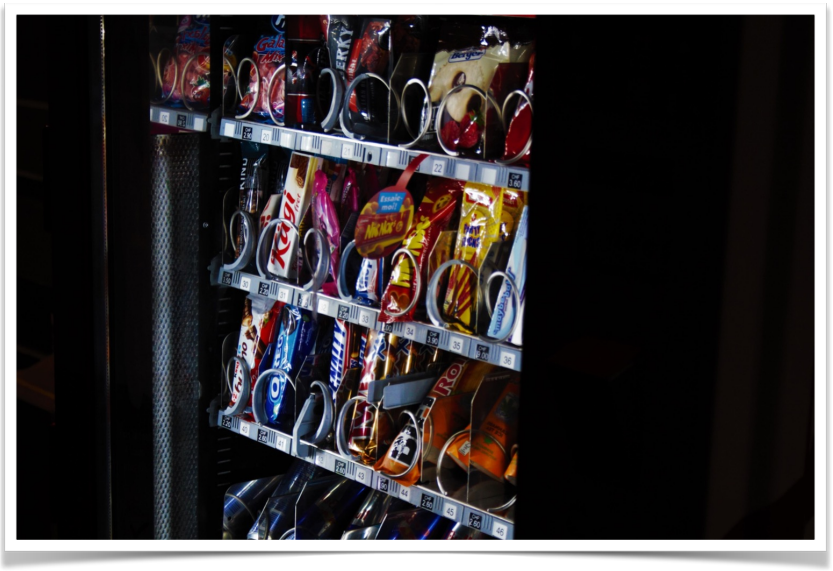

Marketing Is Not a Vending Machine

Rethinking ROI for the Complex Digital Era

Introduction

Businesses long for marketing that works like a vending machine. Put your money in, and out pops your desired outcome, guaranteed. Unfortunately, marketing behaves more like stock markets or weather than predictable machines. The good news is that science explains marketing's capriciousness, and companies will gain a more effective playbook if they rethink return on investment (ROI) through the lens of marketing's unpredictable reality.

Markets are what science calls complex adaptive systems. Interactions between individuals and enterprises produce feedback loops resulting in volatility, uncertainty, and ambiguity. Digital technology has only increased and accelerated these interactions,

compounding complexity's effects. Time is an especially confounding adversary: gaps between marketing actions and measured outcomes allow for increased interactions and thus greater change. These characteristics make measuring predictable ROI challenging.

Marketers understand the importance of ROI. Yet, despite advances in technology and improvements in operations, useful financial information for making marketing decisions remains out of reach for most. The vending-machine perspective blinds management to what is needed for change, so they are unwilling or unable to give marketers the necessary tools. Marketers lack sufficient data and analytics capability. Outdated management models and organizational structures inhibit reaching objectives. These deficiencies lead to unfit ROI practices, such as rules-based attribution and a short-term focus, causing flawed decisions, frustration, and mistrust.

By working with marketing's complexity instead of ignoring it, companies will realize more value.

To improve marketing ROI measurement, businesses must reduce dependency on the machine model. This paper outlines why and proposes a new way of thinking and managing – a "Complexity-wise" playbook, based on my experience as a CMO, my work with hundreds of marketing leaders while running IDC's CMO Advisory practice, my research in the relevant sciences, and the practices of pioneering leaders in other turbulent environments. By working with marketing's complexity instead of ignoring it, companies will realize more value.

Chasing the Marvelous Marketing Vending Machine

The demand for certainty is one which is natural to man but is nevertheless an intellectual vice.

—Bertrand Russell, British polymath

Everyone loves a vending machine. Put money in, and out pops your favorite snack. Wouldn't it be wonderful if marketing were like that: if you could get a reliable revenue surge when you bought advertising or if the number of webinar attendees could predict pipeline value?

CALCULATING ROI: Marketers sometimes use Return-on-Investment (ROI) as a catch-all term to mean impact, value, or result. However, ROI is a finance term with a very specific meaning to the CFO. The equation is simple:

ROI = (Gain from investment – Cost of investment) / Cost of investment).

If you spent $1,000 on a campaign and your revenue gain is $10,000, the ROI is 900%. Your result will be a percentage, not a dollar amount.

ROMI (Return on Marketing Investment) is an alternative to ROI developed in the 1990s as an attempt to deal with the shortcomings of traditional ROI.

ROMI is calculated this way: Incremental revenue attributable to marketing ($) x contribution margin (%) - marketing spend ($) / marketing spend ($).

If sufficient data can be obtained (as many as 30 fields may be needed), ROMI is useful for estimating the value of transactional type marketing tactics such as rebates, in-store promotions, and loyalty programs (e.g., points, rewards).

While ROMI is more sophisticated than ROI, it suffers from the same drawbacks and should be used only for unambiguous, controlled programs.

Marketing has never worked that deterministically and never will, despite tremendous advances in marketing data, technology, and operations. Predicting results from marketing actions is more like forecasting how the stock market will perform or what the weather will be like. Even tomorrow's weather is somewhat uncertain and the weather a few months from now is, at best, a probability.

ROI understanding is critical

Marketing's lack of vending machine cause-and-effect creates persistent challenges for executives who make financial decisions. In surveys of 400 senior Fortune 1000 business leaders conducted in 2018, Proof Analytics[1], a leader in automated marketing mix modeling, found that 94% said they had little or no reliable understanding of the quantifiable business value delivered by marketing. Marketing budgets are often the largest bucket of "discretionary" funds (i.e., not committed to payroll or other obligations) available in a company. Without knowing ROI, how can management compare marketing investments to other opportunities across the business portfolio or determine the business impact of increasing or cutting the marketing budget?

