THE FIFTH DIMENSION:
HOW TO USE YOUR DATA TO REPAIR YOUR BALANCE SHEET IN CHALLENGING TIMES (AND HOW TO GET RESULTS IN WEEKS)

A GOOD GROWTH WHITEPAPER
The current emergency isn’t just impacting the real economy it’s also made a very significant shift in the e-commerce channel and as a result, you’re either experiencing channel shift or if you’re a pure-play, traffic shift from categories that were in demand prior to the lockdown to new ones now the vast majority of the population are at home.

Either way there are three issues you’re now likely to be grappling with:

- **Cost of Attraction** – how to spend less whilst selling more (and not just because the cost of Adwords is falling)
- **Cost of Acquisition** – how to reduce costs throughout the customer engagement including the challenges of handling inventory and fulfilment
- **People and Organisation** – where can you find the data and analytics skills that can create value quickly – and the cover you might need when current value creators are not available

The key to answering these lies in data you probably already have in the business – this paper lays out where to find it and how to extract value such that your balance sheet is in a healthier position at the end of the year than your competitors. (And it suggests where the world class mathematics resources are that you will need to turn data into gold).

If you want to jump to the action part, then click here
Fifth Dimension: are we talking rock legends?

No, it’s not the 1960s rock band that’s important here: it’s the scientific theory.

The theory of a fifth dimension was developed in the 1920s by the German mathematician Theodor Kaluza and the Swedish physicist Oskar Klein. They took Einstein’s work on spacetime – the concept of three spatial dimensions combined with time – and posited that, if Einstein was right and dimensions could be curved, there could be one extra spatial dimension: but, if that dimension was curled up into a circle with a very small radius, smaller than any other scale that was around, then we wouldn’t notice it; in essence, they argued that there are other planes of existence of which we are not aware simply because we cannot see them. Not widely accepted when it was first published, this theory later became one of the essential building blocks in establishing the acceptance of string theory – an idea that combines the physics of things very small and very large using the concept of quantum gravity.

String theory suggests there are ten dimensions in nature and the search for these is at the centre of the Large Hadron Collider project where physicists are looking for the smallest deviations which may suggest the existence of an extra dimension.¹

¹ The explanation of the science of strong theory and the fifth dimension in this White Paper owes a great deal to two excellent articles on Plus Maths magazine by David Berman, Reader in Theoretical Physics at Queen Mary, University of London. They can be found here: https://plus.maths.org/content/kaluza-klein-and-their-story-fifth-dimension
Why is this a useful idea in e-commerce?

Physics has constantly challenged how each generation has understood the world around them. New discoveries re-shape how we see the world and change our understanding. Our brains are used to working in three spatial dimensions, but more often than not we still revert to thinking in two (look at most models we use in business). Most of us have trouble imagining four spatial dimensions and can’t get close to imagining any more than that. Yet mathematically it would seem that there is a rational argument for a fifth dimension if not more. If true, this would change the way we think of nature in a very profound way.

Classic business theory (scientific management) was pretty two dimensional: it organised activity into horizontal groupings (divisions and functions) and then fragmented these vertically (hierarchies of command). More recently, organisations started to think in process flows often organised around efficient management of resources and implemented with the support of technology. This produced a third dimension developing a more holistic picture of how activity flows through the vertical and horizontal planes. Finally, as globalisation has accelerated with the support of digital technology, business has had to confront the challenge of the fourth dimension and understand how to become ‘always on’ in a world no longer defined by time-zones and where markets everywhere can be impacted by events anywhere.

Every one of these advances, just as advances in physics redefine our interaction with nature, has redefined how business leaders allocate resources in order to achieve their goals. Over the last decade or so business, regardless of sector, has had to come to terms with a fifth perspective: data. For those who have done so well, they have disrupted and then transformed the markets in which they operate. Broadly speaking however, the winners have not been legacy brands, despite their ownership of the customer relationship through the channels that they dominated for so long. The disrupters were those who spotted the opportunity to use the aggregation of very small things (bites and bits) and to aggregate them into large things that, if manipulated in a particular way revealed insights and understanding that allowed to get ahead of the competition.

If there is a need to do this well, then the current circumstances we are all facing must be one of the most critical times in which to ensure that this is being done to the best of your ability.
The power in the unseen

In our experience, the mistake made by those who have been left behind, has been to assume that it is the existence of digital data that is the fifth dimension. That somehow in and of itself this data is the answer. This can create the following outcomes:

• **A plethora of data, but little if any information.** Lengthy reports, plenty of data points, a great deal of descriptive narrative about what is happening to the data, but little if any insight into what this means for the business or what one might do about it.

