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Introducing data driven practices into sales environments: examining the impact of data visualisation on user engagement and sales results

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ABSTRACT

Data visualisation is a key tool to drive both end user adoption and change management activities within data initiatives and especially so in sales environments. Data is as much a part of the problem as the solution itself. There's too much of it, it's difficult to interpret and sellers hold on to tactical workload out of distrust in the data systems they are provided with. A data-driven approach to the sales engagement cycle can fundamentally improve performance. Using an analytical approach to determine client needs and sales 'signals', sales engagement can be tuned to be in sync with market needs. However, a range of technical, organisational and cultural issues need to be addressed before such a solution can truly start to deliver results. A prototype has been developed and implemented within IBM Digital Sales Europe to test the effectiveness of a data-driven approach to territory management. Buy-in to the value proposition has been strong in principal but getting seller engagement and manager attention has been challenging. The pull of the standard approach with clients is strong, seller time is at a premium and users are very unforgiving of ill-considered experiments within their working day. After a series of iterations, it was discovered that improvements in the visualisation component of the data-project were transformative. It allowed sellers see meaning in the data for the first time and it helped them to build effective sales narratives for partners and clients alike. It helped managers to see patterns and take course correction action and it helped build dialogue and relationships throughout the sales ecosystem.Visualisation also became a potent agent for change itself. It 'surfaced' and shed light on a range of problems that had gone unnoticed, undiagnosed or simply ignored. It raised questions for the sales organisation, forced trade-offs and started to drive more informed decision-making.This paper concludes that data initiatives require considerable transformation effort to be successful. In this context, visualisation serves as the ice-breaker carving a path through hidden and complex problems in need of change, simplifying choices and highlighting the opportunity costs ahead.

KEYWORDS

Data-driven; analytics; sales, sales transformation; territory management; next best customer, 360-degree customer view, single version of the truth

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1. Analysis
2. Fact Finding
3. Conceptualization
4. Planning
5. Implementation of Action
6. Evaluation

Figure 1. The Six Stages of Action Design Research.

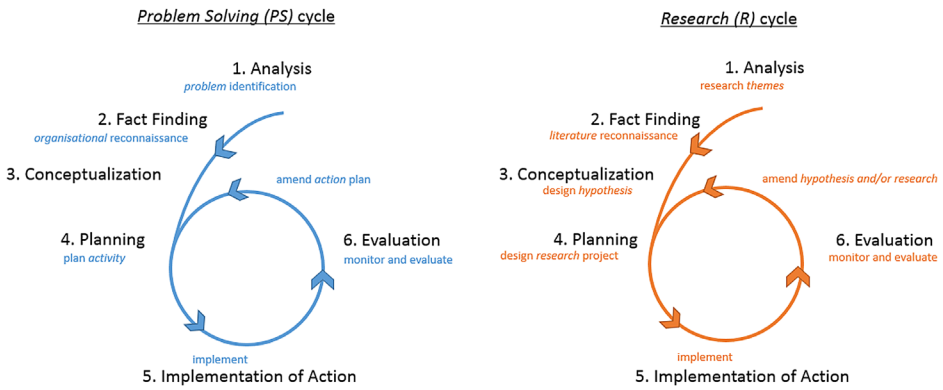


Figure 2. The Dual Cycles of Action Design Research.

Introduction

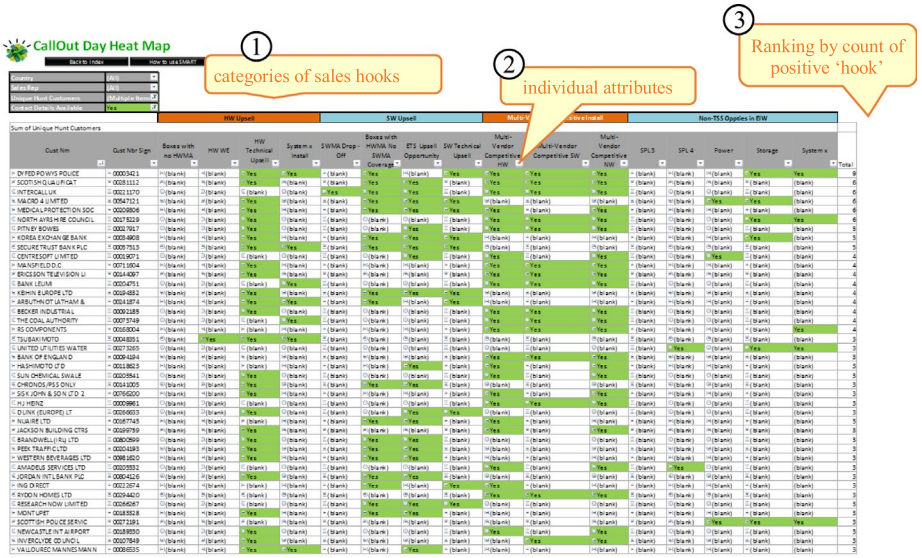
Within IBM's volume sales business, a lot of smaller customers exist without extensive 'relationship cover as the potential return on effort invested by sellers is not clear to them. Sellers often see small customers as non-strategic and hence they don't invest too much time, only engage close to renewal event and don't sell the full portfolio of products or services available. This creates a self-fulfilling prophesy in that small customers remain small.