Just within marketing, CMOs face thorny trade-offs. How much should be spent to stimulate short-term (but fleeting) demand versus the longer-term (but more lasting) benefits of brand? Which of dozens of media options will be most effective? How does the CMO support various regions, product lines, and channels? How much should the company devote to marketing technology investments?

Marketing leaders believe in the importance of ROI: 67% of marketers responding to a 2021 DemandGen Report survey[2] said the primary reason behind a deeper need for marketing metrics was to show ROI from all marketing investments. No doubt, every

[1] Proof Analytics presented this data from a series of surveys in a press release from the 2018 Connect CFO Leadership Summit. https://www.globenewswire.com/news-release/2018/10/22/1624837/0/en/Fortune-1000-C-Suite-Survey-96-See-Their-Marketing-PR-Teams-as-Unwilling-or-Unable-to-Prove-ROI-Increasingly-Top-Companies-Are-Turning-to-Finance-Procurement-to-Lead-the-Effort.html

[2] Marketing Measurement & Attribution Report: B2B Organizations Double Down on Tried and True Methods with a Focus on Tracking Digital Engagement, DemandGen Report 2021

marketing organization's ROI-measuring capability would benefit from improvements. However, even companies with the most well-run marketing operations, the most capable CMOs, and the best technology will not produce vending-machine ROI. The problem isn't with strategy or missing data. The problem is the complex market – with all the uncertainty and ambiguity it entails.

The Challenges of Marketing's Complexity

Chaos was the law of nature. Order was the dream of man.

—Henry Adams, American historian

Markets are what science calls complex adaptive systems. The interactions of many independent agents, both individuals and enterprises – customers, companies, influencers, partners, and governments, produce feedback loops that cause situations to constantly change. Change produces many unknowns.

While markets have always been complex, starting in the late 20th century the ramp of digital technologies exploded the number of interactions. Prior to digital, there were fewer channels, buyers had fewer choices, and vendors had fewer competitors. As digital accelerated interactions, word-of-mouth spread more quickly. Skilled marketers lost the breathing space needed to work through situational ambiguities.

The U.S. Army faced similar complexity and ambiguity following the Cold War. Gone were planned battles between regimented armies and formidable equipment. Gone were situations that generals could command and control. Instead, soldiers embedded in cities teeming with frightened citizens. They faced conflicts with opportunistic, fast-moving enemies. The U.S. Army War College adopted the term VUCA[3] (Volatile, Uncertain, Complex, and Ambiguous) to describe these conditions.

[3] According to the U.S. Army Heritage & Education Center, the concepts behind the term VUCA draw on the leadership theories of Warren Bennis and Burt Nanus. The acronym first appeared in military education documents in 1987. https://usawc.libanswers.com/faq/84869

VUCA also describes the digitally transformed marketplace where the path between marketing plans and revenue realization is a strange world of ambiguous experiences, vulnerable to many unforeseen twists and influences.

Origins and Successes of Business as a Machine

The idea that businesses could run like machines began in the early 20th century, when work processes were a jumble of rules of thumb and trade secrets. Early geniuses, notably Frederick Winslow Taylor, produced tremendous efficiency gains by applying the rigor of machines to the ways people worked. Taylor innovated practices including measurement, skill specialization, planning, training, standards, professional management, and organizational hierarchies.

The benefits of "the one best way" as Taylorism was known, were astounding. At the 1900 Paris Exposition, Taylor demonstrated how simply by changing the way people worked, a steel mill could increase the amount of steel cut per minute by over 500%. Business guru Peter Drucker called Taylor's book, *The Principles of Scientific Management*, "the most powerful as well as the most lasting contribution that America has made to Western thought since the Federalist Papers." [4]

From the Pennsylvania steel mills, Taylor's scientific management tenets spread to businesses, schools, churches, and homes. White collar workers eagerly learned to clip papers together in the "one best way." The U.S. military used Taylorism to ramp operations for WWII.

Cracks in the Machine Model

From the beginning, Taylor's machine model performed best where work was repetitive, limited skills were needed, and requirements were stable and known. The further work strayed from these conditions, the more dubious became the outcome. The work requirements of today's digital world are a far cry from the early 20th century. Although the volatility of change varies – industry structures tend to evolve more slowly than the roiling dynamic of a customer journey – nothing is constant.

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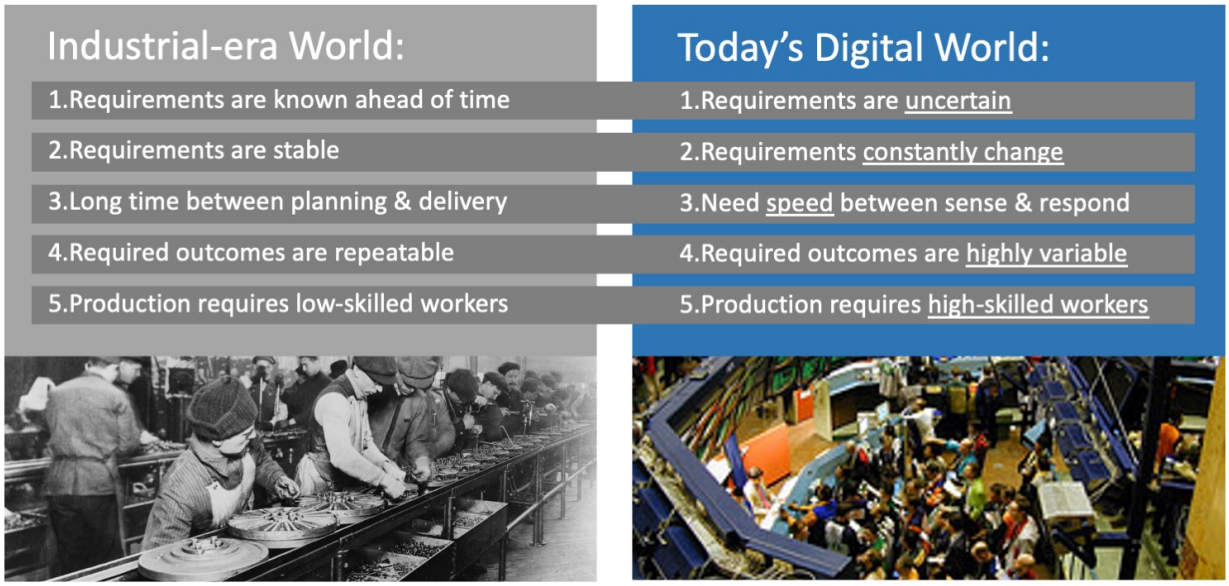
[4] *Post-Capitalist Society* by Peter Drucker, Harper Collins 1993

