

Measuring the Value Created by Auckland Museum's *Moana - My Ocean* Exhibition: A Social Return on Investment (SROI) Analysis

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Measuring the Value Created by Auckland Museum's *Moana - My Ocean* Exhibition: A Social Return on Investment (SROI) Analysis

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Auckland Council

Executive Summary

Background

Auckland War Memorial Museum is New Zealand's first Museum, and tells the story of New Zealand, its place in the Pacific and its peoples. The Museum is a war memorial for the Auckland region and holds one of New Zealand's top three heritage libraries.

Between June and October 2013, Auckland Museum featured *Moana - My Ocean*, a major exhibition exploring New Zealand's unique marine environment. The exhibition followed a journey through five marine zones: Auckland's east coast; the Hauraki Gulf; mid-water; the Kermadec Trench; and, finally, the marine life of the Kermadec Islands. By transitioning through these zones, exhibition visitors made an immersive and sensory journey from shallow to deep water, temperate to subtropical climates, light to dark, the familiar to the unfamiliar. They encountered extraordinary underwater worlds and learnt about human relationships with those diverse aquatic domains.

This report outlines the results of a Social Return on Investment (SROI) analysis of this exhibition. SROI is a unique evaluation methodology used for understanding the value created by a programme or organisation. It uses established economic valuation techniques to express the social, environmental and economic impacts of a programme or organisation in monetary terms.

A key strength of the SROI methodology is that a range of impacts are expressed in a common currency. This allows benefits to be compared to the money invested into an activity, and the calculation of a benefit-cost ratio. This ratio articulates how much social, environmental and economic value is created for every dollar invested.

The findings

The SROI analysis provides strong evidence that Auckland Museum's *Moana - My Ocean* exhibition created, or is likely to create in the future, significant social, environmental and economic value, for a wide range of stakeholders.

The value created by *Moana - My Ocean* exceeded the investment into the development of the exhibition, such that for every \$1 invested, \$4.66 of social, environmental and economic value was created.

Table 1. SROI ratio.

	Total value	Present value*
Adult visitors	\$ 5,110,257.12	\$ 5,028,941
Child visitors	\$ 1,255,803.89	\$ 1,243,459
The environment	\$ 1,596,979.92	\$ 1,596,980
Contractors and community partners	\$ 541,232.79	\$ 534,567.20
Museum staff	\$ 142,336.56	\$ 138,801
Total	\$ 8,646,610.28	\$ 8,542,749.06
	Total value of inputs	\$ 1,834,801.41
	Value minus inputs	\$ 6,707,947.65
	SROI ratio	\$4.66:\$1

*Annual discount rate = 4%

The analysis showed that a range of stakeholders were impacted, or were likely to be impacted in the future by the *Moana - My Ocean* exhibition, including visitors, the environment, contractors and community partners, and Museum staff.

Adult visitors experienced:

- Enjoyment
- Development / reinforcement of a personal sense of connection to the marine environment
- Increased sense of pride in Auckland

Child visitors experienced:

- Enjoyment
- Increased engagement with learning
- Increased sense of pride in Auckland

The environment was impacted by:

- Increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes

Contractors and community partners experienced:

- Increased job satisfaction
- Increased business / career opportunities
- Strengthened sense of Māori cultural identity

Museum staff experienced:

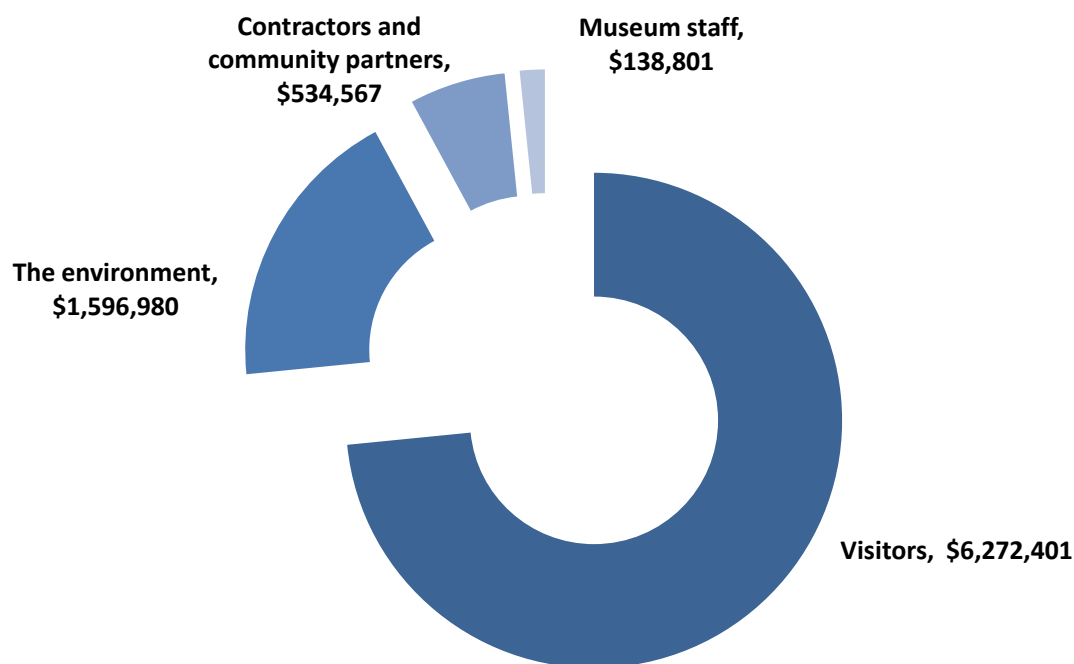
- Increased job satisfaction
- Increased career opportunities

The majority of the value created by the exhibition was experienced by visitors. Although each visitor was impacted only moderately, the sheer number of visitors (140,200) resulted in a

significant collective impact. The primary driver of the value created for visitors came from the increased pride and strengthened sense of connection to the marine environment. Unlike enjoyment, these outcomes would have been difficult for visitors to obtain elsewhere, and it is these unique aspects of the exhibition that drove much of the value created.

In contrast to visitors, the number of contractors and community partners, and Museum staff affected by the exhibition was small, but the size of the impact for each stakeholder was large.

Figure 1. Value created for each stakeholder group.



Opportunities for increasing impact

Although this analysis provides evidence that a significant amount of value was generated by *Moana - My Ocean*, it also identifies a number of ways that Auckland Museum might increase the impact of future projects. These include:

- **Increase visitor numbers, visitor engagement with content, or both.** Although increasing the number of visitors and their engagement with content is already central to the Museum, this analysis further highlights that visitors are the primary drivers for the value that an exhibition creates.
- **Develop unique content and experiences that visitors cannot get elsewhere.** Although visitors reported more enjoyment than other outcomes, the majority of value created by the exhibition came from the outcomes of pride and a sense of connection with the marine environment. This occurred because stakeholder enjoyment was easily obtainable elsewhere and thus had a high deadweight value. Aspects of the exhibition that led to pride

and connection with the environment however, were unique and novel. It would have been difficult for stakeholders to have had a similar experience elsewhere.

- **Further enhance the experience of contributing contractors and community partners.** The value that stakeholders involved in the development of the exhibition experienced – above what they were paid for their involvement – was significant. However, some contractors and community partners found the administrative side of their relationship with the Museum to be arduous. While these issues did not significantly detract from the stakeholder outcomes, there is significant potential to increase value by improving the collaboration experience. Streamlining administrative processes and further increasing the involvement of stakeholders in the development process are two possibilities for achieving this outcome.
- **Focus on widening the demographic profile of the audience.** Visitor survey data indicated that Samoan, Cook Island Māori, Tongan, Chinese and Indian visitors were under-represented relative to the Auckland population. Although already central to the Museum’s activities, this study highlights the continued need to consider how Auckland Museum exhibitions and wider projects can be made more appealing and accessible to diverse ethnic groups. Involving communities in the development of exhibition content (as the Museum is already planning to do more) may be one way to increase this connection and engagement with the Museum.
- **Continue measuring the outcomes that stakeholders experience**, in order to understand where value is being created or destroyed. Use these findings to improve the delivery of future experiences by focusing activities where most value can be created.

Project implications

This is one of the first SROI analyses to investigate the impacts of a large arts, cultural and scientific institution. The analysis provides strong evidence that Auckland Museum’s *Moana - My Ocean* exhibition created significant social, environmental and economic value, and provided a net positive return on investment.

This analysis provides Auckland Museum management and staff with robust evidence to guide future decision making and a compelling story to tell funders, supporters and critics alike. Although specific to the *Moana - My Ocean* exhibition, the project is significant in that it shows the *type* and *extent* of value that can be created, when high quality content is developed.

In light of the increasing pressure on many arts and cultural organisations to prove their worth and justify their existence, this demonstration of value is also of importance to the wider arts and cultural sector. The findings provide a relevant local example of the type of value that can be created when high-quality content is developed, and how that compares to the monetary investment required to develop that content.

For funders, the findings demonstrate the significant value that can be created by investing in the sector. The analysis also provides an example of the level and quality of insight possible when a high-quality evaluation accompanies a project of this nature. Funders may consider encouraging institutions to conduct in-depth evaluation of their projects. Because high-quality evaluation can be time consuming and expensive, however, it would also be important for funders to provide additional budget for such undertakings.

For central and local government organisations, the findings provide strong evidence that arts and cultural activities have impacts beyond the arts and cultural sector. Evidence from this analysis, for example, suggests that high-quality outputs in the sector can impact on the quality of urban living (through enjoyment and increased pride in Auckland), the health of the marine environment (through changes in conservation behaviour), the prospects of Auckland's children (through increased engagement with learning), and Māori social wellbeing (by providing an avenue for local iwi to share their history and stories). All of these have been identified by the Auckland Plan (2012) as key areas for transformation over the next 30 years.

Acknowledgements

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1.0 Introduction

1.1 Purpose and context of the report

The purpose of this report is to present the results of the Social Return on Investment (SROI) analysis of Auckland Museum's *Moana - My Ocean* exhibition.

The evaluation arose out of discussions between key local government, central government and arts and cultural sector stakeholders in Auckland during 2013. These discussions focused on the increasing need for both arts and cultural organisations and funders to better understand and articulate the value created by the sector, for society, the economy and the environment. In line with wider economic conditions of fiscal constraint, funders in recent years have faced increasing pressure to maximise the value for money associated with funding decisions. Consequently, arts and cultural organisations have experienced increased competition for funding and pressure to prove their worth. At the same time, many of these organisations have recognised the value of conducting robust evaluations to improve the development and delivery of their services.

This report is an example of how the needs of both arts and cultural organisations and funders can be met by utilising a relatively new method of measuring and articulating the value that is created by arts and cultural activities. The report, while specific to the impacts of the *Moana - My Ocean* exhibition, has a number of implications for the sector in terms of providing an exemplar for how such work might be conducted.

The report also speaks to a number of local government priorities relating to valuing and supporting arts and culture in Auckland. The Auckland Plan (Auckland Council, 2012), for instance, prioritises valuing our artists, our creative sector and our cultural institutions. The forthcoming Auckland Council Arts and Culture Strategic Action Plan (Auckland Council, 2014) further articulates the council's commitment to arts and cultural institutions across Auckland and provides a roadmap for how this support will be provided. In particular, the action plan highlights the need for more systematic evaluation and promotion of the economic, social, cultural and environmental value of investments in arts and culture, and recommends wider use of impact assessment tools.

1.2 Structure of the report

The structure of the report enables the reader to follow each of the steps involved in the SROI analysis of the *Moana - My Ocean* exhibition. This and the following section provide an introduction to Auckland Museum and the exhibition, an outline of the principles of SROI, and a description of previous research investigating the value of the arts and culture sector.

Subsequent sections provide a description of the steps leading up to the calculation of the SROI ratio. Section 3 outlines which stakeholders were impacted by the exhibition and the outcomes that those stakeholders experienced (the theory of change). Section 4 summarises the extent of

change that each stakeholder experienced as well as the methods used to value those changes in monetary terms. A key principle of SROI is to not over-claim, and Section 5 outlines how the analysis takes into account the following factors: what would have happened to stakeholders if they had not visited or been involved with the exhibition (deadweight); the contribution of other factors to the changes that stakeholders experienced (attribution); whether the changes stakeholders experienced were created by the exhibition or simply moved from somewhere else (displacement); and the likely duration of changes experienced. Section 6 provides the reader with an inventory and audit trail of what was excluded from the analysis. Section 7 brings earlier sections together to summarise the amount of value created for each stakeholder group and present the SROI ratio calculations.

Finally, Section 8 discusses the key implications of the work for the museum, for funders and for the arts and cultural sector as a whole.

1.3 Auckland Museum

Auckland War Memorial Museum is New Zealand's first Museum. The Museum tells the story of New Zealand, its place in the Pacific and its people. The Museum is a war memorial for the region of Auckland and holds one of New Zealand's top three heritage libraries. It has pre-eminent Māori and Pacific collections, and major natural science, social and military history collections, as well as decorative arts and pictorial collections.

The Museum's mission is 'Tui tui hono tangata, whenua me te moana. Connecting through sharing stories of people, lands and seas'. In recent years the Museum has sought to transform its content, layout and tikanga (protocol). This transformation is being guided by the Museum's *Future Museum* strategy (Auckland Museum, 2012). The strategy is driven by the desire to maximise access to and care of the museum's collections and the knowledge associated with them and to better serve the people that the collections are for.

1.4 Overview of *Moana - My Ocean*

Moana - My Ocean was a major Auckland Museum project exploring New Zealand's unique marine environment. A key component of the project – and the focus of the SROI analysis – was a collections-led, free exhibition open to the public from June 21st to October 28th 2013.

The exhibition followed a journey through five marine zones: Auckland's east coast; the Hauraki Gulf; mid-water; the Kermadec Trench; and, finally, the marine life of the Kermadec Islands. By journeying through these zones, exhibition visitors made an immersive and sensory journey from shallow to deep water, temperate to subtropical climates, light to dark, the familiar to unfamiliar. They encountered wondrous underwater worlds and learnt of human relationships with those worlds.

Developing out of the Auckland Museum-led Kermadec biodiscovery expedition in 2011, the *Moana - My Ocean* exhibition aimed to provide the public an accessible and entertaining window into the world of marine science. The exhibition showcased rare deep sea marine specimens, massively magnified phytoplankton, life-size shark models, 3D video, augmented reality content, a Hauraki Gulf boil-up that brought a mid-ocean feeding frenzy to life with artificial intelligence, local stories of marine restoration, and groundbreaking marine science.

The exhibition was designed to allow visitors:

1. To be immersed within each marine environment in a holistic, sensory experience.
2. To explore and discover each marine habitat, learn about species that live there and human interactions with those species and environments.

In line with the *Future Museum* Strategy, *Moana - My Ocean* was a collection-led, audience-focused project and signalled a new way of working for the Museum. A significant amount of staff time allocated to the project was spent developing new skills and procedures seen by the Museum as an important investment in its future. In addition to this investment, actual content and experiences developed for *Moana – My Ocean* will soon be showcased in the Museum's core galleries as a component of *Future Museum* refreshment and renewal.

1.4.1 Exhibition purpose and target audience

The overarching aim of the exhibition was to leave visitors with a new understanding of, and appreciation for, the New Zealand marine environment, including the threats it faces. As such, the primary communication objectives were that visitors would:

- understand that the ocean is essential to human life
- appreciate and understand the ocean's biodiversity
- have a sense of connection and responsibility to the local underwater world.

The exhibition was developed with Auckland families in mind, with a particular focus on those with children aged 10-14 years. School students of the same age were also considered an important target audience.

Specific learning objectives were developed for the exhibition. The objectives were that visitors would:

- Be 'wowed' by the marine environment, life and stories
- Feel inspired to engage more with marine conservation
- Be impressed by the immersive presentation of the exhibition
- Enjoy engaging with other people
- Gain / improve social skills
- Gain a greater awareness / understanding about how their children learn and their own role in supporting this (parents/caregivers)
- Enjoy spending quality 'fun' time together (families)

- Gain increased confidence/ authority in 'using' the museum as a place of learning (parents/caregivers)
- See the Auckland Museum as a contributor to science
- See the Museum as playing an active role in Auckland
- Gain/ develop skills in critical thinking
- Gain science investigation skills
- Feel inspired by people who work in science

2.0 The Social Return on Investment approach

This section provides an overview of the context within which SROI was created, the principles and steps of SROI, and a summary of past research that has investigated the impact of arts and cultural institutions.

2.1 An alternative framework

Traditionally, accounting for the social, environmental and economic value created by organisations has been an incomplete process. Due in large part to the difficulty of measuring social and environmental outcomes, organisations have often focused on their economic transactions (e.g., funding grants received) and activity outputs (e.g., number of visitors, number of individuals trained) as primarily indicators of the success or otherwise of their activities.

Activity outputs and financial transactions are, in general, inadequate indicators of the quality of organisational success. The focus on outputs rather than the *outcomes* created for those affected by an organisation's activities has often led to inadequate accounting for less-tangible forms of social and environmental value.

Because the value created by arts and cultural organisations is frequently intangible, these organisations have been particularly disadvantaged by the preference for measuring and reporting that which is easy to count.

SROI was developed to provide organisations with a framework for more-completely measuring and accounting for the social, environmental and economic value that they create. It focuses organisations away from counting outputs (e.g., numbers through the door) and towards measuring the outcomes that their customers and visitors experience as a result of the organisation's activities.

Engagement with key 'stakeholders' who are affected by the organisation is central to the SROI approach. The experience of stakeholders guides what is investigated, measured and subsequently valued.

There are two types of SROI evaluations: evaluative and forecast. The SROI analysis presented in this report reflects a combination of forecast and evaluative analyses. Although all stakeholders were engaged directly to understand how the exhibition impacted them, the timing of the data collection for the primary stakeholder group, visitors – occurring immediately after their visit – means that many of the outcomes reported are predictive in nature. For this reason, the report was submitted to the SROI Network for assurance as a forecast SROI.

2.2 The principles of SROI

SROI analyses are guided by the following seven principles (The SROI Network, 2012):

1. **Involve stakeholders.** Stakeholders should inform what gets measured and how this is measured and valued.
2. **Understand what changes.** Articulate how change is created and evaluate this through evidence gathered, recognising positive and negative changes as well as those that are intended and unintended.
3. **Value the things that matter.** Use financial proxies in order that the value of the outcomes can be recognised.
4. **Only include what is material.** Determine what information and evidence must be included in the accounts to give a true and fair picture, such that stakeholders can draw reasonable conclusions about impact.
5. **Do not over claim.** Organisations should only claim the value that they are responsible for creating.
6. **Be transparent.** Demonstrate the basis on which the analysis may be considered accurate and honest and show that it will be reported to and discussed with stakeholders.
7. **Verify the result.** Ensure appropriate independent verification of the account.

2.3 The stages of an SROI analysis

Carrying out an SROI analysis involves the following six stages (The SROI Network, 2012):

1. **Establishing scope and identifying key stakeholders.** An SROI needs to have clear boundaries about what the analysis will cover, who will be involved in the process and how. Often service users, funders and other agencies working with the client group are included in an SROI.
2. **Mapping outcomes.** Through engaging with relevant stakeholders an impact map (also called a theory of change or logic model) is developed, which shows the relationship between inputs, outputs and outcomes.
3. **Evidencing outcomes and giving them a value.** This stage involves finding data to show whether outcomes have happened and then giving them a monetary value.
4. **Establishing impact.** Those aspects of change that would have happened anyway or are a result of other factors are taken out of the analysis.
5. **Calculating the SROI.** This stage involves adding up all the benefits, subtracting any negatives and comparing the result with the investment. This is also where the sensitivity of the results can be tested.

6. **Reporting, using and embedding.** This vital last step involves verification of the report, sharing findings with stakeholders and responding to them, and embedding good outcomes processes.

2.4 Accounting for the value created by the arts and cultural sector

There have been few attempts to quantify the value created by arts and cultural organisations, particularly in New Zealand.

Instead, local research has largely focused on the size of the sector in terms of employment counts, number of businesses and contribution to gross domestic product (GDP), as well as the flow on effects of spending in the sector (often referred to as the 'multiplier effect', Madden, 2001). Wilson (2013), for example, reports that the creative sector in Auckland is made up of 9,044 businesses employing 17,896 people and contributing \$1.8 billion a year (directly) to Auckland's Gross Domestic Product (GDP).¹

Assessments of the sector that focus on economic size are limited, however, by their inability to provide insight into the nature of the *value* that the sector creates for individuals and society.

A number of studies have attempted to address this limitation by utilising a collection of economic valuation techniques, known as contingent valuation, to investigate the total value that people place on arts and cultural organisations (for an outline of how these approaches might be applied for the creative sector in New Zealand, see Allan, Grimes & Kerr, 2013). Such techniques measure both 'use value' (the direct value individuals gain from their use of a product or service) and 'non-use value' (the indirect value individuals obtain from the existence of a product or service, even if they do not use it). For example, using a large Willingness-to-Pay (WTP) study, where individuals are asked how much they would be willing to pay to maintain the existence of a service, the British Library found that the total value (consisting of both use and non-use value) of the library was £363m per year (British Libraries, 2003). Comparing this annual value to the library's funding of £83m per year revealed a benefit cost ratio of 4.4:1. Similar analyses have been conducted in the museum sector by Jura Consultants (2005), Martin (1994) and Thompson, Berger, Blomquist and Allen (2002).