In essence, what's happening here is that sellers don't know *how* to effectively manage the territory to maximum return on investment where time and effort are at a premium. Sellers keep reverting to a well-known cohort of key clients and don't know where to start fishing for new customers.

The 'standard' sales logic instructs sellers to engage on very basic terms – when the customer has a contract renewal or some 'old' equipment is due to go end of life. Instead, the sales organisation needs to develop a more sophisticated approach to client selection and territory management that mines a broader range of triggers and drives sellers to clients in a more methodical manner.

A data-oriented approach can help sales teams to transition from a vendor-centric approach to a client-centric one where IBM engages clients when *the customers* have problems and not solely when a contractual anniversary occurs (Magee, 2015).

This paper seeks to address the following gaps in practice and research:



on the *order* of client engagement.

Figure 3. SMART Report Territory HeatMap.

Gaps in PRACTICE

- Analytics: Most analytics artefacts currently in use within the Digital Sales environment are regressions with the aim of identifying Propensity to Buy provided by the Marketing or Analytics teams indicating which customer may be suited to which product. The focus is primarily on *who* should be called with little or no indication of *why* a client was selected.
- Process: While the Digital Sales organisation does look at some KPIs around data gaps within the Opportunity management system, it currently does not have any focus on data 'flow' through the sales environment. As a result, there are multiple 'versions of the truth', siloed datasets and no integrated approach to provide consistent assessment of client engagement decisions.
- Skills: Leveraging the potential of data-driven approaches to client engagement is not simply a technical endeavour. Driving business results requires skills beyond modelling and needs more understanding on how to bridge between sales behaviour and data science problem solving (Gemignani, Gemignani, Gemignani, Galentino, & Schuermann, 2014).

Gaps in RESEARCH

Evaluating the literature, there is considerable discussion about the nature of models to support *product* driven client segmentation – the *what* to 'look for' in terms of 'lead indicators of need' (Abbasimehr, Setak, & Soroor, 2013; Belicove, 2013; Sun & Li, 2011; Wamba, 2015; Zoltners, Sinha, & Lorimer, 2006). However, there is little in the way of discussion about *how* to translate any model outputs into an integrated approach within a sales organisation.

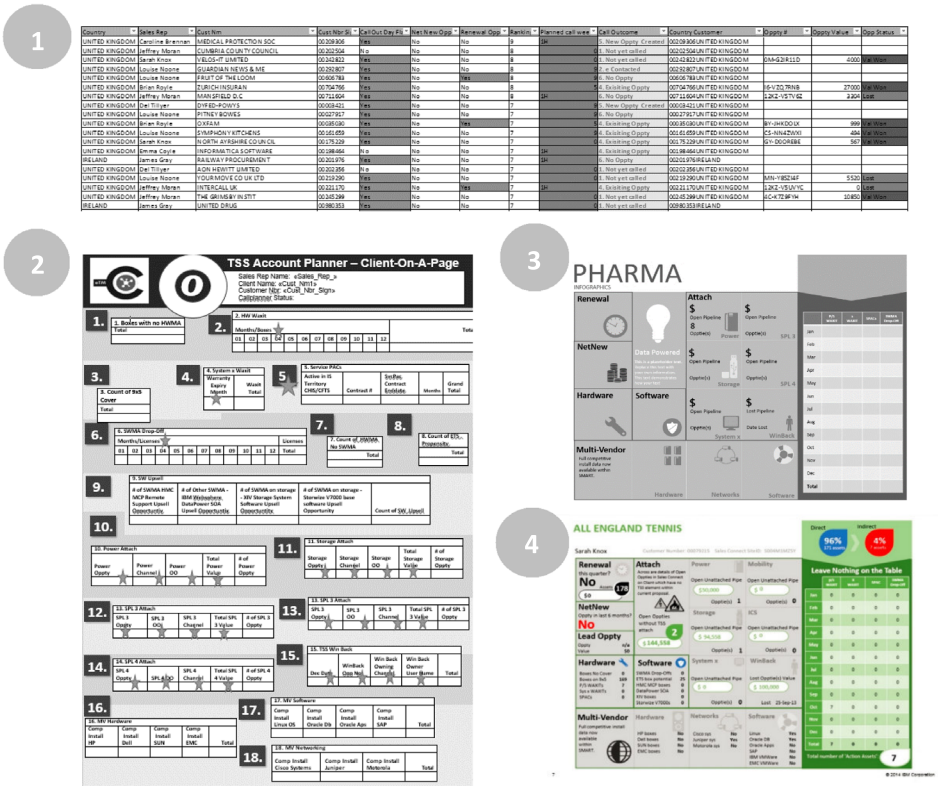


Figure 4. Development Iterations of Client-On-A-Page.

Apart from vendor driven white papers and broader discussion of the CDO role in general. (Few, 2014) (Ante & McGregor, 2006), there appears to be little discussion on how sales teams engage with the analytical process (Pugh, 2014) (Group, 2013).

Objective

This paper will consider the question of *how* to create an alternate methodology to client engagement that integrates data driven approaches within a typical sales environment with legacy data.

SMART (no specific meaning to the acronym) is a prototype business process aimed at creating a data –driven sales approach within IBM's Digital Sales Centre for Europe. The research objectives are to gain an understanding of the critical success factors required within the transformation effort.