Comparison of Work Requirements: Industrial vs. Digital World



Applications of the machine model in natural and social environments have had particularly poor outcomes. Examples of the unintended consequences resulting from people trying to reduce nature to a controllable machine are common. Particularly painful are stories about the introduction of invasive species. One example: in the 1930s, Australia imported 102 Hawaiian cane toads to rid sugarcane fields of voracious greyback beetle grubs. The toad population now covers 40% of Queensland. Their expansion was fostered by the absence of Hawaiian predators, the abundance of food-filled ponds, and the gross underestimation of toad fertility. The toad species eats almost anything – except greyback beetle grubs. Differences in life cycles between Hawaii and Australia mean toads and beetles are never in the field at the same time.[5]

Searching for Alternatives

With the arrival of data-crunching computers, scientists began to discover why the machine model fails in nature. In 1961, after eight years of trying to make weather forecasts adhere to machine consistency Edward Lorenz at MIT discovered non-linearity (the

[5] Cane Toads in Oz https://www.canetoadsinoz.com/invasion.html

butterfly effect).[6] Following Lorenz's quantum leap, study after data-driven study ripped the covers off the myth of nature's controllability. By the 1990s pioneers were innovating approaches to a multitude of persistent challenges including the following: based on the VUCA concept, the U.S. Army started rethinking their approach to post-Cold War conflicts; a group of software developers wrote the Agile Manifesto in 2001; and companies such as Zappos and Spotify have experimented with new organization types. Innovation continues and much has been learned since then.

Complex systems share characteristics that confound ROI

Markets are semi-predictable and therefore can be modeled, but only within the bounds of time and probability.

Inherent in the ROI calculation are assumptions grounded in the machine paradigm. The ROI calculation assumes all gains and costs can be cleanly identified and that the ratio is stable. But it's impossible for marketing to adhere to these assumptions, and this ambiguity paves the way for executive frustration. Instead, marketing shares characteristics with all living systems (e.g., reefs, beehives, ant colonies, immune systems) and other social systems (e.g., stock markets, cities, traffic, games). This section looks at how the characteristics of complex adaptive systems challenge traditional ROI measurement and prediction.

Markets are composed of multiple heterogeneous interdependent agents. Machines have parts, but they are limited and purpose-built, and no component acts independently. Markets, on the other hand, are tangled by the interactions of autonomous individuals (e.g., buyers, entrepreneurs, salespeople, marketers, influencers) and enterprises (e.g., corporations, media companies, regulatory agencies, supply-chain participants). Each agent adapts their behavior according to local motivation, context, and exposure to information and environmental signals. Feedback loops ripple through space and time. The longer the time between an action and an outcome, the greater the number of interactions that can occur, the broader the ripples, and the more entwined the feedback loops.

[6] The butterfly effect gets its name from the poetic example Edward Lorenz, discoverer of non-linearity, used as the title of his 1972 talk, "Does the flap of a butterfly's wings in Brazil set off a Tornado in Texas?"

EMERGENCE: In complex systems, order arises from chaos. Colonies emerge from ant interactions. Thinking emerges from the interactions of neurons. Traffic emerges from cars, drivers, and the environment. Markets emerge from buyers and sellers. Higher-level structures exhibit patterns. Drivers expect 4PM congestion. Retailers depend on seasonal revenue lifts. However, higher-level structures have powerful properties that are distinct from individual behavior. A single driver can't cause a traffic jam, nor does a single gift buyer act like a Black Friday crowd. Although higher-level patterns can be modeled – for example, investing $1 million in a well-timed discount campaign may be expected to deliver $3 million in revenue – having this knowledge does not predict the response of a particular customer to that campaign. Although emergence seems magical, it occurs because the participating individuals tend to follow simple rules (e.g., "get home for dinner" produces the rush hour jam).

Control is distributed. No one is in charge. People control machines and outcomes can be specified. Executives typically believe (or wish) that marketers are the "mission control" of their campaigns. But market behavior isn't governed by any controller, so marketers can only intervene and influence. Distributed control makes marketing more like raising a child than building a car: there is no one-size-fits-all manual or checklist.

Markets are subject to the butterfly effect. A machine's performance can be replicated because the same starting conditions produce the same outcomes. Tap lightly on the accelerator and the car inches forward or press the pedal to the metal to make the car race. In contrast, the non-linearity (the butterfly effect) of complex systems means continual surprises. Small changes, especially early, can have profound effects later. For example, a single tweet in 2021 could initiate a huge deal that closes in 2023. Alternatively, large actions may have little or no effect, as when sales decrease despite a large ad buy. Markets are semi-predictable and therefore can be modeled, but only within the bounds of probability and time.

