



# Mutinex

## **23.329/Marketing Mix Modeling/MSIA/SVC/TENDER**

### **Part 3 - Criteria**

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**CUSTOMER**

TT DOTCOM SDN BHD

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**ATTENTION**

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**DATE**

December 2023

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**This submission is in three parts due to document size constraints of SRM Portal.**

**Parts 1 and 2 addressing Tasks 1 and 2 are submitted separately to this document.**

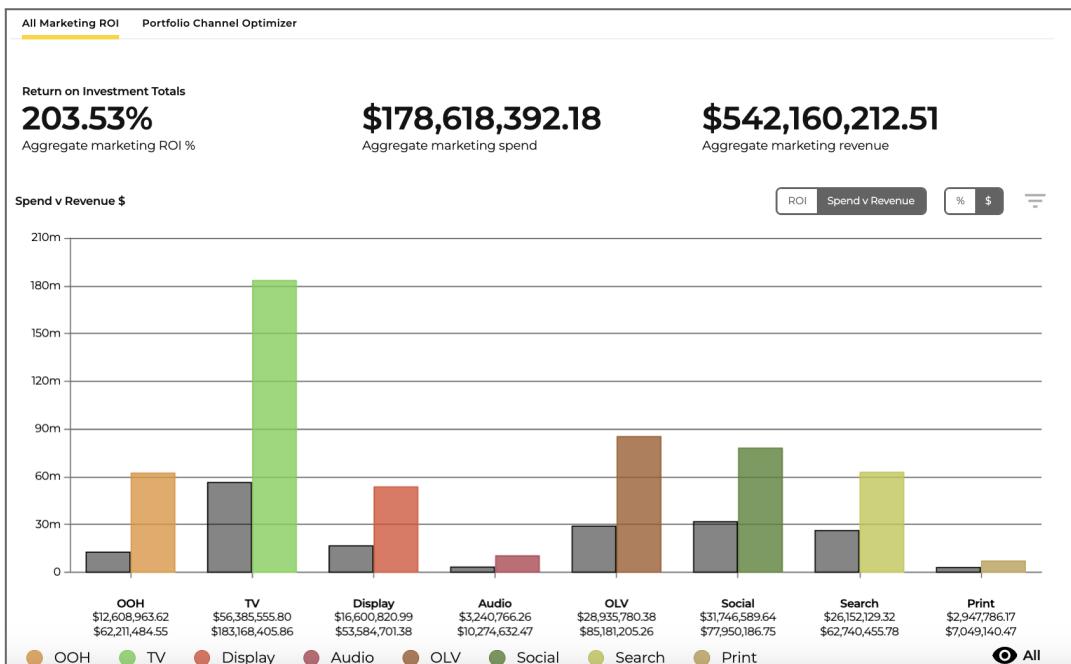
## The MMM needs to be able to answer these questions

### 3.1 What percentage of total sales is driven by each marketing channel?

Our model will enable TIME dotCom to understand the impact and contribution of each media channel (as well as the non media variables) to total sales in delivering ROI from its omni-channel approach.

Our modelling approach separates brand marketing from product marketing, to provide valuable insight back to TIME dotCom on the impact and performance of its marketing activities.

In GrowthOS, the ROI Optimiser tool shows your total return on Investment from marketing and performance of all your brand's media channels. TIME dotCom can quantify what total percentage of sales is driven by each channel over any given time period, as well as report on each channel's effectiveness as seen in the screenshots below.



Screenshot of GrowthOS ROI Optimiser (Sample data used for illustrative purposes)

Channel	ROI %	Spend %	Revenue %	Spend \$	Revenue \$
Audio	217.04	1.81	1.90	3,240,766.26	10,274,632.47
Display	222.78	9.29	9.88	16,600,820.99	53,584,701.38
OLV	194.38	16.20	15.71	28,935,780.38	85,181,205.26
OOH	393.39	7.06	11.47	12,608,963.62	62,211,484.55
Print	139.13	1.65	1.30	2,947,786.17	7,049,140.47
Search	139.91	14.64	11.57	26,152,129.32	62,740,455.78
Social	145.54	17.77	14.38	31,746,589.64	77,950,186.75
TV	224.85	31.57	33.78	\$56,385,555.80	\$183,168,405.86

*Screenshot of GrowthOS ROI Optimiser (Sample data used for illustrative purposes)*

### **3.2 How does the sales contribution from each channel compare to its share of investment?**

As seen in the two screenshots above in the response to [3.1](#), this question is also answered where the sales contribution compared to its share of investment can be customised in the display for any chosen time period to visualise spend vs revenue side-by-side, as either a dollar figure or percentage. This is also available as a table of exportable results as seen in the screenshots above.

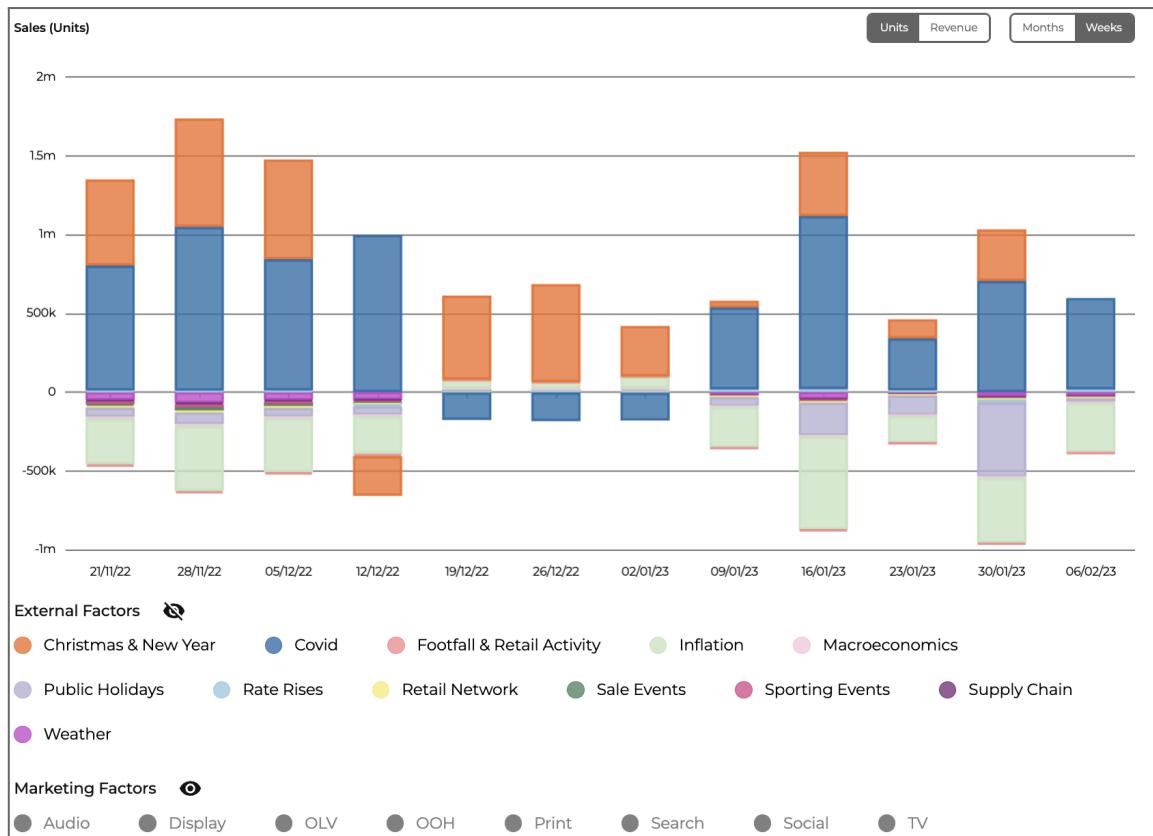
### **3.3 How do non-media factors contribute to sales?**

Modelling non-media factors such as pricing and external economic situations is a stock standard feature of our platform and MMM approach. Our customers can access the external factors across four levels of insight when relevant; i.e. All of business (ie TIME dotCom), Division (i.e. Consumer Products), Product Category (Home), and Product Level (Internet).

At each level, TIME dotCom will see a Sales Composition, which will include the portion of sales attributed to baseline, price, marketing and control (control sales being the external factors). Individual variables within the control sales can be positive or negative, and TIME dotCom will be able to see the long form sales composition to understand the direction and impact of each factor

Our Customers also have access to an Environmental Chart at each of those levels that shows the impact of each on media. It's worth highlighting that because our model is time varying, we are able to measure the impact of these external factors over time. This allows us to account for the growing and evolving impact of factors like inflation and rate rates rather than ascribe a single fixed impact across time.

In GrowthOS, the Sales Composition tool shows what external factors (and channels) are driving sales. Use this data to set benchmarks for different types of sales performance, and to help allocate budgets for marketing and pricing strategies. This also helps test media hypotheses; were sales strong in this period because of media, or were they always expected to be strong?. TIME dotCom can use the data available to quantify total sales or units driven by each external factor over any given time period, and trend this over time.



Screenshot of GrowthOS Sales Composition feature, with long-form driver analysis (Sample data used for illustrative purposes)

In GrowthOS, the Macroeconomic factors (environmental) tool also displays the external factors that impacted your sales, and if it was a positive or negative effect, as well as the size of that effect as a percentage of sales for the period. This can be used to explain changes in revenue and ROI, and to plan future spend when these external factors next occur.



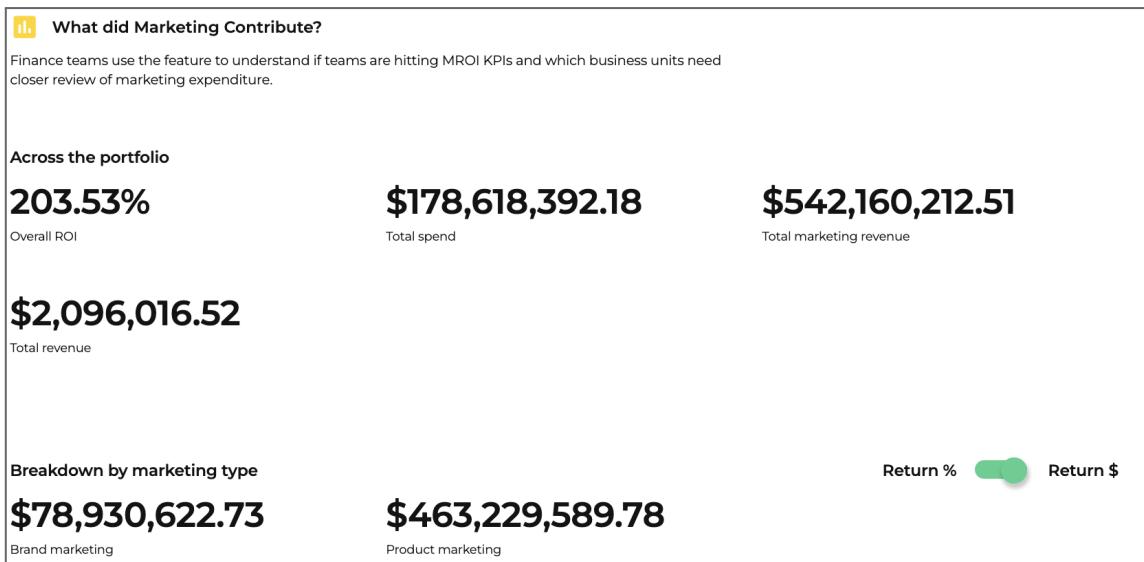
Screenshot of Environmental Analysis feature (Sample data used for illustrative purposes)

### 3.4 What percentage of sales would be lost if all media investments were cancelled?

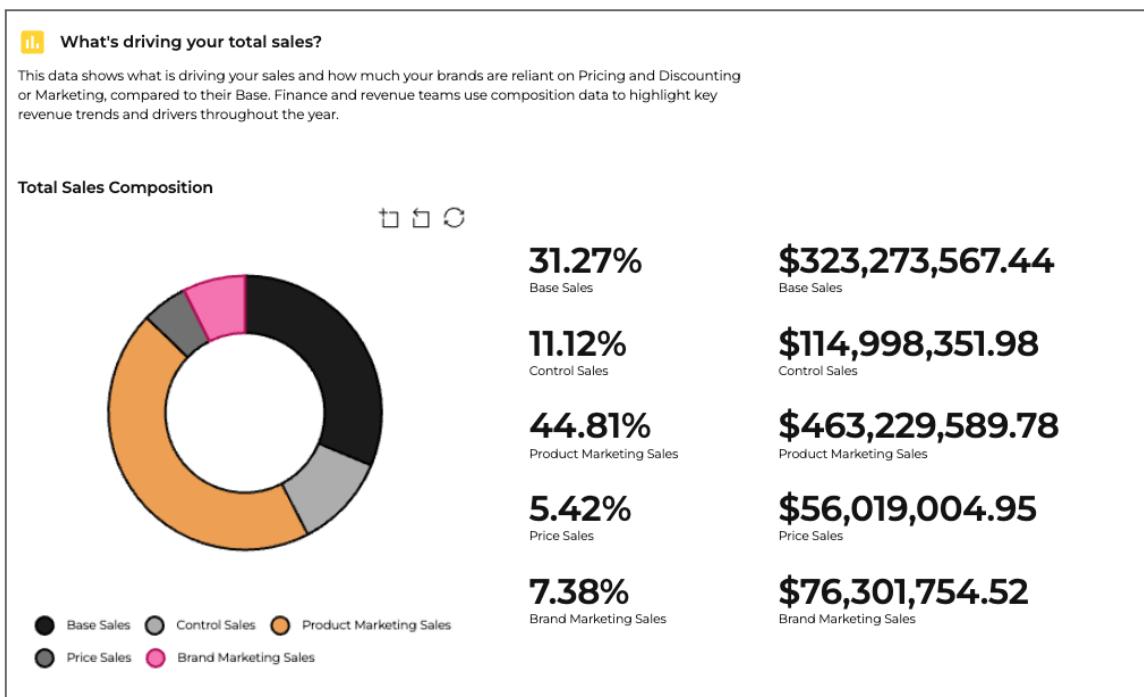
In GrowthOS, the Financial Overview dashboard displays an easy to read breakdown of the total sales composition for any chosen time period.

This table and graph displays both the value of media investments for the period as both a percentage of total sales and a dollar figure, and provides TIME dotCom with a clear understanding of the commercial value of

media investment across both product and brand marketing, and what percentage of sales would be lost if all media investments were cancelled.



Screenshot of Financial Overview (Sample data used for illustrative purposes)



Screenshot of Financial Overview (Sample data used for illustrative purposes)

### 3.5 Does digital media drive offline sales?

GrowthOS accurately indicates cross-channel media performance with a unified approach to measurement that helps TIME dotCom better understand cross-channel effects, such as the impact of digital advertising to offline sales.

GrowthOS displays the incremental contribution of each marketing channel to overall sales. TIME dotCom would be able to explore how digital media contributes to driving overall sales, and compare this to the known revenue generated from offline sales. By doing so, you are doing this in a way that is incremental and distinct from the contributions of other channels.

- The primary objective of GrowthOS is to improve the efficiency of future media activity, using rigorous statistical analysis to infer the incremental revenue delivered by media channels and marketing objectives.

Measuring the incrementality of marketing investment and accounting for cross-channel contribution to overall sales is essential to accurately attribute the overall impact of different marketing elements.

- Our solution specifies the causal relationships between marketing tactics and business outcomes. This involves identifying the key marketing variables and how changes in these variables are expected to influence the response variable (e.g. sales).
- By using Bayesian Hierarchical Modeling, we estimate the parameters of the model which allows for incorporating prior knowledge, dealing with uncertainties, and capturing the hierarchical structure of the data.
- We conduct counterfactual analysis to estimate what would have happened in the absence of marketing interventions. This involves comparing the observed outcomes with the predicted outcomes in a scenario where marketing investments are set to zero.
- We utilise saturation curves and ad stocks to visualise the impact of each marketing channel on the response variable over time. These curves help quantify the incremental effect of each tactic during active periods, providing a deep understanding of incrementality or marginal contribution of increasing / decreasing investment in each channel.

In GrowthOS, we analyse how the inclusion of digital media in the marketing mix contributes uniquely to sales outcomes, considering both its individual effect and its combined impact when integrated with other marketing channels.

This involves evaluating the cross-tactic contributions and channel dynamics to understand the specific role of digital media in driving offline sales within the broader marketing context.