This paper will show how a data-driven territory management framework evolved over 3 iterations with a team of 60 salespeople. It will highlight the role data visualisation plays in driving end-user adoption and engagement and its impact on business results.

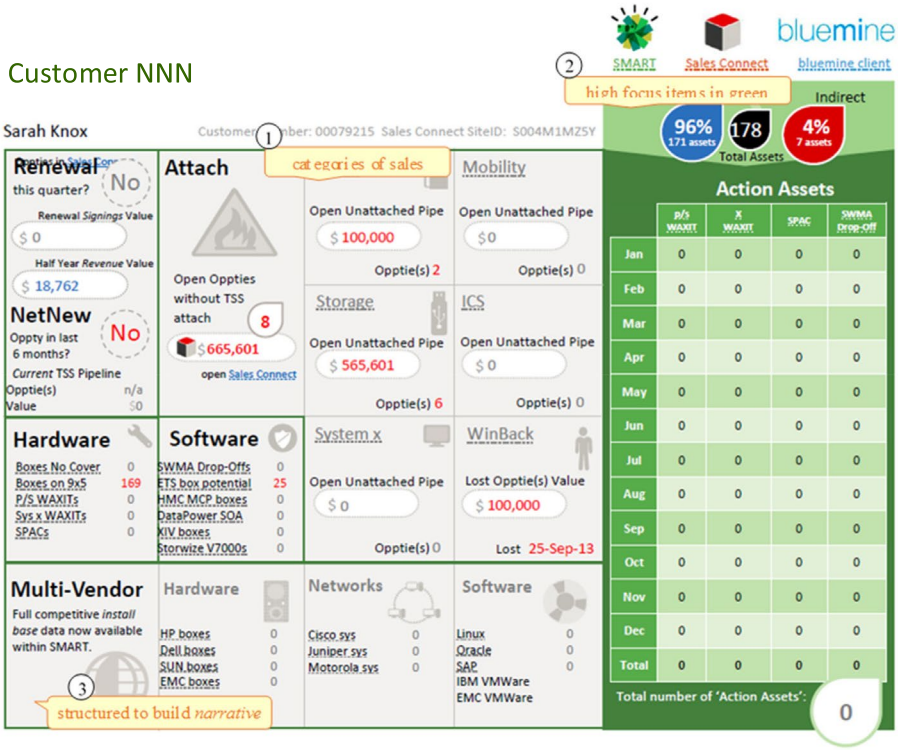


Figure 5. Final Iteration of Client-On-A-Page.

Research Methodology

Design of the Study

The study is built around Action Design Research, which is an iterative process involving both a diagnostic and therapeutic stage to address complex environments faced by research in social sciences. (Baskerville & Wood-Harper, 1998). By starting with a basic hypothesis and then saturating the environment with research activities over a period of time to illuminate the issues at hand, ADR is helpful in tow ways (Baskerville & Myers, 2004) (Collis & Hussey, 2013).

Firstly, it brings a level of rigour which is often lacking in a sales environment when investigating a research issue. Secondly, it can provide an outcome which is not situation specific and can be used in other scenarios.

In this study we will make a thorough consideration of each of the 6 standard stages within each of the cycles across both the action and research dimensions as shown in figure below. (Baskerville & Myers, 2004; McKay & Marshall, 2001)

Within the evaluation data was collected from each cycle based on measurable business outcomes in the end-to-end management system. Due to the gap in research on the specific behavioural interactions with data-driven systems in the sales environment, an evaluation model was developed specifically for this study – the DAER methodology. The model looks at performance within each cycle against four user-centric metrics;

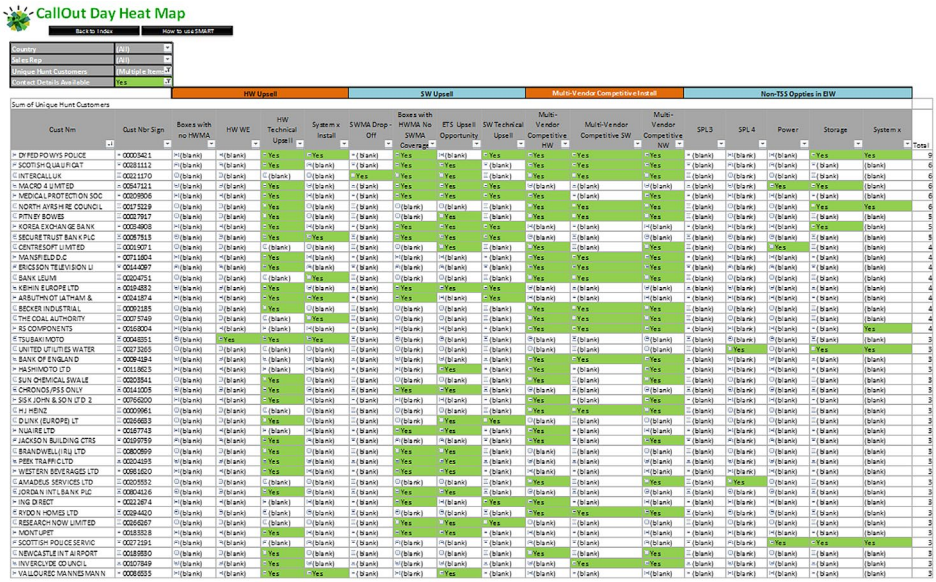


Figure 6. Territory HeatMap Artefact.