Market-level behavior patterns emerge from the swarm of participant interactions. Machine performance is predictable if you know how machine components work. Machines are logical and reductive, and what happens at a macro level is directly caused by adding up all the component actions. The behavior of complex systems, on the other hand, comes about in an entirely different way. Complex systems have this weird propensity called emergence that means they can form higher-level patterns on their own – not directly related to the behavior of any individual and without the presence of any mission control. Examples of emergent market patterns include innovation adoption curves, sales seasonality, and social media virality. *(See the Emergence sidebar for more information.)*

Markets have blurred boundaries. One of the biggest marketing ROI challenges stems from a lack of a consistent definition of what's in the ROI calculation. Calculating ROI requires distinct category boundaries. Every machine component is distinct. But nothing about a market is distinct, and this causes organizations to disagree about the artificial perimeters that marketers must impose to attempt to figure out ROI. The 2018 Proof Analytics study revealed that 95% of executive respondents

said they weren't sure marketing leaders had the same understanding of value creation as business leaders. More likely, even the business leaders who responded to this survey would not agree with each other! Areas of contention include:

- What does "return" mean? Does return refer only to financial outcomes or should important benefits such as customer loyalty or company reputation be included?
- Where should measurement start and stop? Given the time lag between marketing actions and outcomes, how much historical data should be taken into consideration?
- How should the ripple effects of marketing actions be treated? For example, should revenue from referrals be included in the ROI calculation?

Source: https://thotleaderlabs.com/products/marketing-attribution-is-fake-news-mug

Inadequate Marketing ROI Methods

The ability to evaluate marketing investments is urgently important. However, ROI methods designed for evaluating capital expenditures are problematic for marketing measurement. Faced with this conundrum, marketers and their executive partners sometimes address the situation with limited workarounds. Although these workarounds offer value for marketing in other ways, they fail to adequately support marketing financial decisions.

Limitations of Rules-Based Attribution

Attribution is the ROI method that apportions revenue (or other financial outcome such as pipeline value) to identifiable marketing tactics. Companies are attracted to attribution because it seems to offer a fast, simple method of matching outcomes to costs. On the positive side, the data underlying attribution offers valuable insights into customer journeys. Unfortunately, due to the characteristics of complex systems, attribution offers a false ROI narrative.

Marketers know this – or at least suspect it. A coffee mug with the slogan "Marketing attribution is fake...we literally made it up" recently received an explosion of laughter emojis and exclamations of "I need this!" from the marketing community on social media.

What marketers "make up" are pre-defined rules (e.g., first touch, last touch, multitouch, time decay) that attempt to match a specific tactic to revenue.

Marketing works as a system, and attribution obscures interdependencies. Think of a cookie recipe. How can cookie revenue be apportioned to individual ingredients? Attributing X% of outcome to sugar and X% to baking soda isn't helpful. Both are critical. When you purchase a car, how can you attribute portions of the price you paid to the billboard you saw last month, the recommendation from your brother-in-law at a party two weeks ago, the TV ad last week, the pop-up ad on Facebook the day before, and the location of the dealership? Marketing just cannot be reduced to the sum of its parts.

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Attribution also hinders marketers from finding the real contributors to revenue uplift. Attribution applications provide invaluable insights into the steps individual customers tend to take towards purchase. However, the characteristic of emergence means that insights from the behavior of individual customers are unlikely to predict market-level patterns. For example, traffic analysts could determine which freeway on-ramps cars are most likely to use during rush hour (call this "last touch"). With enough data, they might even be able to apportion the number of cars on the highway during a rush hour jam (revenue in a certain quarter). However, this analysis provides only one aspect of traffic jam formation and not necessarily the most significant. Simplistic conclusions can lead to faulty decisions. A client told me about how the CFO of a software company insisted that the majority of marketing budget be spent on demos because demos clearly had the best ROI based on "last touch" analysis. This mandate alarmed the heads of sales and marketing, who clearly knew that removing other marketing programs would lead to revenue declines within months.

Short-termism and Wrestling the Time Dragon

Time is a huge challenge for gauging marketing value because time amplifies the effects of non-linearity. Companies with long buying cycles suffer most. Ambiguity increases in long sales cycles because gaps between actions and outcomes allow more interactions and associated behavior changes to intervene.

A common response to the daunting challenge of time is to ignore it and instead pay attention only to the short term. The Oxford dictionary defines short-termism as the "concentration on short-term projects or objectives for immediate profit at the expense of long-term security." The urgency of quarterly earnings exacerbates this tendency as does the human struggle with recency bias, a universal cognitive limitation that causes humans to value what just happened over what happened long ago.

In marketing, short-termism often exhibits as strategies that overweight the influence of "bottom of the funnel" demand tactics – those occurring near the point of purchase. By shortening the time between action and outcome, marketers hope to ameliorate some of time's complications. Variations on this truncation strategy include linking "top of funnel" and "middle of the funnel" marketing tactics to intermediate outcomes, for example by measuring whether a campaign drives web traffic, or a brand-campaign lifts awareness. Some marketing professionals have called these intermediate metrics "return on intent." As with attribution, these intermediate measurements provide crucial information for marketing effectiveness. However, as a true ROI technique they are useless unless the interim outcomes are financially quantifiable. A lack of financial connection to substitutions can fuel the executive perspective that marketers don't really understand ROI.

Market success rarely progresses evenly. It can rush, then stall and even go backwards, then creep forward again. Lags and unevenness can cause executives to prematurely halt campaigns and fire CMOs – often right before they return their biggest results. This happens partly because most marketers can't get their hands on the historical data and analytics capability needed to discover correlations between actions and outcomes spread over a protracted period and, similar to weather prediction, even with extensive data the results will never be perfect.