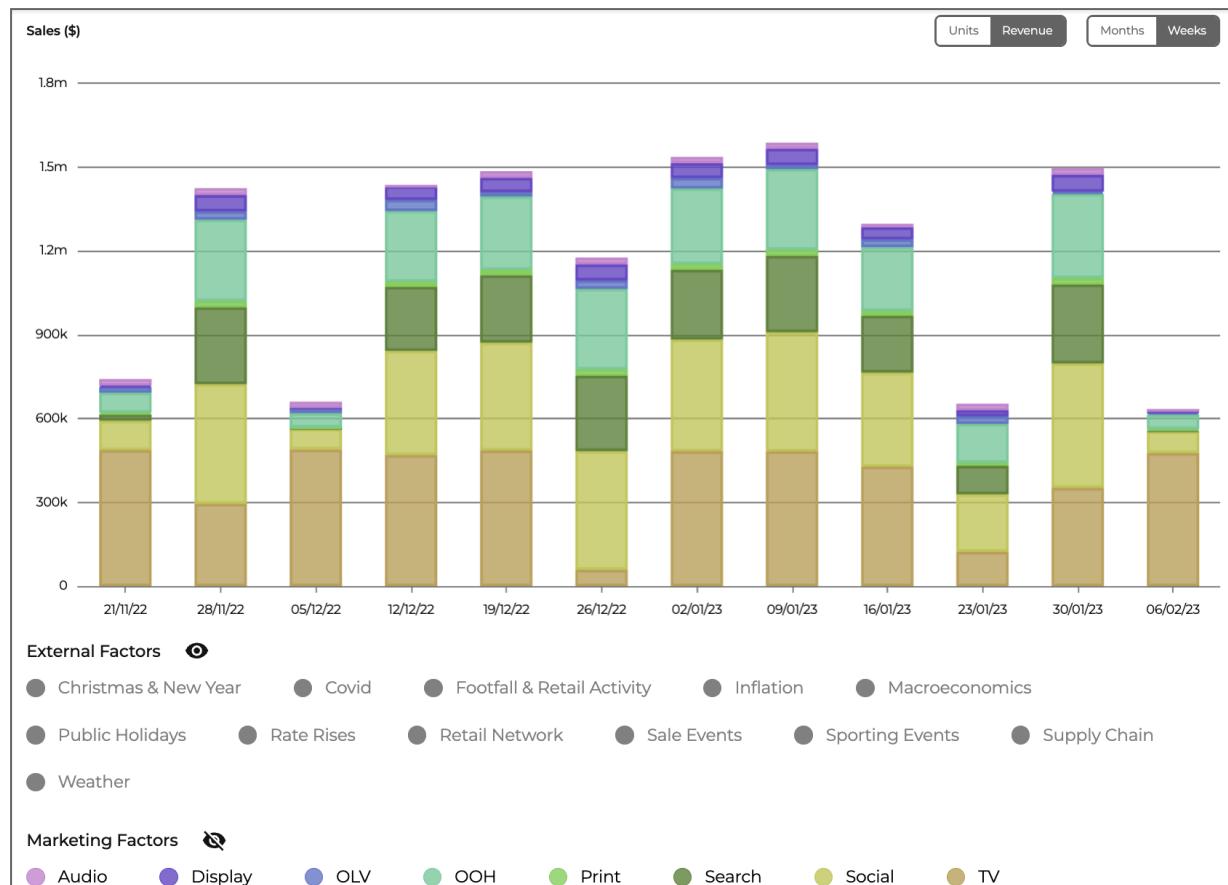
- The model allows for the multiplicative effect of different channels working together. When looking at the ROIs of each channel, the model will include the synergies of other channels being live showing the true contribution of cross-tactic contributions.
- Insights around the relationship between tactics and channels can be surfaced in the Sales decomposition feature, where specific periods can be compared to help identify how different tactics and channels work individually as well as together.
- Within our solution, the 'Scenario Planner' feature takes into consideration both the efficiency of a channel as well as the way channels work together - the synergy effects.

The following anonymised case study provides an example of the synergistic effects between channels and how you can understand how the combination of various tactics, including digital media, influences the overall sales outcome.

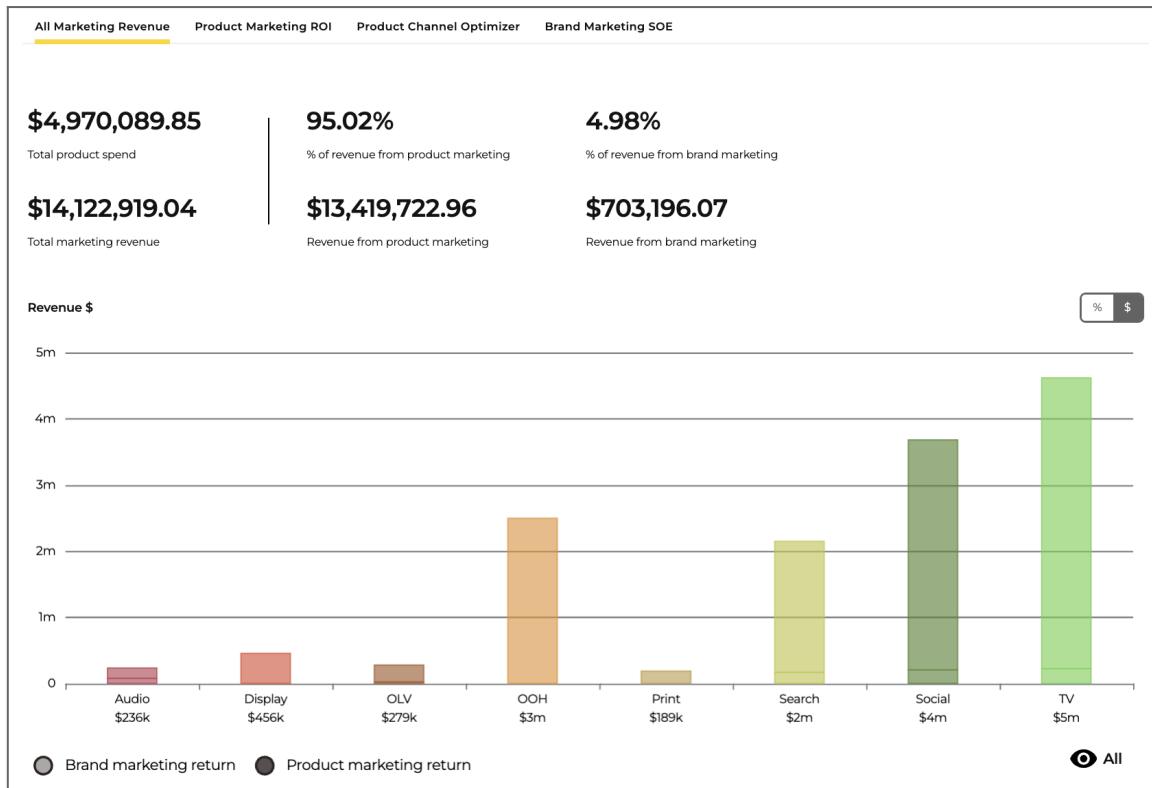
#### **Case Study 1: Validate the synergy between channels & extract the optimal flighting for greater MROI:**

<p><b>With a consistent investment in TV, a global CPG brand had a rare two week period with TV and OLV turned off. The brand wanted to measure the effect of having these two key sales drivers off and understand what value could be extracted for future planning.</b></p>	<p><b>Challenge</b> The customer wanted to evaluate the relationship between TV, Search and OLV, as well as the effect on overall MROI.</p> <p><b>Solution</b> GrowthOS was able to identify the following:</p> <ul style="list-style-type: none"> <li>The synergistic relationship between Paid Search &amp; TV</li> <li>The optimal flighting and weighting for TV &amp; OLV</li> </ul> <p><b>Results</b> The Customer was able to use the ROI channel optimiser feature (alongside adstock) to compare both digital and non-digital channels within the same methodology to show that Paid Search performs better with TV on. Whilst also learning that the optimal flighting for TV is 3 weeks, with spend off for two weeks the MROI for the channel dipped by -82%.</p>	<p><b>MROI with TV &amp; OLV on</b></p> <p><b>+56%</b></p> <p><b>Extremely efficient and effective channel with clear ad stock results</b></p> <p><b>Paid Search with TV &amp; OLV on</b></p> <p><b>+33%</b></p> <p><b>Clear evidence of a synergistic relationship</b></p>
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Our model is not impression based. We move beyond impression-based modelling by looking at all channels as well as non-marketing factors such as seasonality, economic indicators and competitive activities. Our model takes into account price, products and non-media factors to provide a true marketing mix analysis.



Screenshot of GrowthOS Sales Composition feature, with long-form driver analysis (Sample data used for illustrative purposes)

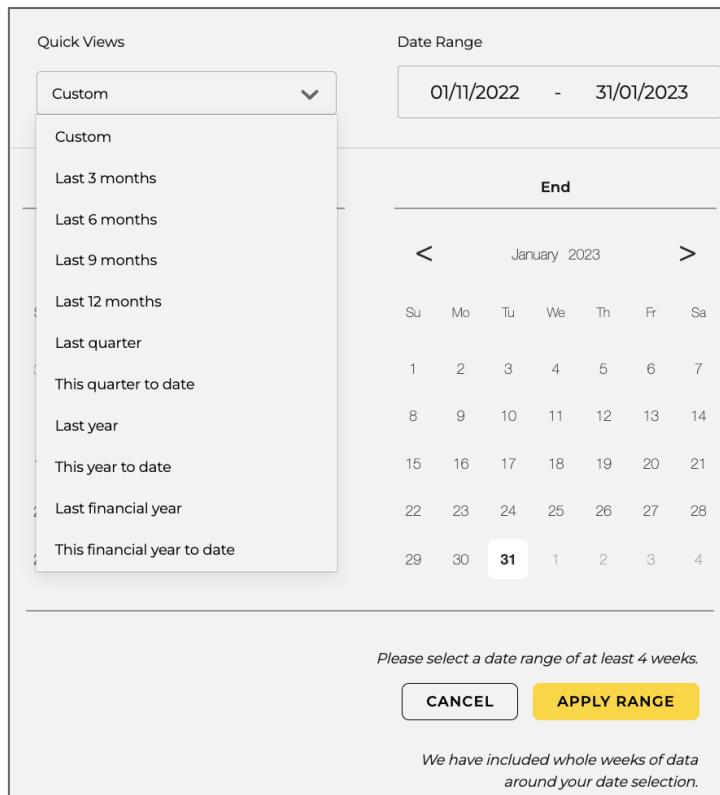


Screenshot of GrowthOS ROI Optimiser (Sample data used for illustrative purposes)

### 3.6 What is the historic ROI for each media channel?

GrowthOS is able to display the historic ROI for each media channel on-demand as a result of its model being time varying, meaning it is highly calibrated against the changing business, media and external dynamics; performing analysis on historical and new data.

- Review historical performance and contribution of channels.
- Review spend and performance of each channel over time.
- Compare channel effectiveness against other channels over any given time range.



Screenshot of Time Range Dropdown (Sample data used for illustrative purposes)

### 3.7 What is the marginal ROI for each media channel?

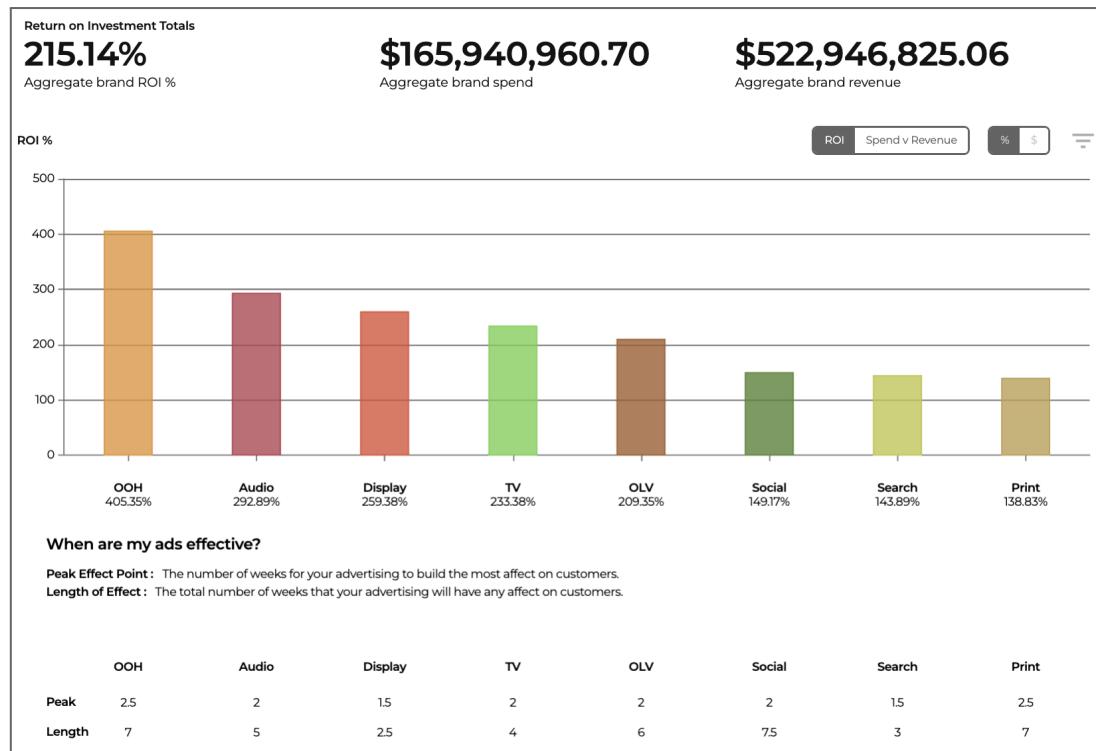
As discussed in [3.5](#), GrowthOS determines the incrementality of media, and is able to do so at a granular level, by meticulously incorporating four key variables including creative, format, publisher, and geography, for each individual marketing channel.

To assess this incrementality, the model conducts rigorous counterfactual analyses, isolating the individual impact of media variables. Utilising influence curves, we visualise and quantify the incremental effects of each creative, format, publisher, and geography, providing a nuanced understanding of their contributions.

In determining maturation intervals, our model conducts sophisticated time lag analyses. This process helps identify when the effects of marketing activities stabilise or reach a plateau. By carefully examining the evolution of each variable's impact over time, we pinpoint when the full effects are realised.

Furthermore, our solution breaks down key drivers of sales, including baseline sales, price/promotion-driven sales, owned media-driven sales, external factors (promoters and detractors), and marketing/media-driven sales.

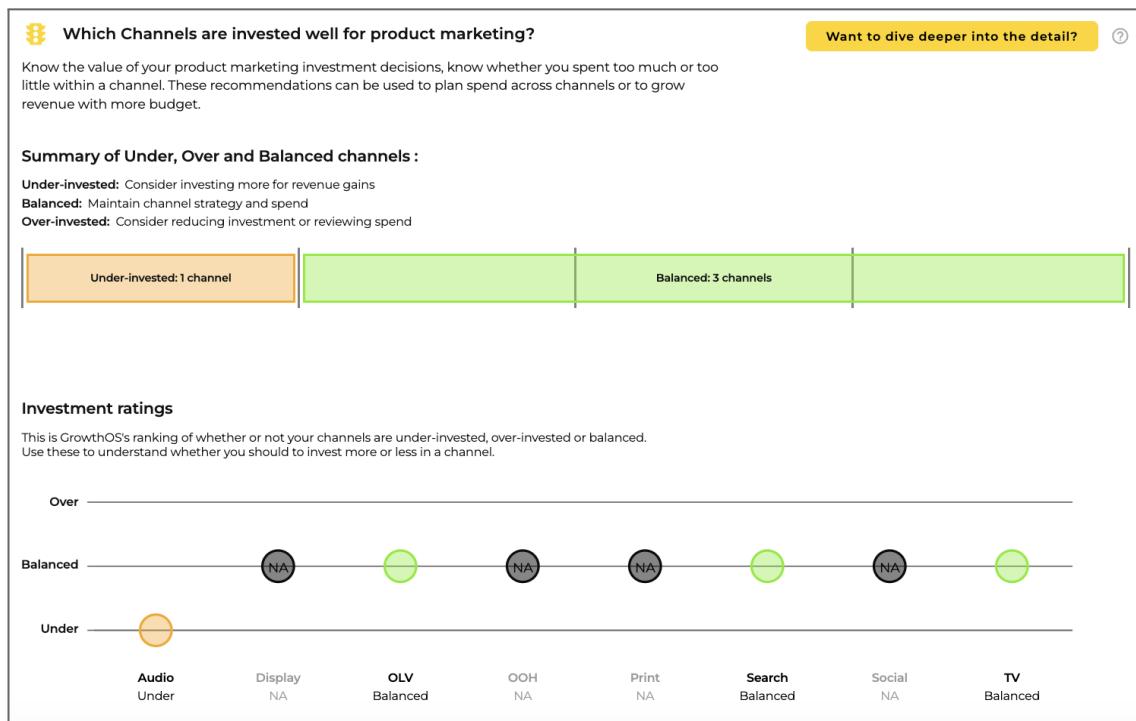
This comprehensive approach ensures a thorough understanding of the intricacies of incrementality and maturation intervals, allowing for precise optimisation and strategic decision-making through an understanding of the marginal ROI for each media channel.