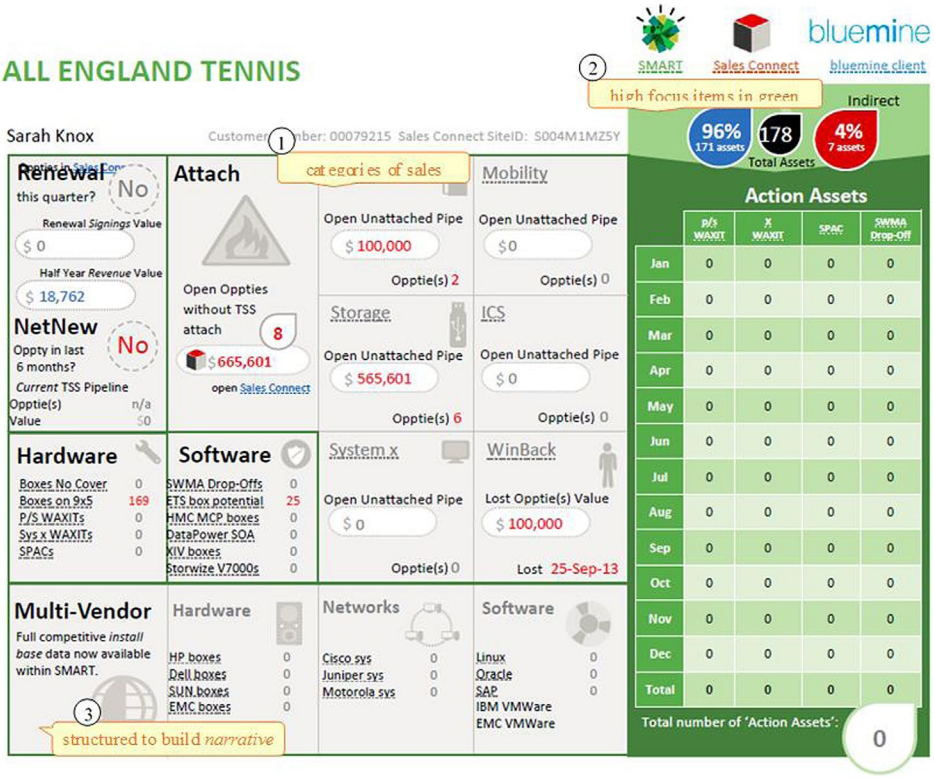


Figure 7. Client-On-A-Page Artefact.

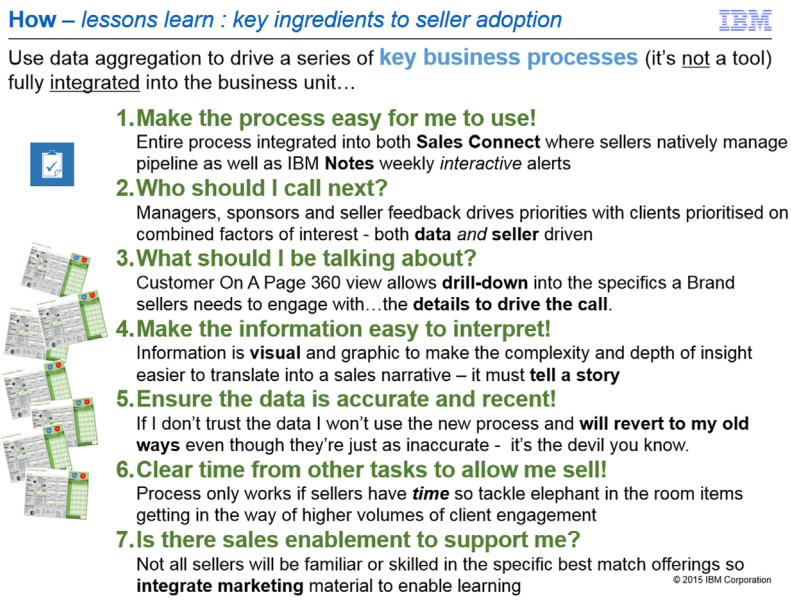


Figure 8. Critical Success Factors to Seller Adoption.

Table 1. Summary of the 3 ADR Cycles of SMART Case Study.

Cycle	1	2	3
Name	Spreadsheet SMART	Data Aggregation SMART	Visual SMART
Timeframe	Apr 2012 – Oct 2012	Sep 2012 – Jun 2014	Apr 2014 – Feb 2015
Key Characteristics	1. Basic data report distribution 2. Production-led development 3. No end-user sessions	4. HeatMaps for sales 'triggers' 5. Call management process 6. Manual report distribution 7. Weekly 'FocalPoint' reviews 8. Introduce user-led sessions	9. Visualisation via 'Client-On-A-Page' 10. CRM integration 11. Email integration 12. Management System integration 13. User-led design workshops 14. Agile project practices

1. Completeness and effectiveness of the data-process Deployment *(Are we functional?)*
2. *Initial* End-User Adoption of the new data-process *(Do we have buy-in on the concept?)*
3. *Ongoing* End-User Engagement with the data-process *(Do we have ongoing engagement?)*
4. Impact on business Results due to adoption and engagement with the data-process *(Have we impacted?)*

The table below indicates the broad changes between the iterations that took place over three years which we will now examine in more detail.