Complexity-wise Marketing ROI Playbook

If we cannot control the volatile tides of change, we can learn to build better boats.

—Andrew Zolli, author of Resilience: Why Things Bounce Back

To thrive in the digitally transformed market, companies must adopt work methods markedly different from those designed for the industrial era. I coined the term Complexity-wise Marketing to characterize new ways of thinking and managing that foster fluidity, insight, innovation, and agility – attributes required for effectiveness in marketing's VUCA reality. Complexity-wise Marketing activates the human potential for problem-solving while leveraging technology to augment human capabilities. Complexity-wise Marketing involves adaptations to teams, organizations, culture, processes, and information systems. By working with marketing's complexity instead of ignoring it, companies will realize more value.

When we accept marketing's VUCA nature, we expand the universe of alternatives for marketing management.

I developed the recommendations in this Complexity-wise Marketing playbook for ROI based on my experience as a CMO, my work with hundreds of marketing leaders while running IDC's CMO Advisory practice, and my research in social science, behavioral economics, complexity theory, and the practices of pioneering leaders in many kinds of turbulent environments.

ROI is a decision tool. Good decision-making requires quality information as well as people able to interpret and use it. Complexity-wise actions in three areas are especially relevant to marketing financial measurement:

- Complexity-wise mind shifts
- Complexity-wise practices for intelligence
- Complexity-wise practices for ROI accountability and goals

Complexity-wise Mind Shifts

When you change the way you look at things, the things you look at often change.

—Harvey Mackay, author of Swim with the Sharks Without Being Eaten Alive

Viewing marketing through a different prism offers extraordinary power because it shines light on new possibilities. Analogies, new language, and reframed mental models are emotional intelligence tools that provoke us into questioning the beliefs and practices that keep things locked in the status quo.

Shift 1: From marketing ROI as a static scorecard to marketing ROI as a navigation tool.

Marketing budgets are investments, not expenses. Like stock investments (also a complex system), marketing budgets are risked, not spent, and payoffs are never guaranteed.

Marketing scorecards are typically used to compare actual key performance indicators (KPIs) against plan. But what if we admit that, because of the constantly changing nature of markets, marketing plans are out of date the moment they are released? Measuring KPIs isn't the problem, but maintaining static goals for comparison assumes a level of predictability that isn't realistic.

A better approach is dashboards that track scores over time, which would help chart marketing's ROI journey. With this approach, KPIs and other key data become navigation tools, providing directional indicators as to whether the company is getting closer to the plan's financial ambition or farther away. The trends and patterns also contribute insights for optimal next steps. Navigation assumes an always changing context, and as Yoda said, "Always moving is the future." (Find more guidance in the section on Accountability and Goals).

Shift 2: From marketing as a cost center to marketing as an investment.

Marketing budgets are investments, not expenses. Like stock investments (also a complex system), marketing budgets are risked, not spent, and payoffs are never guaranteed. The investment paradigm directs management to invest over multiple time horizons, and this is as true for marketing budgets as it is for stock portfolios.

Marketing is the company's long game. Although marketing has an important role as a sales booster (sometimes called "performance marketing"), companies also need marketing to generate the early interventions that can produce the disproportionally large future impact that is characteristic of complex systems (the butterfly effect). Another way to look at marketing's job is that marketing paves the road that sales will eventually drive on. To paraphrase a common business adage: Sales (the short game) is asking someone to marry you, marketing (the long game) is what makes them say yes.

It's a mistake to shortchange marketing's potential long-game benefits with ROI algorithms that overemphasize short-term stimuli that trigger sales. There can be practical reasons for short-term emphasis, for example, when companies expect an imminent revenue shortfall, they sometimes redirect marketing budget into what they hope will be short-term conversion. Used infrequently and under appropriate conditions, this strategy may be effective.

However, the highest correlation with positive financial outcomes is likely to be found with the long game, those early marketing interventions. The work of advertising authorities Les Binet and Peter Field has drawn strong links between the brand efforts to improve share of voice and share of market. Individual companies deploying advanced marketing analytics find similar connections between early interventions and sales.[7]

Shift 3: From distinct causes and effects to identifying correlations.

It's natural for human brains to reach for distinct cause-and-effect stories for why things are the way they are. Market outcomes do have causes, but they are not clear-cut; these outcomes depend on a confluence of interdependent factors.

Advanced analytics can tease out helpful insights. With the right analytics, marketers can identify the 20% of known programs that best correlate with business outcomes. For example, improvements in social sentiment may correlate with an increase in closed deals

[7] Correlations can be surprising. One company I advised found a strong correlation between deal conversion and buyers who had, months before, accessed web content about the company's service practices, a type of content that the company soon realized they needed to pay more attention to.

CASE STUDY: DATA TRANSPARENCY

In General Stanley McChrystal's book, "Team of Teams," the author describes the strategy shift required in Iraq to respond to the fluid Al Qaeda. McChrystal took the crucial action to break down information silos between different teams. Headquarters intelligence teams and field teams exchanged information in daily briefings where everyone, including outside partners like the CIA, was encouraged to attend. Dashboards with real-time data and video feeds were constantly in sight for decision-makers. McChrystal's army Task Force fostered a culture of openness, honesty, and sharing. They welcomed dissent and encouraged blunt, honest discussion. McChrystal called this state "shared consciousness", and it became the cornerstone of the Task Force transformation. He said, "Sharing information would help build relationships and the two together would kindle a new, coherent, adaptive entity that could win the fight."

Team of Teams: New Rules of Engagement for a Complex World, General Stanley McChrystal with Collins, Silverman, and Fussell; Portfolio/ Penguin; New York, NY 2015

nine months hence. Initiating a new pay-per-click (PPC) campaign may correlate with higher web sales.