• **Expert-led not customer-led activity.** Whilst this may refer to ‘data’, it is activity that is put together on the basis of assumptions of what needs to be done, rather on issues that are established and validated by the customer in the market.

• **Mistaking an echo for real conversation.** Many businesses claim to talk to ‘the customer’: in fact, what they end up doing is talking to customers who already know them and tend to have a bias in their favour. What they are not doing is talking to customers in the market who choose not to buy from them.

• **Assuming any number is a good number.** The power in data aggregation and interpretation comes from quality mathematics. Given that in 2017 the OECD reported that whilst 23% of tertiary-educated 25–64 year-olds held a degree in business or law only 5% held one in natural sciences, statistics and mathematics and that the share is similar among new entrants to tertiary education, it’s a safe assumption that whilst you may have graduates in your digital team, they may not be able to do the maths. Unless you’ve employed a maths graduate or a pure scientist to handle the data, what you have isn’t necessarily what you need to know. Even worse: it might just be wrong.

The concept of a fifth dimension is one where something is so small you don’t notice it: it’s a cylinder that looks like a flat straight line. In e-commerce we can aggregate small data into much larger data sets where the patterns start to become more visible, but there is still a significant risk that we either fail to notice, or what is drawn to our notice is not that to which we need to pay attention. Insight hides behind straight lines that are, in fact, cylinders that contain significant value.

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2 Education at a Glance 2017: OECD Indicators © OECD 2017
Measuring the wrong things:

Here’s an old chestnut: bounce rates. We have seen across multiple retail online channels that there is no correlation between the bounce rate of a website and revenue or conversion rate. If you doubt us, then do this exercise for yourself – you will discover a very similar outcome to the ones shared below which are aggregated from a range of sites:
This suggests that time and energy spent on addressing bounce rates alone doesn’t generate revenue or margin unless it’s aimed at a very specific issue – normally poor campaign performance on a landing page.

This is potentially covering up a much bigger issue where attention is needed urgently. Especially if you are reducing marketing expenditure: if so then it is important to understand where a cut is beneficial and where it will damage the business.

There are far more important things to measure (and that can be measured quickly and effectively online) that can drive positive outcomes:

- The propensity of customers in the market to want to buy your product or service
- The unit cost of attracting customers to your proposition
- The unit cost of acquiring a sale
Miscalculating value:

In many cases, average order value is used to report the average value of a single transaction and is a key metric within E-Commerce reporting. But as we covered earlier, do not assume that any number is a good number. The challenge is understanding what the average is within average order value: are you reporting the mean, the median or the mode? And whatever you are using is it the right choice?

As with bounce rate, we have found in multiple instances that the average order value is not an effective representation of the actual value of a transaction as it may well be that more transactions are made at a lower value than the average order value (reporting the modal average compared to the mean). The impact of this is that you should be thinking about how to drive up the number of higher value transactions as this would reduce the unit cost of acquisition far more than pulling in many more low value ones.

Try doing this for yourselves:

Distribution of revenue per transaction for transactions
Testing without thinking:

If your team is testing for executions that drive better performance, then they are at least focusing on activity that could increase the value of your balance sheet. However, there is still a significant chance that they will come to the wrong conclusion.

Regardless of the testing tool you use in e-commerce all of them come with a health warning as far as their use of data is concerned. Any data that is used from a testing tool needs to be reviewed and re-processed by someone who understands the underlying mathematics and scientific principles; for example, did you know that you actually test to disprove a null hypothesis?

Thoughtless reliance on the reported test outcome and significance of the impact will often lead to under or over reporting of the impact: meaning that the money you are spending on tool and people hours will fail to make an impact and as a result you won’t grow value.
Here are two examples:

In this one, the team identified the winner as variation 1. However, the data variance across all variations (indicated by the black lines) meant that no variation made a discernible difference to performance when re-stated using a classic mathematical probability test.
In this one, changing the measure of performance from revenue per session to revenue per user showed that a test declared a failure by the testing solution had in fact generated a very significant uplift in revenue per user (which is a result that had a direct value creating outcome) – this was missed by the team because they were not challenging the data in the testing solution.

The point here is that if you are going to look for value in your data, you have to ensure that those who are looking understand the underpinning mathematics, not just how a particular testing solution works.
In current circumstances then how do I use this to rebuild the balance sheet quickly?

**ACTION ONE**

- Check you haven't left revenue on the table or that you're not investing in worthless changes
- In a few days experienced graduate scientists can re-run the statistical analysis of any tests run over the last 6–12 months to:
  - Identify changes that you should stop spending money on now as the evidence doesn't stack up to support investment in change.
  - Identify where reporting has hidden revenue/margin and where quick change could improve performance.

