intergenerational consequence.

The phrase does not claim to originate the Māori concepts on which the report relies. Māori concepts such as whakapapa, mana and mauri sit within much older bodies of mātauranga, tikanga, scholarship and practice. The purpose here is to specify an applied impact-accounting structure that works respectfully from those foundations.

Several Māori terms used in this report do not have exact English equivalents. Short working meanings are provided near the front of the report to help readers follow the argument. The front guide gives working meanings rather than complete definitions of Māori terms. The full glossary appears before the references and gives more detailed report-specific explanations.

Māori terms are written in plain type rather than italics throughout the report. When a Māori term and an English explanation appear together, the Māori term appears first, followed by the English explanation. The report uses Māori terms because the concepts carry meanings that would be weakened if they were replaced by loose English substitutes.

FRONT MATTER — 0.2

Abstract.

This report develops a theoretical and technical account of whakapapa economics impact modelling. It positions whakapapa economics as a Māori-grounded theory of value and a social cost-benefit architecture for quantifying and monetising direct, indirect, induced, institutional, taiao and intergenerational impacts. The central proposition is that Māori initiatives and other relationally intensive initiatives are frequently undercounted when impact models stop at the directly observed beneficiary, short causal chains, or available monetary proxies. A whakapapa economics approach begins from a different theory of value: value is created, transmitted and transformed through relationships among people, whānau, communities, institutions, te taiao and future generations (Durie, 1994, 2001; Graham, 2009; Hēnare, 2001, 2014; Mika et al., 2022; Te Rito, 2007).

The report argues that the task is not whether wider relational outcomes should be valued, but how they should be translated into constructs, units, pathways, confidence judgements, cost-benefit estimates and monetary values without reducing Māori concepts to commodities. The core rule is: do not monetise the Māori concept directly; monetise the observable pathway through which the concept becomes material. Mana, mauri, whanaungatanga, tauutuutu, rangatiratanga, wairua and manaakitanga are not priced as abstract concepts. Instead, the model values manifestations such as increased agency, reduced whakamā, ecological improvement, restored hosting capacity, earlier service engagement, whānau knowledge transfer, institutional legitimacy, reduced transaction cost, future attainment and economic security.

The report draws on Māori theoretical scholarship, kaupapa Māori evaluation, Indigenous impact assessment, social CBA, SROI and social value practice, health and education economics, shared-values research, distributional analysis, contribution analysis, realist evaluation, ripple effects mapping, social network analysis and agent-based modelling. It concludes by specifying a practical modelling system: cost boundaries, Whakapapa Value Estimate, pathway taxonomy, construct dictionary, proxy hierarchy, attribution and transmission logic, evidence-confidence rules, double-count register, scenario method and CBA-compatible outputs.

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Executive summary.

The report advances one primary claim: whakapapa economics impact modelling should be understood as a whakapapa-informed social cost-benefit method for quantified pathway valuation. It is not a narrative supplement to appraisal, nor a Māori variant of conventional SROI. It retains the disciplines of social CBA and can produce SROI-compatible value-to-cost outputs, while changing the value boundary used to decide what should enter the model.

Its theory of value does not derive from SROI or CBA. It derives from whakapapa as a relational and intergenerational ordering of reality, from mana and mauri as concepts concerned with standing, vitality and relational quality, and from tauutuutu as a theory of reciprocal exchange and value transmission (Graham, 2009; Hēnare, 2001; Reid et al., 2023; Te Rito, 2007). CBA provides the calculation spine: explicit costs, counterfactuals, present value, attribution, sensitivity analysis and benefit-cost reporting. SROI and social value practice provide useful disciplines of materiality, transparency, stakeholder attention and not overclaiming (Social Value International, 2025).

The report also makes a methodological claim. SROI, as commonly practised, is a flexible, principles-based social value accounting framework rather than a fully specified impact method. A recent internal review of 200 SROI reports found that 94% did not share identical outcome terminology with other reports. Exact wording is not construct equivalence, but the finding still points to a repeatability problem: social value accounting often lacks a stable construct language. Whakapapa economics responds by combining a Māori theory of value with a more specified modelling architecture.

The main technical innovation is pathway monetisation. The model does not ask what mana, mauri or wairua are worth in the abstract. It asks what observable conditions, behaviours, capabilities, avoided harms or future opportunities are created when these values are upheld. Mana may be expressed through restored agency, leadership, participation, reduced whakamā or the capacity to host. Mauri may be expressed through improved ecological condition, healthier homes, avoided degradation or restored system function. Whanaungatanga may be expressed through reduced isolation, informal support, trust, participation and lower transaction costs. These expressions can be quantified where the construct, cohort, unit, attribution, duration, proxy and overlap boundary are defensible.

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A CBA-compatible account with a wider value boundary.

The report recommends that the Whakapapa Value Estimate should be treated as the present-value benefit estimate inside the whakapapa economics boundary. It should be reported alongside matched present-value costs, net present value, benefit-cost ratio, value range, pathway breakdown and evidence-confidence summary. A direct-only or orthodox-boundary estimate may be calculated as a restricted visibility test: a diagnostic showing what a narrower frame would fail to see, not an alternative estimate of total value.

The practical modelling system is intentionally monetisation-positive. It does not default material cultural, relational, whānau, institutional or intergenerational outcomes to qualitative description. It first tests whether the pathway can be named, bounded, evidenced and linked to a construct and unit. If so, it should be quantified and monetised where a defensible proxy or constructed proxy exists. If no adequate proxy exists, the line should be recorded as a new construct requiring valuation development rather than silently treated as zero. Only speculative lines with no mechanism, no materiality and no plausible unit should be excluded.

THEORY OF VALUE	METHOD	OUTPUTS
Relational & intergenerational. Value is created, transmitted and transformed through relationships among people, whānau, institutions, te taiao and future generations.	Pathway social CBA. Retain CBA disciplines, use SROI-compatible social value outputs, and apply whakapapa economics to define the value boundary.	Value, cost and pathway account. Present-value benefits, matched costs, NPV, BCR, value-to-cost ratio, pathway breakdown and evidence confidence.

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Method lineage.

Whakapapa economics impact modelling should be read as a whakapapa-informed social CBA method, not as a rejection of existing appraisal disciplines. Its theory of value is Māori-grounded. Its calculation spine is recognisably cost-benefit analysis. Its social-value inheritance overlaps with SROI and the wider social value tradition.

CBA contributes the accounting structure: explicit costs, benefits, counterfactuals, present value, discounting, attribution, sensitivity analysis, net present value and benefit-cost ratios (HM Treasury, 2026; The Treasury, 2025). SROI contributes attention to materiality, stakeholder value, transparency, verification and not overclaiming. Whakapapa economics changes the upstream question: what counts as value, who counts as affected, how far value travels, and which relational, institutional, taiao and intergenerational pathways must be examined before a model decides what is material.

The method therefore does not discard CBA or SROI. It deepens them. It uses CBA to make value decision-ready. It uses SROI-compatible reporting where value-to-cost ratios are useful. It uses whakapapa economics to prevent relational and Māori value from being pushed into qualitative margins or treated as optional uplift.

This distinction matters. A narrow CBA can be technically precise while mis-specifying the phenomenon. A flexible SROI can be transparent while using unstable outcome language. Whakapapa economics impact modelling seeks to be wider in value boundary and stricter in specification: define the construct, specify the pathway, bound the cohort, state the cost base, test the proxy, control overlap and report uncertainty.

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Reader's guide to key Māori concepts.

Some Māori concepts can be partly explained in English, but direct translation will always be limited. Short meanings are provided below to help readers follow the report's main argument. Each meaning is a working guide for this report rather than a full cultural definition.

The model uses these concepts to decide which forms of value need to be seen. The model then looks for observable changes that can be described, evidenced and valued. For example, mana may guide attention to agency, dignity and standing. The model then asks whether those ideas are visible through a change such as stronger participation, reduced whakamā or restored ability to host whānau.

Whakapapa	Relationships across people, place, ancestry and future generations.
Mana	Authority, dignity, standing and realised capability.
Mauri	Vitality, life force and system condition.
Wairua	Spiritual wellbeing, meaning and deeper connection.
Whānau	Family and wider relational unit of care and obligation.
Whanaungatanga	Relationship, kinship, belonging and mutual responsibility.
Manaakitanga	Care, hosting and upholding the mana of others.
Kaitiakitanga	Guardianship and stewardship, especially for te taiao.
Rangatiratanga	Authority, leadership and self-determination.
Tauutuutu	Reciprocal exchange, obligation and delayed return.
Tikanga	Correct process, values and ways of doing.
Te taiao	The natural world and living environment.

A

Foundations.

Front framing of the report: the core thesis, review method, the case for a different impact-accounting foundation, the Māori theoretical sources, wellbeing precedents and Indigenous impact assessment.

Introduction and core thesis.

Whakapapa economics impact modelling is an applied approach to value accounting that begins from whakapapa, understood here as an organising idea about relationships across people, place, ancestry and future generations, rather than isolated beneficiaries. The method's purpose is to quantify and monetise, as far as can be defensibly specified, the full value created by Māori and relationally intensive initiatives. The method treats direct outcomes as the first site of impact, not the full boundary of value. Value may be created for the immediate participant, but it may also flow through whānau, household routines, sibling aspirations, caregiver burden, institutional trust, cultural legitimacy, te taiao, governance capability, and future generations.

The report is premised on a simple but consequential claim: when impact models count only direct, individual, short-chain and already-monetisable outcomes, they mis-specify many Māori initiatives. This reflects deeper assumptions about what value is, whose value counts, and how future generations are weighted (Kerr, 2012; Matunga, 2018; Smith, 1999). The purpose of whakapapa economics is not to replace rigour with cultural assertion. It is to relocate rigour inside a Māori theory of value. The model should be wider in its boundaries and stricter in its specifications. It should include indirect, induced and long-run pathways where the mechanism is real, but it should require each line to pass through construct definition, unit discipline, evidence confidence, attribution logic, scenario testing and double-count controls.
The result is a model that counts more because it specifies more, not because it assumes more.

This report, therefore, distinguishes between the value theory and the technical method. Whakapapa economics is the school of thought: a Māori-grounded approach to economic reasoning that treats relational obligation, reciprocity and intergenerational consequence as constitutive of value. The Whakapapa Impact Model is the applied method: a social cost-benefit architecture for tracing and monetising value across direct, whānau, community, institutional, taiao and intergenerational pathways.

The method's central value-side estimate is the Whakapapa Value Estimate. This is the present-value estimate of monetised benefits created within the whakapapa economics boundary. It is reported with matched present-value costs, net present value, benefit-cost ratio, value range, pathway breakdown and evidence-confidence summary. It uses CBA disciplines and can produce SROI-compatible ratios, without accepting orthodox boundaries as the default frame.

Review method, evidence base and scope.

This report is an integrative conceptual and technical synthesis. It uses Māori theory and philosophy as the primary foundation, then draws selectively on economics, evaluation, Indigenous impact assessment and systems modelling as supporting bodies of method. The structure follows the logic of a literature review, but extends it into operational modelling. The goal is not only to justify broader impact boundaries, but also to specify how broader impacts can be reflected in the numbers.