But correlation, famously, must not be confused with causation. Correlation suggests relationships but doesn't tell you why the relationships exist. For example, a child's improved reading ability will correlate with height, but height doesn't cause reading advancement. A third factor, age, contributes to both changes. Some correlations are spurious. Buzzfeed has entertained readers with silly relationships such as how the average global temperature correlates to the decrease in the number of pirates. Marketing correlations, like most of those in other social systems, will have probabilities well below the confidence levels that statistics students are used to seeing. Marketers should take note of this and be wary of overcommitting on results.

Complexity-wise Intelligence Practices

Without big data analytics, companies are blind and deaf, wandering out onto the web like deer on a freeway.

—Geoffrey Moore, author, consultant

Useful navigation towards improved ROI in a complex adaptive system relies on good data and the right type of analytics. Complexity-wise intelligence means progressing towards an organizational neural network, fusing operations with an intelligence system that provides shared, up-to-date information, relevant analytics capability, and contextual understanding. The more mature this capability becomes the better the ROI guidance.

Practice 1: Improve data quality and transparency.

An abundance of trusted data (e.g., historical, multiple sources and types) gives marketers the best chance of finding the signals, especially the highly important early signals, that correlate to revenue. Just as it takes microscopes, MRIs, telescopes, and thermal imaging to see what is unseeable with the naked eye, it takes data science to observe patterns in complex environments that we can't perceive with our cognitive limitations.

Useful analytical answers depend on quality data. Companies often lack good historical data (e.g., poorly documented sales cycles, bad firmographics, incomplete buyer analysis, failure to collect

adequate budget data). Poor data can be a technology problem, but this can be overcome with data cleansing and harmonizing services. Bigger hurdles are lack of data skills and strategies, as well as organizational practices that impede data management.

To see the most accurate ROI picture, companies can't be bounded by traditional silo walls. Customers bounce around and market behavior is influenced by many parts of the company as well as outside interactions. Any customer data could provide important insights, especially data from the company edge (e.g., sales, service, support, billing, distribution channels).

Traditional organizations with extensive hierarchies and functional silos are a major hindrance to intelligence transparency and thus to ROI navigation. Accidentally or on purpose, people in traditional organizations tend to hoard data and make decisions based on their insufficient local information. Silos perpetuate destructive practices such as trying to determine whether marketing or sales is the source of value and who gets credit.

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Another organizational hindrance is business processes where one team hands work off like a baton to another team in a serial fashion (known as "waterfalls"). Waterfall processes, including the popular sales funnel, prevent all parties from seeing the bigger picture and incentivize competition between internal groups. No one has end-to-end responsibility. Increasingly, marketers are adopting Agile methodologies, which are much better suited for working in a complex situation. Agile methods come in several flavors such as Scrum and Kanban and offer a brilliant middle way between the folly of wrestling big problems all at once and the counterproductive reduction of marketing into the siloed phases of a "waterfall."

Practice 2: Adopt data science methods.

Although rules-based attribution leads to false conclusions, some marketing tactics do matter more than others. The real questions underlying marketing ROI include "can we safely eliminate any tactics?" and "what are optimal tactics and sequences?" It's undeniably valuable to gain these answers, and this requires appropriate analytical algorithms.

Multivariate regression analysis is the most common analytics technique used in marketing. This technique underlies most scientific investigation and much of econometrics. While employing the compute-power of weather prediction isn't necessary, the approach is essentially the same. Data scientists look for relationships between a single dependent metric (for ROI this would be the financial "R" marker) and two or more independent variables (for marketing this would be a range of possible contributing tactics). Using this method, analysts can find the best "fit" correlating today's revenue with past interactions.

Because multivariate regression analysis, which is used in marketing mix modeling (MMM), examines multiple factors simultaneously, visibility into the interdependency of marketing system elements is preserved. Each factor analyzed is effectively scored, and those with the highest score will be those with the greatest (but not necessarily the only) contribution. MMM also provides information about the probability of success, just as a weather app will tell you there is a 50% chance of rain on Tuesday. A good model will inform marketers about the volatility in a particular element of the marketing mix. Still, decision-makers must remember that this type of modeling will never deliver vending-machine answers.

Despite its promise, MMM has drawbacks:

- MMM remains relatively expensive, although automation is decreasing its cost and required effort.
- MMM can be time-consuming. Finding the best "fit" requires repetition, especially when there are many factors to consider in the algorithm. Automation, in the form of machine learning capabilities within analytics tools, is helping to speed this repetition.
- MMM can only draw conclusions based on available data. When data sources are limited, models may under-value or miss important correlations.
- MMM measures only what you have already implemented. It's possible that a strategy you haven't tried could perform better. Exploring and testing new possibilities is an important part of any marketing strategy.

Time remains a thorny issue, but two strategies that help fight this dragon are shortening the intervals between measurements and incorporating more historical data. These techniques improve the accuracy of the "fit" and allow for analysts to see more patterns. Highly dynamic situations benefit from more frequent data updates. For example, during hurricane season, people need hourly weather updates. Also, marketers must beware of significant shifts in market context that may strongly disrupt patterns. After a period of big change, such as the COVID pandemic, the validity of older data may need to be questioned.

In the future, another analytics method may be available to mainstream marketers. A few companies, such as large retailers, are experimenting with agent-based modeling. These computational models simulate the actions and interactions of autonomous agents within a system to see their effects. This technique is very difficult and advanced, but it would allow for viewing trade-offs between paid, earned, and owned options and optimizing the marketing portfolio holistically.

Just as our brains can't figure out the weather, humans are unequipped to sort through the mountains of data required to find the patterns inherent in complex market systems.

