

Integrating Data into a Holistic View

Market researchers and their clients face several challenges when incorporating data from multiple sources in order to craft a usable set of action plans. Yet without first creating a plan on *how best to harvest the findings from multiple data sources*, action plans for the organization may end up suffering from analysis paralysis. This puts researchers in the uncomfortable position of having to justify even more research when prior research initiatives sit on the shelf without being implemented. This article will outline strategies for taking full advantage of market research initiatives from multiple sources in order to create comprehensive action plans that will have real results in real market scenarios.

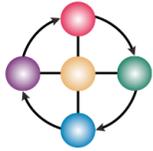
Overview of Issue

As market researchers, we work in various industries and have clients in various market segments. These different industries and segments naturally have different needs; researchers need to be able to respond to these needs effectively in order to maintain and grow our businesses. The one thing we all have in common though is that *we all have customers!* They may be internal stakeholders in our organizations or they may be external clients who have their own internal customers. Either way, we are regularly faced with the challenge of presenting market research findings to our clients in ways that enable them to reach their business objectives.

Often, this involves integrating results from several sources into a unified package of action plans. Determining what is important from among these disparate sources of findings is critical in developing a plan on how best to integrate the data. Many pertinent findings may be evident among prior projects but not all are necessary to the main objective as the image below illustrates.



“think what no one else has thought”



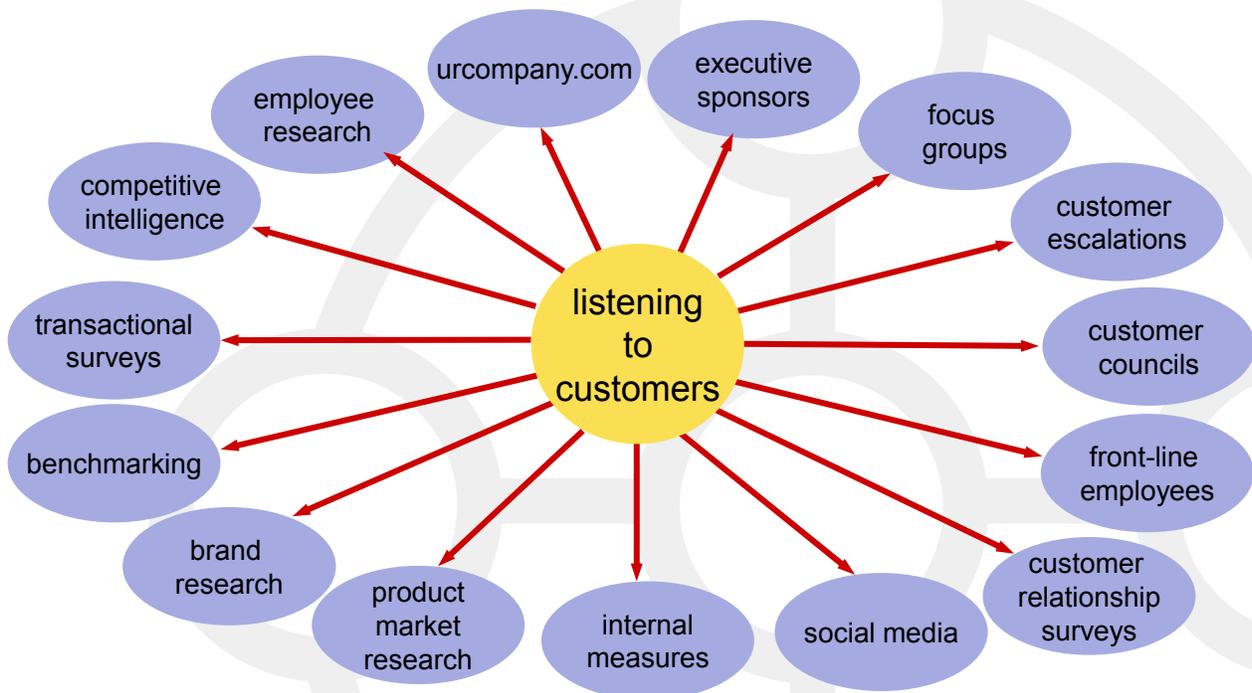
This actual sign, located in southern Florida, does an effective job of warning passers-by that caution is needed, that the sign has sharp edges, and that they should avoid touching the edges of the sign. These are worthwhile messages indeed; however, they pale in importance to the footnote on the sign that alerts passing motorists and walkers that **the bridge is out ahead!** Clearly, the message with the greatest impact is lost in the fine print. As researchers, we also encounter situations where we need to pick through the various findings available to us in order to find the most pertinent information.