The literature base includes Māori scholarship on whakapapa, mana, mauri, wairua, hau, tikanga, tauutuutu and Māori theories of value (Graham, 2009; Hēnare, 2001, 2014; Marsden, 2003; Mika et al., 2022; Reid et al., 2023; Roberts et al., 2004; Te Rito, 2007). It includes kaupapa Māori and decolonising methodologies, which shift the question from cultural sensitivity to authority over knowledge, validity and interpretation (Kerr, 2012; Pihama et al., 2002; Smith, 1999). It includes Māori wellbeing frameworks and policy-operational models, including Te Whare Tapa Whā, Te Pae Mahutonga, He Ara Waiora and Māori built-environment wellbeing models (Cram, 2014; Durie, 1994, 1999, 2001, 2006; Penny et al., 2024; The Treasury, 2024).

The report also draws on Indigenous planning and impact assessment literatures concerned with Indigenous self-determination, cultural impact assessment, strategic Indigenous impact assessment, social licence and rights-based assessment (Chua-oon Rinfret et al., 2022; Jolly, 2022; Jolly & Thompson-Fawcett, 2023; Larsen, 2018; Matunga, 2018; Nakamura, 2013; O'Faircheallaigh, 2009; Partal & Dunphy, 2016; Ruckstuhl et al., 2014; Secretariat of the Convention on Biological Diversity, 2004; United Nations, 2007; Wikitera, 2024).

The supporting economic and evaluation literatures include family spillovers in health economic evaluation, education spillovers and intergenerational human capital transmission, social multipliers, social capital, shared values and deliberative valuation, distributional cost-effectiveness analysis, capability theory, multi-criteria decision analysis, contribution analysis, realist evaluation, ripple effects mapping, social network analysis and agent-based modelling (Acemoglu & Angrist, 2001; Al-Janabi et al., 2016; Asaria et al., 2016; Chazdon et al., 2017; Currie & Moretti, 2003; Ehsan et al., 2019; Frazão et al., 2018; Glaeser et al., 2003; Grosse et al., 2019; Kenter et al., 2016; Marsh et al., 2017; Mayne, 2012; Moretti, 2004; Nobles et al., 2022; Oreopoulos et al., 2006; Pawson & Tilley, 1997; Sen, 1999; Tracy et al., 2018; Valente, 2012; Wittenberg et al., 2019; Xue et al., 2020).

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The report also treats applied SROI practice as an object of critique. SROI is valuable as a flexible social value accounting convention, but flexibility can become under-specification. Social Value International principles provide an important ethical and procedural frame, including materiality, transparency, and not overclaiming, yet they do not by themselves provide a stable construct dictionary, fixed outcome taxonomy or repeatable pathway logic (Social Value International, 2025). This matters because an impact method can be transparent yet not reproducible if analysts use different outcome labels, stakeholder boundaries, and proxies for similar phenomena.

The scope is deliberately applied. The report does not offer a complete statistical manual or an exhaustive proxy library. It provides a theoretical foundation, modelling structure, pathway taxonomy, monetisation workflow, cost-boundary rules, equations, evidence-confidence rules, attribution and transmission parameters, proxy-selection logic, reporting architecture and implementation guidance suitable for use in live impact reports.

Why impact accounting needs a different foundation.

Impact assessment is often presented as a neutral exercise: identify outcomes, estimate the counterfactual, monetise benefits where possible, avoid overclaiming and discount the future. Those disciplines are useful. They do not, however, settle the deeper questions that determine the result. Every model must decide what counts as value, who counts as affected, what time horizon matters, which evidence is admissible and how uncertainty should be handled. These decisions are not technical details. They are normative choices embedded in method (Smith, 1999; Matunga, 2018).

Conventional impact accounting commonly privileges outcomes that are direct, individualised, measurable within short reporting periods and already supported by a readily available monetary proxy. This is partly a response to legitimate concerns about overclaiming. Yet the practical consequence is that relational and long chain effects can disappear from the quantitative account even where they are central to how the intervention works. A programme may change one participant, and that participant may change expectations, trust, knowledge, confidence and opportunity within a household or wider network. If the model stops at the participant, it undercounts the pathway.

The undercounting problem is especially acute for Māori initiatives because many such initiatives are designed to work through whānau, cultural identity, collective capability, mātauranga, manaakitanga, kaitiakitanga, whakapapa ties to place and obligations to future generations. A model that treats these effects as qualitative context rather than decision-relevant value is not simply being conservative. It is using a boundary that is too narrow for the phenomenon being assessed.

The same critique applies to the treatment of time. Conventional appraisal often discounts future benefits because of opportunity cost and social time preference. Discounting is a legitimate economic tool, but it also expresses an ethical stance about present and future claims. From a whakapapa perspective, future generations are not distant anonymous consumers. They are descendants within a field of obligation. A model that mechanically downweights intergenerational capability, ecological inheritance or cultural continuity can produce numbers that are technically precise but morally incomplete (Durie, 2001; The Treasury, 2024).

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The problem is not solved by adding a qualitative section to a report. Qualitative evidence is vital for meaning, mechanism, and Māori authority, but in many funding and policy settings, monetised values, benefit-cost ratios, fiscal cases and quantified outcomes carry disproportionate weight.

Where material relational outcomes are left outside the quantified model, they may be acknowledged but not acted on. A whakapapa economics approach, therefore, treats monetisation as a necessary translation task in applied decision systems, while retaining strict safeguards against commodification and overclaiming.

TABLE 1. FROM CONVENTIONAL IMPACT ACCOUNTING TO WHAKAPAPA ECONOMICS MODELLING

CONVENTIONAL TENDENCY	RISK FOR MĀORI AND RELATIONAL IMPACT	WHAKAPAPA ECONOMICS RESPONSE
Direct beneficiary boundary	Misses value transmitted through whānau, peers, households, institutions and future generations.	Begin with a relationship map and treat direct participants as the first site of impact, not the full boundary.
Short causal chain preference	Delayed, mediated and cumulative impacts are pushed into narrative margins or excluded.	Use layered pathways, contribution logic, transmission parameters and long-horizon scenarios.
Proxy availability as gatekeeper	Outcomes without ready-made proxies are treated as non-economic or non-material.	Define constructs first, then use proxy hierarchy, constructed proxies and new construct development.
High attribution threshold	Plausible wider effects become zero if sole causation cannot be proven.	Estimate contribution transparently through evidence confidence, rival-cause analysis and pathway-specific attribution.
Single-ratio reporting	One familiar number can anchor decision-makers and make relational value appear optional.	Report PV benefits, PV costs, NPV, BCR, value-to-cost ratio, pathway breakdown and uncertainty.
Cultural concepts as qualitative context	Mana, mauri, wairua, whanaungatanga and rangatiratanga are described but not decision-relevant.	Do not price concepts directly; monetise their observable material pathways where defensible.

Whakapapa economics as a theory of value.

Whakapapa economics is an applied theory of value. It begins with the proposition that value is produced and transmitted through relationships, obligations, reciprocal exchange, place and time. It does not reduce value to price, utility or private preference, but it also does not reject quantification. Instead, it asks how the consequences of an intervention become materially visible through changes in capability, behaviour, burden, participation, ecological condition, institutional practice and future opportunity.

This makes whakapapa economics distinct from a broad social-value label. Social value approaches may ask stakeholders what changes and then seek proxies for those changes. Whakapapa economics specifies a deeper starting point: persons are embedded in whānau, whakapapa, institutions, te taiao and intergenerational obligations; therefore, the model must examine those relational sites before deciding what counts as material. The unit of analysis is the relational field in which the individual exists, not simply the individual alone (Graham, 2009; Te Rito, 2007; Roberts et al., 2004).

The theory of value is also dynamic. Tauutuutu, meaning reciprocal exchange, obligation and delayed return, frames exchange as obligation-generating and temporally extended rather than one-off and transactional (Reid et al., 2023). A benefit may create new responsibilities, confidence, authority or capacity that is later returned through whānau support, mentoring, community contribution, institutional change or ecological care. In modelling terms, tauutuutu provides a theory of transmission. It supports the inclusion of second-order, third-order and intergenerational pathways, not as speculative extras but as expected forms of value movement that must be estimated with evidence-based discipline.

This theory also gives a different account of economic decision-making. Economics is not only about allocation under scarcity; it is about the values embedded in allocation. Whakapapa economics asks which relationships are strengthened or weakened, whose mana is upheld, which mauri is restored or diminished, which pathways are opened for mokopuna, and which future possibilities are made credible. Some of these questions are ethical and cultural, some are quantitative, and some are monetisable through material expressions. The model should be capable of handling all three while prioritising quantification when a pathway can be bound.

In applied impact modelling, this means value is neither infinitely expansive nor narrowly economistic. It is disciplined by a mechanism. A claim enters the model when the analyst can state: this intervention creates this observable change for this cohort through this pathway over this period, and the change can be represented by this unit, proxy, attribution rate and uncertainty range. Where those elements cannot yet be specified, the line becomes a construct development task rather than being dismissed as valueless.

Māori theoretical foundations.

5.1 Whakapapa as ontology, epistemology and evaluative boundary

For impact modelling, the implication is direct. If people are already constituted through relationships, then effects are not properly bounded by the first individual who receives a service, grant, intervention or opportunity. A direct outcome can change a household routine, an expectation, a caregiving relationship, a decision pathway, a mentoring relationship or an institutional practice. The model must therefore start with relationship mapping before it selects the monetised line set. Whakapapa also changes the way time is treated. The present is not an isolated moment of decision. It is a point within continuity linking ancestors and descendants.

Future impacts are not merely long-term benefits accruing to unknown individuals; they may affect mokopuna, cultural continuity, ecological inheritance, and whānau capability. This does not remove the need for discounting or uncertainty analysis, but it requires the model to make temporal assumptions explicit and to avoid using short horizons as a quiet way to exclude intergenerational value.

Whakapapa is more than genealogy in a narrow descent-line sense. Māori scholarship treats whakapapa as an organising logic of relatedness, identity, knowledge, pattern and obligation. Graham (2009) describes whakapapa as a methodology for organising and legitimating knowledge. Te Rito (2007) emphasises its role in identity, belonging and connection to whenua. Roberts et al. (2004) describe whakapapa as a Māori mental construct with implications for taxonomy, classification and understanding relationships in nature. These accounts position whakapapa as ontological, epistemological and ethical: it concerns what exists, how it is known and why relationships carry obligation.

5.2 Mana, mauri, wairua, hau, tapu and tikanga

Hēnare's work on tapu, mana, mauri, hau and wairua provides a philosophical basis for evaluating the quality of relationships, exchange and vitality (Hēnare, 2001, 2014, 2016). Marsden (2003) similarly treats mauri as a life force and organising vitality that binds and sustains life. These concepts are part of a Māori account of value, change and relational integrity.

Mana is often translated as authority, status, standing, or prestige, but these translations are too thin when treated as exact equivalents. In an economic frame, mana concerns the dignity, standing, authority and realised capability of people, whānau, institutions and places. A programme may enhance mana by restoring agency, reducing whakamā, enabling leadership, facilitating participation, or recognising Māori knowledge as legitimate. Conversely, an intervention can degrade mana even where it produces a narrow output.

■ PART A · FOUNDATIONS — §5 / CONTINUED

This is why value assessment must attend to the quality of exchange, not only its quantity (Dell et al., 2018; Hēnare, 2014; Mika et al., 2022). Mauri offers a way to evaluate vitality, condition and system functioning. In modelling terms, mauri should not be monetised as an abstract spiritual property. It should guide the analyst toward observable expressions: healthier wai, restored whenua, safer homes, reduced degradation, improved ecological function, restored use of a place, improved indoor environments or reduced long-run remediation burden. The concept directs the value boundary; the monetised line values the observable manifestation.