Practice 3: Help humans and machines collaborate.

Human decision-makers also need new intelligence skills. They need to learn how to ask the right questions and how to work with data scientists to get the most useful answers. Having evolved in nature's complex arena, humans are well-suited for performing in ambiguous and nuanced situations. We can sense the meaning of a customer's change of inflection, we can make value judgments about trading a free service today for potential future revenue, and we can improvise and innovate in the face of new situations. Yet, the same cognitive capabilities that help us thrive under nature's complex conditions have limitations. Just as our brains can't figure out the weather, humans are unequipped to sort through the mountains of data required to find the patterns inherent in complex market systems. Human thinking is also subject to many cognitive biases. For example, we tend to see patterns where there are none.

Intelligence systems, on the other hand, are terrible at ambiguity and nuance. They are extremely literal. A *Harvard Business Review*

article[8] describes how a consumer products firm proudly announced they had reduced the error rate in the sales-volume forecast from 25% to 17%. However, despite the improved accuracy, the company lost money because the more exacting results came at a cost. Precision in low-margin products had improved (low margin products had been the source of most errors) but accuracy in the high-margin products was inadvertently reduced. This unintended consequence caused the company to underestimate demand for their most profitable products. While the human decision-makers could see the underlying intent to improve profits, the intelligence system could not.

The collaboration between humans and machines is the answer to working in complex systems like markets. "Augmented intelligence blends human and machine intelligence in a redesigned business process to achieve better outcomes than either humans or machines could achieve alone," say the authors of *Augmented Intelligence.*[9]

Complexity-wise ROI Practices for Accountability and Goals

The greatest leader is not necessarily the one who does the greatest things... (but) the one that gets the people to do the greatest things.

—Ronald Reagan, U.S. President

Complexity makes it unreasonable to hold people accountable for figuring everything out in advance, or for precise prediction and producing consistent results. However, leaders can hold marketers accountable to improve ROI navigation. Executives should clearly communicate to marketers their expectations for marketing financial management, while supporting conditions that foster accountability.

Practice 1: Manage ROI goals flexibly.

Executives should certainly set goals, but given marketing's VUCA reality, they might look to baseball for an example of how to

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[8] *Why You Aren't Getting More from Your Marketing AI*; Eva Ascarza, Michael Ross, Bruce G.S. Hardie, Harvard Business Review, July 2021

[9] *Augmented Intelligence: The Business Power of Human-Machine Collaboration*; Judith Horwitz, Henry Morris, Candace Sidner, Daniel Kirsch, CRC Press 2021

CASE STUDY: THE VARIABILITY OF SUCCESS

A technology reseller launched a campaign to attract senior IT professionals in a new industry segment to their local events. Attendance at the first event was much higher than average. Salespeople were able to meet with more prospects, leading to strong pipeline growth. Based on initial results, regional sales management wanted to immediately divert a large chunk of field marketing budget to the new segment. Marketing was skeptical because although event attendance was high, statistical analysis showed that it was still within a normal probability range. The company continued to market to the new segment, but the initial great results were never repeated. Within a few months, the outcomes within the new segment had sunk back to average event attendance and slightly lower than average pipeline return. This demonstrates how a single data point, or just a few, can be misleading. Tracking over time provides stronger evidence for a pivot or trend. Diverting more budget to this segment, as sales management had suggested, would have been a mistake.

flexibly manage those goals. Every baseball player would love to have a batting average over .300, yet the fact that most of them don't achieve this excellence doesn't stop them from trying. Players aim to improve their average over time, all the while acknowledging that they will perform better in some seasons than others. Similarly, complexity-wise marketers aim to improve the percentage, duration, and size of ROI wins rather than worrying about exact scores. In addition to setting aspirational goals, you may also decide on a floor, or hurdle rate, for acceptable ROI. Benchmarks, especially those achieved under your own or similar company conditions, offer both aspiration and useful averages.

The market's volatility along with non-linearity effects can occasionally produce a streak of great metrics for average campaigns or poor results for great marketing. Companies focused on short-term results have been known to pull the plug on marketing strategies right before they produce desired results. Only analysis over a longer time can identify when an ROI result is likely temporary and when it represents a genuine shift in the trend line. (*See the Case Study sidebar for an example.*)

Even low ROI ratios may be acceptable under certain strategic conditions. Just as a start-up loses money in its first seasons, a new marketing venture may not have a positive ROI during the testing phase. In other cases, ROI may be an inappropriate metric because the marketing program is intended for a purpose other than revenue such as meeting regulatory, competitive, or customer experience requirements.

Practice 2: Increase the use of diverse teams.

Quickly grasping and responding to volatile market situations requires coordinated collaboration within multi-disciplinary teams: such teams are the future of customer-facing functions. The multi-disciplinary team approach is driving companies to form account-based marketing (ABM), customer success management (CSM), ecommerce, and performance marketing teams who work deeper into the sales process.

Accountability for ROI results is most appropriately held at this multi-disciplinary team level because functional silos ("the advertising team," "the events team," or "the sales team") obstruct campaign execution and divert the flow of intelligence. Holding

individuals, or single functions, responsible for outcomes is like holding the pitcher responsible for baseball game results. Empowering teams with accountability for the whole ROI equation – investment decisions and financial results – unleashes entrepreneurial spirit and means that ROI will be better measured and will also improve over time.

Practice 3: Provide intelligence and marketing operation services.

The digital era has greatly expanded the range of disciplines required for effective marketers. While most marketers will need some degree of knowledge about data and analytics, the majority will focus on content, media, or other important expertise. Marketing teams cannot be held accountable for ROI measurement or results unless they have the support of experts in analytics, data science, technology, and operations.