**ACTION TWO**

- Identify where value is being destroyed by ineffective online marketing
- Understanding where marketing spend online is not adding value and stopping it will immediately reduce the unit cost of acquisition and the unit cost of transaction. At the moment every platform produces data to try and persuade your marketing teams to keep spending with them. They are very reluctant to engage in comparative performance reviews or indeed submit their data to a proper interrogation.
  - However, you have data in your business today, that if properly analysed will show you where value is created and where it is destroyed: and this can be done very quickly if you know how to handle the data.

**ACTION THREE**

- Understand why customers are failing to transact and build a plan to fix the issues
- Whilst many e-commerce teams say they are addressing customer issues, most do not do so supported by high quality insight data: and even if they have customer data, they probably don't use it to inform testing to find the optimal value creating solution.
  - In a couple of weeks an experienced scientist can identify the most impactful points of failure within the sales journey.
  - In a further couple of weeks, they can give you the customer narrative that explains from the customer perspective why they are behaving as they do.
  - From both of these they can lay out change pathways that are focused on revenue and margin.
ACTION FOUR

Baseline propensity to transact and understand what could improve this

Propensity to transact (buy or become a lead) is a key measure that can then help in a number of ways to improve performance and over time reduce the unit cost of attraction and acquisition. However, algorithms can’t identify propensity. All they can do is give you a statistical count of where those who have transacted came from previously. But what about those who arrived intending to transact but left without doing so? This requires ethnographic analysis, not statistical.

- Propensity can be calibrated not just on a yes or no scale but by intensity, and when combined with demographic data can identify hotspots and areas where change could open up opportunity.
- When combined with data that identifies the issues stopping them transacting this data can transform performance.
- Smart online engagement can extract this data from customers as they engage with your website.

ACTION FIVE

Manage demand gateways insightfully

Many online channels have had the addition of a ‘demand gateway’ over the last couple of weeks to address issues surrounding fulfilment or website stability. The impact of these on traffic has been to damp down the significant increases since the lockdown strategies have been implemented across Europe and North America; but these are blunt instruments and may well be damaging value creation. And some solutions, such as prioritising key workers at certain times online, may be less helpful and even cause additional stress. There are three things you should do:

- First, ensure that you have analytics on your gateway page(s) so you can get an accurate understanding of the impact and potential opportunities.
- Secondly, think through where segmentation on mission, customer type, loyalty etc. could play a part in managing queuing priority.
- Thirdly, using data analytics develop strategies that can funnel customers through where they are browsing and not wanting to transact or where their interest is in lower traffic parts of the site (which is often where higher value transactions can come from).
Our purpose:

**USING SCIENCE WE PUT THE CUSTOMER AT THE HEART OF DECISION MAKING FOR THE WORLD’S MOST SUCCESSFUL BRANDS**

The data is there – the challenge is getting your organisation to find it and respond to it

Most organisations have most of the data needed to move fast. The data that might be missing can be found pretty quickly (within weeks not months) if you know how to do it. The big challenge facing all of us today is how to get this done whilst working remotely or even how to get this done with fewer staff as organisations try and reduce their cash outgoings whilst the current emergency restricts trading or reduces the relevance of the proposition.
Here’s our checklist and where we can help add value:

**Does your e-commerce performance improvement activity use customer generated insight to drive the focus of where you are spending time and money?**

- If so, then you’ll have an active online survey (and one with 3–5 questions not 10–30 that asks open questions not offers radio buttons or tick boxes).
- If you have this then your team should be able to take the actions above within 2–4 weeks. If they can’t, but you want the value, ask us to help.

**Does your e-commerce platform have web analytics, page analytics and a way of surveying?**

- If so then you have the right tools in place, although you may not be using them in a way that enables you to find value fast. Test out capability and capacity quickly and if not then we can get you underway within 4 weeks.

**Do you want to reduce marketing costs but don’t know where you can reduce spend?**

- If so then ask us to review your marketing activity and isolate any activity that could be scaled back to limit unnecessary spend.

**Does your e-commerce platform have some tools but not all of them and you’re unsure about the value that you could release?**

- Then ask us to do a no commitment no cost review. It will take us less than two weeks to give you a sense of the scale of any opportunity and a plan to recover it.

**Want a thoughtful no commitment conversation with an e-commerce team whose clients include boohoo, QVC, Kraft Heinz, Wall Street Journal, the Landmark Group, ITV, Channel 4, Danone, Howdens, Waitrose, WH Smith and Pets at Home (to name a few)?**

- Drop us a quick email using this link: enquiries@goodgrowth.co.uk
Get in touch for a radical commercial approach to digital performance.

T: +44 20 7183 0964 (UK)  
+1 646 417 8444 (USA)  
E: enquiries@goodgrowth.co.uk