Wairua prevents wellbeing from being collapsed into subjective satisfaction or mental health alone. It points to spiritual connection, meaning, identity, belonging and relational integrity. Hau emphasises the vital essence and obligations involved in exchange. Tapu and tikanga provide ethical boundaries and ways of doing. Together, these concepts require a model that is not only outcome-sensitive but conduct-sensitive: how value is created matters to whether it is value at all.

5.3 Tauutuutu as transmission logic

Tauutuutu is central to the modelling architecture because it provides a theory of how value moves. Reid et al. (2023) describe tauutuutu as reciprocal exchange characterised by obligation, balance, delayed return and dynamic equilibrium. Exchanges do not end at the moment of transfer; they generate continuing responsibilities and flows of value across social and environmental relationships.

In impact modelling, tauutuutu supports second order and third-order monetisation. A person receives support and later teaches whānau. Rangatahi complete a pathway and change their siblings' aspirations. A health provider builds trust with one patient and improves service engagement across the household. A marae upgrade enables whānau to host, gather and transmit knowledge. A research initiative increases institutional confidence in mātauranga Māori, enabling future projects. These are relational transmissions.

The correct response is not to assume all transmissions are large. This requires explicit transmission parameters, evidence confidence, persistence factors and overlap controls. The key modelling approach is: indirect does not mean zero; indirect means transmission-adjusted. Tauutuutu justifies the search for these pathways; economic and evaluative methods specify their magnitude and uncertainty.

Kaupapa Māori methodology changes the meaning of rigour. Smith (1999) shows that research has often operated as a colonising practice when Indigenous peoples are treated as objects of inquiry rather than authorities over knowledge.

Pihama et al. (2002) argue for methodological space in which Māori knowledge, aspirations and self-determination are not subordinated to external categories. Kerr (2012) demonstrates that kaupapa Māori evaluation has its own theoretical roots while engaging with wider evaluation theory.

5.4 Kaupapa Māori and decolonising methodology

For whakapapa economics, this means Māori concepts should not be inserted into an externally defined valuation framework, with the underlying rules remaining unchanged. Māori authority must shape the domains, constructs, indicators, materiality thresholds, evidence interpretation, data rules and reporting hierarchy. Otherwise, the model risks treating Māori concepts as inputs to a non-Māori decision system rather than as structuring concepts of the method itself.

This has practical consequences. The model should include a Māori governance checkpoint before outcome boundaries are finalised. It should document the integrity of the sources of Māori concepts. It should not publish sensitive evidence where tikanga requires protection. It should also distinguish between stakeholder consultation and authority over value. These are methodological conditions of validity.

5.5 Māori theories of value: economy of mana and manahau

A whakapapa economics requires an explicit theory of value. Hēnare's economy of mana and subsequent literature on Māori enterprise and manahau provide such a foundation. Dell et al. (2018) locate the economy of mana in holistic aspirations that bring together social, cultural, spiritual, environmental and economic wellbeing. Spiller et al. (2011) describe Māori business through relational wellbeing and an ethic of care. Mika et al. (2022) develop manahau as an Indigenous Māori theory of value that moves beyond static and capital-centred understandings, linking value to multidimensional wellbeing, human potential and relational balance.

This literature has two implications for modelling. First, price is not value. Price is one possible language for representing some effects in decision-making. Second, value can emerge from relationships and exchanges rather than sitting only in market outputs or individual utility. A monetised model must therefore translate relational effects into observable material pathways without claiming that money exhausts the concept. This is the philosophical basis for pathway monetisation.

PART A · FOUNDATIONS — §6

Māori wellbeing and policy precedents.

Māori wellbeing models provide applied precedents for broad value boundaries. Durie's Te Whare Tapa Whā positions health as a balance among taha tinana, taha hinengaro, taha wairua and taha whānau (Durie, 1994). The inclusion of taha whānau is especially important for impact modelling because it makes whānau constitutive of wellbeing rather than an external support factor. Te Pae Mahutonga broadens the lens further through cultural identity, physical environment, healthy lifestyles, participation, leadership and autonomy (Durie, 1999).

Durie's later work on Māori wellbeing emphasises that assessment must operate across individual, collective and population levels, and that Māori-specific measures are required alongside universal indicators (Durie, 2001, 2006). Cram (2014) similarly identifies the continuing difficulty of measuring collective Māori wellbeing, particularly whānau ora, in systems that often rely on individual reporting as a proxy. The implication is that measurement systems need constructs and units appropriate to collective value.

He Ara Waiora provides a policy-operational bridge. The Treasury's framework places wairua at the centre and understands wellbeing through te taiao, te ira tangata and tikanga, such as kotahitanga, tikanga, whanaungatanga, manaakitanga and tiakitanga (The Treasury, 2024). The significance of He Ara Waiora lies in the recognition that Māori wellbeing concepts are not confined to cultural commentary. They can inform public-sector appraisal, strategy and policy reasoning. Whakapapa economics extends this by specifying how relational and intergenerational pathways can be quantified and monetised where a defensible route exists.

Recent work on built-environment wellbeing reaches similar conclusions. Penny et al. (2024) develop a whakawhanaungatanga Māori wellbeing model for housing and urban environments that treats relationship building and connectedness as central to wellbeing outcomes. Wikitera (2024) argues that cultural impact assessment in Aotearoa should move from reactive compliance toward proactive, restorative, regenerative and wellbeing-oriented practice. These literatures support the idea that housing, urban form, marae, infrastructure and environmental projects should be valued by how they alter relationships, participation, hosting, belonging, cultural continuity and future capability, not only by direct use or avoided harm.

PART A · FOUNDATIONS — §7

Indigenous impact assessment, rights and authority.

Indigenous impact assessment literature provides a normative and procedural foundation for whakapapa economics. Cultural impact assessment has often been used because generic social and environmental assessments do not adequately capture Indigenous cultural values, place based meanings, and self-determination concerns (Partal & Dunphy, 2016; Wikitera, 2024). Yet CIA can remain constrained where Indigenous participation is advisory and decision authority remains elsewhere (Chua-oon Rinfret et al., 2022; Jolly & Thompson-Fawcett, 2023).

Matunga's Strategic Indigenous Impact Assessment is particularly important because it argues for assessment grounded in Indigenous ontology, epistemology and axiology, rather than simply adding Indigenous values to pre-existing state or developer frameworks (Matunga, 2018). Larsen (2018) similarly argues that participation options should be evaluated against Indigenous self-determination, not merely stakeholder inclusion. O'Faircheallaigh (2009) shows that the effectiveness of social impact assessment in Indigenous contexts depends on power, context and whether communities can shape assessment and outcomes.

International instruments reinforce this position. The Akwé: Kon guidelines recognise the need for cultural, environmental, and social impact assessment when developments affect sacred sites, lands, and waters traditionally occupied or used by Indigenous and local communities (Secretariat of the Convention on Biological Diversity, 2004). UNDRIP affirms Indigenous peoples' rights to determine priorities and strategies for development or use of lands and resources, and to be consulted through free, prior and informed consent processes (United Nations, 2007). These sources do not supply a technical valuation formula, but they support the claim that Māori authority over evaluative categories is not optional.

The social licence literature is also relevant. Ruckstuhl et al. (2014) show that Māori perspectives challenge generic social licence concepts by re-situating legitimacy in relationships, rights, history and resource governance. For modelling, this matters because poor engagement can create real economic costs: delays, redesign, legal challenges, consent risks, reputational harm, loss of trust, and future transaction costs. Conversely, culturally legitimate engagement can create value by avoiding conflict and improving institutional capability. These are monetisable institutional pathways when the mechanism and unit are defined.

B

CBA, SROI & the monetisation rule.

How CBA, SROI and whakapapa economics sit together: the limits of narrow appraisal, the literature supporting wider monetisation, the pathway monetisation rule, value estimates and modelling architecture.

CBA, SROI and the monetisation rule.

8.1 CBA as calculation spine

A whakapapa economics critique should not caricature cost-benefit analysis. CBA contributes the calculation disciplines this method retains: explicit costs, counterfactual reasoning, resource-cost accounting, opportunity cost, present value, distributional analysis, sensitivity analysis and anti-double-counting logic. The Green Book recognises that appraisal should include monetised, quantified and qualitative impacts, and that distributional effects may be important (HM Treasury, 2026). These tools help defend claims. They do not, by themselves, decide whose value counts.

The limitation is not CBA as arithmetic. It is the way conventional appraisal can inherit narrow boundaries: direct beneficiaries, short causal chains, readily available proxies and short time horizons. Whakapapa economics keeps the calculation spine but changes the value boundary.

8.2 SROI as social value inheritance

SROI and social value approaches contribute useful disciplines: stakeholder involvement, understanding change, valuing what matters, materiality, transparency, verification and not overclaiming (Social Value International, 2025). These disciplines remain important because they ask analysts to attend to value that would otherwise be ignored.

SROI is often treated as a standardised measurement method. In practice, it is better understood as a principles-based social value accounting frame. Its openness is useful, but openness can risk under-specification. Analysts make consequential choices about stakeholder boundaries, outcome labels, proxy selection, attribution, duration, drop-off and aggregation, yet still describe the result as SROI. A recent internal analysis of 200 SROI reports found that 94% did not share identical outcome terminology. Exact wording is not construct equivalence, but the finding points to a repeatability problem.

8.3 What whakapapa economics adds

Whakapapa economics should not be positioned as SROI with Māori principles added, nor as CBA with a cultural appendix. It is a social CBA method whose theory of value is Māori-grounded. It needs a construct taxonomy, pathway grammar, proxy hierarchy, transmission logic and reporting hierarchy that are not supplied by SROI alone.

The model can produce SROI-style value-to-cost ratios. It can also produce CBA outputs: present-value benefits, present-value costs, net present value and benefit-cost ratio. The ratio is an output, not the method.

8.4 Restricted visibility test

There is no natural conventional estimate beneath a whakapapa estimate. A direct-only or orthodox-boundary model is a restricted model variant created by analyst choice. If calculated, it should be labelled as a restricted visibility test. Its function is diagnostic: it shows what a narrower boundary would fail to see. It should not be presented as a conservative estimate of true value, because narrowness is not the same as accuracy.

TABLE 2. SROI/CBA AS SPECIFICATION ARCHITECTURE

DIMENSION	SROI / CBA TENDENCY	WHAKAPAPA ECONOMICS SPECIFICATION
Theory of value	Welfare value, social value, stakeholder value or wider public value.	Māori-grounded relational, reciprocal and intergenerational value.
Calculation structure	Costs, benefits, counterfactuals, present value, sensitivity, NPV, BCR and ratios.	Same calculation discipline, but applied to a wider whakapapa value boundary.
Outcome language	Often free-text, report-specific and non-repeatable.	Controlled construct dictionary and pathway taxonomy.
Indirect effects	Often optional and frequently excluded from monetised totals.	Expected where mechanism exists; monetised using transmission and evidence confidence.
Cultural value	Often narrated, proxied ad hoc, or held outside the model.	Concepts guide value boundary; observable pathways are monetised.
Output	BCR, NPV or SROI ratio may dominate.	PV benefits, PV costs, NPV, BCR, value-to-cost ratio, pathways and uncertainty.
Conventional comparator	Often treated as base or conservative case.	Optional restricted visibility test only.