Currently, marketing operations[10] is the recommended organizational team responsible to collect, manage, analyze, and visualize data and other information. Marketing operations is also responsible for the mechanics of ROI and complementary metrics as well as helping marketers and decision-makers interpret and improve them. For more capability and collaboration, companies are moving towards the hybrid function called revenue operations (RevOps) to pull together the operational responsibilities and data of marketing, sales, and service.

Marketing operations should provide these services in partnership with the information technology (IT) team. A 2018 study[11] conducted by IDC for Google found that best practice is for marketing to take the lead for strategy, needs assessment, evaluation, deployment, and business process operations including specialized data scientists and analytics capability. IT should lead in data management and governance as well as integration. In no situation should either team act unilaterally.

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[10] For the purposes of this discussion, the role of marketing operations (or Marketing Ops) is broadly defined to include marketing finance, marketing intelligence, marketing technology, and marketing analytics, as well as other operational functions.

[11] "CIO-CMO Collaboration: Essential for Elevating Customer Experience," An IDC Whitepaper sponsored by Google, March 2018 (Disclosure, I was the co-author of this study).

Practice 4: Avoid surrogation.

ROI is a proxy metric. It is not a surrogate for everything that makes marketing effective; it's more like a map. Different kinds of maps can each reveal something important – streets, topography, climate – but none represents the true richness of the living landscape. Similarly, ROI provides the map for one important aspect of marketing, but not for everything.

Emphasis on ROI can be so powerful that marketers may single-mindedly pursue the metric without regard for adverse effects. This surrogation can have disastrous results. The Wells Fargo fraudulent account scandal that became known in 2016 is a case in point. Pressured by management to cross-sell services, employees created millions of fake accounts without clients' knowledge or permission. Surrogation in search of better results cost Wells Fargo $3 billion in penalties and a hit to their reputation.

Using multiple, seemingly contradictory metrics defends against surrogation, argues Professor Emeritus at the University of Toronto, Roger L. Martin.[12] In his book, *When More Is Not Better*, Martin explains how dynamic tension forces managers to consider the systemic, integrated nature of business. In addition to ROI, Martin recommends that leaders should measure two to four strategic-level markers. For example, Martin points out that Southwest Airlines aims to be the lowest cost airline in America *and* #1 in customer satisfaction, employee satisfaction, and profits.

Executives should consider their business model when selecting strategic level metrics for marketing. While vanity metrics should be avoided, "soft" values, especially those related to customers and employees, should not be ignored because they are more difficult to measure. Proxy metrics can be found for just about every important objective.

[12] When More Is Not Better: Overcoming America's Obsession with Economic Efficiency, Roger L. Martin Harvard Business Review Press 2020

A Few Tips for Starting Your Complexity-wise Marketing

Progress incrementally. There's no question that achieving Complexity-wise Marketing will be an extended journey. As with any transformation effort, trying to do too much all at once is a recipe for failure. Take advice from the Agile movement and bite off smallish projects, work quickly, learn, and improve. Then, repeat this cycle continuously. Expect the organization to take time to digest new views and practices, especially in large companies. Take heart from what we know about change in complex systems. Small interventions can have a big impact over time.

Increase opportunities for open dialog. Objectives, strategies, and metrics will be more successful if they are enlightened by formal and informal feedback rather than blindly handed down. Leave ample time in meetings for facilitated discussion instead of the typical endless parade of presentations. Invite more voices into the discussion, such as combining people at the edge of the company with those in guidance and intelligence roles. Share information ahead of time, so that people can think about its meaning and prepare questions and ideas.

Help your organization see with new eyes. Stephen Covey said that all things are created twice – first mentally and afterwards physically. Two tools for helping people develop a mental picture of complexity are analytics and relevant analogies and language. Expand marketing's view by looking at longer trend lines and patterns and incorporating a variety of early data into analysis. Share the data in digestible form with your multi-disciplinary teams. Scrub your corporate vocabulary of machine-oriented terms and adopt some of the language of the living world.

Conclusion

I recently witnessed a mother and her small child feeding money into a vending machine and excitedly selecting their treat. The rotating mechanism pushed the snack bag forward but alas, snagged a corner and the treat hung there with a tantalizing sway. The frustrated mother banged on the glass to no avail. Then, as her child began to pout in disappointment, she instantly switched from angry customer to soothing mother. I was reminded again how amazingly adaptable we humans can be. This little scene brought to my mind how marketing is more like raising a child than building a machine, and how in the real world, even machines

don't always meet the fantasy of control and predictability that Taylor and his followers advised we seek.

When we accept marketing's VUCA nature, we expand the universe of alternatives for marketing management. We can seek inspiration from social environments where we have not only familiarity, but also competence and passion, such as parenthood, investing in the stock market, driving a car, or playing a baseball game. We must bring forward what is best from the machine model because we don't want to return to chaos, and as we discover new tools that are purpose-built for complexity, we will add these to the collection. Nature's complex behaviors were hidden from previous generations of marketers and managers. Now that the tools of data have allowed us to see what the world of complex adaptive systems is like, we have the opportunity to use this insight to make a consequential difference.

Complexity-wise Marketing views and practices provide more realistic and thus more useful marketing financial management techniques. By working with marketing's complexity instead of ignoring it, companies will realize more value.

About the Author

Kathleen Schaub is a writer and advisor on marketing leaders' quest to modernize organizations and operations for greater effectiveness in the complex digital world. She led IDC's CMO Advisory practice for nine years advising hundreds of technology marketing leaders on management best practices. Earlier, Kathleen was a CMO and held other executive positions at leading tech companies. She believes that marketing leaders have an outsized opportunity to contribute to this transformative era – if their organizations become more agile, customer responsive, and resilient.

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