This becomes particularly difficult when trying to incorporate findings from several sources. Without developing a cohesive and sensible plan to guide the way, we may find ourselves on the road looking out for signs with sharp edges and fall off the bridge.

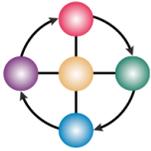
While we create this plan, we also need to be aware of avoiding the analysis paralysis “pit of despair.” Organizations still struggle with these issues:

- Harvesting and integrating multiple sources of data, including various forms of unstructured data
- Linking the Voice of the Customer (VOC) to other key business data and metrics
- Using VOC to drive action and improvement

The best analysis plans aim to **link VOC input to other feedback mechanisms** as part of the progress towards integration. These feedback mechanisms are many and varied.



In addition to linking to other feedback mechanisms, organizations also need to **link VOC input to internal data systems** such as operational performance metrics, financial data, apps like PeopleSoft, and Customer Relationship Management (CRM) data. No wonder we feel overwhelmed!



Conceptual and Practical "How To"

Finding the true North in this challenging forest of information requires ***defining which business objectives the research is to support***. Priorities must be set from among various choices, such as sales growth, cost savings, or risk reduction. ***Consideration of the alternative business solutions available*** must also be incorporated into the action plan. The action implementation plan is not likely to be adopted if the proposed solution is not realistic in the current business environment.

Organizations tend to do fairly well with these first two tasks and then stumble when looking at the challenge of incorporating data from multiple sources. It is easy to understand why when we realize that each different data source may have any or all of the following challenges associated with it:

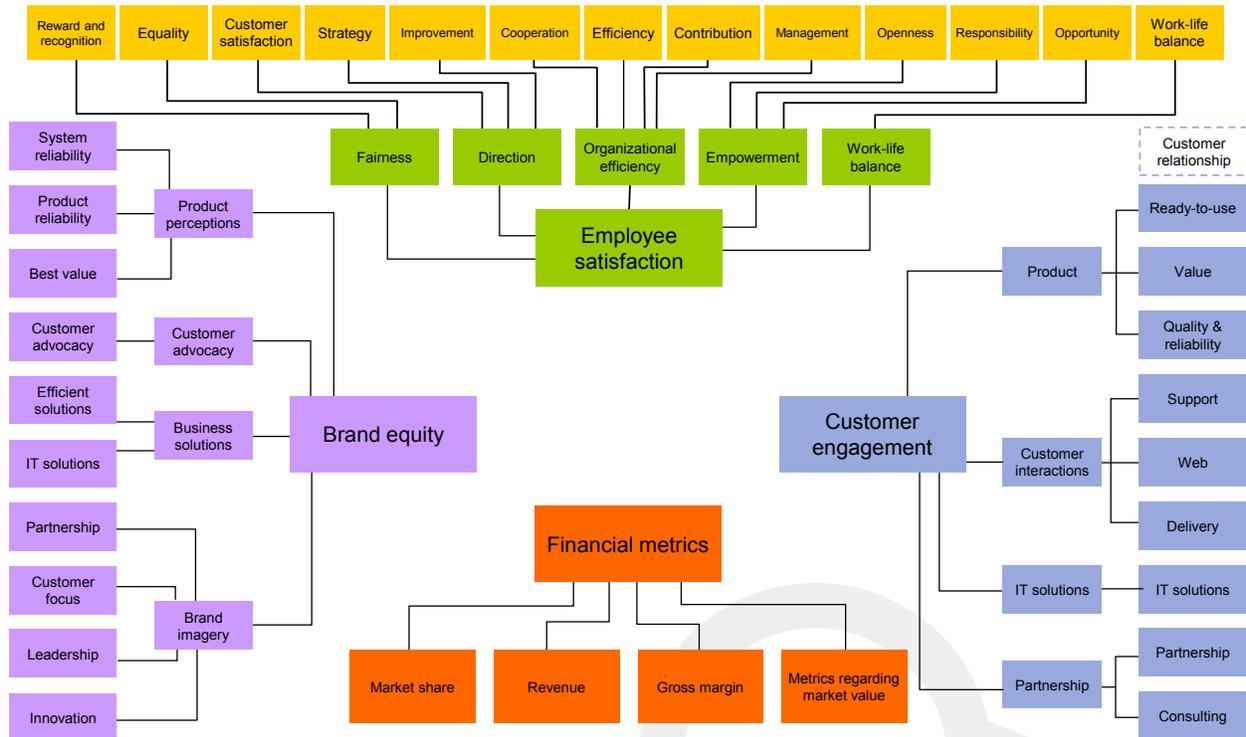
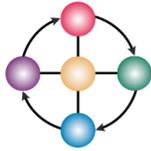
- How complex is the data? Structured, unstructured,
- How complete is the data?
- Where is the data located?
- What security, quality, and governance issues are associated with the data?
- How disparate is the data? That is, is the data kept in more than one format and are these formats inconsistent with each other?
- How does the data illustrate the organization's performance on the key business metrics being explored?