Economic and evaluation support for wider monetisation.

9.1 Family and caregiver spillovers

Health economics provides a strong precedent for expanding the beneficiary boundary. AlJanabi et al. (2016) provide a framework for including family health spillovers in economic evaluation. Wittenberg et al. (2019) review spillover effects on caregivers' and family members' utility, while Grosse et al. (2019) examine the valuation of informal care time. The central insight is straightforward: the patient is often not the only person affected by a health intervention.

This supports monetising whānau outcomes where an intervention reduces care burden, stress, uncertainty, navigation time, crisis management, transport costs or health risk. It also supports the use of separate cohorts. A participant's health gain and a caregiver's avoided care burden are not automatically the same benefit. They may both be counted if the unit, person, pathway and overlap fence are distinct.

9.2 Education spillovers and intergenerational transmission

Education economics has long distinguished private from social returns. Moretti (2004) estimates external productivity effects associated with higher education. Currie and Moretti (2003) link maternal education to infant health, while Oreopoulos et al. (2006) examine intergenerational effects of compulsory schooling. This body of evidence supports the proposition that the benefits of education can extend beyond the direct learner and across generations.

The evidence also cautions against automatic high multipliers. Acemoglu and Angrist (2001) report more cautious findings on human-capital externalities. This is useful for whakapapa economics because it supports scenario-based estimation rather than rhetorical inflation. The model can recognise intergenerational and whānau aspiration pathways, while estimating them through pathway probabilities, evidence confidence, persistence factors and sensitivity analysis.

The Māori home ownership pathway provides a practical example. Whitehead and Walker (2021) found that parental educational aspirations were among the variables associated with Māori home ownership by age 35. This does not prove a simple causal chain from parental aspiration to home ownership. It does, however, support a plausible long-run economic pathway: aspiration influences education, education influences employment and income, and economic stability influences housing security and asset formation. A whakapapa economics model can represent such a pathway through probability-adjusted and overlap-controlled intergenerational valuation.

9.3 Social multipliers, network effects and social capital

Social multiplier theory and network intervention research support the proposition that effects can be amplified through relationships. Glaeser et al. (2003) describe social multipliers, while Valente (2012) shows how network interventions can use influence structures to spread effects. Social capital research also finds associations between trust, reciprocity, social connection and health, even though causal pathways are complex (Ehsan et al., 2019; Xue et al., 2020).

For whakapapa economics, this literature does not replace Māori theory. It supports the empirical plausibility of transmission. Knowledge transfer through whānau, sibling aspiration effects, peer mentoring, trust-mediated service engagement and institutional learning are not methodologically unserious simply because they travel through networks. They should be modelled as networked pathways with transmission parameters and evidence confidence.

9.4 Shared values, deliberative valuation and non-market value

Shared-values research challenges the assumption that value is best captured by individual willingness to pay. Kenter et al. (2016) argue that many environmental and cultural values are collective, deliberative, ethical and relational. This is highly relevant to Māori contexts, where cultural legitimacy, relationship to whenua, collective identity and obligations to te taiao may be poorly represented as private preferences over commodities.

The implication for monetisation is not that cultural value should never enter the monetary model. It is that monetisation must attach to observable pathways rather than deeper ethical concepts. Deliberative evidence, stakeholder evidence and Māori-governed indicators can define constructs and materiality. Monetary proxies can then value specific consequences such as avoided degradation, restored participation, reduced isolation, improved service uptake, or avoided engagement failure.

9.5 Distribution, capability and multi-criteria decision support

Distributional cost-effectiveness analysis shows that efficiency and equity can be considered together rather than treated as separate concerns (Asaria et al., 2016). This matters because whakapapa economics is concerned not only with total value but also with where value lands, who carries the burden, and how benefits move across whānau, communities, and generations. Distributional weights, equity-adjusted scenarios and separate reporting by beneficiary group can be used where the decision context requires it.

Sen's capability approach also provides a useful bridge by shifting evaluation from resources or utility alone to substantive freedoms to be and do what people value (Sen, 1999). Whakapapa economics extends this toward relational capability: the ability of whānau, communities, institutions and ecosystems to sustain the relationships and future possibilities that make wellbeing meaningful. MCDA is relevant where decisions must integrate multiple criteria that should not all be reduced to dollars, although in this report, MCDA is treated as a supplementary decision aid rather than a substitute for monetised pathway modelling (Frazão et al., 2018; Marsh et al., 2017).

9.6 Complexity-aware evaluation and systems modelling

Contribution analysis, realist evaluation, ripple effects mapping, social network analysis and agent-based modelling all support the inclusion of complex, relational and emergent pathways.

Mayne (2012) argues that contribution analysis is useful where multiple factors shape outcomes and sole attribution is unrealistic. Pawson and Tilley (1997) ask what works, for whom, in what circumstances and through what mechanisms. Nobles et al. (2022) and Chazdon et al. (2017) show how ripple effects mapping can surface wider outcomes that conventional evaluation may miss. Tracy et al. (2018) and Valente (2012) show that network and agent-based approaches can model diffusion and emergent effects.

These literatures reinforce the core modelling rule: do not require experimental certainty for every wider pathway. Require mechanism, cohort, unit, evidence, contribution logic, sensitivity testing and overlap control. The methodological shift is from proving sole causation or excluding to estimating contribution transparently.

The pathway monetisation rule.

The pathway monetisation rule is the ethical and technical centre of the model. It states: do not monetise the Māori concept directly; monetise the observable pathway through which the concept becomes material. This rule protects Māori concepts from reduction to market commodities while allowing their material consequences to enter the economic model.

The model does not ask what mana is worth in dollars. It asks what changes when mana is upheld, restored or strengthened. Does a person become more able to participate, lead, speak, host, make decisions, seek help, support whānau or engage with institutions? If those changes create measurable consequences, those consequences may be valued. The monetary line is not the value of mana; it is the value of increased participation, avoided disengagement, reduced crisis, restored hosting capacity or increased leadership contribution.

The same principle applies to mauri. The model does not price mauri as life force. It values tangible expressions such as improved ecological conditions, healthier homes, avoided degradation, restored system function, reduced remediation costs, increased usability, or improved mahinga kai access. Wairua is not priced as spirituality; observable effects such as reduced distress, strengthened belonging, life satisfaction, meaning and cultural reconnection may be valued through appropriate wellbeing or avoided-cost proxies. Whanaungatanga is not priced as relationships; outcomes such as reduced isolation, informal support, trust, service engagement and transaction-cost reduction may be valued.

This distinction is not only ethical. It is also methodologically clarifying. Abstract concepts are too broad to monetise directly, and doing so would invite conceptual dilution. Pathways, by contrast, can be specified. They have a cohort, mechanism, unit, proxy, attribution rate and uncertainty range. The model therefore prices the expression, not the essence.

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TABLE 3. PATHWAY MONETISATION OF MĀORI AND RELATIONAL CONCEPTS

MĀORI / RELATIONAL CONCEPT	DO NOT MONETISE AS	MONETISE THROUGH OBSERVABLE PATHWAYS
Mana	The value of mana restored.	Increased agency, participation, leadership, reduced whakamā, restored ability to host, service engagement, governance participation.
Mauri	The value of mauri.	Improved ecological condition, healthier homes, avoided degradation, restored function, reduced remediation, safer environments.
Whanaungatanga	The value of relationships.	Reduced isolation, informal support, social connectedness, trust, reduced transaction cost, increased participation.
Tauutuutu	The value of reciprocity.	Knowledge transfer, reciprocal care, mentoring, whānau sharing, community contribution, delayed return of benefits.
Rangatiratanga	The value of self-determination.	Governance capability, decision authority, funding readiness, reduced dependency, institutional control, service design fit.
Wairua	The value of spirituality.	Life satisfaction, meaning, reduced distress, identity affirmation, cultural reconnection, belonging.
Manaakitanga	The value of hosting or care.	Safe hosting capacity, hui enabled, whānau participation, avoided venue/accommodation costs, reduced isolation.
Kaitiakitanga	The value of stewardship as an abstract virtue.	Restoration hours, avoided degradation, ecological indicators, mahinga kai access, reduced run-off, long-run environmental resilience.

The rule also supplies a public defence against commodification. A whakapapa economics report should say explicitly that it is not pricing whakapapa, mana, mauri or wairua. It is valuing specific material changes that occur when these values are upheld in practice. This allows cultural relational value to influence investment decisions without surrendering Māori concepts to market logic.

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The Whakapapa Value Estimate.

The model's primary value-side estimate should be the Whakapapa Value Estimate. This is the present value of all monetised benefit pathways that fall within the whakapapa economics boundary and pass the model's inclusion rules. It includes direct, whānau, network, institutional, taiao and intergenerational outcomes, with each line sufficiently specified. It is the benefit estimate used in the wider social CBA.

The Whakapapa Value Estimate should be reported with matched present-value costs, net present value, benefit-cost ratio, value range, pathway breakdown and evidence-confidence summary. The lower-bound estimate should not be created by stripping out relational or intergenerational pathways simply because orthodox appraisal would exclude them. It should retain the whakapapa value boundary and apply more cautious assumptions to attribution, transmission, impact share, duration, persistence and proxy value.

A restricted conventional estimate should not be a routine headline or standard result. If required, it may be calculated as a restricted visibility test: the value that remains visible when the model is forced into direct-beneficiary, short-chain and conventionally admissible boundaries. Its purpose is to diagnose undercounting, not to define total value.

PV_WVE = Σ PV_i for all included pathways i
NPV_Whakapapa = PV_WVE - PV_Costs
BCR_Whakapapa = PV_WVE / PV_Costs
RestrictedVisibilityGap = PV_WVE - PV_RestrictedVisibility

The key reporting principle is therefore: the whakapapa value boundary defines the value account; CBA outputs make that account decision-ready. Any restricted estimate is a diagnostic, not the base truth.

TABLE 4. RECOMMENDED REPORTING HIERARCHY

OUTPUT	STATUS	PURPOSE
Whakapapa Value Estimate	Primary benefit estimate	Present-value estimate of all defensible monetised pathways inside the whakapapa economics boundary.
Present-value costs	Cost base	Matched cost estimate used to calculate NPV, BCR and value-to-cost ratio.
Net present value	Main CBA result	Shows total net value after matched costs are deducted.
Benefit-cost ratio	Main value-for-money result	Shows value generated per dollar of matched cost.
Value-to-cost ratio	SROI-compatible output	Allows social value reporting where ratio language is expected.
Whakapapa Value Range	Main uncertainty result	Lower, central and wider assumptions applied within the same value boundary.
Pathway breakdown	Audit and interpretation	Shows direct, whānau, network, institutional, taiao and intergenerational components.
Evidence-confidence profile	Credibility control	Shows which lines are directly observed, strongly supported, mixed, scenario-based or construct-development.
Material value development register	Future valuation pipeline	Shows important constructs not yet monetised because proxies or data need further development.
Restricted visibility test	Optional technical appendix	Shows what narrower orthodox rules would fail to see, only where useful or required.

Outcome architecture and construct taxonomy.