Project Implementation and Evaluation

We will now look in more detail at what happened within the six ADR stages of each cycle and examine end-user behaviour using the DAER model while observing the impact on the sales environment.

Table 2. Cycle 1 Action and Outcome Detail.

Cycle	(1) Spreadsheet SMART	Date	Apr 2012 – Oct 20–12
Stage	Action and Outcome		
Diagnose1.	Analysis suggested there would be potential time savings if sales teams moved some of their pre-sales activities to an off-shore team in the interest of increasing time spent on customer facing sales engagement.		
2. Conceptualise	Process modelling work translated into an implementation plan with acknowledgment from the global team that previous attempts had struggled to get sellers adopt and engage with the process when similar work had been attempted elsewhere in IBM		
3. Plan	Research based on a 'Balanced Scorecard' methodology led to work on a management system that captured all aspects of the value-chain which was designed to 'surface' bottlenecks in seller activities and evaluate results more effectively(Norton, 2007).		
4. Implement	The off-shore team started creating proposals on behalf of sellers and engaged in a process of continuous assessment of the quality of work. While adoption of the pre-prepared sales *proposal* element lagged, the sellers seemed to show interest in using one of the ancillary inventory reports that was produced as part of the production process.		
	Feedback indicated that the sellers saw these *inventory* reports as a useful high level view of their customers' contracts and assets that they would otherwise have to obtain via a series of manual searches in various tools and systems of record. There appeared to be little in the way of aggregated data available to the sellers.		
5. Evaluate (using DAER)	The Deployment focus was almost exclusively on data aggregation – only one of the 5 (20%) KDD (Knowledge Discovery in Data) stages was in use (Fayyad, Piatffsky-Shapiro, & Smyth, 1996). Adoption of the Proposal artefacts was low at 6% and client Engagement was zero. Business Results were poor but instructive. A Lean evaluation concluded that while some workload had been 'shifted' from sellers due to the proposal process, the actual total number of Non-Value Add steps had increased overall by 5 min. However, the potential value-add of just the *Inventory Report* component indicated sellers' administration time could be reduced.		
6. Learn	Finding 1 – Data aggregation creates value in the sales processSales reps were spending considerable time and effort on gathering the data they required before creating a sales proposal. Only after a series of discussions with the client would a 'final' inventory assessment be agreed and then used for the purpose of quotation. This process was both time consuming, complex and lacked standard approach.		
	Finding 2 – The level of tolerance for data inaccuracy is very lowTolerance for errors measured at 3% represented a minimum viable level of accuracy before any data-set is trusted or control of any data process is relinquished to a third party.		

Table 3. Cycle 1 DAER.

A. Deployment	
% of KDD in Use	20%
# Data Sources	1
B. Adoption	
% End-User Log-Ins	6%
C. Engagement	
Engagements/Wk	0
Territory Penetration	15%
D.Results	
Call Conversion	0%
New Pipeline ($)	$0
% Non Renewal	0%
Time Saved/Rep/Client	- 5 Mins

Cycle 1: Spreadsheet SMART

Overview of Cycle - Apr 2012 – Oct 2012

An initiative to increase sales productivity by off-shoring sales workload, while itself unsuccessful, led to the discovery of value for sellers within a process to aggregate customer inventory data. The table below describes the six stages in cycle one and the key actions and outcomes in each:

Table 4. Cycle 2 Action and Outcome Detail.