Recent valuation research using a relatively new wellbeing valuation approach makes a valuable contribution to the above scholarship. Using regression analyses and large-scale panel data from the British *Taking Part* survey, Fujiwara (2013) found that museum use was a significant predictor of increased wellbeing, and that the effect of museum use on wellbeing was, on average, equivalent to receiving an additional £3,200 income per year.

¹ 2.3 per cent of Auckland's GDP.

While contingent and wellbeing valuation techniques reflect an improvement on analyses that focus on the economic size (jobs, GDP) of the sector, they have typically failed to provide direct insight into the type and extent of value created by an organisation's specific activities. They have also failed to provide a nuanced understanding of who is most impacted and in what ways. The SROI analysis reported in this document addresses these gaps using a number of contingent valuation techniques to value the outcomes either experienced or likely to be experienced in the future by those impacted by the exhibition.

3.0 Establishing scope and identifying key stakeholders

This section describes the scope of the analysis, how stakeholders were identified and engaged, and provides a summary of how those stakeholders were impacted by the exhibition (the theory of change).

3.1 The scope of the SROI analysis

The purpose of this SROI analysis was to measure the social, environmental and economic value created by Auckland Museum's *Moana - My Ocean* exhibition. Because the focus was on understanding all the different types of value associated with the exhibition, the scope included everyone who contributed to the development of the exhibition as well as everyone who was impacted by the exhibition after it opened.

Because the analysis was focused on the variety of ways in which the exhibition created value for stakeholders, both during and after the development of the exhibition, the scope included a range of input activities. With regard to the development of the exhibition, while much of the development was done within Auckland Museum, key exhibition content was developed with the help of individuals external to the Museum (known collectively as contractors and community partners). The way in which this content was developed was different for each individual stakeholder, however inputs for this group includes activities such as involvement in high-level discussions on the development of the exhibition, production of both 2D and 3D documentary films, production of life-size shark models, provision of scientific information, and development of iPad applications.

3.2 Identifying stakeholders

In the context of an SROI evaluation, stakeholders are individuals that either contribute to an organisation's activity or are affected by that activity. The impacts of an activity on stakeholders can be positive or negative, intended or unintended. Stakeholder involvement is a core feature of an SROI evaluation. The experience that is reported by stakeholders guides what is investigated, measured and valued. Accurately identifying affected stakeholders is therefore crucial for understanding how much value has been created or destroyed and for whom.

In this SROI we were interested in everyone who contributed to the development of *Moana - My Ocean* as well as everyone (or everything) that had been impacted, or was likely to be impacted in the future, by the exhibition.

Determining which stakeholders to include in an SROI evaluation typically involves drawing up an exhaustive list of people / organisations that might be impacted by an activity but including in the final analysis only those on the list that are considered to be *materially* affected.

A stakeholder is considered to be ‘material’ if the exclusion of their story from the analysis would significantly alter the conclusions drawn about the impact of the activity being evaluated. While some stakeholders can be easily judged to be immaterial on paper, often it is necessary to talk to stakeholders before a judgement on materiality can be made.

An outline of the process followed to determine which stakeholders were included or excluded is provided in Section 3.3.

The tables that follow show which stakeholders were included (Table 2) in the analysis and why. Stakeholder engagement revealed that not all individuals within each broad group were materially affected by *Moana - My Ocean*. Where this was the case, those individuals were not included in the final analysis. For example, some individuals within the stakeholder category ‘contractors and community partners’ revealed during their interviews that they personally were not materially affected by their involvement in the exhibition. These individuals were subsequently excluded from the analysis but because other contractors and community partners were materially affected, the broader group was included in the analysis. An outline of which stakeholders were excluded from the analysis is provided in Section 6.0.

Table 2. Stakeholders included in the analysis.

Included stakeholders	Reason for inclusion
Auckland Museum	Developed the <i>Moana - My Ocean</i> exhibition
Adult visitors	Key audience of the exhibition
Child visitors	Key audience of the exhibition. Includes the target audience (children aged 10-14 years)
The environment	Stakeholder engagement indicated that the exhibition increased public awareness of environmental issues faced by the marine environment, which is likely to lead to improved environmental outcomes
Contractors and community partners	Contractors and community partners played an important role in creating content for the exhibition. A number of these stakeholders experienced significant benefits from their involvement in the development of the exhibition
Auckland Museum staff	Some Auckland Museum staff experienced significant benefits from their involvement in the development of the exhibition. The majority of Museum staff (such as construction and front of house staff) were considered to not be materially affected. However because some staff were affected, the group as a whole was included in the analysis.

3.3 Stakeholder engagement strategy

Stakeholders were engaged on a number of occasions throughout the evaluation, initially to understand how they were impacted by *Moana - My Ocean*, and subsequently to collect data on the extent of the changes experienced.

3.3.1 First round of engagement

The purpose of the first round of stakeholder engagement was to understand the nature of the changes experienced by stakeholders. This first round comprised two phases: a research phase where an initial stakeholder list was workshopped with key Museum staff, and a round of interviews with all identified stakeholders.

The research phase involved the following steps:

- Familiarisation with exhibition planning documents that outlined the content, project objectives, key visitor categories and target audiences.
- A review of secondary research on the impacts of visiting museums and aquariums.
- A workshop held with key exhibition staff to identify:
 - Ways of meaningfully grouping visitors according to their experience of the exhibition, and how these visitors were likely to be impacted by visiting the exhibition.
 - Which contractors and community partners may have been meaningfully impacted by their involvement in the development of the exhibition.
 - Whether any additional stakeholders might have been affected (e.g., local businesses).

Staff were encouraged to put aside the specific aims and objectives of *Moana - My Ocean* and focus instead on identifying every individual or organisation who may be affected by the exhibition, either directly or indirectly. Theories of change were drafted during the workshop for each stakeholder group identified.

The first stage of stakeholder consultation involved:

- In-depth interviews with all stakeholders identified during the above-mentioned workshop. A number of the stakeholders identified additional individuals that had been impacted by the exhibition and in-depth interviews were subsequently conducted with these additional stakeholders.

The first round of stakeholder interviews occurred in July and August of 2013. A description of who was consulted and the methodology used during Stage 1 is provided in Table 3.

Table 3. Stage 1 stakeholder engagement.

Stakeholder	Number of stakeholders	Methodology	Number engaged	Number excluded due to lack of materiality at this stage
Visitors	140,200 unique adults and children visited the exhibition	Visitors were approached as they exited the exhibition and asked if they would be willing to discuss the exhibition. A range of visitors were approached (see the description below), on both week and weekend days. Interviews were continued until saturation occurred (i.e., no new themes emerged during interviews). Interview guides were used ² , and interviews lasted on average 20 minutes.	A total of 31 visitors were interviewed in 14 separate family / friend groups.	0
Environment	1	No stakeholder engagement occurred at this stage.	N/A	N/A
Contractors and community partners	18	In-depth interviews of approximately 1 hour duration were conducted. Some of the 18 individuals were member of the same company or organisation. In instances where stakeholders from the same company or organisation experienced similar benefits, interviews were conducted with at least one representative from each sub-group. Detailed interview guides were used. ³	13 face-to-face interviews were conducted.	5 stakeholders were excluded at this stage. A total of 13 individuals were thus included in the next stage of consultation.
Museum staff	4	In-depth interviews of approximately 1 hour duration were conducted. Detailed interview guides were used. ⁴	4 face-to-face interviews were conducted.	0

The initial workshop with key exhibition staff identified the possibility that different visitors might experience the exhibition in different ways. The workshop suggested that visitors may be meaningfully split into the following groups:

- Adults with children
- Young independent adults (without children)
- Older independent adults (without children)
- Young children (approximately ages 6 and younger)
- Older children (approximately ages 7+)

Stakeholder interviews were conducted to ensure that visitors from all of the above groups were engaged. The researchers also engaged visitors from a range of ethnicities in an attempt to test for an influence of ethnicity on the outcomes that visitors experienced. A range of visitors were interviewed, ranging in age from young (less than 5 years of age) to old (60s), including different

² See Appendix A

³ See Appendix B

⁴ See Appendix C

family types (young couples without children, adults visiting alone, parents with young children, parents with older children, grandparents with grandchildren), and including a range of ethnicities (including New Zealand European, Māori, Chinese, Australian, European and Eastern European).

As a number of interviews were conducted it became clear that the consistency of the experiences being reported by visitors allowed visitors to be grouped into two, broader groups: adult visitors and child visitors. That is, the nature of the experience of adults with children was similar enough to the experience of independent adults so as to allow these sub-groups to be combined. Similarly, although children of different ages engaged differently with the exhibition, the broad outcomes experienced were consistent across the range of ages.

Notes were taken as each interview was conducted and a summary of outcomes experienced made at the conclusion of each interview. Interviews were conducted until saturation was reached (i.e., no new outcomes were emerging from interviews).

A description of how visitor interviews informed the theory of change is provided in Section 3.5

3.3.2 Second round of engagement

The purpose of the second round of stakeholder engagement was to collect data from a larger group of stakeholders on the extent of change that stakeholders experienced, as well as information to inform the valuation calculations. For visitors, these data were collected through an exit questionnaire. For other stakeholders, additional interviews were conducted.

Data collection for *Moana - My Ocean* visitors occurred between 18 September and 5 October, 2013. The data collection period of 30 September - 5 October overlapped with the Auckland school holiday period. Follow-up interviews with contractors, community partners and staff occurred in November and December, 2013.

A description of who was consulted and the methodology used during Stage 2 is provided in Table 4. No stakeholders were excluded due to a lack of materiality at this stage.

Table 4. Stage 2 stakeholder of engagement.

Stakeholder	Number of stakeholders	Methodology	Number engaged
Visitors	140,200 unique adults and children visited the exhibition	Visitors were approached as they exited the exhibition and asked if they would be willing to fill out a survey. Separate adult ⁵ and child ⁶ surveys were developed. Data collection occurred at the Museum for a period of 2.5 weeks. An attempt was made to approach all visitors. Visitors were encouraged to complete the questionnaire immediately, but were also provided with the option of a take-home pack containing a questionnaire and a pre-paid envelope if they did not have time to complete the survey immediately. Prize draws for three \$100 shopping centre vouchers were used to incentivise adult responses; small spot prizes (e.g., stickers, bouncy balls) were offered to each child completing a survey	594 adults and 161 children completed questionnaires
Environment	1	The extent of change in pro-environmental attitudes and behavioural intentions amongst exhibition visitors was established from the visitor questionnaires. An in-depth interview was then conducted with a marine conservation expert to value the change observed in visitors	1 face-to-face interview was conducted with a marine conservation expert
Contractors and community partners	13	In-depth interviews of approximately 45 minutes duration were conducted with at least one representative from each sub-group.	8 face-to-face interviews conducted.
Museum staff	4	In-depth interviews of approximately 45 minutes duration were conducted.	4 face-to-face interviews conducted.

3.3.3 Third round of engagement

During Stage 2 interviews all contractors, community partners and staff were provided with an explanation of how their responses were going to feed into the valuation calculations, as well as how their results would be reported. Stakeholders were offered the opportunity to review their results prior to publication of the report. One stakeholder wished to review their valuation calculations. An additional meeting was therefore arranged to walk the stakeholder through the valuation calculations, after which they were happy with the way their story of change had been valued and with the results being published.

Representatives from the Auckland Museum reviewed this report prior to publication. A follow-up workshop is planned with a core group of Auckland Museum staff to ensure a thorough and shared understanding of the SROI methodology and the findings of the study. In addition, there will be opportunities to further explore how the findings can be used to improve future exhibition development.

⁵ See Appendix D

⁶ See Appendix E

3.3.4 Accounting for negative and / or unintended impacts

All stakeholders were asked questions in a way to probe for negative and/or unintended impacts. In addition to the neutral wording of the majority of questions, all first round interviews contained questions to probe for negative or unintended impacts.

Adult visitors (see Appendix A) were asked whether there was anything they disliked about their visit as well as whether the exhibition had challenged any of their attitudes, beliefs or behaviours. Child visitors were asked if they disliked anything about their visit.

Contractors and community partners (see Appendix B) were asked four questions to probe for negative or unintended impacts:

- if they had to give up anything to contribute to the exhibition (Q11)
- whether there had been any unexpected changes (Q9)
- what would have happened to them if they hadn't been involved in the exhibition , and
- whether they are doing anything differently now (Q8).

Museum staff (see Appendix C) were asked three questions to probe for negative or unintended impacts:

- if they had to give up anything to contribute to the exhibition (Q7)
- whether there had been any unexpected changes (Q6), and
- whether they are doing anything differently now (Q5).

Negative impacts were also accounted for during the latter data collection phase of the research. For example, in the case of visitors, the overall outcome incidence for each outcome was calculated by averaging all responses across the survey sample. This meant that the experiences of those who experienced 'none' of a given outcome were also counted (by reducing the overall mean change). Where there were negative impacts associated with specific aspects of the exhibition, such as distress at learning of local environmental degradation, these negative aspects are likely to be reflected in a lower level of reported enjoyment.

3.3.5 Materiality tests

There are two key aspects of materiality that are considered in SROI: relevance and significance. Relevance is considered at early stages of the analysis and refers to whether an outcome is relevant to the activity and to the needs of stakeholders. Significance is considered after relevance and refers to whether or not the outcome passes a threshold of importance.

Materiality was considered at a number of stages throughout the present analysis. Relevance was considered during initial stakeholder engagement, in relation to both the inclusion of stakeholders and inclusion of outcomes. As noted in Section 6.0, a number of stakeholders were excluded from the analysis during early stages of the analysis. Some of these stakeholders were excluded on the basis of initial discussions with exhibition staff, such as local businesses, family and friends of

exhibition visitors, and the museum café and shop. Some additional stakeholders were excluded after they were interviewed. Five contractors and community partners were excluded from subsequent analysis after interviews revealed that they were not materially affected by their involvement in the exhibition.

As theories of change were being developed for stakeholders a relevance materiality test was applied to each outcome. This test involved questioning whether the outcome was relevant to the needs or values of stakeholders as well as whether the outcome was relevant to the exhibition itself (i.e., was it plausible that the exhibition delivered the outcome in question?).

Significance tests were applied following the collection of data from stakeholders. An assessment of significance was made in relation to:

- The degree of change evidenced by indicators (i.e., was the change reported significant enough to warrant inclusion of the outcome).
- The total value of an outcome for each stakeholder group (before discounting) in relation to the outcomes experienced by other stakeholders (i.e., is the total value of an outcome meaningful in relation to other outcomes that have been valued).
- The value of an outcome after discounting (i.e., how much value is there left after we discount for deadweight, displacement and attribution?)

These significance tests resulted in the exclusion of two outcomes: improved relationships with others for child visitors, and improved relationships with others for adult visitors. These outcomes were excluded because both had deadweights close to 100%.

For the remaining outcomes, the relative overall value for each outcome was compared. Three outcomes reflected a relatively low percentage of the total value created by the exhibition: 'strengthened sense of cultural identity' for contractors and community partners, 'increased job satisfaction' for Museum staff, and 'increased career opportunities' for Museum staff. The value of each outcome reflected approximately 1% of the total value. Despite this low percentage, a decision was made to include these outcomes because each individual within these stakeholder groups experienced a significant amount of value. The low percentage is reflective of a small number of individuals experiencing the outcome rather than an overall low impact.

3.4 Identifying inputs and outputs

3.4.1 Inputs (exhibition costs)

The inputs in this analysis are the costs associated with developing the exhibition. These include costs associated with: staff time, staff overheads (e.g., office equipment, heating), research, paying contractors and community partners, building the exhibition, and maintaining the section of the building where the exhibition was located.

3.4.2 Outputs (visitor numbers)

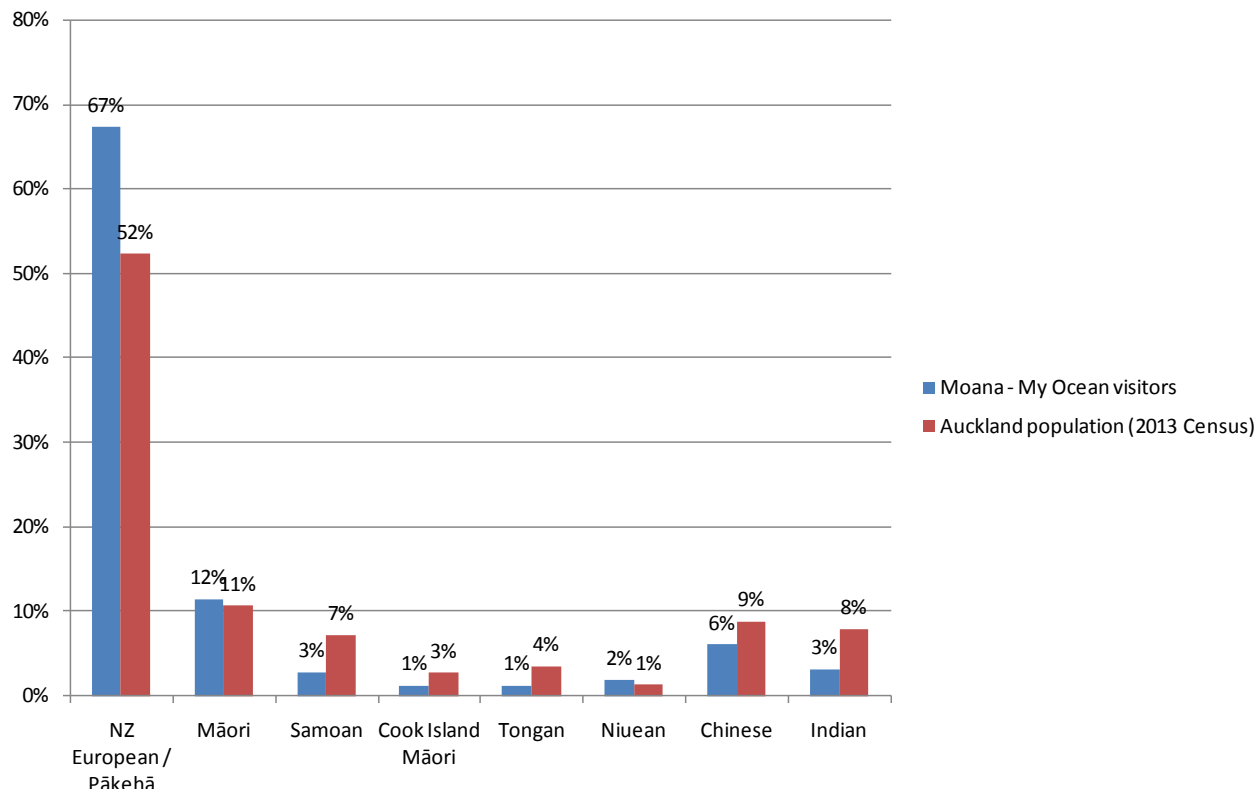
The primary output associated with the exhibition was the number of visitors. A total of 161,620 people were counted visiting the *Moana - My Ocean* exhibition⁷. Some people visited the exhibition more than once so this figure has been adjusted to reflect only 'unique' individuals, to avoid double counting when extrapolating the findings from visitor surveys. The survey of adult visitors (which was conducted late in the exhibition period) indicated that approximately 13 per cent of visitors had visited two or more times; the total visitor count has therefore been discounted by 13%, leaving approximately 140,200 unique visitors.

Because outcomes differed for children and adults, the number of unique adult and child visitors also needed to be calculated. This calculation was based on result from the Museum's quarterly Visitor Profile Survey (VPS), which provided information on the percentage of adult visitors who visited with and without children, as well as the average number of children per adult. Using the VPS data, the number of unique adult visitors was calculated to be approximately 89,300 and the number of unique child visitors approximately 50,900.

An analysis of ethnicity data provided by adults who lived in Auckland and completed the exit survey was conducted to understand how the profile of *Moana - My Ocean* visitors compared to the Auckland population. A comparison with 2013 census data showed that the profile of visitors to the exhibition was, in some cases, not representative of the Auckland population. The percentage of Māori and Niuean visitors was similar to the population as a whole, however, New Zealand European / Pākehā visitors were over-represented, and Samoan, Cook Island Māori, Tongan, Chinese and Indian visitors were under-represented. Although it is unrealistic to expect the profile of Museum visitors to be perfectly reflective of the Auckland wide population, given the location of the Museum, such a comparison highlights possible areas for improvement.

⁷ An electronic counter was set up above the exhibition exit door to count each individual as they exited the exhibition area.

Figure 2. Comparison of *Moana - My Ocean* visitor ethnicity with the Auckland population.



3.5 Mapping outcomes (The theory of change)

3.5.1 Visitors

The SROI analysis revealed that both adult and child visitors experienced, or were likely to experience in the future, a number of outcomes. Note that although data were collected from visitors after they had visited the exhibition, the proximity of the data collection to the visit means that the outcomes reported reflect predictions of how the exhibition visit is likely to impact visitors in the future.

Initial stakeholder interviews conducted during the first round of engagement showed that the vast majority of adults (17 out of 19) interviewed expressed enjoyment and happiness resulting from their visit. Adults stated most frequently that they enjoyed their visit because they found the content fun, entertaining and informative. Enjoyment is therefore considered a key outcome. As can be seen in Figure 3, we predict that the longer term impact associated with this outcome is happiness. This link is supported by research such as by Fujiwara (2013), which shows a significant positive relationship between museum visitation and overall feelings of happiness. The strength of this link is such that Fujiwara (2013) estimates that the effect of regularly visiting a museum on happiness is worth £3,200 per year per visitor.