A monetisation-positive whakapapa economics model requires a controlled outcome architecture. Without one, the model risks replicating the looseness of much SROI practice, where outcome terminology is often project-specific and difficult to compare. The model should distinguish concepts, constructs, units, proxies and pathways. A concept is the broader Māori or relational idea, such as mana, mauri or whanaungatanga. A construct is the specific measurable object of value, such as restored hosting capacity, reduced caregiver burden or earlier service engagement. A unit is the countable measure, such as hosting events, hours of unpaid care avoided or acute episodes avoided. A proxy is the monetary value per unit.

Construct definition is the key step. Weak constructs are broad labels such as empowerment, belonging or cultural identity. Strong constructs specify the outcome sufficiently to support measurement. For example, rather than valuing “mana”, a line may value “increased agency to engage with services”, “restored capacity to host whānau safely”, or “increased participation in governance roles”. Rather than valuing “mauri”, a line may value “avoided degradation of water quality”, “reduced mould exposure in homes”, or “restored ecological function of a wetland”.

The model should classify every outcome by layer before valuation. The layers are pathway categories used for cohort definition, evidence confidence and attribution. Direct pathways are closest to observed data. Whānau and network pathways are relational transmissions. Institutional and system pathways concern changes in legitimacy, practice, funding, procurement, trust or decision rules. Taiao pathways concern ecological condition, use, restoration and avoided degradation. Intergenerational pathways concern future capability, educational expectations, health behaviour, cultural continuity and ecological inheritance.

TABLE 5. OUTCOME LAYERS IN THE WHAKAPAPA IMPACT MODEL

LAYER	SITE OF VALUE	TYPICAL MECHANISMS	MONETISATION POSTURE
Direct	Immediate participant, household, organisation or site.	Service receipt, capability development, qualification, health improvement, output production.	Include centrally where evidence and proxy are adequate.
Whānau / household	Caregivers, partners, tamariki, siblings, same-household whānau.	Care relief, reduced stress, knowledge transfer, household stability, aspiration shifts.	Monetise using transmission and attribution adjustment.
Network / community	Peers, extended whānau, marae, community, sector networks.	Diffusion of norms, mentoring, participation, reciprocal contribution, trust and social capital.	Monetise where reach, diffusion and unit can be bounded.
Institutional	Providers, agencies, councils, universities, funders, employers.	Service fit, legitimacy, funding success, procurement capability, avoided conflict, reduced transaction cost.	Monetise via avoided cost, funding enabled, productivity or transaction-cost reduction.
Taiao	Whenua, wai, ecosystems, built environments and ecological inheritance.	Restoration, avoided degradation, kaitiakitanga, healthier homes, improved access and use.	Monetise observable condition, avoided harm or restored function.
Intergenerational	Future whānau, mokopuna, future institutions and future ecological conditions.	Education transmission, future parenting, cultural continuity, leadership pipeline, ecological inheritance.	Model through scenarios, persistence, discounting and probability-adjusted pathways.

12.1 Candidate construct families

A construct dictionary should be developed over time. The following construct families provide a starting point for applied reports. Each family can contain multiple more specific constructs, each with its own unit, proxy family and overlap notes.

TABLE 6. INITIAL CONSTRUCT FAMILIES FOR WHAKAPAPA ECONOMICS VALUATION

CONSTRUCT FAMILY	EXAMPLE CONSTRUCTS	POSSIBLE UNITS
Whānau knowledge transfer	Health advice shared, healthy kai practices taught, education navigation knowledge, financial capability transfer.	Whānau members reached, behaviours adopted, avoided episodes, training-equivalent hours.
Educational aspiration transmission	Sibling or cousin aspiration, parental expectations, future tertiary participation, STEMM normalisation.	Influenced young people, probability change, attendance days, qualification completions.
Service trust and earlier engagement	Reduced whakamā, earlier preventive engagement, continuity of care, avoided crisis.	Appointments attended, acute episodes avoided, missed appointments avoided, crisis cases avoided.
Reduced whānau burden	Caregiver stress, unpaid care time, crisis navigation, transport burden, emotional load.	Hours avoided, episodes avoided, caregiver WELLBY/QALY, travel trips avoided.
Restored hosting and manaakitanga	Safe hosting, hui enabled, whānau/manuhiri accommodation, participation restored.	Hosting events, hosted nights, participant-hours, avoided venue/accommodation costs.
Institutional legitimacy	Mātauranga Māori accepted, Māori methods adopted, culturally safe practice embedded.	Projects enabled, funding secured, staff trained, uptake increases, avoided redesigns.
Māori supplier and provider capability	Credibility, portfolio development, future contracts, procurement readiness.	Contracts won, margins, bids submitted, capability hours, follow-on revenue.
Taiao and kaitiakitanga	Restored ecological function, avoided run-off, mahinga kai access, habitat restoration.	Hectares restored, tonnes avoided, restoration hours, species indicators, remediation costs avoided.
Intergenerational capability	Future education, health behaviour, parenting capability, leadership pipeline, housing security.	Future cohort, probability-adjusted outcomes, lifetime earnings, avoided public costs.

Pathway discovery and impact generation.

The model should not rely solely on the outcomes supplied in project documents or seeded datasets. Starting data often reflects existing reporting habits, funder requirements or administrative systems. These sources may capture attendance, outputs, direct participant outcomes and short-term changes, but miss relational pathways because they were never designed to find them. A whakapapa economics model must therefore include a pathway discovery step.

Pathway discovery begins with the intervention theory, but does not stop there. The analyst should ask how value may move through whānau, households, peers, marae, institutions, providers, procurement systems, knowledge systems, te taiao and future generations. This is not a licence to invent benefits. It is a requirement to look for pathways that conventional data structures miss.

The discovery process should draw on multiple evidence sources: project data, monitoring reports, interviews, case studies, financial records, administrative data, stakeholder testimony, sector evidence, external literature, Māori governed interpretation, and deliberative workshops. Ripple effects mapping can help identify wider pathways; realist evaluation can help test context-mechanism-outcome relationships; contribution analysis can examine whether the intervention plausibly contributed to observed or expected changes; network analysis can support diffusion assumptions where relational structure is important (Mayne, 2012; Nobles et al., 2022; Pawson & Tilley, 1997; Valente, 2012).

For every pathway generated, the model should ask ten screening questions:

1. What is the construct?
2. Who experiences it?
3. What is the mechanism?
4. What is the unit?
5. What would have happened anyway?
6. What evidence supports it?
7. What role did the intervention play?
8. How long does it last?
9. What does it overlap with?
10. Can it be monetised now, or does it require construct development?

This process changes the role of qualitative evidence. Narrative evidence does not sit outside the model as illustration only. It is used to identify mechanisms, define constructs, estimate reach, test rival explanations and justify transmission strength. In this way qualitative and kaupapa evidence become inputs to quantification rather than endpoints of analysis.

The monetisation engine.

The mathematical base is recognisably CBA. For a direct line, present value equals the cohort multiplied by impacted share, unit quantity, unit value, counterfactual adjustment, attribution, displacement or leakage adjustment, duration and discounting. The innovation is not abandoning standard accounting logic. It is how the model defines the cohort, construct, transmission pathway and evidence-informed contribution.

PV_direct = N × Q × U × V × (1 - DW) × A × (1 - D) × R × DF

Where N is the eligible cohort, Q is the impacted share, U is units per impacted case, V is monetary value per unit, DW is deadweight, A is attribution or contribution weight, D is displacement or leakage, R is retention or duration factor, and DF is the discount factor.

For whānau and network pathways, the model adds a transmission step. This converts direct impact into relationally transmitted impact. The eligible indirect cohort is not assumed to be the whole whānau or community; it is bounded by relationship, exposure, mechanism and evidence.

PV_2nd = N_direct_impacted × EligibleRelations × TransmissionRate × Q_2nd × U_2nd × V_2nd × A_2nd × R × DF

A_2nd should be built from direct contribution, transmission confidence, rival-cause assessment and evidence confidence.

For induced or community diffusion pathways, the model uses reachable community or network populations and diffusion rates. These lines require stronger caution because reach can be overestimated. They should be included where a mechanism exists and bounded through participation records, network size, communications data, repeated exposure or institutional embedding.

PV_induced = CommunityReach × DiffusionRate × ImpactedShare × Units × UnitValue × ContributionWeight × R × DF

For intergenerational pathways, the model uses future cohorts, pathway probabilities and persistence factors. Intergenerational effects should not be excluded because they are long-chain. They should be modelled as probability-adjusted scenarios with explicit mechanisms and overlap controls.

PV_intergen = FutureCohort × PathwayProbability × ImpactedShare × Units × UnitValue × PersistenceFactor × Attribution × DF

Evidence confidence can be used to inform attribution, success rates, scenario placement or an evidence-adjusted value. It should be visible, not hidden inside unexplained multipliers.

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TABLE 7. MODELLING LOGIC BY PATHWAY TYPE

ELEMENT	DIRECT PATHWAY	RELATIONAL / WHĀNAU PATHWAY	INTERGENERATIONAL PATHWAY
Cohort	Direct participants or sites.	Eligible whānau, household members, peers or institutions reached through direct participants.	Future children, mokopuna, future participants or future institutional states.
Mechanism	Immediate intervention-to-outcome chain.	Transmission through care, knowledge, aspiration, trust, hosting, reciprocity or institutional practice.	Persistence through future parenting, norms, assets, governance, education or ecological condition.
Attribution	Direct contribution rate.	Direct contribution adjusted by transmission confidence, rival causes and evidence confidence.	Second-order attribution multiplied by persistence and pathway probability.
Main risk	Counterfactual and proxy fit.	Double counting and overstated reach.	Duration, discounting, causal chain and overlap with earlier lines.
Control	Deadweight, attribution and sensitivity.	Transmission parameters, cohort caps and fence notes.	Scenario analysis, persistence caps and explicit discounting.

Cost boundary and CBA outputs.

A whakapapa economics model is not only a benefits model. It is a social CBA model and therefore requires an explicit cost boundary. The cost boundary should match the benefit boundary. If benefits are calculated for completed participants, completed homes, a defined cohort, or a specific reporting period, the cost base should be aligned to the same denominator unless a broader cost view is deliberately shown as sensitivity.

The model should state the cost perspective: public funder cost, provider cost, total resource cost, marginal investment cost, Crown fiscal cost, or societal resource cost. It should also state which costs are included and excluded. Relevant costs may include direct delivery, capital, administration, partner contributions, in-kind resources, evaluation, overheads, operating costs and future maintenance obligations. Where costs are contestable, the model should show alternative cost views rather than hiding the boundary choice.

Cost sensitivity is not a defensive appendix. It is part of the method. Different denominators can produce different results, and mismatched denominators can distort the benefit-cost ratio. Charging whole-programme or pipeline costs against a narrower completed-benefit denominator may understate value. Counting gross expenditure as a benefit may overstate value. Both errors should be avoided.

The standard reporting sequence should be: present-value benefits, present-value costs, net present value, benefit-cost ratio, value-to-cost ratio where useful, pathway breakdown, cost-boundary sensitivity, evidence-confidence profile and material value not yet monetised.

Transmission, attribution and evidence confidence.

15.1 Transmission parameters

Transmission parameters should be pathway specific. They should not be generic uplift factors applied because a project is Māori. They apply only where the intervention actually activates relational mechanisms such as whānau centrality, tikanga-led delivery, co-governance, repeated contact, formal mentoring, household sharing, institutional adoption or durable assets.