*Screenshot of ROI Optimiser Tool (Sample data used for illustrative purposes)*

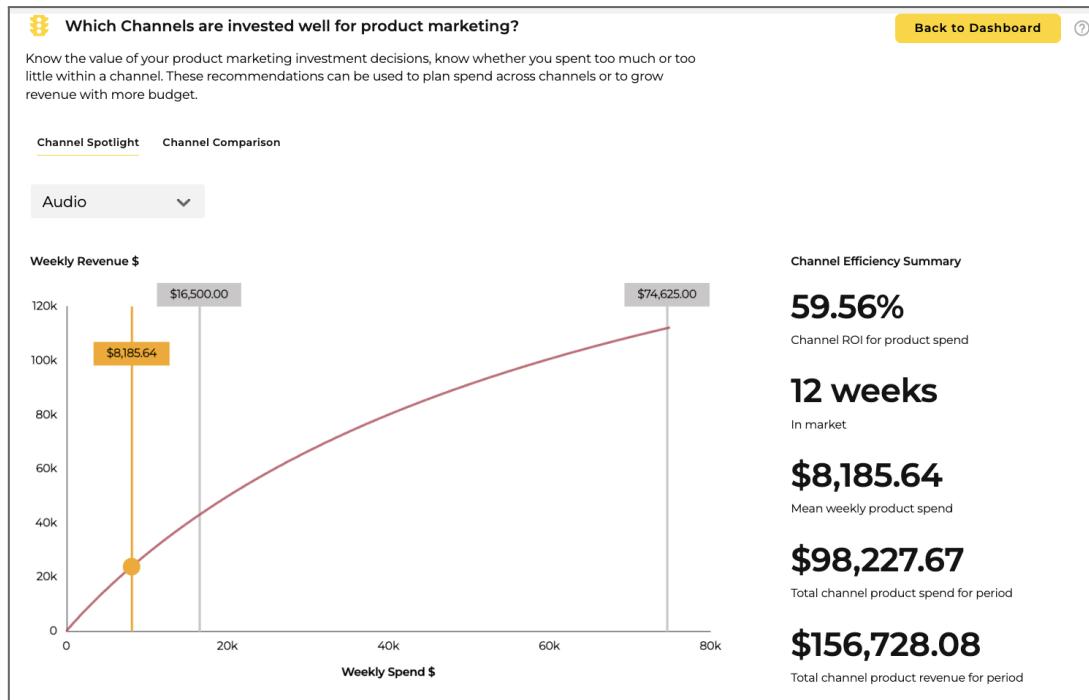
### 3.8 What is the recommended budget allocation for each channel?

The GrowthOS model provides a breakdown of the minimum and maximum levels of investment per channel as Saturation Curves with easy to follow guidance ranges on where to spend to drive channel efficiency and maximise ROI.



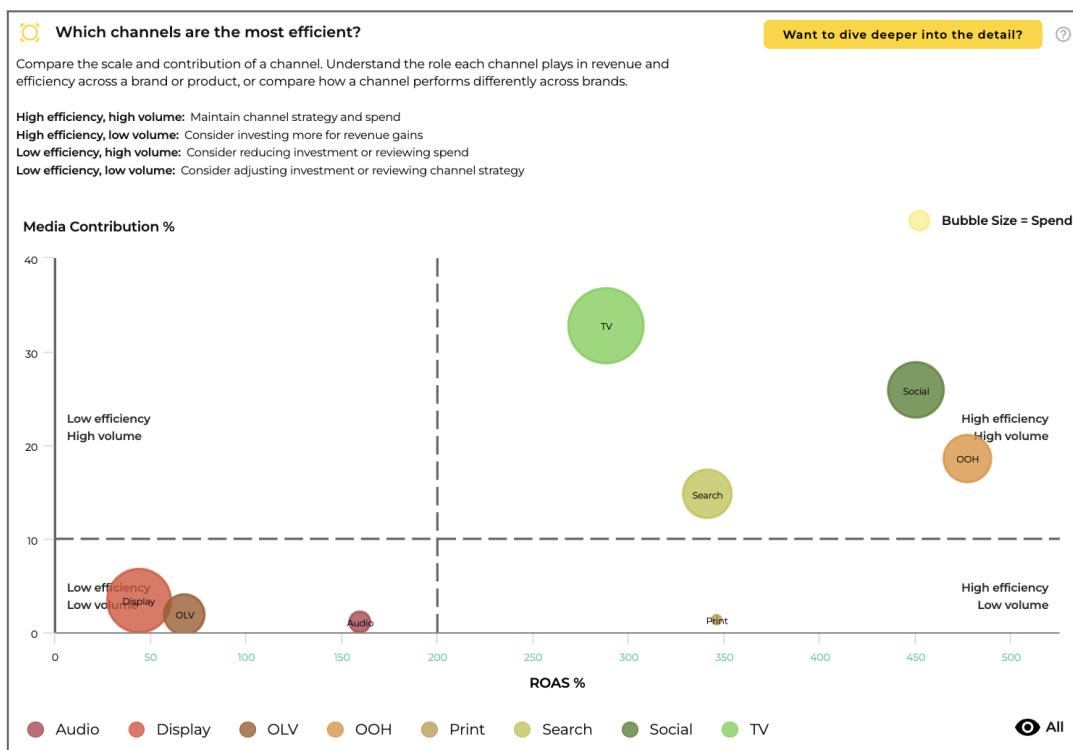
*Screenshot of Saturation Curves (Sample data used for illustrative purposes)*

For optimal investment levels, we look towards our saturation curves. We produce saturation curves for both 'brand' (upper funnel) and 'product' (lower funnel) investment, which provides clear guidance on the optimal levels of investment in each channel across each of those objectives.



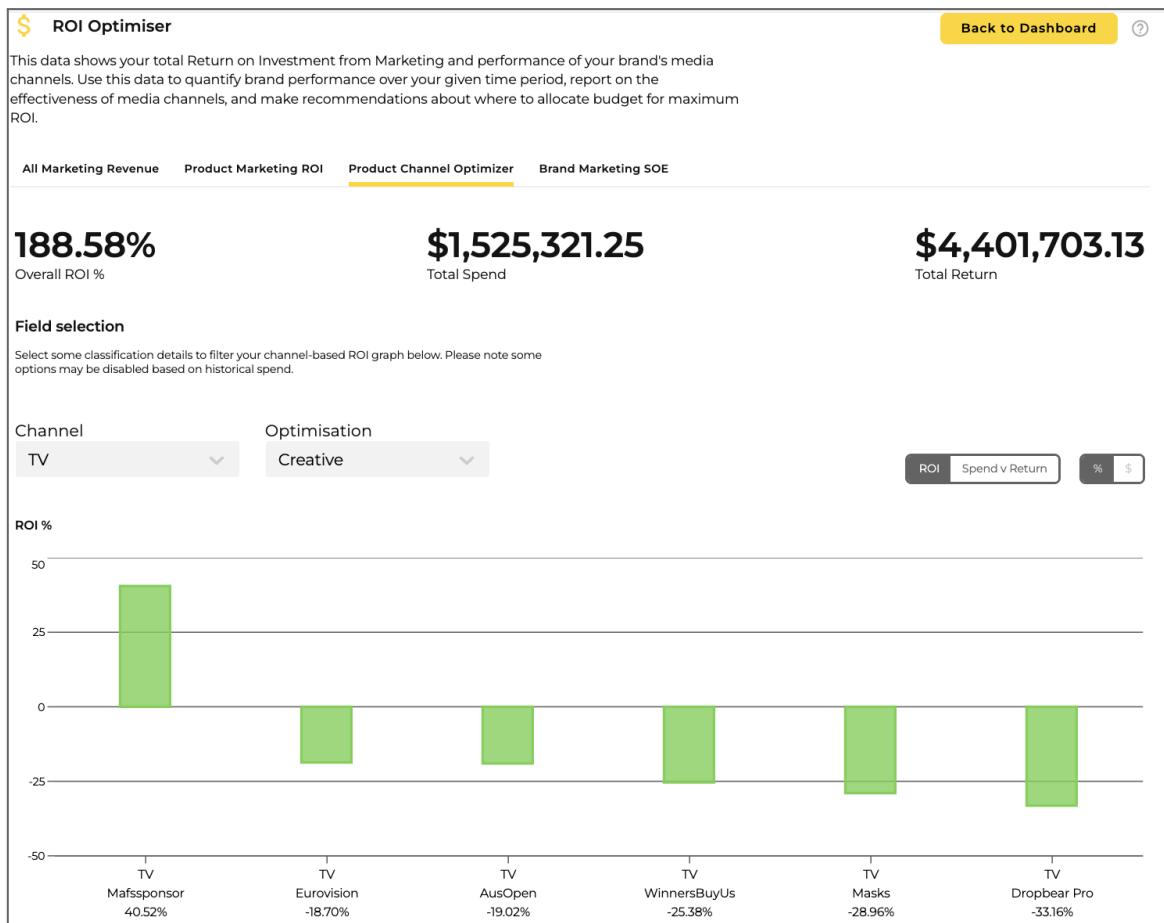
Screenshot of Saturation Curves (Sample data used for illustrative purposes)

Similarly, using the Channel Effectiveness tool, you can dig into each channel to look at the effectiveness and performance, and use that to identify areas to improve or expand.



Screenshot of Channel Mix Optimiser (Sample data used for illustrative purposes)

Mutinex's ROI optimiser tool gives you the flexibility to break out each channel by creative/campaign, geography, publisher and format. This means you have the ability to label creative based on age, gender etc. As these insights are delivered at a product level, you will absolutely be able to measure and improve both the channel mix and tactics within channels against different variables or segments.

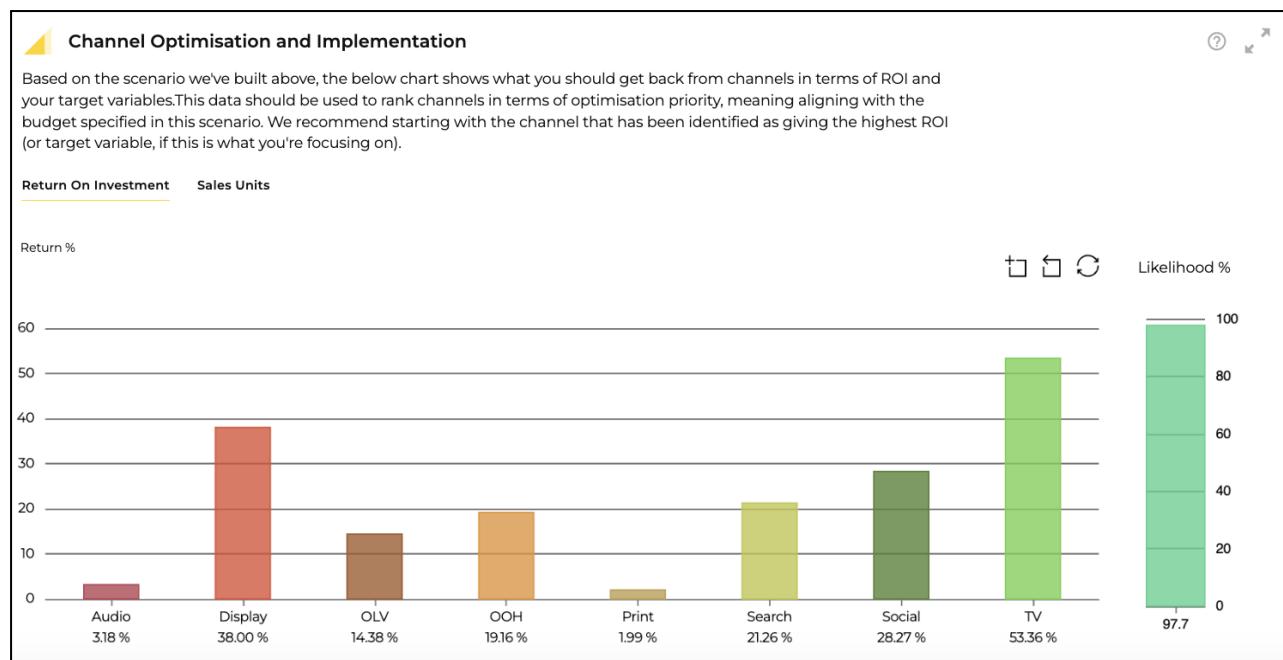


Screenshot of ROI Optimiser (Sample data used for illustrative purposes)

Specific to high value customers; the most common way our customers do this is they apply different lifetime values to different products.

For example in the case of TIME dotCom, a 2Gbps high-bandwidth gaming customer might have a different lifetime value to that of a 100Mbps small household broadband customer. By applying this approach, you would be able to look at the MROI across each new customer generated, and in doing so identify the appropriate channel mixes and levels of investment for products that have a higher LTV versus ones that are lower.

From a more holistic perspective, Scenario Builder is able to take a total budget and provide the optimal channel mix across channels (upper & lower funnel) to maximise MROI or revenue. The scenario planning tool allows you to run different scenarios and get predicted results across channels and on overall business performance.



*Screenshot of Predict Tool (Sample data used for illustrative purposes - TIME dotCom is expected to have access to Predict 2.0 and new features)*

Our hierarchical model understands that upper funnel and lower funnel investment behaves differently, and has different effects. Our model treats their investment differently, and we surface results in such a way that TIME dotCom can quantify the impact that their investment at different stages of the funnel is having.

### 3.9 Which tactics (creative, targeting, ad formats) contribute most to my media profitability?

Creative, targeting and ad formats are all key drivers of differences in channel effect and measurable in GrowthOS to help TIME dotCom understand which tactics contribute most to its media profitability. Tactical performance drivers of media in GrowthOS inform TIME dotCom how decisions on creative, format, geography and publisher are responsible for driving up or down that media channel's ROI.

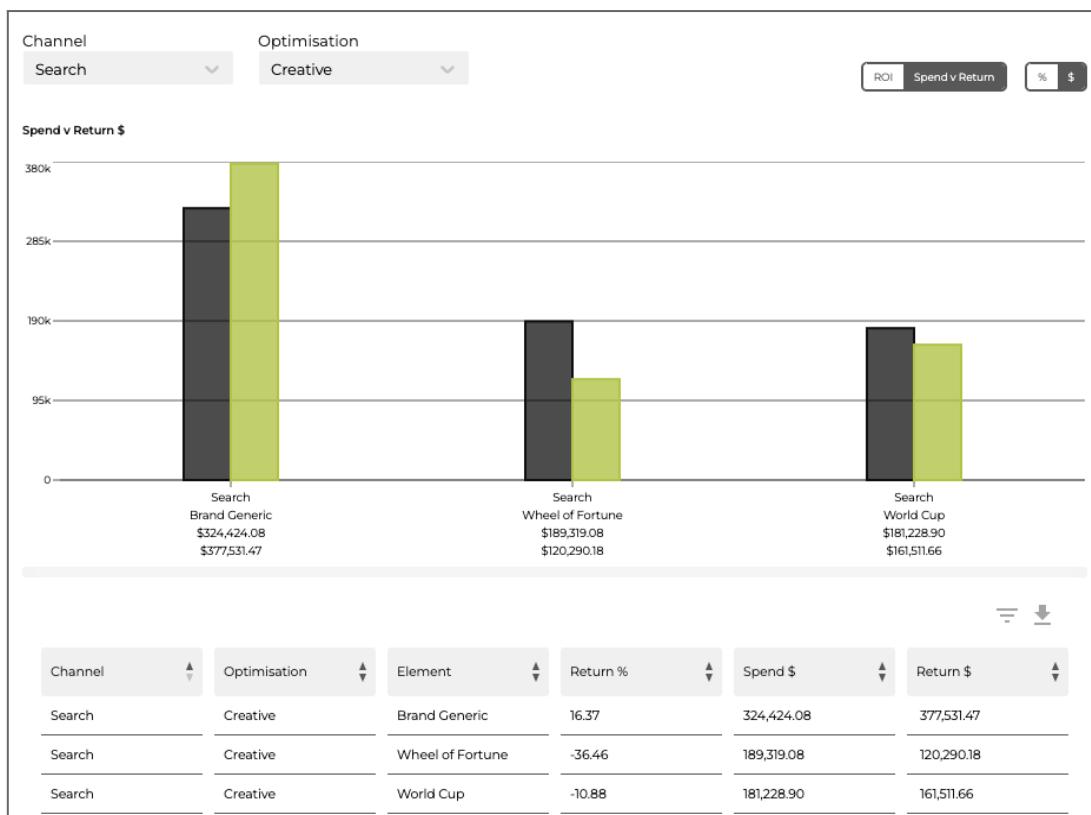
This quickly helps TIME dotCom to optimise channel execution, and inform on a monthly basis how channel spends are allocated in the future based on media profitability.