In addition to enjoyment, a significant proportion of adults (14 out of 19) interviewed emphasised the importance of the environmental aspects of the exhibition. Visitors described how the marine

environment provides their family with food and recreation, how guardianship of the marine environment was a core value for them and their families, and how visiting *Moana - My Ocean* strengthened these feelings. Because *Moana - My Ocean* highlighted the uniqueness of the local environment as well as threats to it, the exhibition reinforced for many visitors the importance of the marine environment for their way of life. For many visitors, the exhibition message connected to their core personal values. Visitors expressed the importance of this outcome in terms of feeling an increased sense of connection to the marine environment, as well as an increased motivation to act in an environmentally sustainable way. Previous research supports the link between museum / aquarium visitation and changes in attitudes and behaviour. For example, Andelman, Falk and James (2000) showed that visiting an aquarium could result in changes to conservation knowledge, understanding and interest that persist for at least two months after the visit. Similarly, Wyles, Pahl, White and colleagues (2013) found that an aquarium visit improved visitors' attitudes and intentions in relation to marine sustainability.

A smaller number of visitors (3 out of 19) clearly articulated the importance of the exhibition for strengthening their love for Auckland and its local environment. Visiting the exhibition made these visitors feel a stronger sense of pride in Auckland. It is predicted that pride in one's city and local environment has an important impact on one's more general sense of life satisfaction. This outcome appeared to be relevant only to residents of Auckland.

The three outcomes experienced by adults can be seen in Figure 3. The theory of change outlines the longer-term impacts of the outcomes described above. A decision was made (as represented by the red line on the theory of change) to value the outcomes one step prior to the long-term impacts because this was the level at which visitors were able to articulate the changes they experienced.

Almost all children (11 out of 12) who were interviewed at the first round of stakeholder engagement expressed a significant amount of enjoyment from their visit. They found the exhibition content engaging, interesting and entertaining, they had a good time with family and/or friends, and they were happy that they had visited. As for adults, and in line with other research, it is predicted that this enjoyment is likely to lead to increases in happiness amongst children.

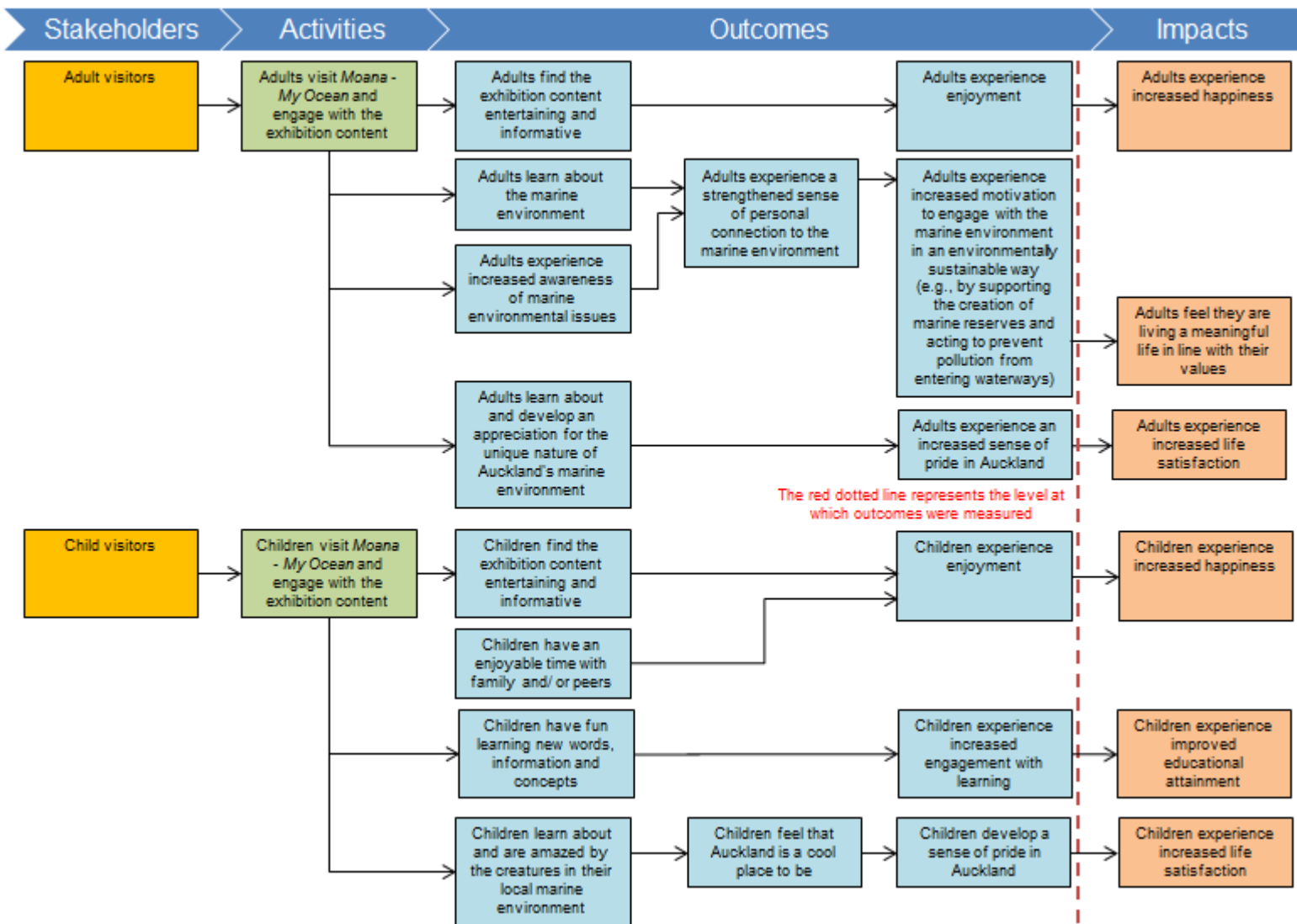
Most children who were interviewed also expressed enthusiasm at learning about new words and creatures in a way that was entertaining and enjoyable. Some of the children (3 out of 12) made a more explicit reference to a desire to learn more about the marine environment at home and school. The exhibition therefore was seen as increasing children's engagement with learning. It is predicted that this increased engagement will be associated with a longer-term impact of increased educational attainment. This outcome is supported by previous research (e.g., Cain, Edwards, Sooriyakumaran, et al., 2013) that shows that real world experiences are seen as being more valuable learning experiences than theoretical activities.

In addition to enjoyment and engagement with learning, it was predicted that the exhibition would increase children's pride in Auckland. Although no children stated explicitly during stakeholder

interviews that the exhibition made them feel more proud of Auckland, this outcome was included in the subsequent round of data collection for three reasons. The first is that a number of children were excited to learn that their local marine environment had so many interesting creatures. The second is that a key aim of the exhibition was to connect Aucklanders with their local environment. And the third is that the outcome was expressed by adults, and is possible that children may have experienced a similar outcome but may have been less able to articulate this in an interview context.

The three outcomes experienced by children can be seen in Figure 3.

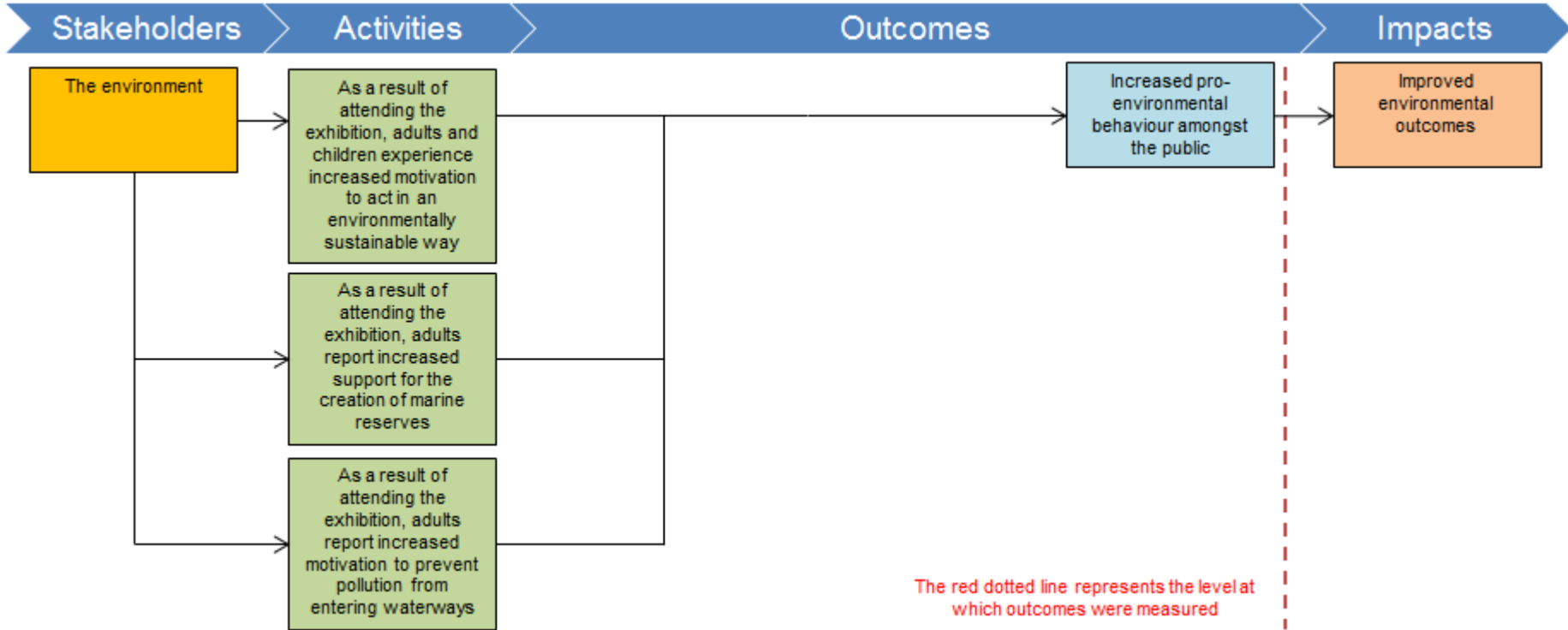
Figure 3. Theory of change: visitors.



3.5.2 The environment

As a result of the *Moana - My Ocean* exhibition, visitors reported an increased desire to act in an environmentally sustainable way, such as supporting the development of marine reserves, and preventing pollution entering the waterways. This increased public awareness of the pressures faced by the marine environment is likely to support improved environmental outcomes.

Figure 4. Theory of change: the environment.



3.5.3 Contractors and community partners

Contractors and community partners played diverse roles in the development of the exhibition. Despite the range of contributions, however, there was consistency in the outcomes that stakeholders experienced. These were:

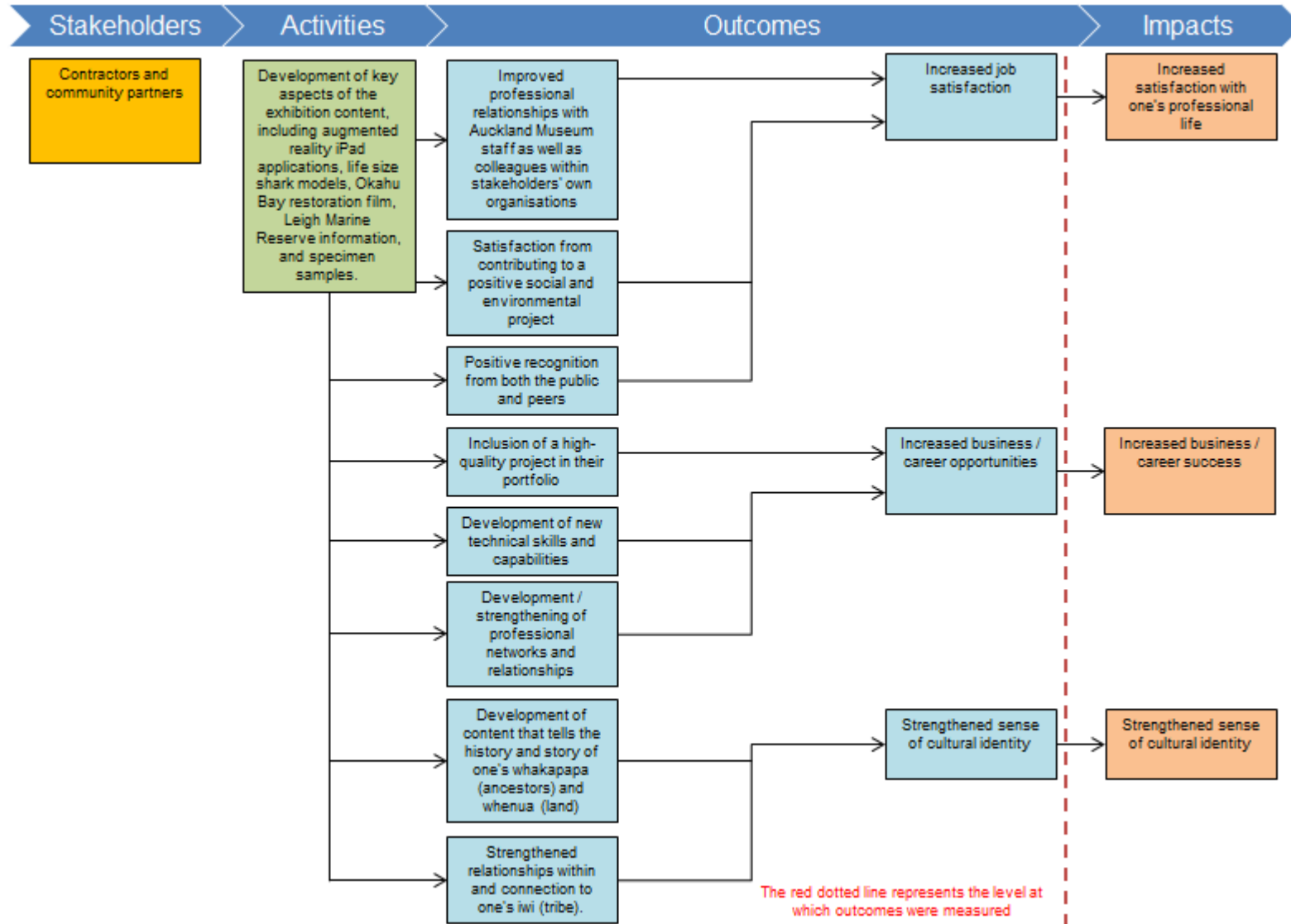
- Increased job satisfaction
- Increased business / career opportunities
- Strengthened sense of Māori cultural identity

Contractors and community partners found contributing to the exhibition satisfying for a number of reasons, including strengthened professional relationships, positive public recognition, and making a contribution to a positive social and environmental project. Many of the contractors and community partners regularly turned down work that was not in line with their social and environmental values. For these stakeholders, working on a project with a social and environmental focus was particularly valuable. Nine individuals experienced increased job satisfaction as a result.

The majority of contractors and community partners experienced (or anticipated) increased business / career opportunities as a result of their involvement in *Moana - My Ocean*. These increased opportunities came from new skill development, strengthened professional networks and the inclusion of their project in their portfolio or CV. For many of the contractors and community partners, being associated with the Museum – a large, trusted organisation in New Zealand – was seen as being particularly valuable for enhancing their own credibility. Nine individuals experienced this outcome.

Some of the contractors and community partners contributed to the exhibition by telling the story of the degradation and restoration of their hapū's (sub-tribe's) coastal environment. For these stakeholders, the opportunity to tell this story, and to do so on behalf of their hapū, was a rewarding experience that led to an increased sense of connection to their hapū's whenua (land) and history, and a strengthened sense of cultural identity. Four individuals experienced this outcome.

Figure 5. Theory of change: contractors and community partners.



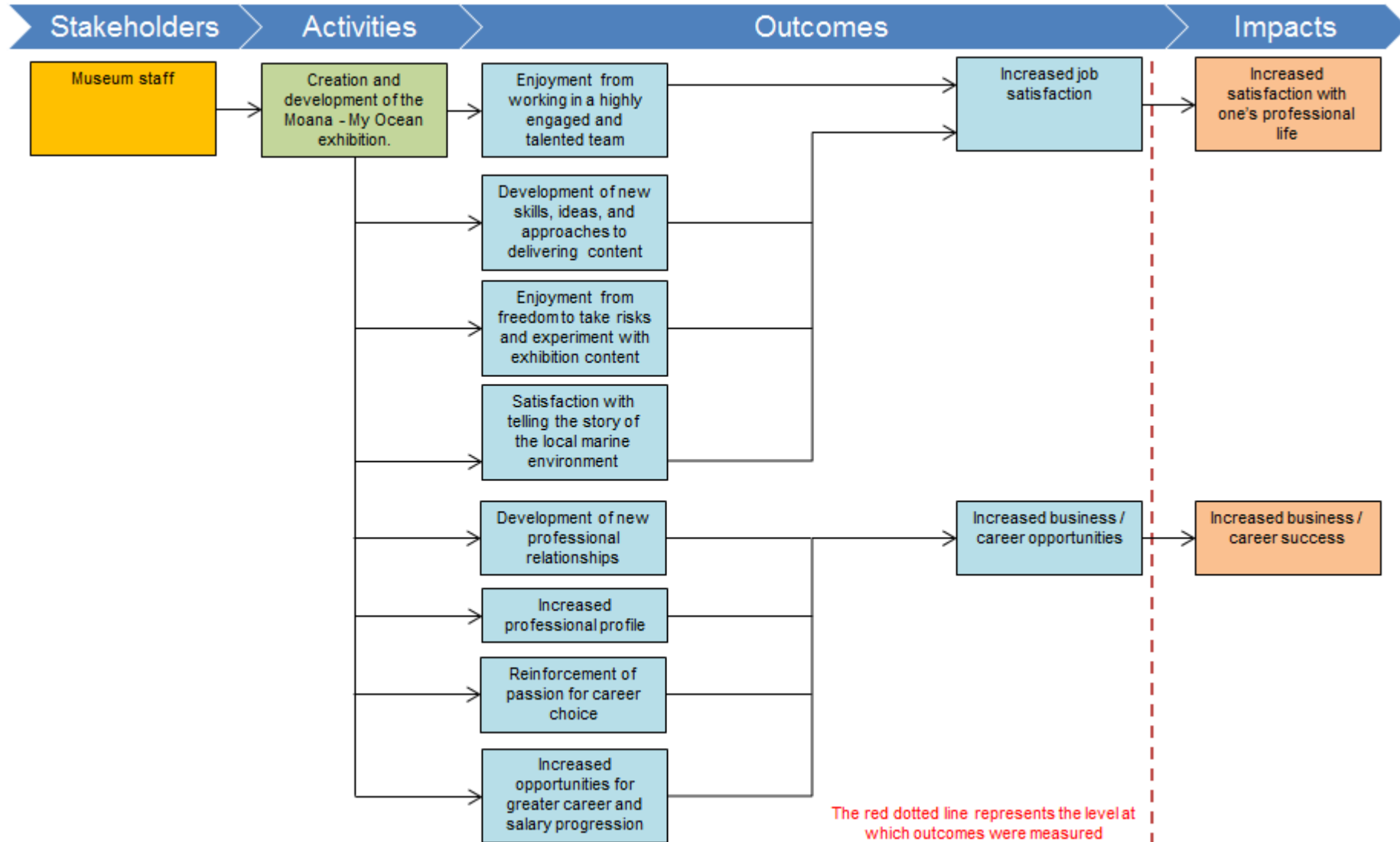
3.5.4 Museum staff

The outcomes experienced by a core group of museum staff were similar to those experienced by contractors and community partners: increased job satisfaction and increased career opportunities. For staff, the increased job satisfaction arose from working as part of a highly engaged team, developing new skills and being exposed to new ideas, enjoyment from being given the freedom to take risks in developing the exhibition, and pride from telling the story of their home city. Four staff experienced increased job satisfaction.

For some staff, the project represented an important catalyst in the development of their career and for these stakeholders the project reinforced their career choice. Because of the scale and importance of the project, these stakeholders also received significant recognition from their peers. The experience gained from involvement in the project is likely to provide additional opportunities to these individuals in terms of involvement in future projects. Two staff experienced this outcome.

It is important to note here that it is likely that other museum staff (other than the core group consulted) were also impacted positively by their involvement in *Moana - My Ocean*. However, for the purposes of the SROI analysis, these impacts were judged less likely to be material and were therefore not measured.

Figure 6. Theory of change: Museum staff.



4.0 Measuring outcomes and giving them a value

This section summarises the extent of change that each stakeholder experienced as well as the methods used to value those changes in monetary terms.

4.1 Valuing inputs

Table 5 shows the breakdown of costs associated with the development and delivery of the *Moana - My Ocean* exhibition.

As noted in Section 1.4, a significant amount of staff time allocated to the project was spent developing new skills and procedures. The Museum viewed this time as an important investment in its future capability to develop and deliver large-scale projects.

Table 5. Input costs associated with *Moana - My Ocean*.

Cost component	Value
Staff costs	\$ 944,357.34
Front of house staff	\$ 27,864.00
Writing, editing, proofreading, research	\$ 9,558.50
Direct build costs and lighting	\$ 97,141.57
Contractors and community partners	\$ 628,601.00
Raw footage and raw audio	\$ 20,221.00
Energy cost (air conditioning, lighting and audio visual)	\$ 15,370.00
Marketing costs	\$ 76,688.00
Exhibition opening costs	\$ 15,000.00
Total cost	\$ 1,834,801.41

4.2 Outcomes for adult visitors

Data on the outcomes experienced by adult visitors was collected via an on-site exit questionnaire. Over a period of 2.5 weeks, visitors were asked as they exited the exhibition if they would be willing to complete a short survey on their experience of *Moana - My Ocean*. A total of 594 adults completed the survey.