Cycle	(1) Spreadsheet SMART	Date	Sep 2012 – Jun 2014
Stage	**Action and Outcome**		
1. Diagnose	Sellers described a wide array of tools and techniques to investigate clients that extended *beyond* the basic inventory assessment. Other data sources often had nothing to do with the contract renewal event but rather act as lead indicators for broader client 'need' that could be investigated. Instead of just providing sellers with '*renewal*' data on '*renewal*' clients, we wanted to create a richer *variety of triggers* across a broader *range of client engagements*. Firstly, we didn't just look at the customers who had a renewal event (3% per quarter), but looked at *all* customers. Secondly, we considered as many possible data points as possible to mimic the sellers own ad hoc process in a more systematic way and codify seller best practice. We conducted interviews with sellers and then reverse engineered findings into an operational mechanism with approximately 500 data points of relevance. The results suggested that conducting customer research was taking up more than three quarters of an hour each day - there were 36 tools *regularly* in use for data gathering purposes.		
1. Diagnose	With this insight in hand a model for the new version of SMART was designed that would: • Aggregate the **RIGHT data** • Paint a picture of **WHICH customers** in a Territory were important • Design a process to distribute the data reports and **grab sellers' ATTENTION** • Design a MANAGEMENT SYSTEM that would **EVALUATE progress and performance**		
2. Conceptualisze	We needed to represent the sales territory as a whole and help identify which clients were 'important'. In order to study the impact of aggregation alone, we created a contextualised view with all the important data *they* had requested and let them exercise their own judgement about individual client selection. That is, we did not add any analytical work to instruct sellers on the *order* of client engagement.		
3. Plan	Up until now sales engagement had been driven by operational data on when the renewals type events occurred with only 3% of customers under consideration in any given sales quarter – 12% per annum. Analysis now indicated that when a given sales territory had the new *data-driven* approach applied, 67% of customers had a 'sales trigger' of some description. The majority of those customers would NOT normally be engaged with in a given quarter as they didn't have contracts for renewal. We designed a process to have sellers review their Territory for appropriate clients for engagement and track progress against planned activities.		
4. Implement	The Weekly Scorecard created an overview of all territories to ask: 1. **Who do we** normally **talk to in this current quarter?** (the renewals due) 2. **Who** should **we be talking to?** (given what the *data* is now telling us) 3. **Who** are **we talking to?** (are sellers engaging these newly identified prospects)		
5. Evaluate (using DAER)	**Deployment** started to consider *analysis* (ranking the customers within the Territory) and *delivery* (SMART Alerts being used to push the right information out to sellers) so rates at 60%. **Adoption** of the process increased and 20% of the sellers downloaded SMART Report each week. Client **Engagement** started to climb as sellers engaged more customers outside the renewals events with 26% of the territory now engaged compared to the starting position of 12%. Calls on SMART-identified customers yielded Opportunities 14% of the time. For those who we *were* adopting the process the Time Saved was an average of 9 Mins per rep per client – 10% of time normally spent on this type of activity.		
6. Learn	**Finding 3 – Visualisation Drives Discussions** The stand-out result, confirmed in end-user workshops, was the ability to use the SMART 'process' to drive better *discussions* about Territory Management. All the data that had previously been available but hidden now '*surfaced*' in a visual way that meant managers were able to better drive sales reviews and reps could make more informed decisions about client selection. **Finding 4 – The Right Delivery Process is Critical for User Adoption** The biggest complaint was the time consuming process with users requesting web-based delivery of the insight – they didn't want another spreadsheet no matter how well purposed it might be. **Finding 5 – Time sensitivity of information is very important to end-users** The aggregation process of so many data sources drew attention to the timeliness of the data being presented. Sellers became frustrated when they discovered some of the data was 'aged' which caused reps to start doubting the process and hold back from engaging clients. **Finding 6 – Beware of over-confidence in sales environment** In almost 80% of cases where SMART identified clients as having 'needs', sales reps indicated they were already 'talking to' or 'engaged' with these customers. Upon investigation however, almost all of these were historic engagements which had occurred at least 6 months earlier and, when queried, sellers indicated they saw no need to revisit the discussion with the client. There needs to be a qualitative assessment of how good or *effective* sales engagement is.		

Table 5. Cycle 2 DAER Assessment.

A. Deployment	
% of KDD in Use	60%
# Data Sources	12
B. Adoption	
% End-User Log-Ins	20%
C. Engagement	
Engagements/Wk	23
Territory Penetration	26%
D.Results	
Call Conversion	14%
New Pipeline ($)	$410,000
% Non Renewal	12%
Time Saved/Rep/Client	+ 9 Mins

Conclusion

The initial cycle clarified assumptions about the nature of some process bottlenecks. The problem wasn't the actual production of the proposal itself but the *preceding data gathering work*. We needed to determine if the problem was material, widespread and if a feasible solution could be built.

Cycle 2: Data Aggregation SMART

Overview of Cycle - Sep 2012 – Jun 2014

We investigated what data sellers looked for when identifying client prospects. A view of Client and Territory information was conceptualised and work centred around designing a process that would collate data and distribute it to sellers. All seller activity based on the data aggregation was tracked and series of workshops evaluated user feedback.

Conclusion

The challenge was that not only were the sales team revisiting the same relatively small cohort of approximately 12% of total clients over and again annually, but we had no measure of the 'effectiveness' of individual engagements.

The key was to mimic the ad hoc manual approaches to aggregate as many data sources as possible and shed light on the totality of the territory and client picture. The sellers previously had been unable to see the wood for the trees - often due to the time they'd been spending on customer research.

Building the views alone was no panacea. The sellers often were unable to interpret what they were given. We needed to simplify the process and find a way to make the job of understanding easier for end-users.

Cycle 3: Visual SMART – 360° View of the Customer

Overview of Cycle - Apr 2014 – Feb 2015

Based on the finding that data visualisation had started to drive more user engagement, we focussed on building an artefact to present a single visualisation of the client to better

Table 6. Cycle 3 Action and Outcome Detail.