TABLE 8. TRANSMISSION PARAMETER CALIBRATION GUIDE

PATHWAY TYPE	LOWER POSTURE	CENTRAL POSTURE	HIGHER POSTURE	GUARDRAIL
Same-household whānau	Limited exposure or weak evidence of household uptake.	Repeated household exposure and plausible sharing.	Whānau are directly engaged and household mechanism is central.	Do not apply to all household members by default.
Sibling / cousin aspiration	Role modelling is indirect or weakly evidenced.	Relationship is close and pathway is salient.	Visible role model, repeated contact and education/career mechanism.	Use probability-adjusted outcomes only.
Extended whānau or marae network	Occasional contact or weak network evidence.	Hui, whakapapa or community structures support transmission.	Active marae or whānau structures carry the change.	Cap reach and document exposure.
Peer cohort / community norm	Exposure is broad or passive.	Repeated cohort interaction or peer mentoring is evident.	Norm diffusion is designed, repeated and observed.	Avoid population-wide uplift unless evidenced.
Formal mentoring / tuakana-teina	Short or informal mentoring.	Repeated mentoring with documented interaction.	Designed, repeated and outcome-linked mentoring.	Separate mentor, learner and network outcomes.
Institutional adoption	Informal practice influence only.	Practice change is documented in process or decision-making.	Policy, funding, procurement or governance change is formalised.	Require documentary evidence.
General public exposure	Passive exposure only.	Repeated exposure with plausible behaviour pathway.	Repeated exposure plus evidence of uptake or action.	Use low reach and scenario status.
Durable governance, asset or policy pathway	Change is early or not yet embedded.	Change is linked to an asset, rule, policy or governance process.	Change is durable, formalised and difficult to reverse.	Model persistence explicitly.

15.2 Attribution as contribution to a pathway

Attribution should not operate as a binary gate. The relevant question is not whether the intervention was the sole cause. It is the contribution the intervention made to a relational pathway of change. This is consistent with contribution analysis, which develops and tests credible causal claims in settings where multiple factors operate (Mayne, 2012).

TABLE 9. ATTRIBUTION CATEGORIES FOR WHAKAPAPA ECONOMICS VALUATION

CONTRIBUTION CATEGORY	DEFINITION
Primary cause	Outcome is strongly linked to the intervention and unlikely without it.
Major enabling cause	The intervention materially unlocked the outcome.
Catalytic channel	The intervention worked through others but was necessary or influential.
Reinforcing contributor	The intervention strengthened a pathway already underway.
Contextual contributor	The intervention plausibly helped but was not central.
Weak / unclear	Mechanism is unclear or materiality is not established.

The distinction between a rival cause and a catalytic channel is essential. A rival cause is an alternative factor that would have produced the same outcome anyway; it reduces attribution. A catalytic channel is a pathway through which the intervention's value is transmitted; it does not automatically reduce attribution. If a Māori health provider supports a patient and the patient shares knowledge with whānau, the whānau transmission is not necessarily a rival cause. It may be the mechanism through which the provider's impact expands.

15.3 Evidence confidence

Evidence confidence should be assessed rather than assumed. The model should distinguish causal or quantitative confidence from kaupapa or practice confidence. Some pathways have strong statistical evidence but weak local fit; others have strong practice-based and Māori-governed evidence but weaker conventional causal identification. Both matter. Evidence confidence should inform whether a line is central, scenario-only, adjusted through attribution, or held for construct development. It should not be reduced to a universal formula.

TABLE 10. EXAMPLE EVIDENCE CONFIDENCE SCORING

EXAMPLE SCORE	CAUSAL / QUANTITATIVE CONFIDENCE	KAUPAPA / PRACTICE CONFIDENCE
0.25	Weak or mainly speculative.	Weak practice grounding or limited Māori validation.
0.50	Plausible theory and some evidence.	Repeated practice logic, stakeholder support or credible case evidence.
0.75	Good mixed-method or comparative evidence.	Strong kaupapa/practice evidence and Māori-governed interpretation.
1.00	Strong direct, longitudinal or quasi-causal evidence.	Strong, repeated and Māori-governed validation across contexts.

Proxy selection and construct development.

Proxy selection should begin only after the construct, mechanism and unit are clear. A convenient dollar value with weak semantic fit is worse than no value because it creates false precision.

The model should use a hierarchy that privileges local context and conceptual fit, while allowing constructed proxies and bridge values where necessary.

TABLE 11. PROXY HIERARCHY

PRIORITY	PROXY TYPE	USE CASE
1	Direct New Zealand administrative or fiscal value.	Avoided public costs, fiscal savings, service costs, benefit payments, health service costs.
2	New Zealand non-market, wellbeing, QALY/WELLBY or willingness-to-pay value.	Wellbeing, health, participation, social connection, amenity or environmental outcomes.
3	New Zealand avoided cost, resource cost or market equivalent.	Avoided emergency accommodation, venue cost, transport cost, training-equivalent value.
4	New Zealand market-equivalent or productivity value.	Wages, supplier margin, contract value, staff time, volunteer contribution.
5	International value adjusted for income, purchasing power and context.	Where no local proxy exists and construct fit is strong.
6	Constructed proxy from multiple parameters.	Behaviour adoption, probability-adjusted pathways, avoided failure costs, institutional effects.
7	Scenario-only bridge proxy.	Temporary valuation where construct is material but proxy confidence is moderate.
8	New construct requiring valuation development.	Where the outcome is important and current proxies would mislead.

The model should not treat the absence of a ready-made proxy as evidence of no value. Many important constructs - cultural legitimacy, data sovereignty, institutional trust, governance readiness, restored hosting capacity, cultural taxation avoided, Māori supplier credibility and mātauranga legitimacy - may require new valuation work. The appropriate response is to define the construct, identify measurement outputs, propose an interim bridge value if defensible and add the construct to the valuation development register.

The proxy-selection note should state the proxy source, geography, base year, currency, unit, method, adjustments and confidence. It should also explain why the proxy is semantically appropriate. If the line concerns participation, the unit should be participation. If it concerns avoided crisis, the unit should be avoided crisis. If it concerns future educational attainment, the unit should be probability-adjusted attainment or qualification. Proxy discipline is the main defence against claims of opportunistic monetisation.

C

Controls, governance & use.

How double counting, time, governance, the workbook, application exam-
ples, challenge protocol, the research agenda and the report conclusion sit together as the operating system around the model.

PART C · CONTROLS, GOVERNANCE & USE — §17

Double counting and overlap management.

Double counting is the main technical risk in a monetisation-positive relational model. Many real pathways are connected: trust leads to service engagement; service engagement reduces crisis; reduced crisis reduces whānau stress; reduced stress improves wellbeing; improved wellbeing may support employment. The answer is not to exclude all related lines. It is to define which construct each line values, which cohort receives it and what is excluded.

Every monetised line should include a fence note. The fence note states the construct, cohort, mechanism, exclusions, adjacent overlapping lines and treatment. Overlap can be managed through mutually exclusive event definitions, cohort separation, attribution adjustment, proxy selection, exclusion of duplicate lines, or scenario-only reporting.

TABLE 12. COMMON OVERLAP RISKS AND TREATMENTS

OVERLAP RISK	EXAMPLE	TREATMENT
Same construct, different label	Confidence, agency, empowerment, self-efficacy.	Combine, choose one construct or define distinct units.
Mechanism counted as outcome	Trust valued separately when already used to explain earlier engagement.	Treat trust as mechanism unless separately evidenced and separately valued.
Health and wellbeing overlap	Avoided hospitalisation plus full life-satisfaction gain from the same health improvement.	Adjust wellbeing proxy or use separate non-overlapping units.
Direct and whānau outcomes	Participant wellbeing and caregiver relief.	Can both be counted if different people, units and pathways.
Private and fiscal value	Earnings uplift plus tax revenue from same income.	Combine only where perspective allows; otherwise report separately.
Income and housing security	Lifetime earnings counted, then home ownership wealth counted without adjustment.	Value additional security, stress reduction or asset stability not already captured by income.
Annual and lifetime values	Annual wellbeing flow plus lifetime PV for same outcome.	Use one temporal structure or explicitly separate cohorts and constructs.

A standard fence note should read: Line values [specific construct and unit]. Cohort [who experiences the value]. Mechanism [how value arises]. Excludes [nearby outcomes not counted].

Overlap risk [specific adjacent lines]. Treatment [adjusted attribution, separate cohort, unit restriction, scenario-only or excluded duplicate].

PART C · CONTROLS, GOVERNANCE & USE — §18

Time, discounting and intergenerational effects.

Time is not a neutral technical parameter in whakapapa economics. Many initiatives create value by opening future pathways: education normalisation, future parenting, cultural continuity, ecological inheritance, leadership pipelines, institutional legitimacy and housing security. Excluding these pathways because they occur outside short reporting windows misspecifies the value created.

Discounting should therefore be used openly rather than mechanically. The model may report undiscounted values, standard public-sector discounted values and lower long-run discount sensitivity where intergenerational effects are central. It should state the time horizon, why that horizon fits the pathway and how results change under shorter or longer durations. This is consistent with the broader argument that future generations are not merely distant utility holders within a whakapapa frame (Durie, 2001; The Treasury, 2024).

Intergenerational pathways should generally be modelled through expected values and scenarios. A direct education programme may change rangatahi qualifications and earnings; it may also influence younger siblings and future children. The intergenerational line should not simply multiply the direct gain by a large number. It should use pathway probabilities, future cohort size, impacted share, unit value, persistence, attribution and discounting. It should also fence overlap with direct earnings, fiscal effects and housing outcomes.

The key discipline is to distinguish long-chain from speculative. Long-chain pathways can be material and defensible if each link has theory, evidence and a measurable unit. Speculative pathways lack a mechanism or a bounded cohort. Only the latter should be excluded. Uncertainty should be reflected through evidence confidence, scenario ranges and transparent sensitivity analysis, not by defaulting all future values to zero.

PART C · CONTROLS, GOVERNANCE & USE — §19

Governance, tikanga and data sovereignty.

A whakapapa economics model is not valid merely because it uses Māori terms. Māori authority over value definition, evidence interpretation and data governance is part of the method. This follows from kaupapa Māori methodology and Indigenous impact assessment literature, which emphasise that assessment methods are bound up with power, knowledge and self-determination (Kerr, 2012; Larsen, 2018; Matunga, 2018; Smith, 1999).

Governance should cover at least six domains: value domains and constructs; materiality thresholds; interpretation of Māori concepts; data access, storage and use; treatment of sensitive evidence; and approval of reporting language.

The Ministry of Health's Te Tiriti framework, with principles such as tino rangatiratanga, equity, active protection, options and partnership, provides a useful public-sector reference point, even though whakapapa economics is not limited to health (Ministry of Health, 2024).

Source integrity is also part of governance. Māori concepts such as whakapapa, mana, mauri, wairua, hau, tikanga and tauutuutu have intellectual whakapapa. The report should cite the scholarship and traditions it draws on, and should avoid presenting contemporary applied modelling terms as if they created the concepts themselves (Graham, 2009; Hēnare, 2001; Marsden, 2003; Reid et al., 2023; Te Rito, 2007).

PART C · CONTROLS, GOVERNANCE & USE — §21

Model workbook and reporting specification.

A practical whakapapa economics workbook should make the value and cost logic auditable. The workbook should not be a bank of values alone. It should be a construct, pathway and CBA system. It should force the analyst to move from construct to mechanism to unit, proxy and cost boundary before a dollar result is reported.