Alongside labelling for format, publisher, and geography, the labelling for creative on media is also flexible and allows TIME dotCom to understand performance at a granular tactical level and can be used to improve the effectiveness of campaigns.

Creative labelling is commonly used to split out creative by purpose (eg retargeting), audience segment (eg millennials), customer/member benefit) etc. We've seen more mature uses of this feature to include personalised versus non-personalised.

Whether it is understanding performance by channel, or what message to actually run for the brand, for example, decisioning around strategic media consideration in the ROI Optimiser can also unlock answers to the following types of questions for TIME dotCom:

- Which of our campaigns worked best for MROI?
- Which messages/content worked best for MROI?
- Are certain ad specs better for driving MROI?
- Are certain devices better for buying ads against for MROI?
- What region should we invest in for MROI in this channel?
- Should they prioritise metro or regional for MROI in this channel?
- Am I better investing in one publisher over another?
- Am I better buying direct or via programmatic exchanges?



Screenshot of ROI Optimiser Tool (Sample data used for illustrative purposes)

### 3.10 What are the direct and indirect effects of media channels?

GrowthOS provides a comprehensive analytical framework for understanding the direct and indirect effects of media channels. Our sophisticated statistical analysis untangles the complex relationships between marketing activities and business performance, allowing TIME dotCom to make more informed overall resource allocation.

GrowthOS allows TIME dotCom to isolate the direct impact of each media channel individually by analysing its contribution to the overall business metrics. This involves assessing how changes in a specific media channel (e.g., digital media) directly correlates with changes in sales or other key performance indicators.

By analysing historical data, you can quantify the direct contribution of each media channel to observed outcomes and its effectiveness. This helps in understanding the effectiveness of individual channels in driving business results. The time-varying nature of the GrowthOS model will help TIME dotCom capture trends and patterns over time, helping to identify both immediate and delayed effects of media channels.

Our approach also addresses one of the major weaknesses of conventional MMM; using weighted coefficients and assuming the impact of channels and ad stocks are constant, and don't change over a particular time period.

GrowthOS identifies lag effects (ad stock), where the impact of a media channel persists over time. GrowthOS treats adstock as a dynamic time varying element, so not only do we model and report on the length and peak effects for each channel, we look at that change in the lag/ad stock over time on a continuing basis.

This is critically important because it means we can measure and quantify the impact of changes in creative assets across each individual channel, and importantly see how creative effectiveness changes over time. Understanding the carryover effects of a channel on future outcomes, provides insights into its indirect influence.

**When are my ads effective?**

**Peak Effect Point:** The number of weeks for your advertising to build the most affect on customers.  
**Length of Effect:** The total number of weeks that your advertising will have any effect on customers.

	OOH	Print	Social	Search	TV	Audio	OLV	Display
<b>Peak</b>	2.5	3	2	1.5	2	2	2	1.5
<b>Length</b>	2	2	4	3.5	4.5	5.5	5.5	4.5

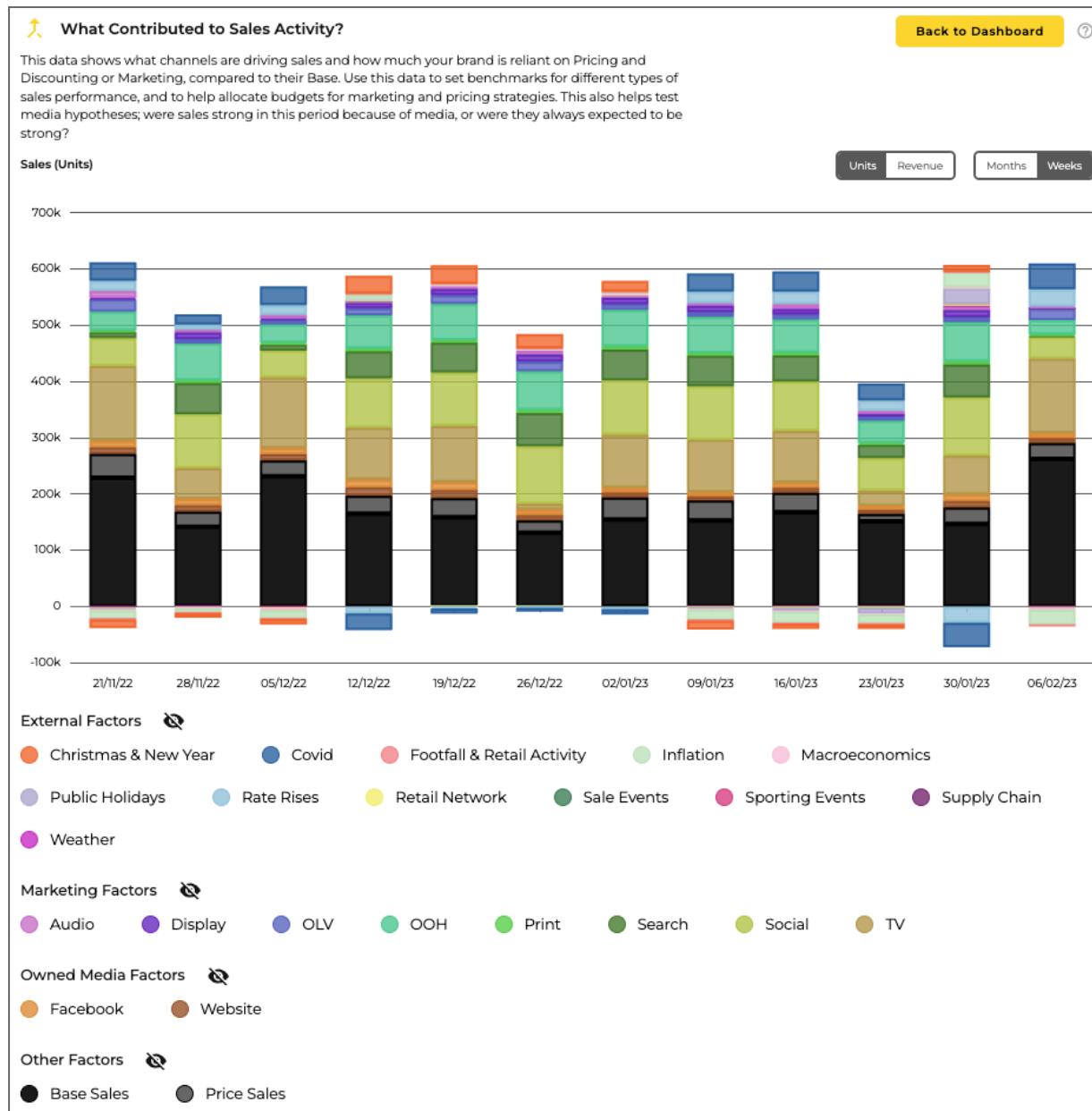
*Screenshot of ROI Optimiser Tool (Sample data used for illustrative purposes)*

In our response to [3.5](#) we shared an anonymised case study demonstrating the synergistic effects between channels. GrowthOS enables TIME dotCom to understand how different channels work together synergistically to influence business outcomes. For instance, TIME dotCom's digital media might contribute to brand awareness, impacting offline sales indirectly. The following anonymised case study demonstrates how an understanding of the effects of adstock supported their campaign planning together with their agency.

**Case Study 2: Finding ideal channel allocations just before peak period**

<p><b>A health brand in Retail sought validation and enhancement for their campaign weighting through GrowthOS. They relied on GrowthOS' output over their original strategy to more effectively shape their agency's investment and channel strategy</b></p>	<p><b>Challenge</b> The customer aimed to maximize the efficiency of their \$1m budget for an upcoming campaign, ensuring it generated the highest possible sales.</p> <p><b>Solution</b> GrowthOS was able to identify the following:</p> <ul style="list-style-type: none"> <li>• The optimal weighting for its Brand activity as well as flighting, through adstock understanding</li> <li>• Channels that had worked previously which they had disregarded.</li> </ul> <p><b>Results</b> The Customer was able to use the ROI Optimiser and Saturation Curves to show what return their Marketing budgets would achieve if they moved budget from Performance channels into Brand. Landing on the optimal mix for Brand, they were then able to brief their Agency with a data driven approach.</p>	<p><b>Budget reallocated:</b></p> <p><b>20%</b></p>	<p><b>Extended campaign for</b></p> <p><b>+1 week</b></p> <p><b>In order to meet Peak effect</b></p>
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Understanding the dynamics between channels helps in optimising the overall strategy for maximum impact.

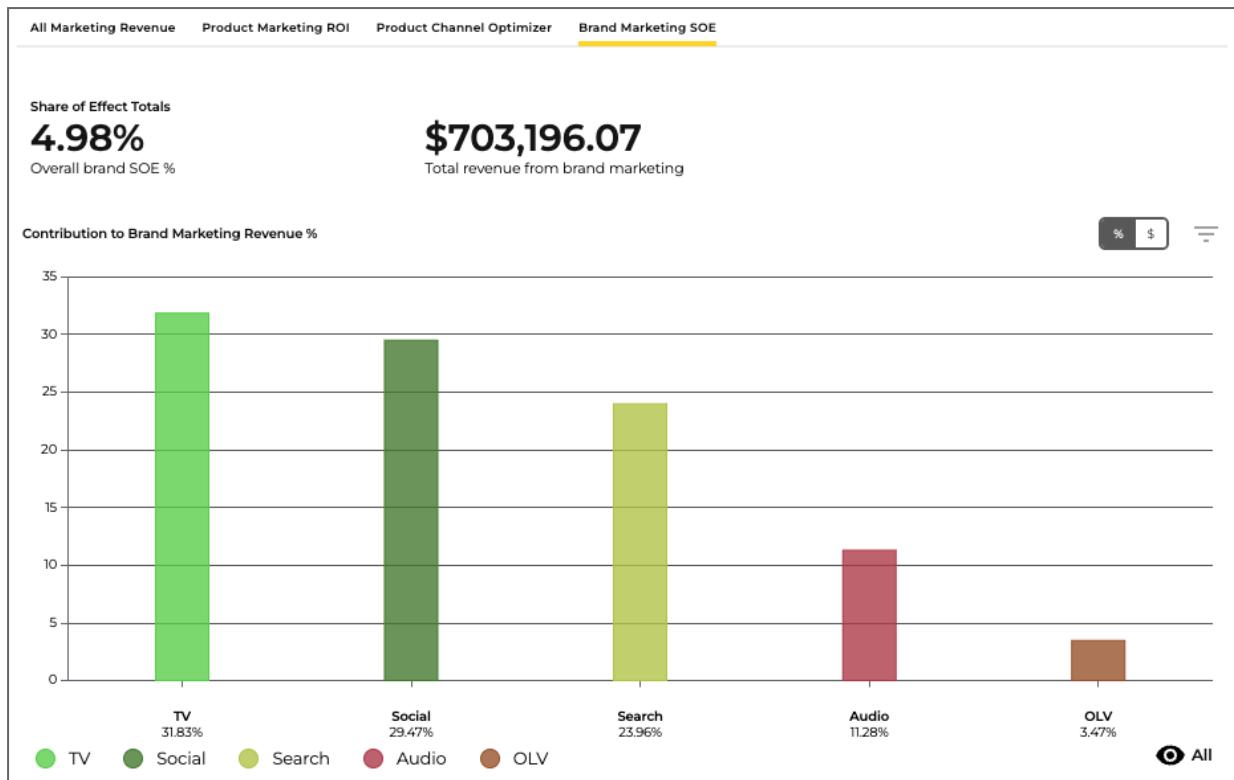


Screenshot of Sales Composition Tool (Sample data used for illustrative purposes)

### 3.11 How does my media drive both short and long-term sales?

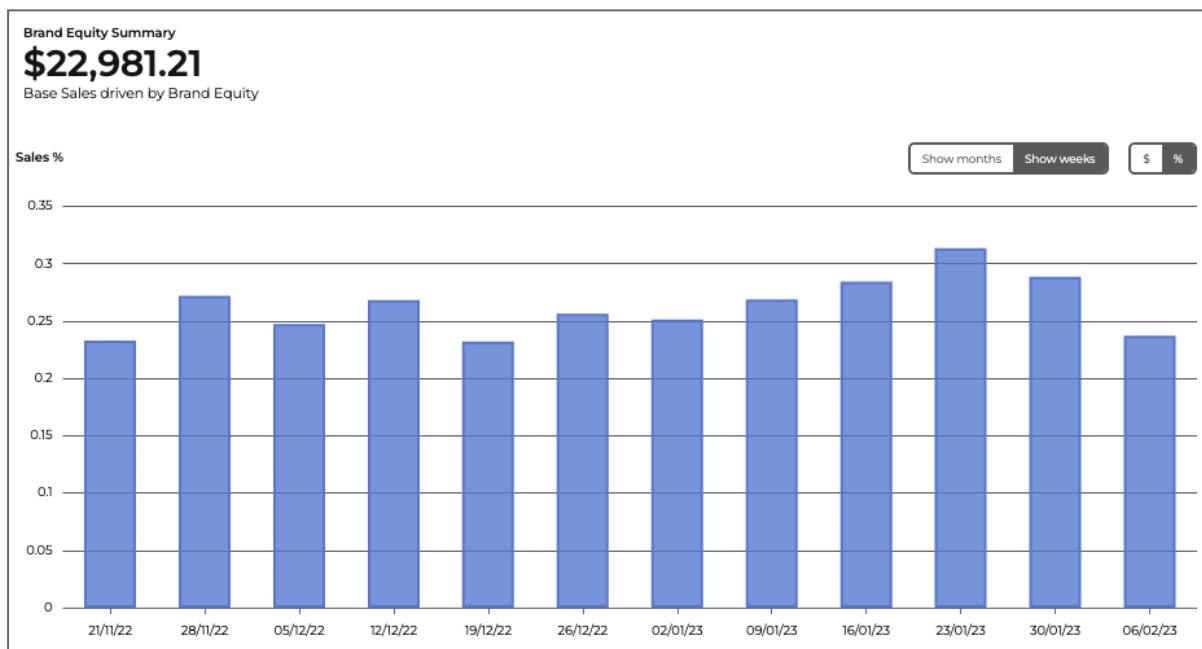
TIME dotCom will be able to prove MROI and capture the short and long term effects of its media using GrowthOS.

The ROI Optimiser provides TIME dotCom with a brand vs product view of its media, unlocking ROI insights across the full sales funnel, from top of funnel to conversion, helping maximise media efficiency and drive impact throughout the funnel.



Screenshot of ROI Optimiser Tool (Sample data used for illustrative purposes)

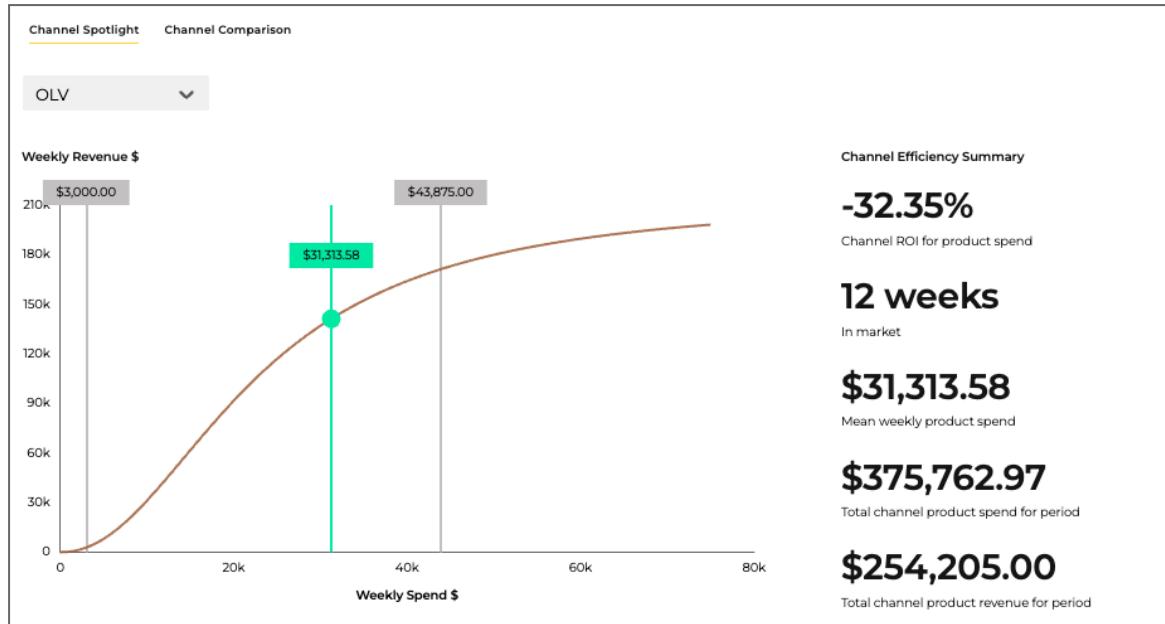
Through the Brand Equity tool, TIME dotCom will also be able to quantify the long term effect of Brand investment; the portion of baseline sales being driven by brand equity and being able to define the impact of brand as revenue back to the business.