Cycle	(1) Spreadsheet SMART	Date	Sep 2012 – Jun 2014
Stage	Action and Outcome		
1. Diagnose	It appeared that some sellers seemed to be able to better interpret the data that had been presented to them than others. The same HeatMap view presented to different users seemed to have a different response. Harari argues that the human brain is hard-wired to narrative and visual patterns and not mathematical ones. Harari (2014) The results from a new workshop were codified to establish *what* the sellers were trying to interpret from all this data they were gathering which formed the basis for a new artefact to focus on *interpretation* more effectively and provide a single view of the client.		
2. Conceptualise	We started to carve out visual 'footprints' on a page to align with the areas of interest sellers had demonstrated and iterated through four versions until we got to a working artefact fit for release.		
3. Plan	We created 'Activities' within the Opportunity Management system as 'holders' for client engagement 'calls. Each 'Activity' would contain the relevant 'Client-On-A-Page' (CoaP) artefact so the seller could see that customer infographic. The CoaP was the trigger to grab their attention and act as an interpretation tool to translate the data points into sales dialogues around client problems and drive discussions on possible solutions.		
4. Implement	Managers could see immediately if sellers were engaging customers and take intervening action if it wasn't happening. We simply ranked clients on the basis of volume of known 'priority' sales hooks making no declaration about the relative weighting of the different hooks – each data dimension was treated equally.		
5. Evaluate (using DAER)	Focus shifted heavily to data **Delivery** - now at 80%. 52% of users acted upon the artefact provided to them by the end of the test period –more than doubling the **Adoption** rates of the previous cycle. The number of **Engagements** per week increased 147% and call conversion stabilised at 20% which was critical to gaining trust as the comparison based on standard approaches was 4%. We generated $1.7 m of new sales pipeline and, critically, 72% of this **Result** was created calling customers *outside* the normal renewals cycle – customers we would NOT normally have engaged with but for the new data-driven process. We also saw a time gain of an average of 24 Mins per rep per client engagement.		
6. Learn	**Finding 7 – Visualisation is an organisational Change Agent** Because the artefacts had now 'surfaced' a range of business topics (from customer to campaign selection, time prioritisation to sales skills) it now became a key tool in change management. It served to identify problems that had perhaps remained hidden within the organisation obstructed by complex data and reporting. Visualisation acted as a catalyst by putting discussions on the table and forcing decisions to be made. **Finding 8 – The role of analytics is secondary *if* data aggregation and interpretation is problematic** Little change was made on the data analysis component within cycle 3 yet considerable benefit was gained primarily through *visualisation* techniques. Put differently, the inability to 'see' sub-optimal performance within the previously disaggregated data had impaired organisational ability to take corrective action. The blind spots caused by data disaggregation had caused the organisation to miss large swathes of clients that contained value. Moreover, if a regression model *had* been created to rank clients its results would have been based on the very small sample of clients that sellers had consistently been engaging – the 12% approx. of customers each year. Modelling would arguably have pointed to patterns within the old *sub-optimal* performance selection – the 'best of a bad lot'. If implemented, it would have run the risk of 'codifying' poor performance within the organisation without first addressing the broader engagement deficiencies. **Finding 9 – Success will be limited in data-driven projects until single-version of the truth issues tackled** What continued to present itself as end-user concerns about data quality was often in fact an issue more related to single version of the truth problems. Reps re-checked multiple systems of record continually. Multiplicity created an inherent distrust in *all* data sources and especially unfamiliar ones.		

Table 7. Cycle 3 DAER.

A. Deployment	
% of KDD in Use	80%
# Data Sources	16
B. Adoption	
% End-User Log-Ins	52%
C. Engagement	
Engagements/Wk	57
Territory Penetration	29%
D.Results	
Call Conversion	20%
New Pipeline ($)	$1700,000
% Non Renewal	72%
Time Saved/Rep/Client	+24 Mins

Table 8. Summary of Findings.

#	Finding
1	Data aggregation creates significant value in the sales process
2	The level of tolerance for data accuracy is very low
3	Visualisation drives discussions
4	The right delivery process is critical for user adoption
5	Time sensitivity of information is very important to end-users
6	Beware of over-confidence in sales environment
7	Visualisation is an organisational change agent
8	The role of analytics is secondary *if* data aggregation and interpretation is problematic
9	Success will be limited in data-driven projects until single-version of the truth issues tackled

leverage the insight that was available and create an effective business process to deliver these artefacts.

Conclusion

The final cycle was a tale of two themes that at times opposed each other. First, the visualisation of our data insights helped users understand and start to prioritise their work more effectively. On the other hand, this surfaced business challenges that now had to be addressed. The organisational data was poor quality and sellers were bogged down in non-value add administrative work. There were too many 'tactical' lists being placed at the door of sellers causing confusion and there were skills gaps when we looked at rep knowledge compared to customer pain points.

Contributions

Overview

Based on the results of the case study, we see evidence of the most common end-user and organisational issues occurring when introducing data driven practices into a sales environment. The paper seeks to assert that it's not the *technology* of a data-driven approach that has the impact - rather it's how data *interacts* with individuals – the choices, decisions and dilemmas it presents – that will be the ultimate determinant of success for the initiative.

Below is a re-cap of the findings uncovered within the case study as we iterated our own data solution:

Limitations and Antidotes within Research

Iterations: the study iterated through three full ADR cycles with action and research elements observed throughout to implement the Multiple Iterations Antidote. (Kock, 2004) (McKay & Marshall, 2001) (Chiasson, Germonprez, & Mathiassen, 2009).
Codification: the research has attempted to codify as much of the qualitative work as possible through extensive Grounded Theory practice in order to consider all the variables at play (Glaser, Strauss, & Strutzel, 1968).
Applicability: the hypothesis needs to be tested in other sales environments with different operational structures in order to establish a framework to consider best practice for data-driven territory management that is more broadly applicable.

Contributions to Practice

Table 9. Contributions to Practice.