Questionnaire items were used to indicate the degree of change that each visitor experienced for each outcome. The way outcomes were valued was different for each outcome. For some, the indicator related directly to the financial proxy, for others, visitors were asked specific questions relating to the value of the outcome to them.

Unless otherwise stated, survey questions used the following 4-point scale: none at all; a little bit; a moderate amount; a lot.

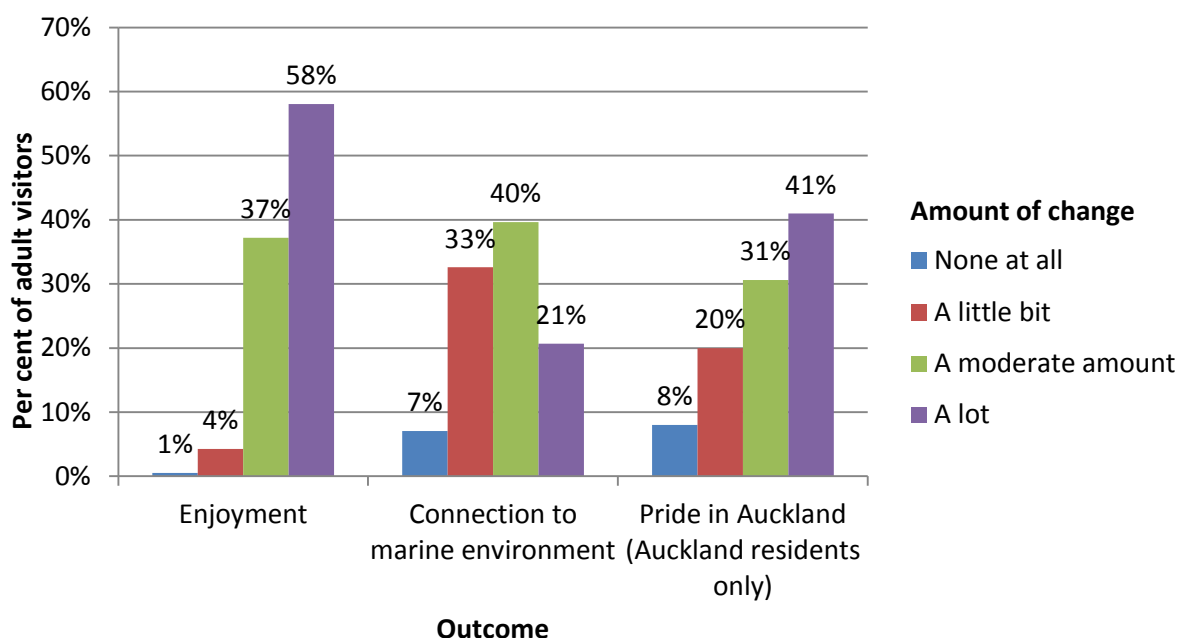
4.2.1 The amount of change experienced

In order to understand how *Moana - My Ocean* affected adult visitors in relation to the three outcomes, they were asked the following questions:

- *Enjoyment*: How much enjoyment did you get out of coming to Moana - My Ocean?
- *Connection to the marine environment*: How much do you think visiting Moana - My Ocean has increased your motivation to act in a more environmentally sustainable way?
- *Pride in Auckland*: How much has visiting Moana - My Ocean made you feel more proud of Auckland?

Figure 7 shows the levels of reported change for each outcome.

Figure 7. Outcomes experienced by adult visitors.



Enjoyment was the most strongly and widely experienced outcome. Almost all adults reported getting either a lot (58% / 51,800 visitors) or a moderate amount (37% / 33,200 visitors) of enjoyment from visiting *Moana - My Ocean*. A small number (4% / 3,800 visitors) reported getting a little bit of enjoyment out of their visit, and almost no one (1% / 500 visitors) experienced no enjoyment at all.

Most adults (93%) experienced change in terms of an increased sense of connection to the marine environment. As with enjoyment, the majority of adults reported that this feeling increased for them either a lot (21% / 18,500 visitors) or a moderate amount (40% / 35,400 visitors). A significant number of adults (33% / 29,100 visitors) reported a little bit of change in their sense of connection

to the marine environment. The remainder (7% / 6,300 visitors) reported no change for this outcome.

The third outcome for adult visitors was increased pride in Auckland. This outcome was considered to be applicable only to the adult visitors living in Auckland at the time of their visit (52,100). Significant numbers of visitors reported that their pride in Auckland increased either a lot (41% of survey respondents / 21,000 visitors), a moderate amount (31% / 16,200 visitors), or a little bit (20% / 10,400 visitors). A smaller number of visitors reported no increase in pride (8% / 4,200 visitors).

4.2.2 Valuation approaches

The three outcomes experienced by adult visitors were each valued differently. It is possible to use a variety of valuation techniques to value outcomes experienced by stakeholders. Economic valuation techniques fit within two broad categories: revealed preference techniques and stated preference techniques.

Revealed preference techniques involve looking for other markets where the outcome under investigation is implicitly traded. The fundamental idea behind revealed preference techniques is that the preferences of individuals can be revealed by observing their purchasing behaviour. A common revealed preference technique is the travel costs method, where the amount people are willing to pay to travel to a destination is used to estimate the value of the destination experience for them. Another commonly used revealed preference technique is the hedonic pricing method, where sales of products with and without the characteristic being valued (e.g., sea view and house sales) are used to estimate how much the characteristic is valued.

Stated preference techniques involve asking stakeholders how much they are willing to pay to obtain an outcome or willing to accept to forego an outcome. Such questions should only be asked when the scenario presented to stakeholders is realistic and interpretable.

In the present analysis, we utilised a combination of revealed and stated preference techniques, depending on which was most appropriate for each outcome. Revealed preference techniques were used primarily; if no revealed preference technique was available, a stated preference method was used.

For revealed preferences, it was deemed that the travel cost and hedonic pricing methods were not appropriate, as they would not enable us to accurately value individual outcomes. We therefore searched for alternative market traded activities that were likely to result in the outcome that we were attempting to value. For example, increased pride was valued by selecting an alternative activity that was likely to result in a large increase in pride in Auckland. The cost of this alternative activity was then linked to the indicator for pride, such that partial increases in pride were attributed a percentage of the value of the alternative activity. Stated preference techniques used in the

present analysis involved either asking individuals how much they were willing to accept to do without the outcome or how much they were willing to pay to express the outcome in question (e.g., in the case of increased connection to the marine environment). Stated preference techniques were used only when the question presented was realistic for stakeholders (e.g., only for stakeholders who regularly make trade-offs between the value of a contract and the personal benefits associated with completing the work).

For adult visitors, enjoyment was valued using a variant of the Value Game, where survey respondents were asked to rate whether *Moana - My Ocean* was more or less enjoyable than other activities. The ticket prices for the alternative activities rated as *less enjoyable* than *Moana - My Ocean* were averaged to obtain a conservative estimate of how much enjoyment value visitors obtained from the exhibition. The average enjoyment value per respondent was \$34.20.

The development or reinforcement of a personal sense of connection to the marine environment was valued by calculating how much *Moana - My Ocean* increased the amount of money people were willing to donate (Willingness to Pay) to a marine conservation group. The average annual increase in donations across all visitors was \$34.80.

With respect to pride, a dolphin and whale watching cruise in the Hauraki Gulf was used as a revealed preference proxy. It was assumed that this activity would lead to increased pride in Auckland's natural environment and the total cost of the cruise was used to reflect the value of a '3' point rating on the 0-3 scale used (where 0 = 'none', 1 = 'a little', 2 = 'a moderate amount', and 3 = 'a lot'). The total cost of the dolphin and whale watching cruise at the time of analysis was \$159.90. In order to value exhibition visitors' increases in pride, each scale point increase in rated pride on the 0-3 point scale was valued at $\$159.90 / 3 = \53.30 .

The methods used to value adult visitors' outcomes are described in more detail in Appendix F.

4.3 Outcomes for child visitors

Outcomes for children were measured primarily via the adults' survey; adults who visited with children were asked to answer questions about the experience of one of their children. A total of 161 children also completed a short survey which was not used in the valuation but nonetheless provides a complementary picture of children's perceptions of the exhibition.

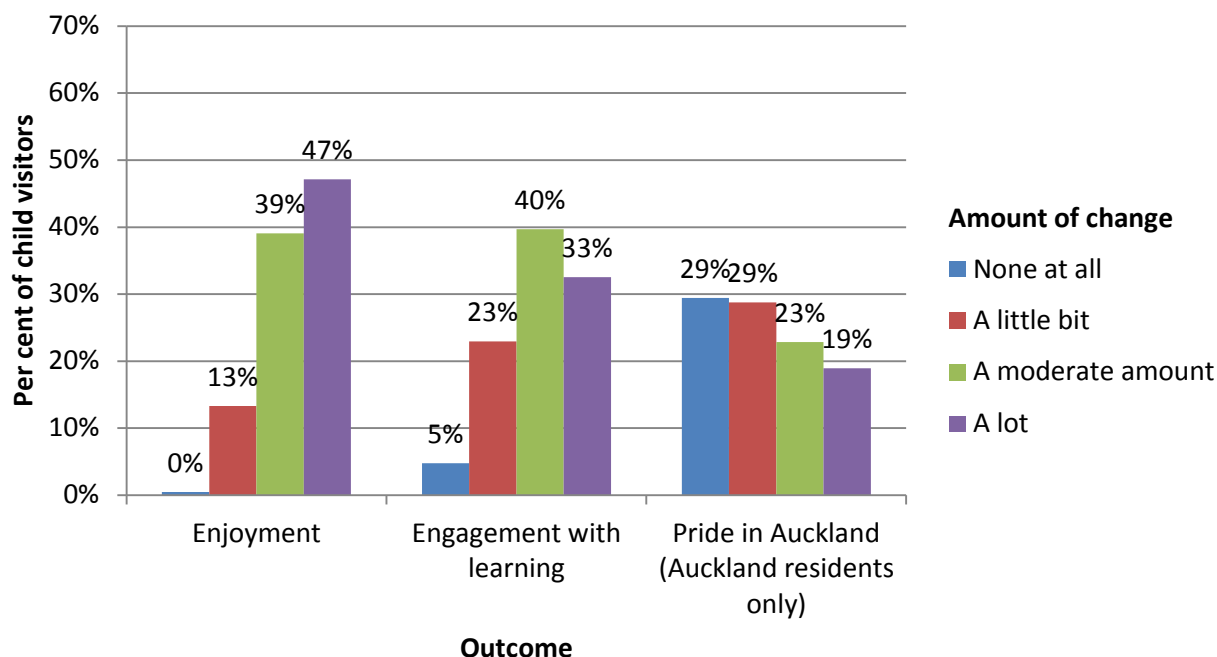
4.3.1 The amount of change experienced

Children experienced three outcomes: enjoyment, increased engagement with learning and increased pride in Auckland. Enjoyment and pride were measured by asking parents / caregivers the same questions about their children as they were asked themselves. Increased engagement

with learning was measured by asking “How much do you think visiting Moana - My Ocean will have increased [your child’s] engagement with learning?”

Figure 8 shows levels of reported change in children for each outcome. Because adults were asked to answer only in relation to one child, the percentage of adults responding in a particular way to each question is a reasonable approximation of the percentage of children experiencing each outcome.

Figure 8. Outcomes experienced by child visitors.



The majority of parents / caregivers felt that their children got either a lot (47% / 24,000 child visitors) or a moderate amount (39% / 19,800 children) of enjoyment out of *Moana - My Ocean*. A much lower percentage thought their children (13% / 6,800 children) enjoyed the exhibition only a little bit, and almost no adults thought their children got no enjoyment from the exhibition (<1% / 200 children).

A significant percentage of parents / caregivers predicted a large (33% / 16,600 children) or moderate (40% / 20,000 children) increase in their child’s engagement with learning. Approximately one-in-four parents / caregivers (23% / 11,700 children) felt that *Moana - My Ocean* was likely to increase their child’s engagement with learning a little bit. Only a small percentage of adults (5% / 2,400 children) thought that *Moana - My Ocean* would not increase their child’s engagement with learning.

Nineteen per cent of parents / caregivers (5,600 children) felt that their children’s pride in Auckland increased a lot, 23 per cent (6,800 children) a moderate amount, 29 per cent (8,600 children) a little bit, and 29 per cent (8,600 children) no increase.

Children themselves said that the exhibition was 'awesome' (74% of children), that they learnt new things about the ocean (91%), that the exhibition made them want to care more (91%) and learn more (31%) about the ocean, that they learnt new words (24% 'lots'; 53% 'a few'), and that *Moana - My Ocean* made them think Auckland is a cool place to be (94%).

4.3.2 Valuation approaches

The enjoyment experienced by child visitors was calculated as a percentage of adults' enjoyment value. Adults were asked both how much they enjoyed the exhibition and how much their children had. Adults claimed that children, on average, enjoyed the exhibition 2.33 on a 0-3 scale, whereas they themselves reported enjoying the exhibition, on average, 2.53 on a 0-3 scale. Comparing these two numbers, children, on average, experienced 92.10 per cent ($2.33/2.53 * 100$) of the enjoyment of adults. A monetary value for the enjoyment that children experienced was calculated by taking 92.10 per cent of the value calculated from the adults' value game (\$34.20). The proxy value for children was therefore \$31.50 ($\$34.20 * .9210$).

Increased engagement with learning was valued using the cost of an academic tutoring session. The average cost of a 1-hour tutoring session (\$43.33) was linked to the 0-3 scale used to understand how much engagement with learning had increased in children. \$14.40 was attributed to each scale point movement above 0 on the 0-3 rating scale ($\$43.33 / 3$).

The valuation for pride used the same Auckland dolphin and whale safari described in the previous section but using the children's ticket price of \$105. In order to value child visitors' increases in pride, each scale point increase in rated pride on the 0-3 point scale was valued at $\$105 / 3 = \35 .

The methods used to value the outcomes experienced by child visitors is outlined in more detail in Appendix G.

4.4 Outcomes for the environment

The visitor surveys indicated that *Moana - My Ocean* increased public awareness of marine environmental issues, leading to behaviour change that is likely to support improved environmental outcomes.

4.4.1 The amount of change experienced

Because changes in visitor behaviour are likely to impact on environmental outcomes over a long period of time, it was not possible in this forecast analysis to directly measure the impacts of *Moana - My Ocean* on the health of the marine environment. The focus is therefore on measuring the impact of the exhibition on visitors' attitudes and behavioural intentions. As outlined in the

theory of change, it is assumed that these changes in attitudes and behavioural intentions will translate into changes in behaviour, which will translate into improved environmental outcomes.

As previously reported, 60 per cent of adult visitors and 46 per cent of child visitors had moderate or large increases in their motivation to act in a more sustainable manner. Together, this means that 77,400 visitors (53,900 adults and 23,500 children) reported experiencing significant change in relation to their environmental sustainability, with many of the remaining 62,800 visitors experiencing a small degree of change. This is a significant number of affected individuals, especially in light of Auckland's population of approximately 1.5 million people.

Additionally, *Moana - My Ocean* increased adult visitors' desire to support the creation of marine reserves (32% 'a lot', 41% 'a moderate amount', 21% 'a little bit', and 5% 'not at all') and likelihood of picking up rubbish on beaches, or in town to prevent rubbish going down drains and out to sea (35% 'a lot', 33% 'a moderate amount', 24% 'a little bit', and 8% 'not at all'). These questions were not asked for children, but it is likely that children also experienced some degree of change in relation to these behaviours.

4.4.2 Valuation approach

Because of the nature of a forecast SROI analysis, it was not possible to quantify the degree to which the exhibition will impact longer-term environmental outcomes. Because of this fact our analysis estimates the impact of *Moana - My Ocean* on longer-term environmental outcomes by focusing on the impact of the exhibition on visitors' attitudes and behaviours. The valuation is done by estimating the relative impact of *Moana - My Ocean* on changing visitors' attitudes and behaviours, compared to other environmental awareness-raising campaigns.

In order to understand the impact of *Moana - My Ocean* on environmental outcomes, relative to other, similar campaigns, we spoke to a key expert in the field. This expert was, at the time of the study, involved with the Hauraki Gulf Forum, an organisation dedicated to enhancing the Hauraki Gulf (a marine area that featured prominently in the *Moana - My Ocean* exhibition). In the individual's role with the Hauraki Gulf Forum, they had been involved in coordinating a number of public awareness-raising campaigns in relation to the Hauraki Gulf. This individual was considered qualified to comment on the relative impact of *Moana - My Ocean* because of both their awareness of the environmental issues facing Auckland's marine environment and their experience commissioning work designed to change public attitudes and behaviours in relation to conservation of this environment.

A recent awareness-raising campaign coordinated by the Hauraki Gulf Forum was selected as a good comparison activity. This campaign involved sending out a series of posters bundled in a large national newspaper to approximately 150,000 Auckland households, highlighting the unique marine life in the Hauraki Gulf. This activity was an ideal comparison activity because the aim of

the poster series was to elicit attitude and behaviour change in relation to sustainability of the Hauraki Gulf (e.g., via support for marine reserves, increased pro-environmental behaviour etc.).

The expert was presented with information on the number of visitors to *Moana - My Ocean* and the extent of change reported by visitors in terms of their attitudes and behavioural intentions (as seen in Section 4.4.1). Once presented with these statistics, the individual was asked to estimate the relative impact of *Moana - My Ocean* compared to the poster series, in terms of attitude and behaviour change, and longer-term improvement in environmental outcomes. The individual estimated that the likely number of members of the public who engaged highly with the exhibition (approximately 140,000 unique visitors) was significantly higher than the number of individuals who engaged highly with the posters (estimated to be 15,000 out of the 150,000 recipients). They also estimated that visitors to the exhibition were more likely to internalise a desire to act in a more environmentally sustainable manner than recipients of the posters. Based on these considerations, the expert in the field estimated that *Moana - My Ocean* was likely to be at least 10 times as impactful as the comparison activity.

The value of the poster campaign was \$199,622.49. Multiplying this value by the estimated relative impact above allows us to calculate the value of the environmental impacts associated with *Moana - My Ocean*. The total value of the impacts of *Moana - My Ocean* on environment outcomes (prior to discounting) was therefore estimated to be $\$199,622.49 * 10 = \$1,996,224.90$.

The method used to value the outcome for the environment is outlined in more detail in Appendix H.

4.5 Outcomes for contractors and community partners

4.5.1 The amount of change experienced

The stakeholder group 'contractors and community partners' is made up of individuals from a variety of companies and organisations. Whereas visitor data were collected from a subset of individuals and the findings applied to the whole group, for these stakeholders in-depth interviews were conducted with every sub-group or individual. Where there was a sub-group (e.g., contracted company or community partner organisation) with more than one affected individual, either all individuals were engaged, or, if the experiences of the individuals within an organisation were similar, at least one representative was engaged to provide a detailed understanding of change experienced by all relevant individuals within the organisation.

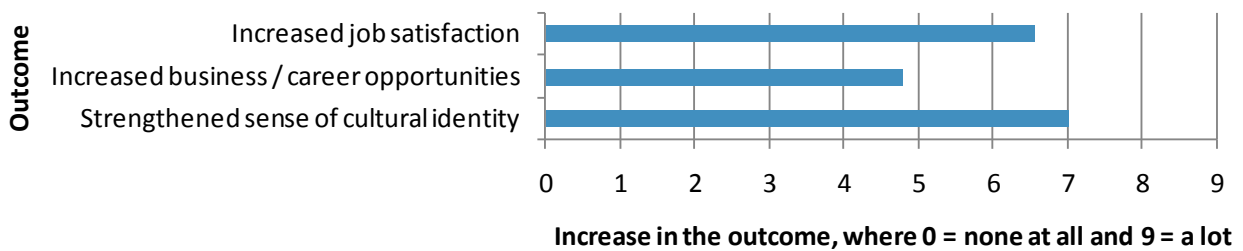
The following questions were asked of stakeholders in order to understand the extent of the change they experienced:

- *Increased job satisfaction*: "How much has being involved in *Moana - My Ocean* increased your level of job satisfaction, where 0 = not at all and 9 = a lot?"

- *Increased business / career opportunities*: “How much has being involved in Moana - My Ocean increased your business / career opportunities, where 0 = not at all and 9 = a lot?”
- *Strengthened sense of cultural identity*: “How much has being involved in Moana - My Ocean increased your sense of cultural identity, where 0 = not at all and 9 = a lot?”

The average response to these questions can be seen in Figure 9. Note, nine individuals reported experiencing increased job satisfaction, nine reported experiencing increased business / career opportunities, and four reported experiencing increased cultural identity.

Figure 9. Outcomes experienced by contractors and community partners.



4.5.2 Valuation approach

Because each stakeholder sub-group was interviewed individually, the valuation approaches were tailored specifically to the stakeholders in question. The different valuation methods used are summarised below, however a more detailed description of how the method was used, and the monetary values associated with each method, can be seen in Appendix I.

Job satisfaction was valued using one of three different techniques, depending on the specific circumstance of the stakeholder. The first involved a willingness-to-accept (WTA) question. In this instance, stakeholders were asked how much they would have had to be paid to forgo the Moana work in exchange for an alternative project that would have taken the same time and required the same amount of work but that would not have led to the increased job satisfaction that they experienced from *Moana - My Ocean*. These stakeholders regularly made trade-offs between the monetary and social / environmental benefits of being involved in projects, and so the WTA question was natural for them. Values provided ranged from \$5,000.00 to \$57,447.50 per stakeholder.