Screenshot of Brand Equity Tool (Sample data used for illustrative purposes)

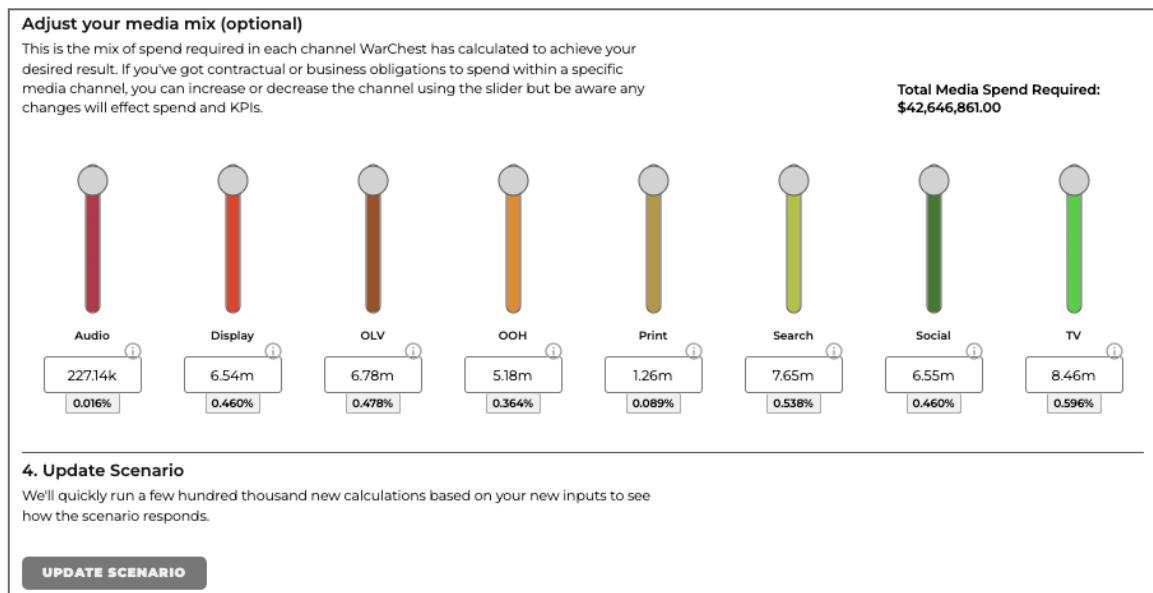
Our hierarchical model understands that upper funnel and lower funnel investment behaves differently, and has different effects. Our model treats their investment differently, and we surface results in such a way that marketers can quantify the impact that their investment at different stages of the funnel is having.

For optimal investment levels, we look towards our saturation curves. We produce saturation curves for both 'brand' (upper funnel) and 'product' (lower funnel) investment, which provides clear guidance on the optimal levels of investment in each channel across each of those objectives.



Screenshot of Saturation Curves (Sample data used for illustrative purposes)

From a more holistic perspective, Scenario Builder is able to take a total budget and provide the optimal channel mix across channels (upper & lower funnel) to maximise MROI or revenue.



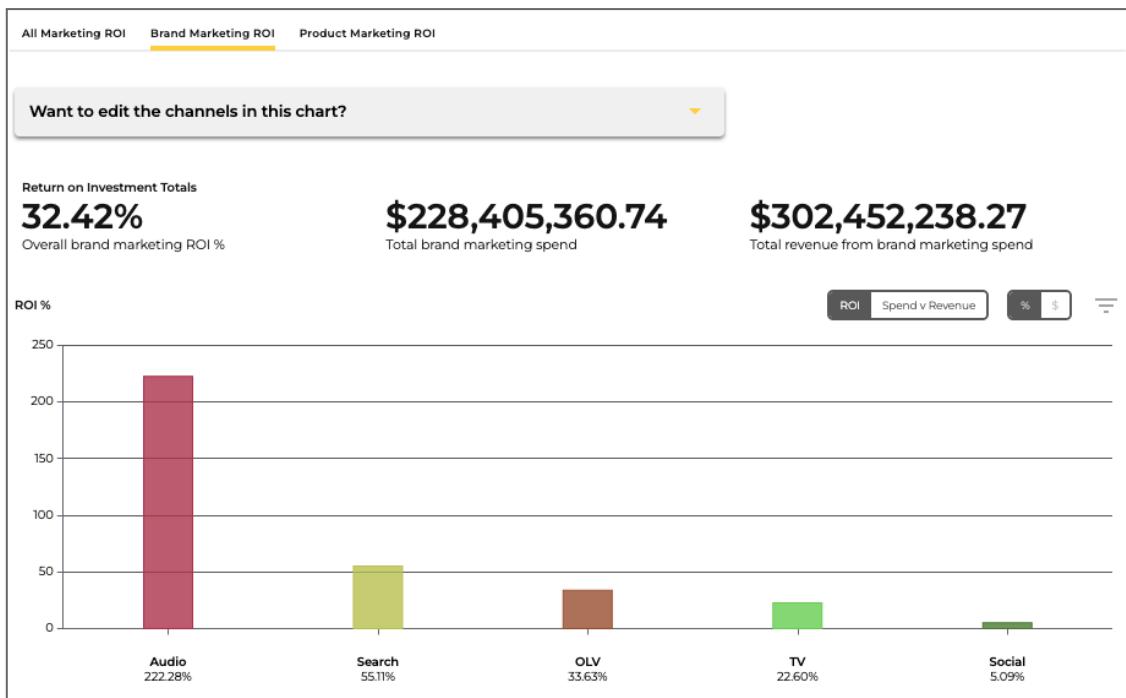
Screenshot of Predict Tool (Sample data used for illustrative purposes - TIME dotCom is expected to have access to Predict 2.0 and new features)

### 3.12 How do media channels compare in their ability to drive sales and brand outcomes?

Extending from our previous response to [3.11](#), and ability to address the short term and long term effects of media. GrowthOS has four key ways in which it provides valuable insights around brand, and these should help TIME dotCom drive better channel mix and tactical mix decisions aligned to business outcomes.

### **Brand vs Product Marketing**

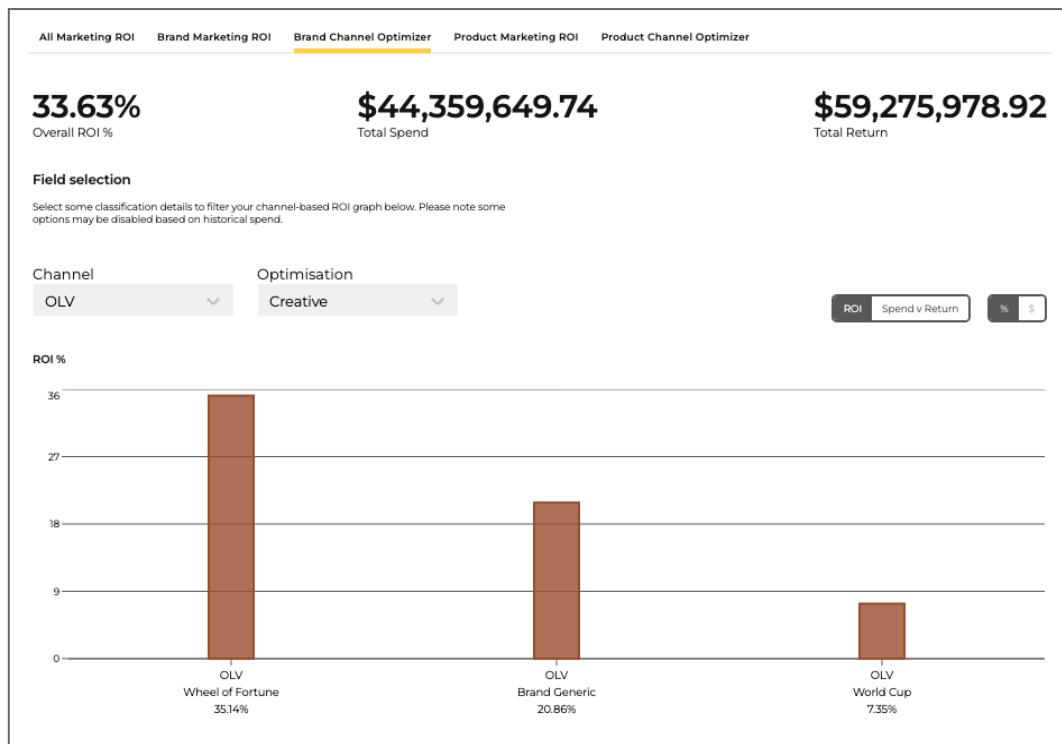
One of the key features within GrowthOS is our ability to separate out Brand/Awareness marketing from lower funnel activity. This allows marketers to start to unpick the different elements at different stages of the funnel, and understand which channels are driving impact and which aren't. For example, this would help you determine if OOH is a good channel for 'Brand' activity.



*Screenshot of ROI Optimiser tool (Sample data used for illustrative purposes)*

### **Channel deep dive**

Within every channel we can break out geography, publisher, format and creative in GrowthOS. For example, this is where if you have different creative messages in OOH (i.e. one that is more 'brand' and one that is more 'consideration') you could use the creative tab (as shown below) to break out the different versions. This will give you insight as to which message, format etc. are driving the best business outcome - rather than trying to tie it back to a brand metric.

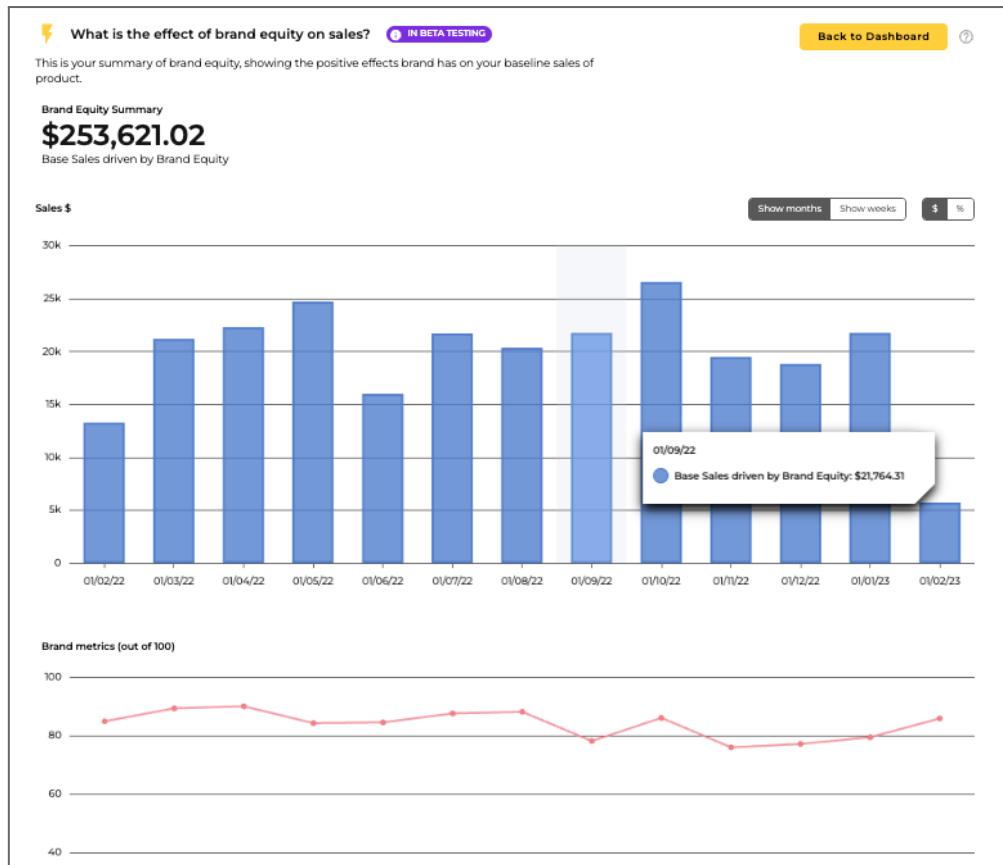


Screenshot 32: ROI Optimiser (Sample data used for illustrative purposes)

### Brand equity / long term effect

The GrowthOS model recognises there's short and long term effects to brand investment. The Brand Equity tool allows GrowthOS to quantify the commercial impact of changes in TIME dotCom's key brand metrics. We surface those results alongside the brand metrics (see screenshot below), to give you a clear picture of the impact of changes in brand metrics on business performance. This feature helps move brand metrics from 'I think these impact sales' to 'I know how much a change in these metrics is impacting our bottom line'.

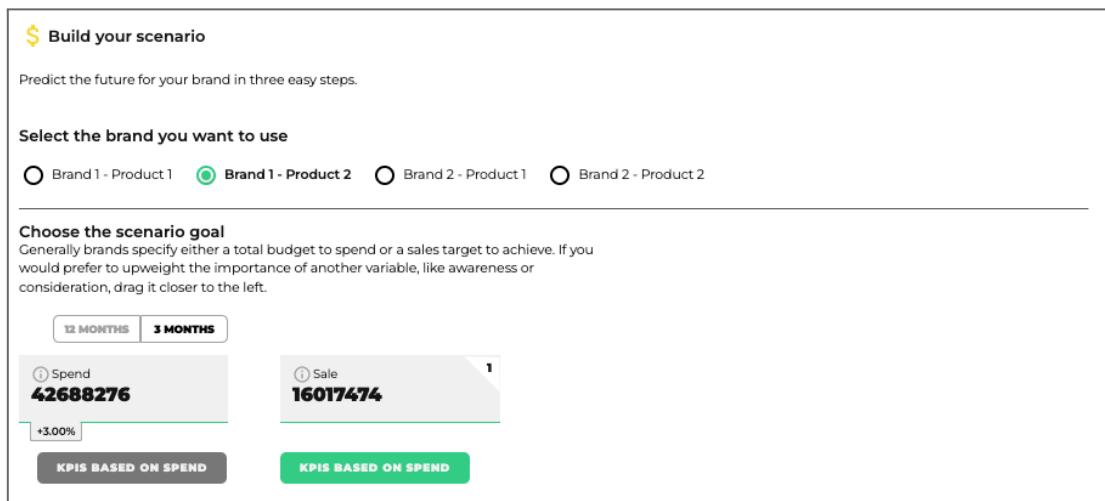
Note, GrowthOS will not provide insight as to which media channels drive explicit brand outcomes (i.e. consideration, awareness, etc.) as all modelling is done against the primary business objective KPI.



Screenshot 34: Brand Equity Tool (Sample data used for illustrative purposes)

### Scenario Planning / future decisions

Our scenario planner gives you the ability to take everything you've seen above, and bring it into your future planning by setting % of budgets or dollar amount across brand vs product marketing, and then going deeper into each product category and product.



Screenshot 35: Predict Tool (N.B. Demo Account - TIME dotCom is expected to have access to Predict 2.0 and new features)

### **3.13 How do I balance my media mix to drive both short and long-term sales?**

Our hierarchical model understands that upper funnel and lower funnel investment behaves differently, and has different effects. Our model treats their investment differently, separating the impact of your marketing at both Brand and Product Levels, and we surface results in such a way that TIME dotCom can quantify the impact that their investment at different stages of the funnel is having.

Further to how this is addressed in our response in [3.8](#), we address how GrowthOS measures the long term effectiveness of upper funnel marketing in three key and core ways.

1. Firstly, we maintain 'time varying' as a key and core concept within the model. This allows us to create a time varying adstock, which is able to account for the different long-term incremental effects of creative and campaigns. We can then see non-linear effects of media over a period of many weeks. This time varying adstock is unique to the market and allows for creative to be a key inference point within the model.
2. Secondly, our time varying Adstock maintains peak and length of effect of media. More influential or "brand building" media tends to have a longer modelled effect, which in turn allows us to see the deeper effects over longer periods of time.