TABLE 14. EXAMPLE WORKBOOK ARCHITECTURE (ROWS 1–8 OF 15)

WORKBOOK TABLE / TAB	PURPOSE	KEY FIELDS
MODEL_CONTROL	Sets project assumptions.	Base year, currency, discount rates, perspective, scenario labels, reporting period.
COST_REGISTER	Records costs.	Cost type, amount, source, timing, funder, in-kind status, inclusion status.
COST_BOUNDARY	Defines cost perspective.	Public, provider, total resource, marginal, Crown or societal cost; exclusions.
OUTCOME_REGISTER	Records all candidate outcome lines.	Line ID, outcome, layer, cohort, construct, Māori concept link, status.
CONSTRUCT_DICTIONARY	Defines what is being valued.	Definition, inclusion boundary, exclusion boundary, units, related constructs.
PATHWAY_MAP	Links intervention to outcomes.	Mechanism, preconditions, causal links, evidence, rival explanations.
COHORTS	Defines direct and indirect populations.	Direct cohort, eligible relations, reach, exposure, future cohort, source.
PROXY_LIBRARY	Stores monetary values.	Proxy ID, value, unit, currency, base year, source, method, confidence.

TABLE 14. EXAMPLE WORKBOOK ARCHITECTURE (ROWS 9–15 OF 15 — CONTINUED)

WORKBOOK TABLE / TAB	PURPOSE	KEY FIELDS
TRANSMISSION_TABLE	Records relational spread.	Pathway type, parameter, evidence basis, cap, duration.
ATTRIBUTION_TABLE	Records contribution assumptions.	Deadweight, attribution, displacement, leakage, rival causes, catalytic channels.
EVIDENCE_CONFIDENCE	Scores confidence.	Causal confidence, kaupapa/practice confidence, reporting status, rationale.
DOUBLE_COUNT_REGISTER	Controls overlap.	Line A, line B, overlap type, treatment, residual concern.
SCENARIOS	Runs lower, central and wider cases.	Parameter values, rationale, source, sensitivity note.
CBA_OUTPUTS	Calculates and summarises results.	PV benefits, PV costs, NPV, BCR, value-to-cost ratio, pathway values.
VALUATION_DEVELOPMENT	Tracks new constructs.	Construct, why current proxies fail, data needed, interim bridge value.

Reports should present CBA outputs clearly: Whakapapa Value Estimate as PV benefits, matched PV costs, NPV, BCR and value-to-cost ratio where useful. These should be followed by the value range, pathway breakdown, evidence profile, cost-boundary sensitivity, material construct-development lines and safeguards. Relational pathways should not be described as “soft benefits”, “add-ons” or “intangible extras”. They are pathway-mediated value within the primary account.

Application examples.

22.1 Education pathways and future economic security

A conventional education model might count attendance, NCEA achievement, tertiary participation, qualifications, earnings premiums, tax effects and reduced welfare costs. These are important and should remain in the model where evidence supports them. A whakapapa economics model asks what the programme changes in the relational system around rangatahi. It considers whānau aspiration, sibling and cousin pathway visibility, parent confidence in supporting education, peer mentoring, cultural identity, professional networks, mātauranga legitimacy and future parenting.

The direct line might value qualification completion through lifetime earnings and fiscal contribution. A second-order line might value sibling aspiration through a probability-adjusted increase in education participation. A whānau line might value parent or caregiver navigation confidence through avoided service-navigation costs or increased application success. An institutional line might value increased legitimacy of Māori STEMM pathways through additional funding, partnerships or uptake. An intergenerational line might value future educational expectations for children through a pathway probability linked to qualification, earnings and economic security.

The housing pathway illustrates the logic. Whitehead and Walker (2021) found that parental educational aspiration was associated with Māori home ownership by age 35, alongside adult economic circumstances and other factors. A whakapapa economics model would not claim that aspiration alone causes home ownership. It would model a pathway: education support changes expectations; expectations affect educational attainment; attainment affects labour market outcomes; economic stability affects housing security. If income is already counted, the housing line must fence overlap by valuing additional housing security, reduced stress, asset stability or reduced public-service reliance rather than counting the same earnings stream twice.

22.2 Māori health provider and whānau knowledge transfer

A conventional health model might count the direct patient outcome and avoided health costs. A whakapapa economics model also asks how trusted, culturally safe care moves through whānau. A Māori provider may support a patient, who then shares health advice with whānau. The provider may actively engage the household. Trust may lead to earlier service engagement. Reduced crisis may reduce caregiver stress and unpaid care time.

Possible monetised lines include avoided acute episodes; whānau members adopting health behaviours; reduced caregiver burden; avoided emergency department visits through earlier engagement; fewer missed appointments; avoided crisis intervention; and improved well-being through reduced distress. Each line needs a fence. Trust should usually be treated as the mechanism for earlier engagement unless it produces a distinct measurable outcome.

22.3 Marae, papakāinga, housing and restored manaakitanga

Housing and marae initiatives are strong candidates for pathway monetisation because their value is not exhausted by physical improvement. A repaired home may reduce respiratory illness, whānau stress, emergency accommodation and instability, while restoring hosting capacity, supporting tamariki attendance and strengthening belonging. A restored marae may enable hui, tangihanga, wānanga, knowledge transmission, local governance and whānau reconnection.

The model should not value manaakitanga as an abstract virtue. It can value safe hosting capacity through avoided venue or accommodation costs, hosted nights, participant-hours, reduced isolation or wellbeing gains. It can value reduced whānau stress through crisis episodes avoided, navigation hours avoided or caregiver wellbeing. It can value tamariki education stability through attendance days, reduced school mobility or probability-adjusted attainment outcomes. Durie's emphasis on whānau and Māori collective wellbeing supports a wider boundary for such models (Durie, 1994, 2001, 2006).

22.4 Institutional legitimacy and system change

Institutional pathways are often ignored because they do not look like direct beneficiary outcomes. Yet they can be highly material. A Māori-led initiative may change what an agency, funder, council, university or provider regards as valid, fundable, teachable or governable. It may reduce engagement failures, improve service fit, increase funding success, create procurement pathways or embed Māori governance.

Monetisation routes include avoided redesign costs, delay, legal or consultancy costs, increased uptake, staff retention, funding secured, project value enabled, fewer complaints, procurement efficiency and Māori supplier margin. Attribution should usually be contribution-based and documentary evidence should be strong: policy changes, funding approvals, procurement records, repeated practice changes, institutional decisions or formal adoption. Matunga (2018), Jolly and Thompson-Fawcett (2023), and Wikitera (2024) support treating assessment and engagement as sites of institutional power, not only information gathering.

Challenge protocol and quality assurance.

A whakapapa economics model will be challenged on overclaiming, proxy fit, causality, cost boundary, monetisation of Māori concepts, double-counting, duration, discounting and comparability. The best defence is not to make fewer claims by default. It is to make each claim more auditable. Every line should withstand review at the levels of construct, mechanism, cohort, unit, proxy, attribution, transmission, evidence, cost and overlap.

TABLE 15. CHALLENGE PROTOCOL FOR MONETISED PATHWAYS

CHALLENGE QUESTION	REQUIRED RESPONSE
Is the construct clear?	Define the observable object of value and distinguish it from the Māori concept.
Is the mechanism specified?	State how the intervention creates the outcome and through which pathway.
Is the cohort bounded?	Define direct, whānau, network, institutional, taiao or future cohort with reach assumptions.
Is the unit correct?	Ensure per-person, per-year, per-hour, per-event or lifetime values are not confused.
Is proxy fit defensible?	Explain semantic fit, source, geography, base year, currency and adjustment.
Is attribution transparent?	Identify deadweight, rival causes, catalytic channels, displacement and leakage.
Is transmission justified?	Use pathway-specific parameters and evidence basis.
Is evidence graded?	Score causal and kaupapa/practice confidence separately.
Is duration plausible?	State retention, drop-off, persistence and discounting assumptions.
Is double counting controlled?	Provide a fence note and double-count register entry.
Is cost and scenario logic coherent?	State cost perspective, denominator match, alternative cost views and deliberate parameter variation.
Would the line survive academic challenge?	If not, move to scenario, bridge proxy or construct-development status.

Quality assurance should also include Māori review, technical-economic review, and user validation. Māori review tests conceptual integrity, tikanga, source integrity and value interpretation. Technical review tests formulas, proxy fit, overlap, attribution and sensitivity. User validation tests whether the model reflects lived mechanisms and whether key pathways have been missed. External critique should be built into the method, not treated as a late-stage risk.

PART C · CONTROLS, GOVERNANCE & USE — §24

Research agenda.

The model is immediately usable, but several research tasks would strengthen it. First, a Māori-governed construct dictionary could be developed across common domains such as education, health, housing, marae, taiao, enterprise and institutional change. Each construct should define boundaries, typical units, overlap risks, evidence requirements and proxy families.

Second, empirical work is needed on transmission parameters in Māori contexts. How often do initiatives transmit value through same-household whānau, extended whānau, marae networks, peer cohorts or institutions? What strengthens or weakens transmission? Network analysis and mixed-method evaluation can help (Tracy et al., 2018; Valente, 2012).

Third, new monetary proxies are needed for constructs that are poorly valued: restored hosting capacity, cultural taxation avoided, institutional legitimacy, Māori-provider trust, data sovereignty capability, mātauranga legitimacy, governance readiness, whānau navigation burden and cultural safety. Some proxies can be built from avoided costs or market equivalents. Others may require deliberative valuation, wellbeing valuation or longitudinal evidence (Kenter et al., 2016).

Fourth, evidence-confidence methods should be tested across live applications, including when it should affect attribution, scenario placement or reporting status.

Fifth, cost-boundary protocols require refinement for mixed-funder and community settings. Research should test how direct, whole-resource, in-kind, partner and pipeline costs are matched to benefit denominators.

Sixth, discounting and intergenerational treatment require further development. Research should test lower long-run rates, dual reporting, threshold analysis and scenario approaches for mokopuna, ecological inheritance and cultural continuity.

Conclusion.

Whakapapa economics impact modelling offers a more complete account of value for Māori and relationally intensive initiatives. It begins from the proposition that value is created and transmitted through relationships, obligations, institutions, te taiao and time. It uses Māori concepts as the primary architecture of value, while retaining the core disciplines of social CBA and social value accounting. It does not reject quantification. It requires more careful quantification.

The decisive shift is pathway monetisation. The model does not put a price on whakapapa, mana, mauri, wairua or whanaungatanga. It values observable pathways through which those concepts become material: increased agency, reduced whakamā, earlier service engagement, restored hosting capacity, reduced whānau burden, knowledge transfer, ecological restoration, institutional legitimacy, educational transmission, future earnings, housing security and intergenerational capability. This allows relational and cultural value to enter the numbers without reducing Māori concepts to commodities.

The model responds to weaknesses in conventional CBA and SROI. It keeps CBA's cost-benefit structure, present value, counterfactual reasoning, sensitivity analysis, NPV and BCR. It keeps SROI's concern for materiality, transparency and value that matters. It improves both by requiring a construct dictionary, pathway taxonomy, transmission logic, proxy hierarchy, evidence-confidence profile, attribution rules, double-count register and challenge protocol.

The result is wider, but not looser. It includes more of the value that Māori initiatives actually create, while making assumptions visible and contestable. It gives funders, policy-makers, boards and researchers a stronger way to see what standard models miss. More importantly, it provides a method for counting value in a way that is more faithful to a relational world.