The remaining two techniques for valuing job satisfaction involved comparing the job satisfaction stakeholders gained from *Moana - My Ocean* with the job satisfaction they had gained in the past from participation in professional conferences. The cost of these conferences, and the relative impact of *Moana - My Ocean* compared to these conferences, was used to calculate a value for their reported increase in job satisfaction. Values ranged from \$1,297.00 to \$6,667.00 per stakeholder.

Increased business / career opportunities were valued using two methods. The first involved asking stakeholders how much additional revenue they had generated, or were likely to generate as a result of their involvement in *Moana - My Ocean*. The second method involved comparing the career opportunities gained from involvement in *Moana - My Ocean* with the career opportunities that would arise from additional post-graduate study. Values ranged from \$6,047.96 to \$250,000.00 per stakeholder.

Strengthened sense of Māori cultural identity was valued by comparing the impact of *Moana - My Ocean* on stakeholders' cultural identity with the impact of two Māori language courses. The average value for this proxy was \$6,021.00

4.6 Outcomes for museum staff

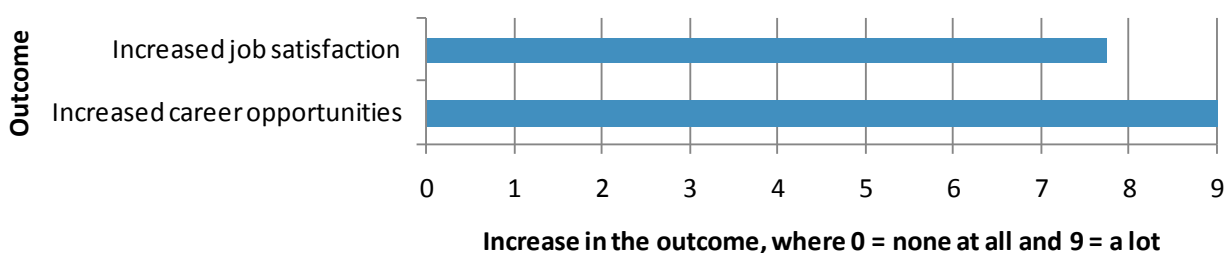
4.6.1 The amount of change experienced

The following questions were asked of staff to understand the extent of the change they experienced:

- *Increased job satisfaction*: "How much has being involved in *Moana - My Ocean* increased your level of job satisfaction, where 0 = not at all and 9 = a lot?"
- *Increased career opportunities*: "How much has being involved in *Moana - My Ocean* increased your career opportunities, where 0 = not at all and 9 = a lot?"

The average response to these questions can be seen in Figure 10. Note, four staff reported experiencing increased job satisfaction and two staff reported increased career opportunities.

Figure 10. Outcomes experienced by museum staff.



4.6.2 Valuation approach

Increased job satisfaction was valued using a WTA question, similar to that used to value contractors and community partners' job satisfaction. The average figure provided by staff was \$32,500.

Increased career opportunities was valued by asking stakeholders how much their maximum possible negotiable salary had increased pre-post *Moana - My Ocean*. Stakeholders were asked

about the change over this time. The average value provided was \$20,000. Note, this was not a measure of how their salaries had actually changed over the period, but rather an indication of how much their ability (opportunity) to advance their career had changed over that period of time. Factors in addition to

The valuation approaches used for Museum staff are described in more detail in Appendix J.

5.0 Understanding impact

A key principle of SROI is to not over claim – we want to claim only the value that an organisation is responsible for creating, its impact. In SROI, 'impact' refers to the value created by an organisation after discounting the contribution of other organisations and external factors to any changes experienced by stakeholders. The way that SROI accounts for the influence of other factors is through deadweight, attribution, displacement, benefit period and drop-off.

Deadweight is a measure of the amount of an outcome that would have happened even if the activity had not taken place, and is calculated as a percentage (e.g., how much enjoyment would visitors have experienced if they had done something else instead of visiting the exhibition, how much would contractors and community partners' business / career opportunities have increased if they had not been involved in *Moana - My Ocean*).

Attribution is an assessment of how much of the outcome was caused by the contribution of other organisations or people, and is calculated as a percentage of the total outcome. In this SROI, the attribution percentage is the proportion of the outcome that is attributable to factors other than *Moana - My Ocean*.

Displacement is an assessment of how much of the outcome displaced other outcomes. In SROI, outcomes that arise at the expense of someone else are discounted through displacement. For example, how much of the increased business / career opportunities experienced by stakeholders occurred as a consequence of displacing business opportunities from other individuals or companies? If increased business opportunities occur at the expense of others, then the outcome will have a high displacement percentage.

Benefit period refers to the duration of the outcome. **Drop-off** applies to outcomes with benefit periods of two or more years, and refers to either the drop-off in the experience of the outcome by stakeholders, or the drop-off in the importance of the original event or activity on the continued experience of the outcome. Note, because of the difficulty of accurately predicting the drop-off rate in future years, this should be considered a best estimate only. In this analysis, when an outcome has a duration of three or more years, the same drop-off percentage is used for each year.

In the following sections, the values for deadweight, attribution, benefit period, drop-off and displacement are presented in tabular form for each outcome.

5.1 Adult and child visitors

A summary of how deadweight, attribution, displacement, benefit period and drop-off were calculated for adult and child visitors is provided below. A full description can be found in Appendix K.

5.1.1 Deadweight

Adult visitors were asked what they would have done if they had not visited the exhibition that day, and how much that activity would have increased their enjoyment, made them want to act in an environmentally sustainable way, and increased their sense of pride in Auckland. Deadweight was calculated for each outcome by dividing the anticipated increase from the alternative activity by the reported increase from *Moana - My Ocean*. For example, for enjoyment, stakeholders predicted they would enjoy their alternative activity, on average, 1.8 on a 0-3 scale. This value was divided by the enjoyment from *Moana - My Ocean* (2.53 on a 0-3 scale) to calculate the deadweight ($1.8/2.53 * 100 = 71\%$).

Because no data were collected on how much child visitors would have experienced their outcomes in relation to an alternative activity, the adult deadweight values were used for children. For increased engagement with learning, an average of all three adult deadweight values was used.

The deadweight values for adults and children ranged from **59%-71%**.

5.1.2 Attribution to other sources

All survey questions instructed visitors to consider only the impacts of the exhibition by asking specifically about the impact of *Moana - My Ocean*. The question wording therefore ensures that the attribution to other sources is low.

Although visitors were asked to focus only on the impacts of *Moana - My Ocean* when answering questions, it is possible that other activities may have influenced the outcomes that they reported. In addition to *Moana - My Ocean*, Auckland Museum ran a number of simultaneous marine-based activities. The other programmes that had a marine focus were:

- 'Expert Sessions' – weekly one-off sessions where experts presented and discussed their work. Although the Expert Sessions series existed prior to this time period, during the *Moana - My Ocean* exhibition all sessions had a marine focus (total attendees = 402).
- An e-Learning programme for schools, where teachers could access the *Moana - My Ocean* exhibition content for use in student research projects. Students were encouraged to submit their projects to the museum. These were subsequently evaluated by marine scientists and 13 students were invited to present their work at the Museum. All presentations were judged by marine experts and each student received individual feedback (the total number of students who accessed the exhibition content is unknown).
- A New Zealand Marine Life iPhone, iPod Touch and iPad app, which provided a digital field guide to New Zealand's diverse marine life (total downloads = 2,699).
- A one hour 'Wonders of the Sea' education programme for school classes that introduced students to some of the marine life displayed in *Moana - My Ocean* (total participants = 534 school students).

- ‘LATEs’ – After-hours events that featured discussion on contemporary themes, with bands and DJs performing in the Museum’s galleries. One LATE session had a marine focus (total attendees = 341).

Investigating the number of individuals who attended these events or programmes showed that the impact of these events / programmes on outcomes reported by exhibition visitors is likely to have been negligible. The relatively low number of attendees at these alternative events / programmes compared to the number of visitors to *Moana - My Ocean* means that these events are likely to have had no meaningful impact on the outcomes observed in relation to the exhibition.

If we assume that half of all attendees at alternative events did so prior to attending the exhibition (which would be necessary to influence the *Moana - My Ocean* survey responses), this reflects a total of 1988 individuals who attended both *Moana - My Ocean* and an alternative, marine-based event. This number represents only 1.4% of exhibition visitors. Assuming further (conservatively), that attribution to these events is 50% for each individual, the total attribution value used in the SROI calculations would be less than 1%.

There are no indications that other activities external to the museum impacted the outcomes visitors reported.

The combination of the survey wording in relation to the specific impacts of *Moana - My Ocean*, and the likely negligible impact of other activities means that 0% is attributed to other sources.

The description above focuses on attribution as it is commonly described in SROI: understanding the influence of other activities on observed outcomes. In this analysis, we have broadened the nature of attribution by attempting to account for the statistical overlap between outcomes. A statistical overlap between outcomes reflects the fact that, despite distinct pathways within the theory of change, the way that visitors engaged with the exhibition content means that the outcomes that they experience are likely to be related to some degree. For example, the enjoyment that adult visitors experience is likely influenced to some degree by their increased sense of connection to the marine environment. Similarly, the enjoyment experienced by some children is likely to be affected by their feelings of increased engagement with learning. Discounting for this overlap prevents us from double counting.

In this analysis we have accounted for the possible overlap between outcomes by drawing on statistical analysis techniques that are commonly used in the analysis of survey data. Specifically, we conducted regressions where, for adults and children separately, we regressed a given outcome onto the two remaining outcomes (e.g., regressed ‘enjoyment’ onto ‘connection to the environment’ and ‘pride’). Conducting these regressions allowed us to calculate the correlation between a given outcome and the two remaining variables. Squaring this correlation allows an estimate of what percentage of an outcome overlaps with the other outcomes.

In order to discount for any overlap between outcomes – and in light of otherwise 0% attribution values – we have used the squared correlation (R^2) values described above in the attribution field. For adults, the ‘attribution’ values used ranged from **12%-29%**. For children, the attribution values ranged from **36%-44%**.

5.1.3 Displacement

Because the outcomes experienced by both adult and child visitors were personal in nature, none are likely to impact negatively on the outcomes experienced by other people. For this reason a **0%** displacement was applied to all outcomes.

5.1.4 Benefit period and drop-off

Adult visitors were asked how long they thought each outcome would last. The average value, in years, was used as the benefit-period. Stakeholder engagement and survey piloting revealed that the enjoyment outcome did not last significantly beyond the visit to the museum, and therefore a duration question was not asked in relation to this outcome and a maximum duration of 1 year was applied.

Because no data were collected on how long the outcomes were predicted to last for child visitors, the adult values were used for children. For increased engagement with learning, an average of all three benefit periods was used.

The benefit periods for adults and children ranged from **1-3 years**.

Visitors were not asked about the rate of drop-off, so a simple rule of 100 per cent divided by the benefit period in years was applied (e.g., benefit period of 3 years = 33% drop-off per year). The drop-off values ranged from **33%-100%**.

5.2 The environment

A summary of how deadweight, attribution, displacement, benefit period and drop-off were calculated for the environmental impacts of the exhibition is provided below. A full description can be found in Appendix M.

5.2.1 Deadweight

Adult visitors were asked in the survey what they would have done with their time if they had not visited the exhibition. Approximately 20 per cent of respondents listed an activity related to the environment (e.g., going to the beach, walking in a park). For this reason, a deadweight value of

20% was applied. This is likely a conservative estimate, as many of these 20 per cent would not have engaged with the environment as deeply as they did in the exhibition.

5.2.2 Attribution to other sources

Estimates of the impact of *Moana - My Ocean* were based on visitor data, which measured only the unique effects of the exhibition on people's attitudes and behavioural intentions toward marine conservation. For this reason, an attribution value of **0%** was applied.

5.2.3 Displacement

Because an increased public awareness of the environmental challenges faced by the marine environment is unlikely to displace awareness of other issues / causes, a displacement of **0%** was applied.

5.2.4 Benefit period and drop-off

Engagement with a marine conservation expert indicated that the relative importance of *Moana - My Ocean* for environmental outcomes is likely to decrease over the **1 year** following the exhibition. A drop-off of **100%** was therefore applied.

5.3 Contractors and community partners

A summary of how deadweight, attribution, displacement, benefit period and drop-off were calculated for the outcomes experienced by contractors and community partners is provided below. A full description can be found in Appendix M.

5.3.1 Deadweight

Each stakeholder was asked what they would have done if they hadn't been involved in the development of *Moana - My Ocean*. As with visitors, deadweight was calculated for each outcome by dividing the anticipated increase from the alternative activity by the reported increase from *Moana - My Ocean*. Deadweight values ranged from **0%-33%**.

5.3.2 Attribution to other sources

Most questions were phrased in such a way as to measure only the effects of *Moana - My Ocean*. However, where it was possible that other factors may have influenced the outcomes experienced by stakeholders (such as with increased business / career opportunities), each stakeholder was

asked whether any other factors contributed to the increased outcome. Attribution values therefore ranged from **0%-40%**.

5.3.3 Displacement

Increased job satisfaction and strengthened cultural identity had a 0 per cent displacement for all stakeholders. Increased business / career opportunities were likely to come at the expense of some other individuals' business / career opportunities, however. In these cases, stakeholders were asked how much of the increased business / career opportunities identified were likely to displace the business / career advancement of other people. Displacement values ranged from **0%-70%**.

5.3.4 Benefit period and drop-off

Each stakeholder was asked how long the outcome(s) experienced were likely to last. Benefit period estimates ranged from 1-15 years, however, in order to be conservative, the maximum benefit period was considered to be 5 years. The benefit periods therefore ranged from **1-5 years**.

The drop-off values ranged from **20%-100%** per year.

5.4 Museum staff

A summary of how deadweight, attribution, displacement, benefit period and drop-off were calculated for the outcomes experienced by museum staff is provided below. A full description can be found in Appendix N.

5.4.1 Deadweight

Each stakeholder was asked what they would have done if they hadn't been involved in the development of *Moana - My Ocean*. Deadweight was calculated for each outcome by dividing the anticipated increase from the alternative activity by the reported increase from *Moana - My Ocean*. Deadweight values ranged from **27%-45%**.

5.4.2 Attribution to other sources

Questions relating to increased job satisfaction were phrased in such a way as to measure only the effects of *Moana - My Ocean*. Stakeholders were asked whether any other factors contributed to their increased career opportunities. Attribution values ranged from **0%-36%**.

5.4.3 Displacement

Both increased job satisfaction and increased career opportunities had a **0%** displacement. An increase in personal job satisfaction is unlikely to displace the job satisfaction of anyone else, and the career opportunities identified by the stakeholders were about finding meaningful employment in the field of their choosing, being recognised for their talents and being able to demand a higher salary. For this reason, the increased career opportunities are unlikely to displace the opportunities of others (i.e., the opportunities do not involve direct competition with others for available jobs).

5.4.4 Benefit period and drop-off

Each stakeholder was asked how long the outcome(s) they experienced were likely to last. Benefit period estimates ranged from **2-5 years**.

The drop-off values ranged from **25%-75%** per year.

5.5 Completed Impact map

Table 6. Stakeholder impact map.

Stakeholder	The Outcomes (what changes)		Proxy used	Quantity of change			Duration	Value \$
	Description	Indicator of change		How was the outcome valued?	Number of stakeholders included in valuation calculations	Outcome multiple (refer to valuation method description)		
Who will we have an effect on? Who will have an effect on us?	How would we describe the change?	How was the outcome measured?	How was the outcome valued?	Number of stakeholders included in valuation calculations	Outcome multiple (refer to valuation method description)	Outcome incidence	How many years will it last?	What is the value of the change?
Adult visitors	Enjoyment	"How much enjoyment did you get out of coming to Moana - My Ocean?"	The Value Game: A comparison with other activities	89,300	1	89300	1	\$ 34.20
	Development / reinforcement of a personal sense of connection to the marine environment.	"How much do you think visiting Moana - My Ocean has increased your motivation to act in a more environmentally sustainable way?"	Average annual increase in money that visitors are willing to donate to a marine conservation group	89,300	1	89300	3	\$ 34.80
	Increased sense of pride in Auckland	"How much has visiting Moana - My Ocean made you feel more proud of Auckland?"	Cost of an Auckland dolphin and whale safari in the Hauraki Gulf	52,100	2.04	106284	2	\$ 53.30
Child visitors	Enjoyment	Adults were asked: "How much enjoyment do you think [your child] got out of coming to Moana - My Ocean?"	Comparison with enjoyment value reported by adults	50,900	1	50900	1	\$ 31.50
	Increased engagement with learning	Adults were asked: "How much do you think visiting Moana - My Ocean will have increased [your child's] engagement with learning?"	Cost of an academic tutoring session	50,900	2	101800	2	\$ 14.40
	Increased sense of pride in Auckland	Adults were asked: "How much do you think visiting Moana - My Ocean has made [your child] feel more proud of Auckland?"	Cost of an Auckland dolphin and whale safari in the Hauraki Gulf	29,700	1.3	38610	2	\$ 35.00
The environment	Increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes	Relative effectiveness of an alternative marine environment public awareness-raising campaign	Relative effectiveness of an alternative marine environment public awareness-raising campaign	1	10	10	1	\$ 199,622.49
Contractor / community partner 1	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Willingness-to-accept (WTA) question	2	1	2	2	\$ 57,447.50
	Increased business / career opportunities	"How much has being involved in Moana - My Ocean increased your business / career opportunities?"	Estimated increased revenue	2	1	2	1	\$ 75,000.00
Contractor / community partner 2	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Willingness-to-accept (WTA) question	2	1	2	1	\$ 37,500.00
	Increased business / career opportunities	"How much has being involved in Moana - My Ocean increased your business / career opportunities?"	Estimated increased revenue	2	1	2	1	\$ 250,000.00
Contractor / community partner 3	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Willingness-to-accept (WTA) question	1	1	1	2	\$ 16,500.00
	Increased business / career opportunities	"How much has being involved in Moana - My Ocean increased your business / career opportunities?"	Estimated increased revenue	1	1	1	1	\$ 77,000.00
Contractor / community partner 4	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Willingness-to-accept (WTA) question	1	1	1	2	\$ 5,000.00
Contractor / community partner 5	Strengthened sense of cultural identity	"How much has being involved in Moana - My Ocean increased your sense of cultural identity?"	Cost of Te Reo Māori (Māori language) courses	4	3	12	5	\$ 2,007.00
	Increased business / career opportunities	"How much has being involved in Moana - My Ocean increased your business / career opportunities?"	Cost of postgraduate university study	4	0.94	3.76	2	\$ 6,434.00
Contractor / community partner 6	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Cost of a professional conference	1	1	1	5	\$ 6,667.00
Contractor / community partner 7	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Cost of a professional conference	1	2	2	4	\$ 648.50
Contractor / community partner 8	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Cost of a professional conference	1	2	2	2	\$ 648.50
Museum staff	Increased job satisfaction	"How much has being involved in Moana - My Ocean increased your level of job satisfaction?"	Willingness-to-accept (WTA) question	4	1	4	2	\$ 32,500.00
	Increased career opportunities	"How much has being involved in Moana - My Ocean increased your career opportunities?"	Estimated increase in negotiable salary	2	1	2	5	\$ 20,000.00

Stakeholder impact map (cont.).