We maintain both brand and product marketing views to better support viewing these dynamics directly, and to look at "long" and "short" channels. With our model being hierarchical, and Bayesian priors embedded at each level, this allows us to translate work like "The Long and the Short of It" directly into how the model behaves and seeks understanding from the data.

3. Finally, our world first Brand Equity model allows for conversion of long build up equity trends against baseline modelling. This baseline modelling focuses on understanding how equity impacts long-term brands well. All ads can have a non incremental effect in that exposure to them over time enhances awareness and creates a long term brand building effect. This means by linking in brand equity data, we are able to provide the commercial impact from brand equity in driving sales, closing the loop on the "long" of advertising.

### **3.14 What are the synergies between media channels?**

In addition to how we address this in our response to [3.5](#), in summary,

- The GrowthOS model allows for the multiplicative effect of different channels working together. When looking at the ROIs of each channel, the model will include the synergies of other channels being live showing the true contribution of cross-tactic contributions.
- Insights around the relationship between tactics and channels can be surfaced in the Sales Composition tool, where specific periods can be compared to help identify how different tactics and channels work individually as well as together.
- The Predict tool takes into consideration both the efficiency of a channel as well as the way channels work together - the synergy effects.

### **3.15 The following KPIs are (planned to be) included in our MMM?**

Some of the KPIs provided are signals and some are KPIs. Ultimately in GrowthOS we have only one target metric, which is Total Sales. Your Marketing Science Partner and Marketing Data Analyst will support your decision discovery and KPI requirements as part of implementation process outlined in our previous responses to [2.1](#), [2.2](#), [2.5](#), [2.9](#)

- **Revenue Target**  
Total sales
- **Sales Channel**  
Online sales  
Offline sales
- **Brand Tracking Inputs**  
Purchase intent

- Brand consideration
- Brand awareness
- Brand preference/liking (we would use Brand Consideration)
- **Potential target metric for units**
  - Online action (leads, subscriptions, contracts, orders, etc.)
- **Possible Input**
  - Share of Search
- **Likely exclude**
  - Google query volume
  - Visit to site
- **TBD**
  - Offline actions
  - Total actions

Retention whilst not mentioned here is highly relevant and important to address for TIME dotCom in the context of KPIs.

Whilst retention can be modelled through MMM, we caution against using it as there are other factors that impact retention such as pricing, customer experience (connectivity, customer service etc.) and that whilst we do see media having some role, that role tends to be more through brand rather than specific retention initiatives.

With further consideration to some of the items on this list, it is also worth noting that Mutinex's offering does not provide multi-touch attribution (MTA).

MTA models which are reliant on third-party cookies and mobile advertiser IDs are increasingly at risk of becoming redundant as privacy regulations tighten over the coming years. Add to this the obvious limitations of MTA; the inability to incorporate non-media factors such as brand, pricing, external factors, sales channel impacts and above the line media channels, limits their usefulness beyond optimising channels and assets within their limited channel scope for efficiency.

Conversely, MMM relies on aggregated data and is therefore not impacted by the privacy landscape. MMM models the entire ecosystem, and provides insight into what is driving growth across your organisation.

## 4. Criteria: What we expect from you

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We believe Mutinex is best equipped to meet all of TIME dotCom's expectations in measuring the impact of Marketing, as detailed as follows:

### 4.1 Marginal ROIs (return on the next \$1 invested).

Measuring the incrementality of marketing investment involves understanding the causal impact of marketing activities on business outcomes.

Accounting for cross-tactic contributions is essential to accurately attribute the overall impact of different marketing elements. The following is an overview of how the process for each of these components work within GrowthOS:

#### **Measuring Incrementality**

- GrowthOS specifies the causal relationships between marketing tactics and business outcomes. This involves identifying the key marketing variables and how changes in these variables are expected to influence the response variable (e.g. sales).
- By using Bayesian Hierarchical Modeling, we estimate the parameters of the model which allows for incorporating prior knowledge, dealing with uncertainties, and capturing the hierarchical structure of the data.

- We conduct counterfactual analysis to estimate what would have happened in the absence of marketing interventions. This involves comparing the observed outcomes with the predicted outcomes in a scenario where marketing investments are set to zero.
- We utilise saturation curves and ad stocks to visualise the impact of each marketing channel on the response variable over time. These curves help quantify the incremental effect of each tactic during active periods, providing a deep understanding of incrementality or marginal contribution of increasing / decreasing investment in each channel.
- The model also allows for the multiplicative effect of different channels working together. When looking at the ROIs of each channel, the model will include the synergies of other channels being live showing the true contribution of cross-tactic contributions.
- Insights around the relationship between tactics and channels can be surfaced in the Sales Composition tool, where specific periods can be compared to help identify how different tactics and channels work individually as well as together.
- The Predict Tool and its Scenario Planning capability takes into consideration both the efficiency of a channel as well as the way channels work together - the synergy effects.

GrowthOS can effectively measure the incrementality of marketing investments and account for the cross-tactic contributions, providing a more accurate and nuanced understanding of the effectiveness of the entire marketing mix.

## **4.2 Response curves.**

We discuss response curves (Saturation Curves) in our response to [12](#). Saturation Curves reflect the idea that marketing spend can exhibit diminishing returns: eventually, if all the customers that might be inclined to buy your product have heard about it, and have bought it, any additional spend has less impact on your return. Our saturation curves are not defined in terms of reach, but spend versus revenue. Our Bayesian model applies a saturation function on paid media data right after it has been adstocked (carry over time). These saturated spends are then used in our final calculations for revenue, allowing us to provide a curve describing diminishing returns between adstocked spend and the sales target.

## **4.3 Hypotheses as to which factors influenced media ROIs.**

Our generalised model approach allows for the inclusion of various marketing variables (independent variables) such as advertising spend, promotions, pricing, and other factors that may influence business outcomes. Factors that affect media ROIs - The Sales Composition tool will essentially show factors which influenced media ROI because it shows the impact of the external factors themselves.

Our solution employs Bayesian hierarchical modelling with a generalised model that helps identify and quantify the drivers of marketing investment by incorporating prior knowledge, handling uncertainty, and providing a detailed understanding of the relationships between marketing variables and business outcomes.

By adopting Bayesian modelling, our solution incorporates prior knowledge and continually updates beliefs based on new data, which is particularly useful when dealing with uncertainty. With the hierarchical structure, the relationships between variables are organised into levels. For GrowthOS this involves hierarchical structures for brand, category and product.

## **4.4 Budget optimisation scenarios.**

We discuss budget optimisation in our response to [3.8](#), demonstrating how we save TIME dotCom both money and time to both decision and action via our technology efficiencies.

Using its Predict tool, GrowthOS allows TIME dotCom to understand how its media spend budget be allocated across different channels to maximise sales & ROI; what the optimal balance between online and offline media investment levels can look like, support test and learn, as well as scenario planning around the optimal mix of channels to achieve revenue targets or highest ROI for budget.

Scenario planning also helps TIME dotCom understand how incremental/reduction of its marketing budget can impact revenue as well as, what the budget split should be across the funnel.

## **4.5 Recommended actions outside of the media budgets.**

Outside of media budgets, TIME dotCom can leverage the insights gained in GrowthOS from a clear understanding of External factors (see responses [3.3](#) and [11](#)), Adstock/Carry Over Effects (see responses [3.10](#), [3.13](#) and [15](#)) as well as Tactical Performance (see [3.9](#), [3.12](#) and [11](#))

## **4.6 ROIs by channel;**

Refer to previous responses to [3.9](#), [3.12](#) and [11](#) where we discuss the ROI Optimiser tool.

## **4.7 ROIs by ad format.**

Refer to previous responses to [3.9](#), [3.12](#) and [11](#) where we discuss the ROI Optimiser tool.

## **4.8 ROIs by creative.**

Refer to previous responses to [3.9](#), [3.12](#) and [11](#) where we discuss the ROI Optimiser tool.

## **4.9 ROIs by targeting.**

Refer to previous responses, in particular [3.9](#) discussing how the customisable creative labelling can be broken about by campaign or audience, but also responses, [3.12](#) and [11](#) where we discuss the ROI Optimiser tool.

## **4.10 ROI by bidding strategy or buy model, e.g. CPM, CPV, CPA (if applicable).**

Usually certain channels operate on buy models (i.e. affiliates = CPA) so there isn't necessarily a need to do that, however, we would expect that this would make sense across Social/Video, where you have more flexibility in buy models, being able to choose between CPM, CPV and CPA.

From our experience, we usually see marketing teams deploy one buy model at a time, so TIME dotCom would simply toggle the time period and evaluate ROI that way (rather than by specific buy model).

If TIME dotCom labels its media data by bidding strategy, GrowthOS can support a breakdown by channel via our ROI Optimiser tool; for Search/Video/Social, we could list this out the Format (but also consider leveraging the available customisation of Creative labelling).

## **4.11 Clear and informative charts and data visualisations.**

We are looking forward to a live demonstration of the GrowthOS platform to show TIME dotCom firsthand the clarity and informative charts and visualisations available within GrowthOS.

Each chart has description and is clearly labelled, with help pop-ups throughout the platform to further explain some of the marketing principles behind the purpose of each section which is designed for your decisioning.

The platform is intuitive, but we will support TIME dotCom and its users with comprehensive training and support to not only navigate each section, but to provide an understanding of how to action the insights available.

Charts are colourful and interactive, allowing you to not only drill down into more granular aspects and features but also to easily view tables, as well as export and download data directly from GrowthOS. There are 'download csv' prompts throughout the platform and does not require any support or assistance.

The benefit of a cloud based solution is that it provides greater flexibility, security and accessibility to TIME dotCom.

## **4.12 Explanation of the model results and consultation.**

Model governance and accuracy is an incredibly important part of how we'll work with TIME dotCom. Model governance is important both for driving credibility and believability of the results throughout your organisation,

but also because as a business, having confidence in the models and the scenario simulator outputs is key to being able to confidently make big decisions around your marketing mix.

Governance reporting is a core pillar of how we engage and support your business. We use a range of model fit indices which are built around accuracy.

We measure two key parameters for accuracy and goodness of fit, primarily:

1. R-hats
2. Mean squared error/prediction fit

Additionally, we consider three supplementary parameters for a more comprehensive evaluation:

3. MAPE - percentage accuracy in estimating historical performance
4. RSV: how does the variance (in error) of, e.g., Christmas week compared to any other week? If our error is blown out for week 1 that means we may be missing some seasonality.
5. NRMSE: what is the average error, normalised by the scale of our response (revenue)?

Model Validation is simply the output of key Model Validation techniques to ensure all our Customers, including TIME dotCom have confidence within the GrowthOS model:

- Key regression coefficients calculated and exposed
- Showcasing of Model Validation statistics where required
- Hosting of relevant information and datasets to ensure improvement

All Customers gain access to this function via Google Data Studio and it is managed by their internal Data Science teams to lift confidence. We would look to set up a workstream with the TIME dotCom analytics team specifically around governance. This will give TIME dotCom access to the relevant stakeholders at Mutinex, and help build broader confidence in the model outputs and insights being tested and reported on.

As part of our partnership, you'll have access to a Marketing Science Partner, and your dedicated Customer Growth Specialist can bring in other experts, such as our Data Science Lead when required.

In instances where you need to interrogate elements of the model, we will absolutely look to provide your team with the necessary support and expertise to do so in being able to explain the results of the GrowthOS model.

Actionable insights sits at the heart of everything we do at Mutinex.

- Our investment in data wrangling has delivered time and cost savings to our customers, but importantly it has reduced the lag on data making the insights more actionable.
- Our focus on delivering a tool that is intuitive, easy to use and designed for the modern marketer and agency lead is how we've been able to instil MMM capabilities in our customers' business and their agency through our GrowthOS platform.
- Our added layer of support in the form of Marketing Science, exclusive webinars, market intelligence, MROI benchmarks, on-demand Learning Centre and much more ensure your stakeholders feel confident and empowered to act on the insights.

TIME dotCom's access to a dedicated Customer Growth Specialist and Marketing Science Partner who's focus will be to not only ensure TIME dotCom is making decisions off the back of the actionable insights month to month, but that you are truly extracting value and improvements in your MROI through the program of work.

## 5. Judging Criteria

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### 5.1 Expertise and Track Record

Other providers might tell you why you should trust their capabilities and experience.

We're not going to do that.

We are already delivering comparable (and in many cases more complex) solutions across major global enterprises. Importantly, with respect to our expertise and track record, we have organisations such as Asahi, Samsung, BOQ Group, ING, Youi, Bupa, CMC and Intuit all endorsing Mutinex in the public domain already.

Rather than taking our word on it based on a response, we'd suggest TIME dotCom take theirs instead.

Here are examples of these organisations commenting publicly about their experience and usage of GrowthOS:

- <https://www.mi-3.com.au/27-11-2023/how-win-effie-gold-story-behind-data-roi-and-scepticism-snagged-cheap-effective-agency>
- <https://www.mi-3.com.au/13-11-2023/mars-taps-market-mix-modelling-sweeter-return-media-investment-doubles-roi-focusing-15>
- <https://www.mi-3.com.au/09-11-2023/its-given-us-lot-credibility-within-business-keep-pushing-samsung-australias-carl-bunn>
- <https://www.mi-3.com.au/06-11-2023/showing-brands-revenue-contribution-and-roi-board-single-page-how-youi-used-econometrics>
- <https://www.mi-3.com.au/03-10-2023/binet-field-mark-ritson-byron-sharp-applied-cummins-partners-chief-backs-mutinex-deal>
- <https://www.mi-3.com.au/15-05-2023/if-youre-investing-5-million-marketing-without-market-mix-model-its-amateur-hour-cmc>
- <https://www.mi-3.com.au/01-05-2023/cheaper-better-faster-blackbird-ritson-backed-tracksuit-eyes-8bn-brand-tracking-market>
- <https://mumbrella.com.au/mutinex-launches-tool-to-measure-how-brand-presence-translates-to-sales-and-roi-774714>
- <https://www.mi-3.com.au/14-11-2022/full-funnel-marketing-metrics-are-back-intuit-quickbooks-marketing-chief-jane-merrick>  
<https://www.mi-3.com.au/25-07-2022/headwinds-loom-ing-and-samsung-back-dynamic-media-mix-modelling-protect-and-grow>
- <https://www.mi-3.com.au/28-02-2022/how-samsung-and-cub-marketers-are-harnessing-data-prove-brand-spend-driving-growth-and>
- <https://www.mi-3.com.au/14-02-2022/how-me-bank-harnessed-sharper-mroi-shift-metrics-and-moveneedle>
- <https://www.mi-3.com.au/04-02-2022/showing-c-suite-how-budget-decisions-impact-growth-how-me-bank-samsung-and-cub-marketers>

We've identified above several customers who have been on record in the public domain talking about their experience with Mutinex.

Due to commercial sensitivities we are unable to provide any more detailed breakdown of our experience beyond; we have five enterprise customers within the telecommunications sector highlighting our category dominance and experience.

The results are commercially sensitive, as we would expect to be the nature of our work with TIME dotCom, however we can share the following anonymised case studies that have been approved by other customers:

## Proving the case for brand investment

An Australian bank wanted to prove the value of brand to invest in driving product outcomes. The business had a traditionally siloed product budget; which was unable to identify the impact and 'halo' of brand.

### Challenge

Our customer knew that brand investment worked, but struggled to link brand to product acquisition outcomes through conventional attribution models. They sought to use our GrowthOS platform to prove out the value of brand.

### Solution

GrowthOS was able to identify the following:

- The impact of brand on product sales through econometric modelling.
- Clear cost savings to be made across search terms (especially branded).

### Results

Our customer was able to shift money out of search and towards brand investment rapidly, lifting ROI 57% in the process.

### ROI increase

**57%**

Across HL product portfolio

### Savings

**15%**

Without performance dropping across SEM

## Leveraging MROI to fuel improvements in marketing impact and media performance

A global consumer brand had historically managed their marketing and media plans based on media metrics such as reach, engagement and so on. Their goal was to move away from reach towards revenue, with the goal of improving their marketing and media allocation to drive more efficient and effective growth in their flagship category.

### Challenge

The customer wanted to understand how best to efficiently invest in new media channels and where efficiencies could be gained by cutting spend from other channels.

### Solution

GrowthOS was implemented to deliver the following:

- Predictive capability to model channel cuts and identify savings.
- Ability to look forward and cut key savings quickly for key brands.

### Results

MROI increased more than 100% YoY despite increasing investment in marketing, which led to a more diversified media mix and improvements in MROI across priority demographics accessed through the new channels.