D

References & Glossary

Glossary of Māori terms used in the report and the complete reference list. The glossary preserves the report’s own working definitions; references are reproduced in full and unedited.

PART D — GLOSSARY

Glossary of Māori terms.

The glossary provides working meanings for Māori terms used in the report. The definitions are written for this report's impact modelling purpose. The entries should not be read as complete cultural, historical or linguistic definitions.

The glossary follows the report's main valuation rule. Māori concepts guide the search for value, while observable pathways provide the basis for quantification. The model therefore values specific changes that can be described and evidenced, rather than treating Māori concepts as direct monetary objects.

TERM	DEFINITION
Aotearoa	New Zealand. The report uses Aotearoa to refer to the national context in which Māori, public policy, social impact, economic evaluation and institutional decision-making operate.
Hapū	A kinship group, often translated loosely as sub-tribe. Hapū are relevant as collective entities with their own relationships, histories, obligations, authority and development priorities.
Hau	The vital essence, spirit or relational force involved in exchange. Hau helps explain why exchange is treated as a relationship that can create continuing obligations and return flows of value.
He Ara Waiora	A Treasury wellbeing framework grounded in mātauranga Māori. The report uses He Ara Waiora as a policy precedent for treating wairua, te taiao, te ira tangata and tikanga-based values as relevant to public-sector wellbeing and appraisal.
Hui	A meeting, gathering or assembly. Hui are relevant where value is created through participation, deliberation, hosting, governance, knowledge transfer or whānau connection.
Iwi	A tribe or people. Iwi are relevant as collective rights-holders, decision-makers, institutions and beneficiaries within Māori economic, social, environmental and cultural contexts.
Kaitiakitanga	Guardianship or stewardship, especially in relation to land, water, ecosystems and taonga. The model values kaitiakitanga through observable pathways such as restoration, avoided degradation, ecological resilience or mahinga kai access.
Kaupapa Māori	A Māori approach, agenda or methodology grounded in Māori values, knowledge, authority and aspirations. Kaupapa Māori shifts rigour toward Māori-governed interpretation, construct definition and evidence use.
Kotahitanga	Unity, collective alignment or coordinated action. Kotahitanga is relevant where outcomes depend on collective effort, institutional alignment or shared direction.
Mahinga kai	Food-gathering places, practices and resources. Mahinga kai is relevant to taiao pathways, cultural continuity, ecological condition, access to customary resources and the material expression of kaitiakitanga.
Mana	Authority, standing, dignity, influence, power or prestige. The model values observable expressions of strengthened mana, such as increased agency, leadership, participation, reduced whakamā, restored hosting capacity or greater decision authority.
Mana whenua	The authority, rights and responsibilities held by people or groups with ancestral connection to a place. Mana whenua are relevant where place-based authority, environmental governance, cultural impact, consent, interpretation or local legitimacy matters.

PART D — GLOSSARY / CONTINUED

TERM	DEFINITION
Manaakitanga	Care, hospitality, generosity and respect that upholds or enhances the mana of others. The model values manaakitanga through pathways such as safe hosting capacity, whānau participation, support, care, reduced isolation or avoided venue costs.
Manahau	A Māori theory of value associated in this report with multidimensional wellbeing, human potential, relational balance and Māori enterprise. Manahau supports the argument that value is wider than price, utility or market exchange.
Manuhiri	Visitors or guests. Manuhiri are relevant to manaakitanga and hosting pathways, especially where marae, papakāinga, homes or community assets enable people to gather, stay, participate and be cared for.
Marae	A communal and ancestral place of gathering, belonging, ceremony, hosting, deliberation and cultural continuity. The report treats marae as sites of social, cultural, institutional, whānau and intergenerational value.
Mātauranga Māori	Māori knowledge, knowledge systems and ways of understanding the world. Mātauranga Māori is relevant both as evidence and as a source of value authority.
Mauri	Life force, vitality, essential quality or the condition of a person, place, ecosystem, object or system. The model uses mauri to guide valuation of observable changes such as improved ecological condition, healthier homes, restored system function, avoided degradation or reduced remediation costs.
Mokopuna	Grandchildren or descendants. Mokopuna are central to intergenerational value because future generations are treated as part of the evaluative boundary.
Papakāinga	A home base, village or housing development associated with ancestral land and collective belonging. Papakāinga are relevant to housing security, whānau connection, place-based identity, hosting capacity and intergenerational stability.
Pathway monetisation APPLIED	The report's central valuation rule: Māori concepts guide the value boundary, while observable material pathways provide the units that can be described, evidenced and valued.
Rangatiratanga	Authority, leadership, self-determination and the ability to exercise control over matters of importance. The model values rangatiratanga through observable pathways such as governance capability, decision authority, service design control, institutional legitimacy, funding readiness and reduced dependency.
Rangatahi	Young people or youth. Rangatahi are relevant to education, aspiration, future capability, whānau transmission, peer influence and intergenerational economic security.
Restricted visibility test APPLIED	An optional diagnostic estimate showing what would remain visible under narrower conventional boundaries. The restricted visibility test is used to show what a narrow model would miss.
Taha hinengaro	Mental and emotional wellbeing. In Te Whare Tapa Whā, taha hinengaro is one of the four dimensions of Māori health and concerns the capacity to think, feel and communicate.
Taha tinana	Physical wellbeing. In Te Whare Tapa Whā, taha tinana refers to physical health, growth and development.
Taha wairua	Spiritual wellbeing. In Te Whare Tapa Whā, taha wairua concerns spiritual health, life force, meaning, identity and connection.

PART D — GLOSSARY / CONTINUED

TERM	DEFINITION
Taha whānau	Family and social wellbeing. In Te Whare Tapa Whā, taha whānau concerns belonging, care, sharing and connection across wider social systems.
Taiao / te taiao	The natural world, environment and living systems. The report treats te taiao as part of the value system through which ecological condition, land, water, future inheritance and human responsibilities are assessed.
Tamariki	Children. Tamariki are relevant to whānau, education, housing, health, aspiration, stability and intergenerational transmission pathways.
Tapu	A condition of being special, restricted, set apart or not ordinary. Tapu is relevant to ethical boundaries, protection, appropriate conduct and the limits of what should be exposed, used or monetised.
Tauutuutu	Reciprocal exchange based on balance, obligation, delayed return and continuing relationships. Tauutuutu provides the transmission logic for second-order, third-order and intergenerational value.
Te Ao Māori	The Māori world, including Māori values, knowledge, relationships, language, practices and ways of understanding reality. Te Ao Māori shapes the theory of value and the boundaries of the model.
Te Ira Tangata	The human domain within He Ara Waiora. Te Ira Tangata is relevant to human activities, relationships between generations and the role of mana in wellbeing.
Te Pae Mahutonga	A Māori health promotion framework developed by Tā Mason Durie. The report uses Te Pae Mahutonga as a precedent for broad Māori wellbeing assessment.
Te Tiriti o Waitangi	The Māori text of the Treaty of Waitangi. Te Tiriti is relevant to public-sector obligations, tino rangatiratanga, equity, active protection, options, partnership and Māori authority in evaluation and service design.
Te Whare Tapa Whā	A Māori health model developed by Tā Mason Durie. The model uses the wharenui as a symbol for four dimensions of wellbeing: taha tinana, taha wairua, taha whānau and taha hinengaro.
Tiakitanga	Guardianship, care or stewardship. Tiakitanga is closely related to kaitiakitanga and is relevant to the care of the environment, taonga, systems and relationships.
Tikanga	Correct process, values, customs and behavioural guidelines for living and interacting. Tikanga is relevant to how value is created, governed, interpreted and reported.
Tino rangatiratanga	Self-determination, authority and control over matters of importance. Tino rangatiratanga is relevant to governance, Māori authority over value definition, data, interpretation, service design and monitoring.
Tuakana-teina	An older-younger or more experienced-less experienced relationship of guidance, learning and support. Tuakana-teina is relevant to mentoring, education, leadership and peer development pathways.

PART D — GLOSSARY / CONTINUED

TERM	DEFINITION
Wai	Water. Wai is relevant both materially and conceptually as part of te taiao and as a root within waiora.
Waiora	Wellbeing, life, health or nourishing, grounded in the relationship between wai and ora. Waiora supports a broad and intergenerational conception of wellbeing.
Wairua	Spirit, spiritual wellbeing, meaning, life force and deeper connection. The model uses wairua to guide attention to identity, belonging, reduced distress, cultural reconnection and life satisfaction.
Wānanga	A forum, seminar, learning space or process of discussion and knowledge development. Wānanga are relevant where value is created through shared learning, deliberation, cultural transmission, capability building or collective interpretation.
Whakamā	Shame, embarrassment, shyness or inhibition. Reduced whakamā is treated as a possible observable pathway through which mana, service trust, participation or earlier engagement may improve.
Whakapapa	Genealogy, descent, lineage and a wider organising logic of relationships. Whakapapa is the foundation for treating value as relational, intergenerational and transmitted through people, whānau, institutions, whenua, te taiao and future generations.
Whakapapa economics APPLIED	The report's contemporary applied framing for economic reasoning grounded in whakapapa, relational obligation and intergenerational consequence. The phrase names the applied framing used in this report, rather than the older Māori concepts on which the framing relies.
Whakapapa Impact Model APPLIED	The applied social CBA modelling structure specified in the report for tracing, quantifying and monetising direct, whānau, network, institutional, taiao and intergenerational pathways.
Whakapapa Value Estimate APPLIED	The present-value estimate of all defensible monetised benefit pathways inside the whakapapa economics boundary. It is reported with matched costs, NPV, BCR, value range and pathway breakdown.
Whakawhanaungatanga	The process of building, maintaining or strengthening relationships. Whakawhanaungatanga is relevant to trust, connection, participation, belonging, housing and urban wellbeing.
Whānau	Family or extended family, and more broadly a relational unit of belonging, care, obligation and support. Whānau are central to the modelling boundary because many outcomes are carried through whānau relationships.
Whānau ora	Whānau wellbeing, often used to describe holistic and collective wellbeing. Whānau ora is relevant to collective outcome measurement, whānau capability and the limits of individual-only impact accounting.
Whanaungatanga	Relationship, kinship, connection and belonging developed through shared experience and reciprocal obligations. The model values whanaungatanga through observable pathways such as reduced isolation, informal support, trust, participation and reduced transaction costs.
Wharenui	A meeting house. The wharenui is relevant mainly through Te Whare Tapa Whā, where it symbolises the balance of the four dimensions of Māori wellbeing.
Whenua	Land, ground or placenta. Whenua is relevant as place, inheritance, identity, ecological condition, cultural connection and the material foundation for taiao, housing, marae and papakāinga pathways.

PART D — REFERENCES

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END

Value does not stop at the individual. The model should not either.

This report proposes a practical architecture for tracing, quantifying and monetising direct,
whānau, network, institutional, taiao and intergenerational pathways. The next task is disciplined application, testing and refinement.

IN PRACTICE

Define the construct.
Specify the pathway.
Bound the cohort.
Test the proxy.
State the uncertainty.

WHY IT MATTERS

The model makes wider value visible without abandoning disciplined accounting. Māori concepts guide the value boundary, while observable pathways provide the units that can be evidenced and valued.

WHAT FOLLOWS

The next phase is application, challenge and refinement across more cases, with stronger evidence, better proxies and clearer reporting boundaries.

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