Stakeholders			Deadweight %	Displacement %	Attribution %	Drop off %	Impact	Calculating Social Return						
	Who will we have an effect on? Who will have an effect on us?	Outcome incidence						Value \$ What is the value of the change?	What would have happened without the activity?	What activity would we displace?	Who else would contribute to the change?	Will the outcome drop off in future years?	Quantity times financial proxy, less deadweight, displacement and attribution	Discount rate
Adult visitors		89300	\$ 34.20	71%	0%	12%	100%	\$ 779,396.11	\$ 779,396.11	\$ -	\$ -	\$ -	\$ -	\$ -
		89300	\$ 34.80	64%	0%	29%	33%	\$ 794,312.78	\$ 794,312.78	\$ 532,189.57	\$ 356,567.01	\$ -	\$ -	\$ -
		106284	\$ 53.30	59%	0%	24%	50%	\$1,765,194.43	\$ 1,765,194.43	\$ 882,597.22	\$ -	\$ -	\$ -	\$ -
Child visitors		50900	\$ 31.50	71%	0%	37%	100%	\$ 292,932.05	\$ 292,932.05	\$ -	\$ -	\$ -	\$ -	\$ -
		101800	\$ 14.40	65%	0%	44%	50%	\$ 287,320.32	\$ 287,320.32	\$ 143,660.16	\$ -	\$ -	\$ -	\$ -
		38610	\$ 35.00	59%	0%	36%	50%	\$ 354,594.24	\$ 354,594.24	\$ 177,297.12	\$ -	\$ -	\$ -	\$ -
The environment		10	\$199,622.49	20%	0%	0%	100%	\$1,596,979.92	\$1,596,979.92	\$ -	\$ -	\$ -	\$ -	\$ -
Contractor / community partner 1		2	\$ 57,447.50	0%	0%	0%	65%	\$ 114,895.00	\$ 114,895.00	\$ 40,213.25	\$ -	\$ -	\$ -	\$ -
		2	\$ 75,000.00	83%	70%	90%	100%	\$ 765.00	\$ 765.00	\$ -	\$ -	\$ -	\$ -	\$ -
Contractor / community partner 2		2	\$ 37,500.00	13%	0%	0%	100%	\$ 65,250.00	\$ 65,250.00	\$ -	\$ -	\$ -	\$ -	\$ -
		2	\$250,000.00	17%	60%	0%	100%	\$ 166,000.00	\$ 166,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
Contractor / community partner 3		1	\$ 16,500.00	29%	0%	0%	50%	\$ 11,715.00	\$ 11,715.00	\$ 5,857.50	\$ -	\$ -	\$ -	\$ -
		1	\$ 77,000.00	33%	23%	40%	100%	\$ 24,022.55	\$ 24,022.55	\$ -	\$ -	\$ -	\$ -	\$ -
Contractor / community partner 4		1	\$ 5,000.00	17%	0%	0%	50%	\$ 4,150.00	\$ 4,150.00	\$ 2,075.00	\$ -	\$ -	\$ -	\$ -
Contractor / community partner 5		12	\$ 2,007.00	29%	0%	0%	20%	\$ 17,099.64	\$ 17,099.64	\$ 13,679.71	\$ 10,943.77	\$ 8,755.02	\$ 7,004.01	
		3.76	\$ 6,434.00	25%	0%	0%	50%	\$ 18,143.88	\$ 18,143.88	\$ 9,071.94	\$ -	\$ -	\$ -	
Contractor / community partner 6		1	\$ 6,667.00	25%	0%	0%	20%	\$ 5,000.25	\$ 5,000.25	\$ 4,000.20	\$ 3,200.16	\$ 2,560.13	\$ 2,048.10	
Contractor / community partner 7		2	\$ 648.50	20%	0%	0%	25%	\$ 1,037.60	\$ 1,037.60	\$ 778.20	\$ 583.65	\$ 437.74	\$ -	
Contractor / community partner 8		2	\$ 648.50	0%	0%	0%	50%	\$ 1,297.00	\$ 1,297.00	\$ 648.50	\$ -	\$ -	\$ -	
Museum staff		4	\$ 32,500.00	45%	0%	0%	75%	\$ 71,500.00	\$ 71,500.00	\$ 17,875.00	\$ -	\$ -	\$ -	
		2	\$20,000.00	30%	0%	38%	25%	\$ 17,360.00	\$ 17,360.00	\$ 13,020.00	\$ 9,765.00	\$ 7,323.75	\$ 5,492.81	
Total							\$6,388,965.77	\$ 6,388,965.77	\$ 1,842,963.36	\$ 381,059.59	\$ 19,076.63	\$ 14,544.93		

Present value of each year (after discounting)	\$ 6,388,965.77	\$1,772,080.16	\$ 352,311.01	\$ 16,959.06	\$ 12,433.06
Total Present Value (PV)					\$ 8,542,749.06
Total investment					\$ 1,834,801.41
Net Present Value (PV minus the investment)					\$ 6,707,947.65
Social Return \$ per \$ invested					\$ 4.66

6.0 Inventory and audit trail

This section describes decisions relating to the exclusion of stakeholders, outcomes and indicators within this analysis.

6.1 Excluded stakeholders

The following stakeholders were initially considered but were not included in the analysis because they were unlikely to be materially affected by the exhibition.

Table 7. Stakeholders excluded from the analysis.

Excluded stakeholders	Reason for exclusion
Local businesses	Auckland Museum is located in the Auckland Domain, some distance from local businesses. The exhibition is unlikely to have significantly increased foot traffic near these businesses. The content (Auckland specific) and target audience (Auckland families) were considered unlikely to have resulted in increased tourist activity
Museum Café	A comparison of Museum visitor counts indicated that the number of visitors to the Museum (and thus the café) during <i>Moana - My Ocean</i> was not sufficiently different from other large exhibitions to warrant inclusion
Family and friends of exhibition visitors	Although the changes that visitors experience may impact others in their family or circle of friends, the likely effects on others were considered too small and difficult to measure to warrant inclusion

In addition to the stakeholder groups listed above, Table 3 outlines how, during stakeholder interviews, five individual contractors and community partners were deemed non-material and were subsequently excluded from the analysis. Because other contractors and community partners were materially affected by the exhibition, the stakeholder group as a whole remained included in the analysis.

Furthermore, only a select group of Museum staff were considered materially affected. The majority of staff members were therefore excluded from the analysis, however the group remains listed as included in the analysis.

6.2 Excluded outcomes

The following outcomes were initially included in the impact map and were valued, but they did not pass a materiality test:

- Adults experience strengthened relationships with friends and/or family as a result of spending positive time together
- Children experience strengthened relationships with friends and/or family as a result of spending positive time together

The outcomes above were excluded because deadweight calculations revealed that deadweight values were 100% for both outcomes.

6.3 Missing indicators or proxies

Indicators and proxies were developed for all outcomes. No indicators or proxies are missing.

7.0 Calculating the SROI

This section brings together pieces of the analysis reported in earlier sections to summarise the value created for each stakeholder group and present the SROI ratio calculations. The results from a sensitivity analysis, which tests how robust the analysis is to changes in assumptions in the model, are also presented.

7.1 Present Value

Not all outcomes last the same length of time. For outcomes that last longer than a year, a discount rate of 4 per cent per year has been applied to the value of future outcomes (Auckland Council, 2013). Discount rates are applied to reflect the fact money today has a higher value than money in the future (due to the ability to earn interest on money over time). Applying a discount rate to value that occurs in the future allows future benefits to be compared to the investment in the exhibition.

The calculation of the total value of *Moana - My Ocean*, after discounting value that occurs in the future, is called Present Value (PV).

Table 8 provides a summary of the total value created for each stakeholder and outcome. A significant amount of value is associated with all outcomes. On an individual outcome basis the most value was created for adults' pride in Auckland (\$2,613,846), adults' increased sense of connection to the marine environment (\$1,635,700), and increased public awareness of environmental marine issues, leading to behaviour change that is likely to support improved environmental outcomes (\$1,596,980).

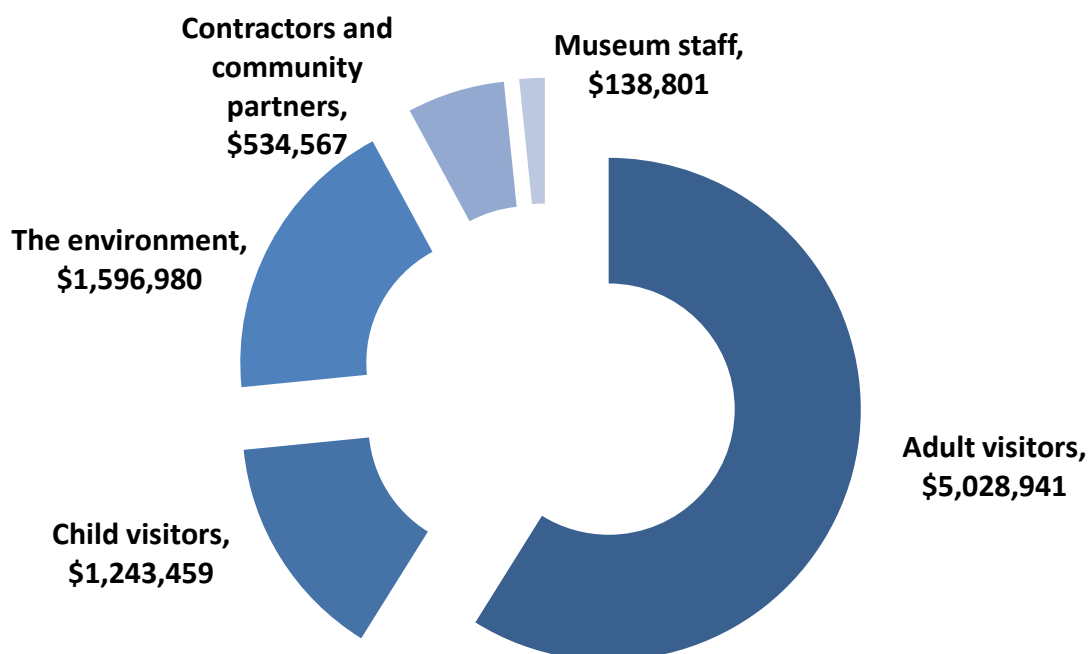
The lowest value was created for strengthened sense of cultural identity amongst contractors and community partners (\$54,142), increased job satisfaction for Museum staff (\$88,688), and increased career opportunities for Museum staff (\$50,114), primarily because these outcomes were experienced by only a small number of stakeholders.

Table 8. Summary of total present value created for each outcome.

		Total value	Present value
Adult visitors	Enjoyment	\$ 779,396.11	\$ 779,396.11
	Development / reinforcement of a personal sense of connection to the marine environment	\$ 1,683,069.36	\$ 1,635,699.76
	Increased sense of pride in Auckland	\$ 2,647,791.65	\$ 2,613,845.60
Child visitors	Enjoyment	\$ 292,932.05	\$ 292,932.05
	Increased engagement with learning	\$ 430,980.48	\$ 425,455.09
	Increased sense of pride in Auckland	\$ 531,891.36	\$ 525,072.24
The environment	Increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes	\$ 1,596,979.92	\$ 1,596,979.92
Contractors and community partners	Increased job satisfaction	\$ 265,747.28	\$ 262,771.18
	Increased business / career opportunities	\$ 218,003.37	\$ 217,654.44
	Strengthened sense of cultural identity	\$ 57,482.15	\$ 54,141.58
Museum staff	Increased job satisfaction	\$ 89,375.00	\$ 88,687.50
	Increased career opportunities	\$ 52,961.56	\$ 50,113.59
Total		\$ 8,646,610.28	\$ 8,542,749.06

A summary of the aggregate value created for each stakeholder group is presented in Figure 11 and Table 9. The majority (73%) of the value created by *Moana - My Ocean* was for visitors. A total of \$5,028,941 worth of social value was created for adult visitors and \$1,243,459 for children. A lower, but nevertheless significant amount of value was created for the environment (\$1,596,980), contractors and community partners (\$534,567) and Museum staff (\$138,801).

Figure 11. Value created for each stakeholder group.



On a per stakeholder basis, each adult visitor experienced, on average, \$56 worth of social value, whereas each child visitor experienced the equivalent of \$24 of social value. Although less value was created for contractors and community partners and Museum staff overall, on a per stakeholder basis, these stakeholder groups experienced significantly more value than visitors. Each contractor and community partner experienced, on average, \$41,000 worth of social and economic value (above what they got paid for their contribution to the exhibition), and Museum staff experienced \$35,000 worth of value.

7.2 SROI ratio

Table 9 shows that, in total, *Moana - My Ocean* created approximately \$8.5 million worth of social, environmental and economic value. Comparing the total value with that of the inputs (\$1.83 million), shows that the SROI ratio for the *Moana - My Ocean* exhibition was \$4.66:\$1. This ratio shows that for every dollar invested into the exhibition, \$4.66 of social, environmental and economic value was created, and that, therefore, the exhibition provided a positive return on investment.

Table 9. SROI ratio.

	Total value		Present value*	
Adult visitors	\$	5,110,257.12	\$	5,028,941
Child visitors	\$	1,255,803.89	\$	1,243,459
The environment	\$	1,596,979.92	\$	1,596,980
Contractors and community partners	\$	541,232.79	\$	534,567.20
Museum staff	\$	142,336.56	\$	138,801
Total	\$	8,646,610.28	\$	8,542,749.06
		Total value of inputs	\$	1,834,801.41
		Value minus inputs	\$	6,707,947.65
		SROI ratio	\$4.66:\$1	

* Annual discount rate = 4%

7.3 Sensitivity analysis

Because the calculations outlined above are estimates of the true social, environmental and economic value created by the *Moana - My Ocean* exhibition, it is necessary to conduct a sensitivity analysis to test the robustness of the results. A sensitivity analysis involves adjusting assumptions in the model and evaluating how extreme these adjustments have to be before the outcome of the analysis is significantly altered.

A number of sensitivity tests were carried out to test key assumptions. Because the majority of value was created for visitors, and because the outcomes for visitors were predictive in nature, we considered it most important to focus on testing for sensitivity around visitors.

In particular, because visitors estimated the change they would experience immediately following exiting the exhibition, we tested for the possibility that visitors overestimated the impacts of the exhibition. Table 10 shows the results of three tests. The first tests the impact on the SROI ratio if the exhibition had only half the impact as was reported by visitors. Halving the impact on both adult and child visitors results in a ratio of \$2.95:\$1.00. If we reduce the impact to one-third of the impact reported by visitors, the ratio decreases to \$2.37:\$1.00. If we assume, in the extreme, that the exhibition had only one-tenth of the impact that visitors reported, the ratio is reduced to \$1.58:\$1.00. Even in the most extreme of these tests the exhibition produced a positive return on investment.

Table 10. Sensitivity analysis of visitor outcomes.

	Value	Altered value	Impact on ratio	Comment
Impact of visitors overestimating the impact of the exhibition (on all outcomes)				
Effect of one half the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 3,183,031	2.95	The altered value represents the SROI ratio if the impact of the exhibition is only one half of that reported by visitors (i.e., only one half of the reported change occurs for all visitor outcomes).
Effect of one third the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 2,110,035	2.37	The altered value represents the SROI ratio if the impact of the exhibition is only one third of that reported by visitors (i.e., only one third of the reported change occurs for all visitor outcomes).
Effect of one tenth the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 636,606	1.58	The altered value represents the SROI ratio if the impact of the exhibition is only one tenth of that reported by visitors (i.e., only one tenth of the reported change occurs for all visitor outcomes).

In addition to testing for the possibility that visitors overestimated the impacts of the exhibition, we also tested the effects of dropping individual outcomes completely. By evaluating the effect of dropping an outcome, we are by default testing for extremes in factors such as deadweight, attribution and displacement, as well as providing a test for the impact of alternative proxies that have a lower value than those used.

As a result of systematically excluding outcomes, the SROI ratio ranged between \$3.23:\$1.00 and \$4.63:\$1.00. The most sensitive outcome was adult visitors' increased pride. This means that adjustments of factors such as deadweight, attribution, displacement and proxy values to their extreme is unlikely to shift the ratio below \$3.23:\$1.00.

The tests also showed that the exhibition development costs would have had to be more than four times as great before the SROI ratio was reduced to \$1 benefit for every \$1 invested.

All sensitivity tests are documented in Appendix O. Collectively, these tests show that the findings are robust to manipulation of all analysis assumptions.

8.0 Conclusions and Recommendations

8.1 Key findings

This SROI analysis provides strong evidence that Auckland Museum's *Moana - My Ocean* exhibition created significant social, environmental and economic value, for a wide range of stakeholders.

The value created by *Moana - My Ocean* exceeded the investment into the development of the exhibition, such that for every \$1 invested, \$4.66 of social, environmental and economic value was created. The exhibition was therefore a positive investment for Auckland Museum, and the city of Auckland.

The majority of the value created by the exhibition was experienced by visitors. Although each visitor was impacted only moderately, the sheer number of visitors (140,200) resulted in a significant collective impact. The primary driver of the value created for visitors came from the increased pride and strengthened sense of connection to the marine environment outcomes. Unlike enjoyment, these outcomes would have been difficult for visitors to obtain elsewhere. The unique aspects of the exhibition drove much of the value created.

In contrast to visitors, the number of contractors and community partners and museum staff affected by the exhibition was small, but the size of the impact for each stakeholder was large. This indicates that the experience of contributing to a project of this size and nature has the potential to be particularly powerful for stakeholders.

As mentioned in Section 1.4, *Moana - My Ocean* signalled a new way of working for Auckland Museum, in terms of a shift toward a greater level of sophistication in developing major content in-house. A significant amount of staff time allocated to the project was spent developing new skills and procedures considered by the Museum to be an important investment in its future. This SROI analysis suggests that this investment in the future capacity of museum staff is justified.

8.2 Opportunities for increasing impact

Although this analysis gives evidence that a significant amount of value was generated by *Moana - My Ocean* it also identifies a number of ways that Auckland Museum might increase the impact of future projects. These include:

- **Increase visitor numbers, visitor engagement with content, or both.** Although increasing the number of visitors and their engagement with content is already central to the Museum, this analysis further highlights that these are the primary drivers for the value that an exhibition creates.
- **Develop unique content and experiences that visitors cannot get elsewhere.** Although visitors reported more enjoyment than other outcomes, the majority of value created by the

exhibition came from the outcomes of pride and a sense of connection with the marine environment. This occurred because stakeholder enjoyment was easily obtainable elsewhere and thus had a high deadweight value. Aspects of the exhibition that led to pride and connection with the environment however, were unique and novel. It would have been difficult for stakeholders to have had a similar experience elsewhere.

- **Further enhance the experience of contributing contractors and community partners.** The value that stakeholders involved in the development of the exhibition experienced – above what they were paid for their involvement – was significant. However, some contractors and community partners found the administrative side of their relationship with the Museum to be arduous. While these issues did not significantly detract from the stakeholder outcomes, there is significant potential to increase value by improving the collaboration experience. Streamlining administrative processes and further increasing the involvement of stakeholders in the development process are two possibilities for achieving this outcome.
- **Focus on widening the demographic profile of the audience.** Visitor survey data indicated that Samoan, Cook Island Māori, Tongan, Chinese and Indian visitors were under-represented relative to the Auckland population. Although already central to the Museum’s activities, this study highlights the continued need to consider how Auckland Museum exhibitions and wider projects can be made more appealing and accessible to diverse ethnic groups. Involving communities in the development of exhibition content (as the Museum plans to do more) may be one way to increase this connection and engagement with the Museum.
- **Continue measuring the outcomes that stakeholders experience**, in order to understand where value is being created or destroyed. Use these findings to improve the delivery of future experiences by focusing activities where most value can be created.

8.3 Project implications

This is one of the first SROI analyses to investigate the impacts of a large science, arts and cultural institution. The analysis provides strong evidence that Auckland Museum’s *Moana - My Ocean* exhibition created significant social, environmental and economic value and provided a net positive return on investment.

This analysis provides Auckland Museum management and staff with robust evidence to guide decision making going forward and a compelling story to tell funders, supporters and critics alike. Although specific to the *Moana - My Ocean* exhibition, the project is significant in that it shows the *type* and *extent* of value that can be created, when high quality content is developed.

In light of the increasing pressure on many arts and cultural organisations to prove their worth and justify their existence, this demonstration of value is also of importance to the wider arts and cultural sectors. The findings provide a relevant local example of the type of value that can be

created when high-quality content is developed, and how that compares to the monetary investment required.

For funders, the findings demonstrate the significant value that can be created by investing in the sector. The analysis also provides an example of the level and quality of insight possible when a high-quality evaluation accompanies a project of this nature. Funders may consider encouraging institutions to conduct in-depth evaluation of their projects. Because high-quality evaluation can be time consuming and expensive, however, it would also be important for funders to provide additional budget for such undertakings.

For central and local government organisations, the findings not only speak provide strong evidence that arts and cultural, and science-related activities have impacts beyond just the sector. Evidence from this analysis, for example, suggests that high-quality outputs in the sector can impact on the quality of urban living (through enjoyment and increased pride in Auckland), the health of the marine environment (through changes in conservation behaviour), the prospects of Auckland's children (through increased engagement with learning), and Māori social wellbeing (by providing an avenue for local iwi to share their history and stories). All of these have been identified by the Auckland Plan (Auckland Council, 2012) as key areas for transformation over the next 30 years.

Other organisations considering conducting an SROI should reflect on their reasons for doing so, as well as their organisational capacity to conduct such an analysis. These are important considerations because an SROI is a time-consuming, technically advanced methodology that is likely to require external expertise.

Organisations should ask themselves whether they wish to use the SROI to prove their value, improve their practice, or both. SROIs unique value lies in its ability to challenge traditional notions of value and organisational success away from purely financial measures, toward a broader consideration of the social and environmental – as well as economic – value that is created by an organisation's activities. If the organisation wishes to engage in such a conversation, particularly with regard to funding advocacy, then an SROI analysis is a useful foundation from which to begin such discussions

If the primary objective of the organisation is to use the findings internally – to understand how and for whom the organisation is creating value, and to identify areas for service improvement – then SROI is well placed to provide this information also. However, if resourcing does not allow for a full, formal SROI analysis, an organisation can gain much of this knowledge by conducting an evaluation (sans valuation stage) that follows many of the SROI principles (e.g., is guided by stakeholders and accounts for the impact of factors such as deadweight, attribution etc.).

Organisations that invest the time and energy into conducting high-quality evaluations are likely to experience significant benefits, such as improved organisational performance and content delivery, as well as strengthened advocacy.

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Appendix A Interview guide: exhibition visitors

Children

1. How did you feel about the exhibition?
2. What has been the best thing about coming to the exhibition today?
3. And was there anything you didn't like?
4. Did you learn anything new today?
 - a. If so, can you tell me about that?

[The following questions were asked if age appropriate]:

5. Do you think you'll change anything in your life because of what you've seen here today?
 - a. If yes, can you tell me about that?

Adults

1. What has been the best thing about coming to the exhibition today?
2. Was there anything you didn't like?
3. What impact (if any) do you think the exhibition has had on you?
4. Do you intend to do anything differently in your life now that you've been through the exhibition?
5. Has the exhibition reinforced anything for you (attitudes, beliefs, behaviours)? Has it challenged anything?
6. What, if anything, has changed for you as a result of the exhibition?

[The following questions were asked if appropriate, and time allowed]:

7. What other kinds of experiences might have led to similar changes?
8. Do you think anyone else in your life will be affected as a result of your visit today?
9. Has anyone or anything else contributed to the changes you're describing?
10. You have talked about [list changes]...how long do you think these changes are likely to last?
11. How important are these changes, do you think?