### Savings

**\$800k**

Savings identified / reallocated

**28%**

Lift in the underlying sales in key demographics

## Prove the value of hard-to-measure channels like Sponsorships

An organisation in FSI was investing in Sponsorships under the hopes that it was both effective and efficient for their business. They wanted to quantify the full effect of that media channel and validate to the business that it is a channel worth investing in again.

### Challenge

The customer wanted to evaluate hard-to-measure channels like sponsorships. They knew that it was effective as more sales happened during the period, but they wanted to know whether it was efficient and worth the investment again this year.

### Solution

GrowthOS was able to identify the following:

- The impact of non-digital channels
- The length of effect Sponsorships is able to drive

### Results

The Customer was able to use the ROI channel optimiser feature to compare both digital and non-digital channels within the same methodology to show that sponsorships were both effective and efficient for the business and re-invest in it again in 2023.

### MROI of Sponsorships

**716%**

Extremely efficient and effective channel with clear ad stock results

**Proven commercial impact  
Re-invested  
for 2023**

Clear way of reporting MROI of Sponsorship to the business

## Better understand how pricing and marketing need to work together

<p><b>A challenger bank utilised GrowthOS to better understand how marketing efficiencies change as their banking fees are more or less competitive in the market.</b></p>	<p><b>Challenge</b> The customer wanted to understand how much harder marketing can work when pricing is more competitive in market. They needed to understand both levers to plan to FY24 goals.</p> <p><b>Solution</b> GrowthOS was able to identify the following:</p> <ul style="list-style-type: none"> <li>• MROI changes when the bank had fees in line with the top 4 banks</li> <li>• Estimated impact to sales when pricing is more competitive</li> </ul> <p><b>Results</b> The Customer was able to look at their sales composition over the last 3 years to understand how pricing would impact their sales as well as plan for how much more sales marketing would drive when pricing was more in line with the top 4 banks in Home Loans and Deposit Accounts.</p>	<p><b>Increase in Home Loans MROI when Pricing is more competitive:</b></p> <p><b>+103%</b></p>
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\*This is based on COVID years to present, so may differ in the current economic environment

## Discover optimal mix to deliver the most new accounts possible

<p><b>A major bank turned to GrowthOS to validate and improve their campaign forecast, turning to the output provided from GrowthOS instead of their initial strategy to better influence their agencies investment &amp; channel strategy.</b></p>	<p><b>Challenge</b> The customer wanted to ensure that their media mix for an upcoming campaign of \$4m was as optimal as possible, in delivering the most amount of new accounts.</p> <p><b>Solution</b> GrowthOS was able to identify the following:</p> <ul style="list-style-type: none"> <li>• The optimal mix, which outperformed the Bank's outlined mix by 18%</li> <li>• Channels that had worked previously which they had disregarded.</li> </ul> <p><b>Results</b> The Customer was able to use the Predict/Scenario planner to show what MROI their Marketing budgets would achieve with 6x different scenarios. Landing on the optimal mix, they were then able to brief their Agency with a data driven approach.</p>	<p><b>Increase in Account Opens:</b></p> <p><b>+8.5%</b></p>
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**Best case scenario forecast selected, delivered**

**-7.8%**

**Below CLV vs original proposal.**

## Evaluate Performance media mix

<p><b>Historically, this global B2B SaaS company had always heavily relied on performance media since last click attribution pointed towards Search as their biggest contributor. They wanted to re-evaluate whether this was true as sales had been stagnant over the last couple of years despite increased spends.</b></p>	<p><b>Challenge</b> The customer wanted to evaluate each channel's performance outside of last click attribution, specifically Search as 50% of the media budget goes towards Search.</p> <p><b>Solution</b> GrowthOS was able to identify the following:</p> <ul style="list-style-type: none"> <li>• Search delivered a negative ROI of -78% despite high volume</li> <li>• Other channels like Video, Display, Social, Audio had really strong ROIs but limited spend</li> </ul> <p><b>Recommendation</b> We recommended that the customer redistribute a significant portion of their Search budget into other performance and brand media channels.</p> <p>This would allow for Search to still drive sales volume, while moving away from a defensive strategy and building demand higher up the funnel.</p>	<p><b>MROI of Top Performing Channels</b></p> <p><b>+210% ROI 13% Spend Share</b></p> <p><b>Non-Search channels and ATL channels can be extremely efficient</b></p>
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**Paid Google Search**

**-78% ROI  
50% Spend Share**

**Clear over-investment of Search**

The following are also some customer testimonials testament to our proven track record.



Jemma Downey

**Group General Manager, Commercial Excellence - Asahi Oceania**

Customer since 2018

"We've had several solutions over the years at CUB for measuring MROI, which was previously conducted offshore.

As the media landscape we operate in has become much more fragmented with increased regulatory and privacy changes, we needed a unified solution that was much more dynamic, with faster time-to-insight and one that we could embed within our teams to access the insights they need when they need them as opposed to disseminating a PowerPoint deck. GrowthOS has ticked all of these boxes and has allowed us to embed a valuable capability

within our marketing function where we are now better aligned with our finance teams and can see the commercial impact our spend is having on our sales enabling better decisions around our investment.

Since implementing one brand over a year ago we have since scaled it across multiple brands and incorporated many more data points such as sponsorship and trade marketing. Today, GrowthOS is a central insights system within our business that fuels better decision making."



Carl Bunn

**Head of Corporate Marketing - Samsung Australia**

Customer Since 2021

"We had been looking for a solution that allowed us to demonstrate overall value of our Marketing investments on business performance. After running a number of econometric models, we valued the output but the lengthy expensive analysis cycles meant insight was usually delayed. Mutiny's GrowthOS solves for this, and provides us immediate access to performance and importantly, prediction models. On-boarding our data was extremely straightforward, and completed in several weeks, vs. months for previous solutions. The value we've received from this platform already is fantastic,

and has started to become a useful tool in our reporting and forecasting."



Liam Loan-Lack

**Head of Marketing APAC and Canada**

Customer Since 2022

"I think every client underestimates the pain and the effort of onboarding to something like this", he says, "especially somewhere like CMC where we haven't done this before."

While market mix modelling is new to CMC, Loan-Lack applied his previous experience in choosing a partner. By his estimation, the onboarding process with Mutinex has been roughly 15 per cent faster than with other companies.

Configuring the system to ensure that the results are clear, consistent and credible is also critical. "The data you choose with something like this is important", he says. "I've been so impressed by how the Mutinex team have asked the right questions and been really invested in the answers to ensure that we get good results."

On the model refresh front, Loan-Lack was also impressed by the vision of the Mutinex team around AI, automation and partnerships.

"Everyone knows that getting data from agencies can be like pulling teeth. Any company in the market mix modelling business that is looking at how to ease the pipeline of data using technology and automation is lightyears ahead of the competition."

## 5.2 Methodology and approach

Whilst much of the requirements have focused on outcomes, it is worth recognising that not all approaches are the same, and understanding our technical approach to MMM as key to highlighting both our capabilities, as well as our credentials.

Mutinex operates a foundational model approach. This allows us to build large, generalised priors based on marketing science principles tested via federated learning across hundreds of datasets. This means a robust, well tested model over time, and is in line with where models are going towards big, foundational models. This level of robustness is key to ensuring that we are building models that stand up over time.

The advantage of this approach is it unlocks flexibility in a number of domains:

- Smaller sample sizes by embedding domain knowledge. Frequentist approaches require much larger sample sizes ( $n >> 30$ ).
- Nonlinearity: complex data transformations to capture e.g. diminishing returns.
- Ecosystem effects: estimate all dynamics together, how one channel performs depends on the overall mix.

For each media channel, we dynamically model relevant transformations:

- Adstock: carry over/lag effects are time varying.
- Saturation: optimiser which fits a nonlinear shape function (e.g. logistic) onto the spend which varies over time.

Similarly, for other ecosystem effects we can ensure we apply relevant transformations, e.g:

- Impact of COVID changes/reduces over time and non linearly relates to vaccination rates.
- Smaller versus large discounts behave differently, and vary depending on the time of year.

Under the hood, to fit our model we take a simulation approach (Markov Chain Monte Carlo), using state of the art sampling algorithms. This is underpinned by a robust validation workflow, including:

- A suite of metrics to ask: "is this model forecasting well?"
- Metrics to diagnose quality of estimation: is the model simulating marketing dynamics well using the data given? Known as convergence.

We then deliver the outcomes of that to all our customers in a cloud based analytics tool called Mutinex GrowthOS.

We use a range of model fit indices which are built around accuracy (as described in our previous response to [4.12](#)). Our model aims to have at least a 90% accuracy rate and we typically achieve a 4% - 7% MAPE across the board (Our view is we dislike going over 3% as it typically indicates you have a model overfit on your hands).

We govern our models in two key ways: ensuring the model is forecasting accurately, and ensuring its learning relationships/marketing dynamics well.

1. First, to verify accuracy, we hold out (hide) your most recent year of data and build the model off all older data. We can then see how accurate the model is when forecasting for unseen (new) weeks, which simulates a real world test. Across our customers, we expect the percentage error to sit around 6%.
2. Second, we want to ensure our model is not over-attributing any component, including marketing. We have embedded domain knowledge through the use of priors, but also nonlinear transformations like saturation curves, to capture key dynamics that drive marketing and revenue. Through the use of sampling metrics like R-hats and effective sample size (ESS), we have a measure of the uncertainty in seeing marketing and nonlinear dynamics in the data. If this uncertainty is high, it tells us the model may be accurate but not generalised - it's misattributing key components. This allows us to ensure we have the data we need to get the best model possible.

Ultimately, the best validation comes from using our model to make decisions and measuring their payoff. Many of our customers have all spoken publicly about their use of GrowthOS and the impacts it's having (as shared in our previous response to [5.1](#)).

In sharing this, we are not trying to impress you! We are trying to impress upon you that the most practical external validation in truth, is customers extending their agreements and advocating publicly for you - both of which we have in abundance.

Mutinex's service model is different to other suppliers because we are SaaS led. This has a number of benefits to TIME dotCom.

Rather than investing in individuals, you are investing in a solution - and the solution is focused on delivering real outcomes. This is important for a few reasons;

1. Individuals will move roles/teams within an organisation, and they will also move on from organisations over time. Mutinex's GrowthOS platform will be a consistent source of truth for TIME dotCom. This will provide confidence through consistent supply of MROI measurement and the granularity and capabilities that are outlined in this response.
2. Individuals can be pressured or influenced, an independent solution such as Mutinex GrowthOS cannot. Realistically one of the outcomes with any MMM analysis is to identify areas that have not performed as well as expected. This type of data or insight can be confronting to the internal teams or agency that was responsible for the decision, and the decisions that come from MMM can be politically charged given the natural dynamics within any organisation.
3. A solution such as ours is scaled and can be accessible to all the different end-users at TIME dotCom, from marketing teams to agencies and other stakeholders including your analytics team. Individuals by their very nature could be unavailable due to other client commitments, or have reached their allotted hours of support in a week or month.
4. Given TIME dotCom's position on MMM being key to making informed decisions that drive desired outcomes, it's important that the modelling and insights that flow into those decisions are stable and consistent. Individuals by their own nature are not consistent, and prone to influence and bias. The latter point is particularly important at the moment given the incredible rate of change in both the media landscape and broader economy as a whole. Realistically the media playbooks are being re-written now
5. Cloud based solutions are simply faster than people. When the dreaded email comes through asking for a discussion about budgets, having a cloud based dynamic (effectively 'live') analytics tool that you can easily access and use to better plan and prepare for those conversations is far quicker than trying to get hold on an individual(s) to pull a report and send it over to you.

#### **Data management**

A fundamental aspect to performing both accurate and effective MMM is transforming numerous, often large datasets into a consistent and usable format on an ongoing basis. Our approach to this space is a simple, easy to use product that allows you to upload your current reports and automatically transforms them into a beautiful MMM data warehouse.

That means users with zero familiarity with data are able to build a data warehouse in minutes with Mutinex's technology. We believe this reduces the pressure on your team, agency partners, and enables everyone to focus less on data wrangling, and more on the actions which can be taken from awesome data insights. We have three primary ways we manage the initial data provision as well as ongoing data supply:

#### **1. DataOS.**

We have the first MMM-purpose built Data Management program. The interface allows users to upload any CSVs simply, easily and securely (data encrypted at rest, transfer using TLS, PGP supported) with guided and structured workflows to make that data model-ready without needing to spend vast amounts of internal hours and agency hours.'

#### **2. APIs.**

Automated data transfer via APIs leveraging Supermetrics (SOC2 compliant) and other data platforms. This is designed to save you resource effort & costs.

### **3. Cloud Transfer.**

If you have already some of your data in a data lake, we support secure (inc. SFTP and optional PGP) automated cloud data transfers to minimise effort and drive efficiency.

We ingest data monthly as we run the models monthly. In terms of granularity, there are no real limitations other than sample size - so for instance we would never support going down to a single creative asset because the result would not be statistically significant.

### **Data Requirements**

At a minimum the modelling requires two years of weekly time series data for sufficient accuracy and prediction capabilities. Our ideal amount of data would be for 2019 onwards, as this would allow us to also model the impact of Covid-19 on your business.

When we look at data requirements for MMM we can separate the data sources into two categories;

1. Primary Data Sets
2. Secondary Data Sets

#### **1. Primary Data Sets**

The primary data sets are the 'must haves' when it comes to the modelling. The three critical data sets for MMM are as follows;

- Sales Data
- Paid Media Data
- Pricing Data (where relevant)

Data access and availability is one of the most common concerns amongst businesses. Whilst the below is a guide to 'best case', our commitment to you is to work through these sets together as part of this process.

- **Sales Data;**

This data represents the metric or business process that we are measuring impact on. For TIME dotCom it would be;

- Weekly time series
- Sales volume (units) per week
- Number of new subscribers/connections (i.e. orders excl. renewals)
- Average Revenue per customer OR Average new to business/lifetime value (we'll work with you to determine the appropriate revenue metric for each product category/division where relevant)
- Organised by;
  - Product category (e.g. Fixed, Wireless)
  - Region
  - Type (Speed/Package/Plans)

Decisions around how owned data is provided will be dependent on which platforms are being used by TIME dotCom and whether APIs are possible.

- **Media Data;**

The paid media dataset reflects paid media activity in your market for a specific channel, and shows us what is / isn't happening in your market.

- Weekly time series
- Spend per channel per week minimum requirement (per product and brand investment, i.e. media buying objective)
- We'll work with you on channels such as ATL where weekly is not available
- Reach / Impressions per week (desired but not mandatory. This isn't required for all channels, it's just helpful to have as it allows for better triage of issues (ie is the price of media the reason ROI is increasing/decreasing)
- Optional but recommended for added granularity and insight per channel. Most customers and agencies will easily categorise activity by these 4 variables;
  - Creative (campaign name and/or creative message, i.e. brand vs product)

- Geography (most organisations will break out by region. We wouldn't recommend too narrow a view or potentially fragmented/limited data samples)
- Publisher
- Format

Media data is often provided manually at first, and then via APIs. There are MMM feeds with Facebook and Google that we can plug into, however we'll work with your agency and team to determine the best approach as we can often pull data straight from the data warehouse of your agency.

- The platform can calculate the impact of a newly launched channel that has no historical data.
- It can take 3-4 weeks of activity to generate a reliable first sample for a new channel.
- Once the model has calculated that, the channel will surface in the ROI tools alongside all other channels.
- Initially, the new channel may lack some features such as saturation curves as they require larger volumes of data to produce, but all other ROI tools are accessible and will help you make more confident decisions on the investment strategy of that channel.

- **Pricing Data;**

This data is used to understand if/how pricing and discounting affects performance. The decision on how it is provided is often determined by where the data sits within the organisation, how accessible it is and your internal policies around permissioning.

## **2. Secondary Data Sets**

In addition to the primary sets, there are secondary data sets that are included to improve model accuracy and provide more detailed analysis. Secondary datasets include but are not limited to;

- Owned media data
- Offers data
- Sponsorship data
- Event data
- Earned Media data
- Brand Metric data
- Competitive spend
- Co-op Activity data

Mutinex will run a workshop with TIME dotCom and its agency to determine which of these are relevant and what format that data should be provided where relevant. In addition to any secondary data sources supplied by TIME dotCom, its agency (or other partners), Mutinex will include as part of the modelling, a large number of external factors.

### **Macro environmental data**

Mutinex provides additional external data points such as cost of living, weather, business confidence etc. We also have provision for you to include additional data that is deemed relevant or important, such as if you are collecting other category specific data (e.g. competitive brands) and wish to include it; we would do so.