1	Territory Management Programme – Who Do I Call next?
The key deliverable has been the creation of a process which for the first time provides the sales teams with an end-to-end *data driven* territory management system complete with next best customer recommendations via the HeatMap artefact.	
Previously, sub-optimal customer selection had resulted in over-reliance on clients with renewals. Small customers remained small and earnings were suppressed as sales were unable to see the *right* customers to engage with, *what* to discus with them and *how* to make most use of their valuable time. Without the new process we simply wouldn't previously have talked to 72% of the customers where we created new business opportunities.	
2	**Client-On-A-Page** – *What do I discuss?*
The visualisation of the data into a single 360° view of the customer surfaced sales questions that often weren't getting asked and converted the 'potential' of the concept into actual adoption, engagement and financial results.	
All the data available to sellers beforehand was top-down reporting – it didn't help provoke or ask any interrogation. The challenge is to help people see and *understand* their data (Roam, 2009) and being able to tell and transmit narratives with data (Mackinlay, Kosara, & Wallace, 2013), providing a 'completeness of picture that brings to light important connections that might not be visible otherwise.' (Few, 2014)	
3	**Challenge to 'Fuzzy Logic'** – *Why should I not follow an existing course of action?*
The data-driven approach has challenged the sales logic that to call a customer who did not have a renewal was to risk existing business. In fact, we've shown that by carefully selecting which clients you engage with based on a *full* view of the customer you can in fact grow the client spend.	
These previously designated no-go customers account for over 80% of the active sales territory where we are now once again finding sales opportunity. Visualisation provides a catalyst to discuss choices and the opportunity cost of poor ones. The discussion starts to switch from 'The risk is too high to change!' to the one of 'The risk is too high *not* to change'.	
4	**Time and Productivity** – *Where will these data driven activities impact my business?*
While it was hoped SMART would deliver value in terms of dollar sales returns, it became apparent from the results observed that time benefits are actually also a significant factor(Adzic, 2012). This raises an interesting new prospect – that the value of the productivity saving created by SMART could be in some ways as significant as the dollar value of new sales deals won using the programme.	
5	Critical Success Factors – How should transformation be implemented?
We have codified the Lessons Learnt, SWOT analyses and feedback from right across all three SMART cycles and created a blueprint of *critical success factors* to now act as a framework that could migrate to other business units and could scale the approach across an entire business unit.	

Contributions to Research

Table 10. Contributions to Research.

1	**The importance of visualisation in data-driven projects** – *How to best run a data transformation***?**
We have established that when it comes to implementing a data-driven project in a sales environment you can have the best data models but without visualisation it will be difficult to achieve end user engagement. Sellers inundated with multiple sources of information hop from report to report overwhelmed by a lack of time and ability to interpret what *has* been provided to them. We have now observed that there are three key stages to this issue: A.The **TIME** taken to gather data for interpretation B.The native **ABILITY** in any individual to synthesise, analyse and interpret what lies in front of them C.The ability once insight is absorbed to further **COMMUNICATE** that insight to others down the line What SMART has done, the HeatMap and Client-On-A-Page artefacts in particular, is address the *interpretation* mismatch between **producers** of insight (operations, measurements and business analyst teams) and the **consumers** of insight (the sellers, managers and executives who make the business decisions). SMART 2.0 to 3.0 saw negligible differences in the data being provided but the nature of *how* it was communicated – *visually* – had a profound impact on seller engagement.	
2	**Visualisation as a catalyst for change** – *How to use data to drive organisational change?*
Once you visualise analysis, the messages that are conveyed reach a wider audience and topics, problems and business opportunities that had remained buried suddenly emerge. The act of visualising the symptoms of a problem creates the dialogues around what the *causes* were and *how* they should start to be fixed. Simply put - if we hadn't visualised the. The research also shows visualisation was an effective *lead* element of any data driven initiative. Not only is it valued highly it is also relatively easy to implement if you have the right skills in the team to do so.	

Further Research Questions Raised

In addition to the main findings and conclusions a number of additional questions were raised throughout the process which require further research.

Closing Remarks

We have discovered how effective visualisation is at driving end user *adoption* is a sales environment. Sales people connect with a visualisation in an intuitive way that speaks *their* language and not that of the operations specialist whose communication style is often different to their own.

Additionally, visualisation unearths topics that are hidden due to the complexity of the issue, driving simplification of the topic, a common understanding of the issue, creating urgency and an effective sense of the opportunity cost to *not* take corrective action.

Table 11. Further Research Questions.

Domain	Research Questions
Data Management	• What factors determined whether or not a sales rep trusted work done by a third party data process? • Do analytical models risk 'codification' of sub-optimal sales performance? • What are the minimum acceptable 'thresholds' for timeliness of data?
Visualisation	• Are there differences in end-user interrogation styles that has an impact on responses to artefacts? • Why did external user groups respond strongest to the visuals being represented?
Change Management	• What's the Minimum Viable Product artefact to deliver value in a sales process such as Territory Management? • How do you anticipate and manage any organisational resistance as 'difficult' topics are surfaced via visualisation techniques?

In this study we found that over 70% of the customers with 'leading indicators of need' were not being engaged by the existing sales process. We discovered that in any given sales quarter less than 10% of active clients were being regularly contacted. When we altered the engagement model, 20% of opportunity created was from 'upsell' needs on clients that had been engaged but where needs had been missed. The remaining 80% of the new business opportunities created in the study would not have occurred at all otherwise.

That said, data-driven approaches to decision-making do not make everyone happy. Data transformation draws attention to organisational inefficiencies than can make people uncomfortable. It's one thing to create a data driven process but if you do not have a culture that readily acknowledges the existing inefficiencies and demonstrates urgency to change then it will be difficult to create a data driven culture.

Disclosure statement

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