If appropriate also ask:

- a. Can you compare them to something else that has about the same importance for you?
- b. Can you put these changes in a priority order of how important they are to you?
Which are worth most?

[If adults visited with children, they were asked about the experience of their children]:

1. What impact do you think the exhibition is likely to have on them?
2. What, if anything, might change for them as a result of the exhibition?
3. Do you think they're likely to do anything differently now that they've been through the exhibition?

Appendix B Contractor and community partner interview guide

1. How has [organisation] been involved in the Moana - My Ocean exhibition?
2. How many people in [organisation] have been involved in the exhibition?
3. What have each of them contributed?
4. And what have you contributed?
5. What has been the best thing about being involved in the exhibition?
6. What changes (if any) have you and or your organisation experienced as a consequence of your involvement in Moana?
7. And are there any changes that you think you or your organisation might experience in the future?
8. Are you or your organisation doing anything differently as a result of your involvement? Is there any intention to do anything else?
9. *[If changes have occurred]* Have all the changes been expected or has there been something that you didn't expect?
10. *[If changes didn't occur]* Why do you think you didn't experience any changes?
11. Have you or anyone in your organisation had to give up anything to contribute to the exhibition?
12. What would have happened to you or your organisation if you hadn't taken part?
13. Do you think you would have found a similar opportunity later?
14. Who or what else might provide the kinds of benefits or changes that Moana has led to for you?
15. How long do you think the changes you've identified will last?
16. Did anyone else contribute to the experience/change?
17. Can you put these changes in a priority order of how important they are to you? Which are worth most/least to you?

Appendix C Museum staff interview guide

1. How have you been involved in the Moana - My Ocean exhibition?
2. What has been the best thing about being involved in the exhibition?
3. What changes (if any) have you experienced as a consequence of your involvement in Moana?
4. And are there any changes that you think you might experience in the future as a result of your involvement?
5. Are you or the museum now doing anything differently as a result of your involvement? Is there any intention to do anything else?
6. *[If changes have occurred]* Have all the changes been expected or has there been something that you didn't expect?
7. Have you or anyone in your organisation had to give up anything to contribute to the exhibition?
8. What else might provide the kinds of benefits or changes that Moana has led to for you?
9. Who else in the museum do you think has been strongly affected by their involvement in the exhibition?

Appendix D Adult visitor survey



We would love to hear about your visit to Auckland Museum's Moana - My Ocean exhibition. Your feedback will help Auckland Museum better understand its visitors and improve its future exhibitions.

Complete the questionnaire and go in to win one of **three \$100 Westfield vouchers**.

You are under no obligation to fill out this survey. This questionnaire takes approximately 5-10 minutes to complete. Your feedback is greatly appreciated!

What was your favourite part of the exhibition?

How much enjoyment did you get out of coming to Moana - My Ocean?

None at all

A little bit

A moderate amount

A lot

Would you say that Moana - My Ocean is more or less **enjoyable** than the following?

	Moana - My Ocean is more enjoyable than:	Moana - My Ocean is less enjoyable than:
The movies	<input type="checkbox"/>	<input type="checkbox"/>
Rainbow's End	<input type="checkbox"/>	<input type="checkbox"/>
A theatre show	<input type="checkbox"/>	<input type="checkbox"/>
A concert	<input type="checkbox"/>	<input type="checkbox"/>
Kelly Tarlton's Aquarium	<input type="checkbox"/>	<input type="checkbox"/>
Auckland Art Gallery exhibition	<input type="checkbox"/>	<input type="checkbox"/>
Ten pin bowling	<input type="checkbox"/>	<input type="checkbox"/>
Watching an All Blacks game in person	<input type="checkbox"/>	<input type="checkbox"/>
Snowplanet skiing / snowboarding	<input type="checkbox"/>	<input type="checkbox"/>
Wave pool	<input type="checkbox"/>	<input type="checkbox"/>

How much do you think visiting Moana - My Ocean has increased your motivation to act in a more environmentally sustainable way?

Not at all

A little bit

A moderate amount

A lot

If you think visiting Moana - My Ocean increased your motivation to act more sustainably, how long do you think that motivation will last?

1 day

6 months

3 or more years

1 week

1 year

If so, for how long? _____ years

1 month

2 years

N/A

How much do you think visiting Moana - My Ocean has increased your support for the creation of new marine reserves?

Not at all

A little bit

A moderate amount

A lot

How much do you think visiting Moana - My Ocean has increased the likelihood that you will pick up rubbish on beaches, or in town to prevent rubbish going down drains and out to sea?

Not at all

A little bit

A moderate amount

A lot

Note, the following two questions are purely hypothetical for the purposes of research and do not indicate any intention to charge visitors.

Before visiting Moana - My Ocean, how much do you think you would have been willing to donate per month to a marine conservation group? \$_____ per month

Has visiting Moana - My Ocean changed the amount you would be willing to donate?

No

Yes

*If 'yes', how much, in total, would you **now** be willing to donate? \$_____ per month*

If you visited Moana - My Ocean with other people, how much do you think your visit has strengthened your relationship with these people?

Not at all

A little bit

A moderate amount

A lot

If visiting Moana - My Ocean has strengthened your relationship with family / friends, how long do you think this change will last?

1 day

6 months

3 or more years

1 week

1 year

If so, for how long? _____ years

1 month

2 years

N/A

How much has visiting Moana - My Ocean made you feel more proud of Auckland?

Not at all

A little bit

A moderate amount

A lot

If visiting Moana - My Ocean made you feel more proud of Auckland, how long do you think this increased feeling of pride will last?

1 day

6 months

3 or more years

1 week

1 year

If so, for how long? _____ years

1 month

2 years

N/A

If you hadn't visited Moana - My Ocean, what might you have done instead (e.g., stayed at home, gone to the movies, met friends for lunch)?

Please write here what you might have done instead: _____

How much enjoyment do you think you would have got out of this alternative activity?

None at all

A little bit

A moderate amount

A lot

How much do you think this alternative activity would have increased your motivation to act in a more environmentally sustainable way?

Not at all

A little bit

A moderate amount

A lot

How much do you think this alternative activity would have made you feel more proud of Auckland?

Not at all

A little bit

A moderate amount

A lot

Please tell us a little more about yourself.

What is your age?

How many times have you visited Moana - My Ocean?

1 2 3 4 5 6+

Are you:

Female

Male

Where do you usually live?

In Auckland

In New Zealand, but outside of Auckland

Overseas

What is your ethnicity? (*select all that apply*)

NZ European / Pākehā

Māori

Samoan

Who did you visit the Museum with today?

By myself

With one other adult

With a group of 2 or more adults but no children (aged 14 years or under)

- Cook Islands Māori
- Tongan
- Niuean
- Chinese
- Indian
- Other

If 'other' please specify: _____

- With a child/ children (aged 14 years and under) – no other adults
- With a child/ children (aged 14 years and under) and at least one other adult

If you visited with children, please answer the following "Your children" section. If you did not visit with children, please skip to the next page.

Your children

If you visited with children, we'd like to know how you thought they found the exhibition

How many children did you visit with today: _____ How old are they? _____

If you visited with more than one child, please choose the experience of one child to answer the following questions about.

How old is the child that you are focusing on? _____

How much enjoyment do you think they got out of coming to Moana - My Ocean?

<i>Not at all</i>	<i>A little bit</i>	<i>A moderate amount</i>	<i>A lot</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much do you think visiting Moana - My Ocean increased their motivation to act in a more environmentally sustainable way?

<i>Not at all</i>	<i>A little bit</i>	<i>A moderate amount</i>	<i>A lot</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much do you think visiting Moana - My Ocean will have increased their engagement with learning?

<i>Not at all</i>	<i>A little bit</i>	<i>A moderate amount</i>	<i>A lot</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much do you think visiting Moana - My Ocean has made them feel more proud of Auckland?




<i>Not at all</i>	<i>A little bit</i>	<i>A moderate amount</i>	<i>A lot</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix E Child visitor survey

My favourite part of the exhibition was:

[space to draw]

How many stars would you give Moana - My Ocean? (*circle your choice*)

-  1 star means it was boring
 2 stars means it was ok
 3 stars means it was awesome

Did you learn any new things about the ocean?

Yes OR **No**

Has visiting Moana - My Ocean made you want to care more about the ocean?

Yes OR **No**

Did you learn any new words at Moana - My Ocean?

Yes, lots OR **Yes, a few** OR **No**

Has visiting Moana - My Ocean made you want to learn more about the ocean?

Yes OR **No**

Has Moana - My Ocean made you think Auckland is a cool place to be?

Yes OR **No**

Please tell us a little more about yourself

How old are you?

Are you:

- A girl
 A boy

How many times have you visited Moana - My Ocean?

1 2 3 4 5 6+

Where do you usually live?

- In Auckland
 In New Zealand, but outside Auckland
 Overseas

Are you:

- NZ European / Pākehā
 Māori
 Samoan
 Cook Islands Māori
 Tongan
 Niuean
 Chinese
 Indian
 Other

If 'other' please specify: _____

Appendix F Valuation methods for adult visitors

Table 11. Valuation methods used for adults visitors.

Outcome	Valuation description	Value	Rationale	Source
Enjoyment	Average value of all alternative activities that were rated as less enjoyable than Moana - My Ocean	\$34.20 per visitor	<p>Using the Value Game, visitors were asked to rate whether Moana - My Ocean was more or less enjoyable than a number of alternative activities (going to the movies, a local theme park, a theatre show, a concert, a local aquarium, a large local art gallery, ten pin bowling, a live All Blacks rugby game, indoor snowboarding / skiing, wave pool). The average entry / ticket price was calculated for each alternative activity.</p> <p>For each individual, the enjoyment value they obtained from <i>Moana - My Ocean</i> was calculated by averaging the ticket / entry price associated with all alternative activities that were rated as less enjoyable than <i>Moana - My Ocean</i>. The average enjoyment value across the survey sample was \$34.20.</p>	Various venue websites
Development / reinforcement of a personal sense of connection to the marine environment.	Average value of how much <i>additional</i> money visitors would be willing to donate annually to a marine conservation group as a result of visiting Moana - My Ocean.	\$34.80 per visitor	Stakeholder engagement revealed that an increased sense of connection to the marine environment was, for many visitors, reflected in an increased desire to donate money to protect the marine environment. Visitors were asked to how much money they were willing to donate to a marine conservation group prior to visiting <i>Moana - My Ocean</i> as well as whether visiting the exhibition had changed the amount they were willing to donate. If <i>Moana - My Ocean</i> had changed the amount they were willing to donate, they were asked what the new total amount was. For individuals who stated both pre and post- <i>Moana</i> amounts, the pre-exhibition amount was subtracted from the post-exhibition amount. The total additional donation amount was divided by the number of individuals who answered the question ($n = 497$), to gain an average value across all visitors.	Adult survey
Increased sense of pride in Auckland	Cost of an Auckland dolphin and whale safari in the Hauraki Gulf	\$53.30 per scale point	<p>An Auckland dolphin and whale safari in the Hauraki Gulf was used as a proxy because such an experience is likely to have a potent effect on one's appreciation for the local marine life and environment and subsequent pride in Auckland. The total cost of a ticket for an Explore Auckland Whale and Dolphin Safari is \$160. Visitors were asked to rate how much visiting Moana - My Ocean increased their sense of pride in Auckland on a 0-3 scale. In order to attribute a value to their rating, the \$160 was divided by 3, and \$53.30 was attributed to each scale point above zero.</p> <p>Visitors reported, on average, a 2.05 point increase in pride. This value was used as a proxy multiple in the valuation analysis.</p>	http://www.Exploreagroup.co.nz/en/unique-experiences/auckland-whale-and-dolphin-safari/

Appendix G Valuation methods for child visitors

Table 12. Valuation methods used for child visitors.

Outcome	Valuation Description	Value	Rationale	Source
Enjoyment	Average value of alternative activities that were rated as less enjoyable than Moana - My Ocean (by adults)	\$31.50 per visitor	Adults who visited with children were asked to rate how much enjoyment their children got from <i>Moana - My Ocean</i> . On average, adults rated that children enjoyed the exhibition 2.33 on a 0-3 scale. Adults themselves reported enjoying the exhibition 2.53 on a 0-3 scale. Thus, children experienced $2.33/2.53 * 100 = 92.10\%$ of the enjoyment of adults. This relative level of enjoyment was used to calculate the proxy value for children. The proxy obtained from adults' answers to the Value Game was \$34.20. This \$34.20 was multiplied by 92.10% to get the proxy value for children ($\$34.20 * .9210 = \31.50).	Adult survey
Increased sense of pride in Auckland	Cost of an Auckland dolphin and whale safari in the Hauraki Gulf	\$35.00 per scale point	An Auckland dolphin and whale safari in the Hauraki Gulf was used as a proxy because such an experience is likely to have a potent effect on one's appreciation for the local marine life and environment and subsequent pride in Auckland. The total cost of a child ticket for an Explore Auckland Whale and Dolphin Safari is \$105. Adult visitors were asked to rate how much visiting Moana - My Ocean increased their children's sense of pride in Auckland on a 3-point scale. In order to attribute a value to their rating, the \$105 was divided by 3, and \$35 was attributed to each scale point. Visitors reported, on average, a 1.3 point increase in pride. This value was used as a proxy multiple in the valuation analysis.	http://www.exploregroup.co.nz/en/unique-experiences/auckland-whale-and-dolphin-safari/
Increased engagement with learning	Average cost of one tutoring session	\$14.40 per scale point	The average cost of academic tutoring session was used as a proxy because it is assumed that such an experience is likely to have similar effects on children's engagement with learning. Three tutoring services were averaged to obtain a value of \$43.33: Pencil Case (1hr session) - \$55 Stepping ahead (1hr session) - \$25 Number worksnwords (1hr session) - \$50 Adult visitors rated that visiting Moana - My Ocean was likely to increase their children's engagement with learning by 2 on a 0-3 scale. In order to attribute a value to their rating, each scale point above 0 was considered to reflect 1/3 of \$43.33. \$14.4 was thus attributed to each scale point. Visitors reported, on average, a 2 point increase in engagement with learning. This value was used as a proxy multiple in the valuation analysis.	www.pencilcase.co.nz/plans-and-prices/ www.steppingahead.co.nz/the-programme.html www.numberworksnwords.com/frequently-asked-questions/#what-does-it-cost

Appendix H Valuation methods for the environment

Table 13. Valuation method used for the environment.

Outcome	Valuation description	Value	Rationale	Source
Increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes	The cost of an alternative, large-scale public, marine-based, awareness-raising campaign.	\$199,622.49	<p>In 2013 the Hauraki Gulf Forum (an organisation dedicated to enhancing the Hauraki Gulf) ran a poster series in the Auckland distribution of the NZ Herald. The value of the poster series was estimated by the New Zealand Herald to be \$199,622.49 (excl. GST).</p> <p>The aim of the poster series was to build awareness of the Hauraki Gulf marine park, the unique qualities it has and the issues that are affecting its quality. This increased awareness was hoped to lead to behaviour and attitude change (including support for marine reserves, increased pro-environmental behaviour etc.). Posters were inserted in approximately 150,000 copies of The New Zealand Herald.</p> <p>The marine conservation expert estimated that <i>Moana - My Ocean</i> is likely to have been 10 times as effective as the NZ herald poster series. A value of 10 was used as a proxy multiple in the valuation analysis, resulting in a total proxy value, before discounting, of \$1,996,224.90.</p>	Stakeholder engagement and NZ Herald post-analysis

Appendix I Valuation methods for contractors and community partners

Table 14. Valuation methods used for contractors and community partners: increased job satisfaction.

Outcome	Proxy	Description	Value	Rationale	Source
Increased job satisfaction	Proxy 1	Increased job satisfaction was valued using a willingness to accept (WTA) question. Stakeholders were asked: "Knowing what you now know about the benefits of being involved in the Moana exhibition for your job satisfaction, if you were to go back in time, how much would you have had to be paid to forgo the Moana work in exchange for an alternative project that would have taken the same time and required the same amount of work but that would not have led to the increased job satisfaction that we've been talking about?".	Between \$5,000.00 and \$57,447.50 per stakeholder	In-depth stakeholder engagement identified that these stakeholders regularly make choices regarding the type of work that they accept based on whether the work and client organisation fit with their social and environmental values. They reported making conscious trade-offs between the 'monetary' and 'other' benefits that they get from each project, with a preference for work that is professionally and personally satisfying. For example, some stakeholders make trade-offs between relatively highly paid advertising work and less-well-paid social or environmental work. The trade-off between job satisfaction and money is therefore a common consideration for them, making WTA valuation an appropriate valuation technique in this instance. The value of how much each individual got paid for their contribution to <i>Moana - My Ocean</i> was subtracted from the WTA figure provided.	Stakeholder engagement
	Proxy 2	Value of a sponsored conference / event	\$6,667.00 per stakeholder	In-depth stakeholder engagement identified that this individual saw the job satisfaction they gained from this experience as equivalent to the job satisfaction gained from contributing to conferences that their organisation sponsors. These sponsored conferences typically involve \$5,000 sponsorship, \$5,000 media support and \$10,000 staff time (3 staff). On a per staff basis, this equates to \$6,667	Stakeholder engagement
	Proxy 3	Value of a professional conference	\$648.50 per stakeholder	In-depth stakeholder engagement identified that these stakeholders saw the job satisfaction gained from the <i>Moana - My Ocean</i> experience as comparable to the job satisfaction gained from attending a professional conference. The costs of a conference was calculated from the average of a New Zealand Association for Environmental Education conference (Tertiary, Business or Government Non-Member = \$630) and the Local Government Environmental Compliance Conference 2013 (\$667). Stakeholders reported <i>Moana - My Ocean</i> to be twice as impactful as the conference. A value of 2 was used as a proxy multiple in the valuation analysis.	http://www.nzeeconference.co.nz/ https://www.planning.org.nz/Category?Action=View&Category_id=516

Table 15. Valuation methods used for contractors and community partners: increased business / career opportunities.

Outcome	Proxy	Description	Value	Rationale	Source
Increased business / career opportunities	Proxy 1	Estimated additional revenue that has materialised, or is likely to materialise, as a result of the <i>Moana - My Ocean</i> work	Between \$75,000.00 and \$250,000.00 per stakeholder	For many stakeholders, increased revenue was the indicator most strongly related to increased business opportunities.	Stakeholder engagement
	Proxy 2	The cost of a post-graduate course in communication studies	\$6,434.00 per stakeholder	<p>For some stakeholders, their increased career opportunities were driven primarily by the development of new skills and professional relationships. Additional study (especially at post-graduate level) was identified by stakeholders as being an alternative way of developing such skills and networks.</p> <p>A Postgraduate Diploma in International Communication course was used as a proxy. Other courses had similar fees.</p> <p>One stakeholder reported that <i>Moana - My Ocean</i> was 1.5 times as impactful as the course, and three stakeholders reported that <i>Moana - My Ocean</i> was .75 times as impactful as postgraduate study. An average proxy multiple of .94 was applied.</p>	www.unitec.ac.nz/creative-industries-business/communication/programmes_comm/international-communications/postgraduate-diploma-in-international-communication.cfm

Table 16. Valuation method used for contractors and community partners: strengthened sense of cultural identity.