- Macro environmental data can be manually provided or pulled through via API if the source has a public API and is universal.
- Examples of macro-environmental data includes: Events Calendar (Shopping days, Public Holidays, School Term dates), COVID Data (Cases/death, lockdown dates), BCI, CPI/Inflation, cash rate, Labour Force status (employment rates), Mobility, Foot Traffic, Population Trends and Weather.

### **Additional inputs**

Based on your requirements and industry, we would expect the following inputs to form a relevant part of our data discovery with your team:

- Brand Health Data (Unprompted/Prompted Awareness and Preference Metrics required to calculate Brand Equity)
- Retail foot traffic (footfall Index, not TIME dotCom specific. Divided by region if deemed relevant)
- Online sessions sales data
- Call centre sales call data
- Sponsorship related data
- Special events

- Calendar of relevant hardware releases across your hardware partners (e.g. WiFi mesh devices)
- New Residential Building Approvals
- Business specific factors: any non-media sponsorship activations
- Category specific factors: release of new products, competitor activity (including competitor sponsorships), competitor NPS, competitor/market media insights (e.g. share of spend) etc.
- General factors; other factors that TIME dotCom identifies as being relevant. This can include other macro indicators specific to its consumer customers or audience segment (e.g. millennials). It could be immigration based (e.g. New to Malaysia), or tied to any consumer add-on products associated with other third party events.

GrowthOS has been designed to reduce the time and costs associated with data collection. We work with brands and their agencies to streamline data collection, and whilst the platform is designed to be API-first where possible, we have processes, tooling and templates set up to minimise the workload for any manual collection.

#### **Data cleaning & validation**

As part of the GrowthOS data collection and ingestion process via DataOS, we run 15 separate validations, comparing all the data sets, and any errors or warnings are surfaced, with examples of the data where possible, and instructions on how to rectify the problems through labelling (or uploading new data), alongside training sessions, in-platform guides and demo's. Validations are also run on data post-labelling or upload.

This allows users to be able to review and rectify any issues that will impact prevent modelling, and gives time and peace of mind back to those responsible for consistency and quality.

#### **Data issues and errors**

Even with a world-class ingestion process designed to reduce the time and cost associated with data collection and organising, the reality is things can still happen!

Whether on the publisher's side, user error in the data labelling process at setup, or somewhere along the lines a key data set has been omitted. We understand the cost of these errors can be material for businesses using MMM to validate their investment decisions.

With the speed at which modern businesses operate, it's not realistic for most businesses to wait weeks for the models to be updated to include new or corrected data. One distinct benefit of our novel approach is the speed at which data can be ingested and the models refreshed.

As soon as new (or updated) data sets can be provided, the model can be refreshed within a handful of hours, removing the risk and cost to your business from erroneous or missing data.

#### **Data Ingestion**

Our SLAs for refresh and onboarding are as follows:

- Refreshes: 5 business days on receipt of confirmed data.
- Onboarding: up to 20 business days on receipt of confirmed data.

Our SLA's on both refresh and onboarding is to allow for data governance in addition to modelling time.

The important thing to consider with Mutinex relative to other providers in this space, is that for data onboarding we plug into existing reports (DataOS) rather than have you populate templates and schemas bespoke to our platform.

This is the reason we are the only provider in the APAC region who is regularly delivering monthly refresh across enterprise customers at scale. It's also why we've been able to onboard major brands to end in less than 12 weeks, whereas others in this space can take double or triple that time to get any initial instance configured, and MMM program operational.

### **5.3 Technology and Analytical Capabilities**

Our approach to delivering MMM and addressing TIME dotCom's ongoing requirements in measurement and growth is centred around our GrowthOS platform. We have outlined the technology and analytical capabilities of GrowthOS solution in considerable detail across all prior responses.

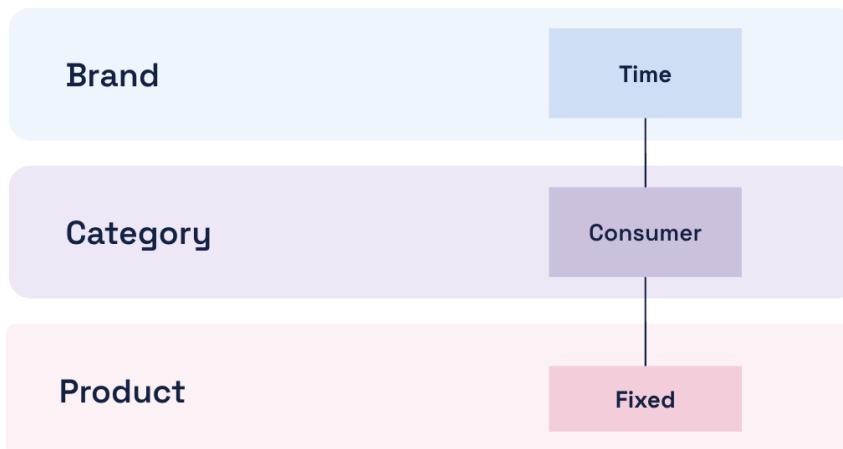
We assume the crux of this question relates to the technology stack. Mutinex operates the following technology stack with 30+ full time engineers:

- Dbt pipelines (DataOS)
- GCP cloud buckets, storage
- Auth0 for authentication
- Export functionalities to BigQuery or Snowflake tables
- Protobufs to visualise data
- Model versioning systems to ensure data audits and integrity
- Data versioning systems to ensure analytic audit trails.

## 5.4 Customization and Collaboration

Though we would work through this with your team as shared in our responses to [Task 2](#), based on our initial understanding of your business and requirements and relevant category experience from your brief, we'd setup your GrowthOS instance as follows under our hierarchical model:

1. Masterbrand / Total Portfolio view - Total 'All of business' view
2. Product Category view - Aggregate MROI and insights at your category level for TIME dotCom's Consumer Business.
3. Product level view - MROI and insights for each individual product, in this instance we have the single product, Fixed Broadband.



We wouldn't expect to break down your sales by multiple channels, such as direct / indirect.

- Breaking down sales by multiple sales channels creates a risk of reduced measurement accuracy due to small sample sizes. We prioritise model accuracy for improved media performance over granular sales insights.
- If the purpose of including sales channel is to add consideration for difference in value (e.g. higher costs for affiliates) then our recommendation is to include this within the CLV / revenue definition. This will mean that optimisation recommendations from GrowthOS are still considerate of the total value to your business. We would simply split the data out and the revenue would be different given the different margin associated with different sales channels.
- Understanding the difference in sales outcomes can be done through ad-hoc tests outside of GrowthOS, which are more suited to delivering this type of insight

We can break out your media using leveraging labelling for each of the four consumer packages if that's how your media is planned and how TIME dotCom approaches its marketing, and we would manage this ongoing via DataOS to easily and streamline the data mapping process and reduce the significant cost/overhead of managing the data collection and ingestion process yourself on a monthly basis.

The important thing to note is our GrowthOS product is a turnkey solution, and already configured for similar organisations within telecommunications, as well as other branded house organisations with different product divisions and product lines such as Samsung.

All the models are run at the same time as part of implementation, and all models are refreshed with each data ingestion which is performed on a monthly basis. There is no need to 'phase' models or sequence because our approach enables Mutinex to manage this work for TIME dotCom at scale.

At each level (Product Category and Product), TIME dotCom will be able to use labelling to break out each channel by geography, publisher, format and creative. It's this capability that gives TIME dotCom the ability to break out audience segments, customer types (acquisition vs cross-promotion) and other attributes identified within this brief.

#### **Ongoing Management**

Ongoing data supply is as-important as setup because the 'older' the data and the older the model, the less relevant and usable the insights are to TIME dotCom's internal teams and agency. Mutinex has standard SLAs around model refresh, with completion of refresh within 5 business days of receipt of data. We minimise the effort and cost of ongoing data supply through the tooling mentioned earlier, and ensure the models are up-to-date to deliver actionable insights to your teams.

We are also able to take in new data and variables as they happen, however we typically do this on a monthly or refresh basis. We also advise our Customers when the data is not improving the signal within the model, as data importation to the model for the sake of it is typically adding noise without generating signal improvement.

From a cost base perspective, there are no additional costs which removes the unnecessary and often expensive process consultants and conventional MMM providers will run on these types of requests. Importantly, whilst it does push beyond our typical 5 business day SLA for a refresh, the timeline is generally capped at 10 business days to validate and document the impact of changes to the front-end and verify that the change was the correct decision for us to make.

#### **Ongoing Support**

We outlined the Support structure we provide alongside GrowthOS throughout our response to [Task 2](#). However, specific to knowledge management, there are some distinct benefits in a SaaS model over other MMM models.

- The first is that every new user (whether TIME dotCom internal or agency partner) will be onboarded end to end, with access to individual support from the account team, as well as on demand resources, training and results.
- The platform is cloud based, and TIME dotCom will be able to set Admin Users, and Admins will be able to manage access and permissions from a Team Management centre.
- All through the platform there are options to download data from the platform, providing even more flexibility should TIME dotCom or its agency have a need to access recent or historical data or performance results for visualisation in other reporting or data visualisation tools.

The benefit of a cloud based solution is that it provides greater flexibility, security and accessibility to TIME dotCom.

We are an independent solution, providing independent measurement, who will work with you and in tandem and partnership with your media agency to unlock the significant value available from a world-class model embedded with marketing science designed for decision making.

We will support TIME dotCom and its agency in best practice getting your datasets ready, and will provide dedicated support where needed with access to our support team of data and marketing science specialists to ensure ease of integration and accessibility in actioning insights into guide execution of your campaigns.

We shared in our response to [2.6](#) a recent example of one of OMG's agencies, Che Proximity (CHEP), sharing how they've worked successfully with Mutinex.

## **5.5 Technical**

Our roadmap is pretty exciting and whilst it is amongst our most guarded secrets as the leading innovator in the MMM space, we will share in this section a small taste of what's planned ahead for release in the immediate

future to give you a sense of the areas where we are already innovating, and why we are the right partner for TIME dotCom now, and going forward.

The main reason we choose to make only a brief reference is that we believe TIME dotCom should make decisions based on current functionality and capability, and as a result, this is what forms our response to your brief.

Mutinex does have an aggressive product roadmap with features released every month, and a number of major releases each quarter. Items in our product development roadmap are subject to rigorous discovery, evaluation, planning and deliverables to form part of any future release, and therefore subject to change in execution and/or strategy.

It's worth noting we source all (100%) of our revenue from licensing SaaS market mix modelling and measurement platforms. This revenue is attributed to licensing fees, which also include value add support services. This is important because it shows our focus is squarely on ensuring our product is the market leader, and so this means our continued investment in R&D, product capabilities and feature enhancements is unrivalled.

Other suppliers might provide a self-service interface merely as a visualisation tool, but their core business models are consulting services which inhibit their investment in developing solutions that will ultimately cannibalise their core business model

To highlight this point, as a high growth SaaS business we allocate some 80% of our cost base in R&D and development. We are also backed by leading Venture Capital groups (EVP & Bloomsbury Information Capital) who have validated our R&D programs and continue to invest significant sums to scale our platform approach in R&D globally.

As a product-led business, we have led the way in driving automation of the data ingestion process, insight process and more globally through R&D rather than traditional consulting services.

We have a proven track history in the positive iteration and evolution of our GrowthOS and DataOS products, along with our internal systems and processes.

### **How do we maintain and improve the platform?**

Our platform is maintained and improved through three key lenses:

1. Operational
2. Feature access and accessibility
3. Model improvements and additions

#### **1. Operational**

We constantly analyse ways to improve operational efficiencies for businesses to remove time on customer-side to work through data ingestion. Prior to DataOS, previous innovations in this area involve Convoy and CellCheck, both core platform capabilities for data ingestion.

Our methodology here is simple. We look to improve the following areas:

1. Time on Customer-side: we always look to introduce APIs (especially in emerging media), to ensure that Customer data can be rapidly modelled and checked, and ensure that time to insight is reduced through workflow, insight automation and data acquisition.
2. Platform speed: we look to rapidly improve the rate at which models can rebuild with new data, learn to extract and understand key insights and to build out further speed to processing data through setting of priors, model selection.
3. Data exports: we expose APIs to export data, and cut data up for various systems across partner ecosystems to use.

#### **2. Feature access and accessibility**

We constantly work towards improving feature access, insights and accessibility within the platform. Last year, Q4 saw the introduction of sales units within sales composition alongside significant work undertaken around

the implementation of a new predictive scenario builder (in Alpha) focused on improved core functionality across brand, product and category layers, a natural language query interface (in Alpha) purpose built for marketing analytics, as well as DataOS enhancements, a UX redesign (scheduled for Q1 release) and more, all crucial examples of platform innovation around feature settings.

We work to lift the following two areas around features and accessibility:

1. Access to insights: Exposing key parts of the model to prescriptive insights to guide marketers on how best to leverage data science and apply key decisions. We look to introduce 'prescriptive' features which deliver the 'So What' from the data.
  - i.
2. Marketing science features: We look to build models around emerging areas of marketing science to productionalize and contextualise key customer data against marketing science performance areas.

### **3. Model improvements and additions**

We have a particular focus on innovations in the machine learning and data science space with an immense focus and emphasis on cutting-edge Bayesian techniques. We conduct our own R&D in this area to uncover new techniques to apply Bayesian theory to complex marketing problems, alongside leveraging machine learning technologies to optimise and select model parameters.

Critically, we constantly look to find new techniques to expose new features. We look to improve the following areas:

1. New feature models: Building new feature models (e.g Brand Sales model) to support our central, unified MROI model and expose key model elements.
2. Model improvements: Finding faster ways to improve the speed at which we can expose a model and optimise it, both from a speed to execution perspective (we want to bring it down to seconds in the future - noting that we are currently already extremely fast to refresh) and from a computational load perspective.

At Mutinex, we run a frequent feedback loop on product use, individual user happiness, feature design and future roadmapping to ensure that we are continuously improving the product for our customers. This dovetails into our R&D process to ensure that our customers are getting access to the best product and service that the industry has to offer.

Here's an example of Asahi [talking publicly about their involvement in a 2023 feature development](#).

## **5.6 Commercial**

Mutinex's service and commercial model is an innovation and improvement in MMM.

We move TIME dotCom (and all our Customers) away from the cost per 'model refresh' of other providers, and a program of program scope creep who recommend a quarterly (or less frequent) refresh cadence, alongside some form of data visualisation as a "self serve interface".

Our pricing model is a straight SaaS licensing model and is all inclusive.

We provide all the necessary support from onboarding through to adoption, and our focus is on ensuring you're leveraging the platform to make better data-driven decisions.

MMM shouldn't be just about identifying what the drivers of growth were/weren't. MMM done best is leveraging a platform to find and improve incremental growth. In a business like TIME dotCom those improvements will come at the masterbrand level, but also at category, product and channel level.

We provide and recommend monthly refreshes because organisations that are inclined to seek MMM solutions should naturally see the value in monthly lift / incremental testing using MMM, and the fast feedback loop on results, allows for better, more frequent testing and validation.

Pricing Schedule is as follows:

Item	Term	QTY	Unit Price	Unit Discount	Calculated Cost
<b>Advanced GrowthOS Licence</b>  Advanced GrowthOS features Users: 20 Users Product Categories: Up to 1 (Consumer) Products: Up to 1 Product (Internet) Model Refresh: monthly (up to 36 refreshes) DataOs: included API Integrations: included Macroenvironmental data included	12 months	3	\$RM557,220	(\$RM55,722)	\$RM1,504,494
<b>MROI &amp; GrowthOS Training</b>  Structured Training Program Personalised Training Sessions Insight identification training Newsletter & Webinars	12 months	3	\$9,500	\$9,500	\$0
<b>Support Services</b>  In-platform Analytics guidance In-product Contextual help Data documentation	12 months	3	\$7,500	\$7,500	\$0
<b>Learning Centre</b>  On demand articles On demand videos On demand use case guides On demand resources	12 months	3	\$10,000	\$10,000	\$0
<b>Total Program Cost (36 months)</b>					\$RM1,504,494
<b>Annualised Cost (12 months)</b>					RM\$501,498

Please note:

- All prices quoted in RM and are quoted exclusive of GST
- Annual Fees are based on multi-year pricing (min 36 months)
- The fees as defined in this proposal are calculated on a fixed-cost basis, consisting primarily of technology licensing fees and some professional services fees for set up and support.
- There will be 1 invoice for annual payment issued as part of this program of work at contract execution. Payment is due 30 days from the date of invoice.

Our commitment to TIME dotCom is that we'll be in this with you to drive better decisions that ultimately help you achieve your growth objectives and in turn, we would hope your commitment to Mutinex will be demonstrated through the mutual trust placed in the continuation and ongoing success of our partnership. Thank you for the opportunity to support your marketing strategy and commercial growth.

Yours sincerely,



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