Outcome	Proxy	Description	Value	Rationale	Source
Strengthened sense of cultural identity	Proxy 1	The cost of two Te Reo Maori (Maori language) courses.	\$2,007.00 per stakeholder	<p>Stakeholder engagement indicated that two Maori language courses had been taken (simultaneously) by one of the stakeholders. These courses had the effect of increasing this stakeholders connection with their culture and history.</p> <p>Two courses were used as proxies:</p> <ul style="list-style-type: none"> • Foundation Certificate Tohu Tūāpapa Mātauranga - University of Auckland (total cost \$1,344) • Te Reo Māori Advanced - AUT (total cost \$663). <p>All stakeholders reported that <i>Moana - My Ocean</i> was 3 times as impactful as the course. A proxy multiple of 3 was therefore applied.</p>	http://www.education.auckland.ac.nz/uo/foundation-certificate-tohu-tuapapa-matauranga www.aut.ac.nz/study-at-aut/study-areas/te-ara-poutama/qualifications/short-courses

Appendix J Valuation methods for museum staff

[Table XX. Valuation methods used for Auckland Museum staff

Outcome	Proxy	Description	Value	Rationale	Source
Increased job satisfaction	Proxy 1	Increased job satisfaction was valued using a willingness to accept (WTA) question. Stakeholders were asked: "Knowing what you now know about the benefits of being involved in the Moana exhibition for your job satisfaction, if you were to go back in time, how much would you have had to be paid to forgo the Moana work in exchange for an alternative project that would have taken the same time and required the same amount of work but that would not have led to the increased job satisfaction that we've been talking about?"	\$32,500.00 per stakeholder	Museum staff regularly move between discrete projects and therefore were easily able to imagine a counterfactual where they worked on an alternative project. An average value across the stakeholders of an additional \$32,500 above what they were already paid was calculated.	Stakeholder engagement
Outcome	Proxy	Description	Value	Rationale	Source
Increased career opportunities	Proxy 1	The maximum <i>possible</i> increase in negotiable salary following involvement in Moana - My Ocean. Note, this was not a measure of actual salary increase experienced by the stakeholders.	\$20,000.00 per stakeholder	The stakeholders were asked how much the maximum possible salary that they could conceivably negotiate has increased from before to after <i>Moana - My Ocean</i> . The stakeholders identified that there was, on average, an additional \$20,000 difference in the maximum salary that they could potentially negotiate now vs. immediately prior to working on Moana - My Ocean.	Stakeholder engagement

Appendix K Deadweight, attribution, displacement, benefit period and drop off for visitors

Table 17. Adult visitors' enjoyment: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Adult visitors - Enjoyment	Deadweight	71% of this outcome would have occurred without Moana - My Ocean	71%	Visitors were asked to state what they would have done with their time if they hadn't visited Moana - My Ocean, and how much enjoyment they estimate they would have got from this alternative activity. On average, stakeholders predicted they would enjoy their alternative activity 1.8 on a 0-3 scale. This value, along with the rated enjoyment from <i>Moana - My Ocean</i> (2.53 on a 0-3 scale), was used to calculate the deadweight ($1.8/2.53 * 100 = 71\%$).	Adult survey
	Attribution to other sources	12% of this outcome is attributed to other sources	12%	Questions asked specifically about the impact of <i>Moana - My Ocean</i> . However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 1 year	1	The relative importance of the Moana - My Ocean exhibition is likely to decrease quickly following leaving the exhibition.	Stakeholder engagement
	Drop-off	100% of this benefit drops off after the first year.	100%	All of this benefit drops off within the first year following Moana - My Ocean.	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	An increase in experienced enjoyment is unlikely to displace the enjoyment of anyone else.	Adult survey

Table 18. Adult visitors' sense of connection to the marine environment: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Adult visitors - Development / reinforcement of a personal sense of connection to the marine environment.	Deadweight	64% of this outcome would have occurred without Moana - My Ocean	64%	Visitors were asked to state what they would have done with their time if they hadn't visited Moana - My Ocean, and how much they estimate this alternative activity would have increased their desire to act in a more environmentally sustainable way. On average, stakeholders predicted this alternative activity would increase their desire to act sustainably by 1.11 on a 0-3 scale. This value, along with the rated increase in motivation from <i>Moana - My Ocean</i> (1.74 on a 0-3 scale), was used to calculate the deadweight ($1.11/1.74 * 100 = 64\%$).	Adult survey
	Attribution to other sources	29% of this outcome is attributed to other sources	29%	Questions asked specifically about the impact of <i>Moana - My Ocean</i> . However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 3 years	3	The relative importance of the Moana - My Ocean exhibition is likely to decrease over the three years following attending the exhibition.	Adult survey
	Drop-off	33% of this benefit drops off each subsequent year	33%	Because no data were collected specifically on the rate of drop-off, it was assumed that one third of the benefit drops off in each subsequent year ($100\%/3 = 33\%$).	Adult survey
	Displacement	There is no displacement associated with this outcome	0%	An increase in a sense of connection to the marine environment is unlikely to displace the connection to the marine environment of anyone else.	Adult survey

Table 19. Adult visitors' pride in Auckland: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Adult visitors - Increased sense of pride in Auckland	Deadweight	59% of this outcome would have occurred without Moana - My Ocean	59%	Visitors were asked to state what they would have done with their time if they hadn't visited Moana - My Ocean, and how much they estimate this alternative activity would have increased their pride in Auckland. On average, stakeholders predicted this alternative activity would increase their pride in Auckland by 1.21 on a 0-3 scale. This value, along with the rated increase in pride from Moana - My Ocean (2.04 on a 0-3 scale), was used to calculate the deadweight ($1.21/2.04 * 100 = 59\%$).	Adult survey
	Attribution to other sources	24% of this outcome is attributed to other sources	24%	Questions asked specifically about the impact of Moana - My Ocean. However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 2 years	2	The relative importance of the Moana - My Ocean exhibition is likely to decrease over the 2 years following attending the exhibition.	Adult survey
	Drop-off	50% of this benefit drops off after the first year.	50%	Because no data were collected specifically on the rate of drop-off, it was assumed that one half of the benefit drops off after 1 year ($100\%/2 = 50\%$).	Adult survey
	Displacement	There is no displacement associated with this outcome	0%	An increase in pride is unlikely to displace the pride of anyone else.	Adult survey

Table 20. Child visitors' enjoyment: deadweight, attribution, benefit period, drop-off and displacement.

Outcome	Description	Value	Rationale	Source	
Child visitors - Enjoyment	Deadweight	71% of this outcome would have occurred without Moana - My Ocean	71%	Because no deadweight questions were asked for children, the adults' deadweight value for this outcome was used for children.	Adult survey
	Attribution to other sources	37% of this outcome is attributed to other sources	37%	Questions asked specifically about the impact of Moana - My Ocean. However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 1 year	1	The relative importance of the Moana - My Ocean exhibition is likely to decrease quickly following leaving the exhibition.	Stakeholder engagement
	Drop-off	100% of this benefit drops off after the first year.	100%	All of this benefit drops off within the first year following Moana - My Ocean.	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	An increase in experienced enjoyment is unlikely to displace the enjoyment of anyone else.	Adult survey

Table 21. Child visitors' engagement with learning: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Child visitors - Increased engagement with learning	Deadweight	65% of this outcome would have occurred without Moana - My Ocean	65%	Because a specific deadweight question wasn't asked for the engagement with education outcome, an average of all three adult deadweight values was used.	Adult survey
	Attribution to other sources	44% of this outcome is attributed to other sources	44%	Questions asked specifically about the impact of Moana - My Ocean. However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 2 years	2	The relative importance of the Moana - My Ocean exhibition is likely to decrease over the 2 years following attending the exhibition.	Adult survey
	Drop-off	50% of this benefit drops off after the first year.	50%	Because no data were collected specifically on the rate of drop-off, it was assumed that one half of the benefit drops off after 1 year ($100\%/2 = 50\%$).	Adult survey
	Displacement	There is no displacement associated with this outcome	0%	An increase in pride is unlikely to displace the pride of anyone else.	Adult survey

Table 22. Child visitors' pride in Auckland: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Child visitors - Increased sense of pride in Auckland	Deadweight	61% of this outcome would have occurred without Moana - My Ocean	61%	Because no deadweight questions were asked for children, the adults' deadweight value for this outcome was used for children.	Adult survey
	Attribution to other sources	36% of this outcome is attributed to other sources	36%	Questions asked specifically about the impact of Moana - My Ocean. However, there is recognition that, for visitors, there may have been some overlap between the outcomes visitors reported (e.g., the visitors' enjoyment is likely to, in part, be due to their experience of pride and vice versa). There is also the potential that the outcome proxies used involve some degree of overlap in the same way. To discount for this possibility, for each outcome a coefficient of multiple correlation (R squared) with all other outcomes was calculated. R squared provides a good measure of how much 'overlap' there is between the different outcomes. For each outcome, the level of this overlap was discounted by attributing the R squared value as the attribution percentage (e.g., if R squared = .39, then attribution = 39%). This means that only the unique effects of each outcome are measured (e.g., the degree of enjoyment gained from Moana - My Ocean, controlling for all other outcomes).	Adult survey
	Benefit period	This outcome lasts for a period of 2 years	2	Because no data were collected specifically on the rate of drop-off, it was assumed that one half of the benefit drops off after 1 year ($100\%/2 = 50\%$).	Adult survey
	Drop-off	50% of this benefit drops off after the first year.	50%	One half of this benefit drops off within the first year following Moana - My Ocean.	Adult survey
	Displacement	There is no displacement associated with this outcome	0%	An increase in pride is unlikely to displace the pride of anyone else.	Adult survey

Appendix L Deadweight, attribution, displacement, benefit period and drop off for the environment

Table 23. The environment: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
The environment - Increased public awareness of environmental issues faced by the marine environment, leading to behaviour change that is likely to support improved environmental outcomes	Deadweight	Approximately 20% of this outcome would have occurred anyway	20%	The majority of adult visitors surveyed indicated that if they had not visited the exhibition they would have engaged in activities unrelated to the marine environment (such as staying at home, shopping etc.). A small number indicated that they would have engaged with the marine environment (such as going to the beach). It is assumed that for individuals who would have engaged with the marine environment, some would have experienced an increase in awareness of the pressures faced by the marine environment	Survey of adults and Stakeholder engagement
	Attribution to other sources	0% of this outcome is attributed to other sources	0%	The visitor data used to estimate the relative impact of Moana - My Ocean compared to the NZ Herald poster series specifically identified the change that occurred as a result of Moana - My Ocean	Survey of adults
	Benefit period	This outcome lasts for a period of 1 year	1	The relative importance of the Moana - My Ocean exhibition is likely to decrease over the year following attendance	Stakeholder engagement
	Drop-off	100% of this benefit ceases as the conclusion of this benefit period	100%	Any impact of Moana - My Ocean on this outcome is likely to have ceased by the end of the benefit period	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	Increased awareness of environmental issues faced by the marine environment is unlikely to displace awareness of other issues / causes	Stakeholder engagement

Appendix M Deadweight, attribution, displacement, benefit period and drop off for contractors and community partners

Table 24. Contractors and community partners' increased job satisfaction: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Increased job satisfaction	Deadweight	Deadweight values ranged from 0% to 29%	Range from 0%-29%	Each stakeholder was asked to state what they would have done if they hadn't been involved in Moana - My Ocean, and how much they estimate this alternative activity would have increased their job satisfaction. This value, along with the rated increase in job satisfaction from Moana - My Ocean, was used to calculate the deadweight, by dividing the rated increase in job satisfaction from the alternative activity with the rated increase in job satisfaction from <i>Moana - My Ocean</i> .	Stakeholder engagement
	Attribution to other sources	0% of this outcome is attributed to other sources	0%	Questions were worded so as to refer only to Moana - My Ocean.	Stakeholder engagement
	Benefit period	Benefit period estimates ranged from 1 to 5 years	Range from 1 to 5 years	Each stakeholder was asked how long the increase in job satisfaction related to <i>Moana - My Ocean</i> was likely to last.	Stakeholder engagement
	Drop-off	Drop-odd estimates ranged from 20% to 100%	Range from 20% to 100%	Stakeholders were asked how much of the benefit drops off over time. If they did not provide an estimate a simple rule of 100% divided by the benefit period in years was applied (e.g., benefit period of 3 years = 33% drop-off per year).	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	An increase in personal job satisfaction is unlikely to displace the job satisfaction of anyone else.	Stakeholder engagement

Table 25. Contractors and community partners' increased business / career opportunities: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Increased business / career opportunities	Deadweight	Deadweight values ranged from 0% to 33%	Range from 0%-33%	Each stakeholder was asked to state what they would have done if they hadn't been involved in Moana - My Ocean, and how much they estimate this alternative activity would have increased their business / career opportunities. This value, along with the rated increase in business / career opportunities from Moana - My Ocean, was used to calculate the deadweight, by dividing the rated increase in opportunities from the alternative activity with the rated increase in opportunities from <i>Moana - My Ocean</i> .	Stakeholder engagement
	Attribution to other sources	Attribution values ranged from 0% to 40%	Range from 0%-40%	Stakeholders were asked whether any other factors contributed to their increased business / career opportunities.	Stakeholder engagement
	Benefit period	Benefit period estimates ranged from 1 to 2 years	Range from 1 to 2 years	Each stakeholder was asked how long the increase in business / career opportunities related to <i>Moana - My Ocean</i> was likely to last.	Stakeholder engagement
	Drop-off	Drop-off estimates ranged from 50% to 100%	Range from 50% to 100%	Stakeholders were asked how much of the benefit drops off over time. If they did not provide an estimate a simple rule of 100% divided by the benefit period in years was applied (e.g., benefit period of 3 years = 33% drop-off per year).	Stakeholder engagement
	Displacement	Displacement estimates ranged from 0% to 70%	Range from 0% to 70%	Stakeholders were asked how much of the increased business / career opportunities identified were likely to displace the business / career advancement of other people.	Stakeholder engagement

Table 26. Contractors and community partners' increased cultural identity: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Strengthened sense of cultural identity	Deadweight	29% of this outcome would have occurred without Moana - My Ocean	29%	The stakeholders were asked to state what they would have done if they hadn't been involved in Moana - My Ocean, and how much they estimate this alternative activity would have increased their sense of cultural identity. The stakeholders predicted this alternative activity would increase their sense of cultural identity by 2 on a 0-9 scale. This value, along with the rated increase in cultural identity from Moana - My Ocean (7 on a 0-9 scale), was used to calculate the deadweight ($2/7 * 100 = 29\%$).	Stakeholder engagement
	Attribution to other sources	0% of this outcome is attributed to other sources	0%	Questions were worded so as to refer only to Moana - My Ocean.	Stakeholder engagement
	Benefit period	This outcome lasts for a period of 5 years	5 years	Stakeholder engagement revealed that the relative importance of the Moana - My Ocean exhibition is likely to last for a period of 5 years.	Stakeholder engagement
	Drop-off	20% of this benefit drops off after the first year.	20%	Because the stakeholders did not articulate a clear drop-off pattern, it was assumed that one fifth of the benefit drops off after each year ($100\%/5 = 20\%$).	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	A strengthened sense of cultural identity is unlikely to displace the job identity of anyone else.	Stakeholder engagement

Appendix N Deadweight, attribution, displacement, benefit period and drop off for Museum staff

Table 27. Museum staff increased job satisfaction: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Increased job satisfaction	Deadweight	45% of this outcome would have occurred without Moana - My Ocean	45%	The stakeholders were asked to state what they would have done if they hadn't been involved in Moana - My Ocean, and how much they estimate this alternative activity would have increased their job satisfaction. These values, along with the rated increases in job satisfaction from Moana - My Ocean were used to calculate the deadweight. The value of 45% reflects a weighted average of the individual stakeholders' deadweight values.	Stakeholder engagement
	Attribution to other sources	0% of this outcome is attributed to other sources	0%	Questions were worded so as to refer only to Moana - My Ocean.	Stakeholder engagement
	Benefit period	This outcome lasts for a period of 2 years	2	The effect of the Moana - My Ocean exhibition on stakeholders' job satisfaction was estimated to last for two years.	Stakeholder engagement
	Drop-off	75% of this benefit drops off after the first year.	75%	Stakeholders estimated that the majority (75%) of this benefit drops off after the first year following Moana - My Ocean.	Stakeholder engagement
	Displacement	There is no displacement associated with this outcome	0%	An increase in personal job satisfaction is unlikely to displace the job satisfaction of anyone else.	Stakeholder engagement

Table 28. Museum staff increased career opportunities: deadweight, attribution, benefit period, drop-off and displacement.

Outcome		Description	Value	Rationale	Source
Increased career opportunities	Deadweight	27% of this outcome would have occurred without Moana - My Ocean	30%	The stakeholders were asked to state what they would have done if they hadn't been involved in Moana - My Ocean, and how much they estimate this alternative activity would have increased their career opportunities. These values, along with the rated increases in career opportunities from Moana - My Ocean were used to calculate the deadweight. The value of 30% reflects a weighted average of the individual stakeholders' deadweight values.	Stakeholder engagement
	Attribution to other sources	36% of this outcome is attributed to other sources	38%	38% of the additional salary premium was attributable to activities other than Moana - My Ocean	Stakeholder engagement
	Benefit period	This outcome lasts for a period of 5 years	5	The relevance of Moana - My Ocean on career opportunities was estimated to last for an average of 5 years	Stakeholder engagement
	Drop-off	25% of this benefit drops off each year	25%	Because the stakeholder did not articulate a clear drop-off pattern, it was assumed that 25% of the benefit drops off after each year ($100\%/4 = 25\%$).	Stakeholder engagement
	Displacement	There is 0% displacement associated with this outcome	0%	The career opportunities identified by the stakeholders were about finding meaningful employment in the field of their choosing, being recognised for their talents and being able to demand a higher salary. For this reason, the increased career opportunities are unlikely to displace the opportunities of others (i.e., the opportunities do not involve direct competition with others for available jobs).	Stakeholder engagement

Appendix O Sensitivity analysis

Table 29. Sensitivity analysis: inputs.

Description	Value	Altered value	Comment
Costs associated with creating the exhibition	\$ 1,834,801.41	\$ 8,542,749.06	This value is sourced directly from Auckland Museum and is therefore an accurate reflection of the costs associated with the development of the exhibition

Note. The altered value represents how much each input or assumption would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment

Table 30. Sensitivity analysis: discount rate.

	Value	Altered value	Impact on ratio	Comment
Discount rate	4%	8%	4.60	The 4% is in line with the Auckland Council guidance on Cost-Benefit Analysis, and international SROI analyses.

Table 31. Sensitivity analysis: visitor over-estimation of impacts.

	Value	Altered value	Impact on ratio	Comment
Impact of visitors overestimating the impact of the exhibition (on all outcomes)				
Effect of one half the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 3,183,031	2.95	The altered value represents the SROI ratio if the impact of the exhibition is only one half of that reported by visitors (i.e., only one half of the reported change occurs for all visitor outcomes).
Effect of one third the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 2,110,035	2.37	The altered value represents the SROI ratio if the impact of the exhibition is only one third of that reported by visitors (i.e., only one third of the reported change occurs for all visitor outcomes).
Effect of one tenth the impacts of the exhibition on adult and child visitors	\$ 6,366,061	\$ 636,606	1.58	The altered value represents the SROI ratio if the impact of the exhibition is only one tenth of that reported by visitors (i.e., only one tenth of the reported change occurs for all visitor outcomes).

Table 32. Sensitivity analysis: adult visitors.

	Value	Altered value	Impact on ratio	Comment
Impact of adult visitors overestimating the impact of the exhibition (on all outcomes)				
Effect of one half the impacts of the exhibition on adult visitors	\$ 5,110,257	\$ 2,555,129	3.29	The altered value represents the SROI ratio if the impact of the exhibition is only one half of that reported by adult visitors (i.e., only one half of the reported change occurs for all three adult visitor outcomes).
Effect of one third the impacts of the exhibition on adult visitors	\$ 5,110,257	\$ 1,695,211	2.82	The altered value represents the SROI ratio if the impact of the exhibition is only one third of that reported by adult visitors (i.e., only one third of the reported change occurs for all three adult visitor outcomes).
Effect of one tenth the impacts of the exhibition on adult visitors	\$ 5,110,257	\$ 511,026	2.19	The altered value represents the SROI ratio if the impact of the exhibition is only one tenth of that reported by adult visitors (i.e., only one tenth of the reported change occurs for all three adult visitor outcomes).
Enjoyment				
Number of stakeholders	89,300	0	4.23	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$34.20	-\$260.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Development / reinforcement of a personal sense of connection to the marine environment				
Number of stakeholders	89,300	0	3.76	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$34.80	-\$108.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Increased sense of pride in Auckland				
Number of stakeholders	52,100	0	3.23	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$53.30	-\$83.50	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment

Table 33. Sensitivity analysis: child visitors.

	Value	Altered value	Impact on ratio	Comment
Impact of child visitors overestimating the impact of the exhibition (on all outcomes)				
Effect of one half the impacts of the exhibition on adult visitors	\$ 1,255,804	\$ 627,902	4.32	The altered value represents the SROI ratio if the impact of the exhibition is only one half of that reported by child visitors (i.e., only one half of the reported change occurs for all three child visitor outcomes).
Effect of one third the impacts of the exhibition on adult visitors	\$ 5,110,257	\$ 414,824	4.20	The altered value represents the SROI ratio if the impact of the exhibition is only one third of that reported by child visitors (i.e., only one third of the reported change occurs for all three adult child outcomes).
Effect of one tenth the impacts of the exhibition on adult visitors	\$ 5,110,257	\$ 125,580	4.05	The altered value represents the SROI ratio if the impact of the exhibition is only one tenth of that reported by child visitors (i.e., only one tenth of the reported change occurs for all three child visitor outcomes).
Enjoyment				
Number of stakeholders	50,900	0	4.50	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$31.50	-\$690.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Increased engagement with learning				
Number of stakeholders	50,900	0	4.42	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$14.40	-\$212.50	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Increased sense of pride in Auckland				
Number of stakeholders	29,700	0	4.37	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$35.00	-\$412.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment

Table 34. Sensitivity analysis: The environment.

	Value	Altered value	Impact on ratio	Comment
Enjoyment				
Number of stakeholders	1	0	3.79	The altered value the outcome of the analysis if there were not environmental impact associated with Moana - My Ocean
Proxy	\$199,622.49	-\$6,400,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment

Table 35. Sensitivity analysis: contractors and community partners.

	Value	Altered value	Impact on ratio	Comment
Increased job satisfaction				
Number of stakeholders	9	0	4.51	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	Range between \$648.50 - \$57,447.50 per stakeholder	-\$510,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Increased business / career opportunities				
Number of stakeholders	9	0	4.55	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	Range between \$6,434 and \$250,000 per stakeholder	-\$1,200,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Strengthened sense of cultural identity				
Number of stakeholders	4	0	4.63	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$2,007.00	-\$740,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment

Note. Although separate valuation calculations were conducted for contractors and community partners, sensitivity analysis adjustments were made to all stakeholders simultaneously

Table 36. Sensitivity analysis: museum staff.

	Value	Altered value	Impact on ratio	Comment
Increased job satisfaction				
Number of stakeholders	4	0	4.61	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$32,500.00	-\$2,425,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment
Increased career opportunities				
Number of stakeholders	2	0	4.63	The altered value represents the impact of no stakeholders experiencing this outcome
Proxy	\$35,000.00	-\$2,660,000.00	1	The altered value represents how much the input would need to be altered, holding all other figures constant, in order to make the social return become a social return ratio of \$1 value for \$1 investment