Making sense of the different sources of data requires taking an inventory of the available sources of information. More often than not, organizations have most of their information in unstructured formats and less in structured formats. The structured information tends to be heavily oriented towards transaction-based information that focuses on what happened with that customer at a specific point in time.

This information then needs to be sorted into categories of information:

- Financial data about the organization
- Specific data about customers
- Specific data about employees (as to how they interact with customers or have perceptions about customer attitudes)
- Information about operational issues (operational excellence)

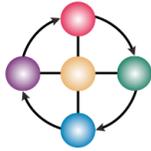
Many different sources of client data exist. The diagram below illustrates how one organization parsed their data. They formed four broad categories and then drilled down into the details from there creating a data paradigm suitable to themselves.



The integration process begins with understanding the data, gleaming key findings and patterns from it, and formatting it into a usable structure. First, look for commonalities among the data sets, being as granular as possible. Select a unit of analysis such as company, location sites, individuals, households, customer groups, product groups, or others, just to name a few options. The units of analysis chosen will vary by business objective. For example, if your objective is to increase cross-sales, looking at aggregated purchases for the year will not be as helpful as looking at each purchase event (what was purchased and when).

When you integrate data, you may have holes among certain data elements where data may not have been captured consistently. You will need to determine what level of accuracy will be acceptable to your audience and how best to handle missing data from a statistical point of view. Be prepared to spend some time making the data sets ready for integration!

Each source of closed-ended data has specific identifiable variables. Catalogue the various types of data available from each information source and locate commonalities. **The key to these various sources of data is a method of identifying each individual customer in each source of data.** For example, in primary research, financial information, customer service inquiries, customer profiles and demographics, information from call centers, and other sources of information, you may find unique customer IDs in each data source. Other sources may be able to be linked by unique client company IDs. Locating these linking variables is critical in being able to effectively merge the data from multiple sources into one analysis file. Be aware that data from secondary research or company culture information



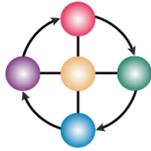
will not have specific customer information. These data sources are most useful in providing guidance for business-related decisions.

After you clean and format the data sets separately, you can use a statistical software package with merging criteria to combine the data sets. Any analyses you conduct will likely need to be iterative in order to discover and analyze patterns and trends in the data. At this point you can proceed on to integrating the data, mining it, and setting up your hypotheses, testing them, and analyzing the information.

The challenge is finding the best way for you to identify your customers. Does each customer have a **unique Customer Identification Number**? This can be alpha characters, numeric, or a combination of the two. Can you **tie employee information to specific customers or accounts**? If several identifiers are available, does your company have a master set of instructions on how they link to each other? Does each source of data have at least one of these identifiers?

If some sources of data do not have the primary sets of identifiers, what other options are available for linking the sources? For example, how consistently is **customer name** captured across all sources (i.e., is "Robert" the same as "Bob")? Is **customer segment** available in each source of information? Is aggregated customer information by segment granular enough to address the questions you need to answer? Is **customer persona** available? If not, is it available in enough sources for you to get the information you need?

Primary Research	Secondary Research	Financial Information	Customer Service Inquiries	Customer Profiles and Demographics	Information from Call Centers	Other Sources of Information
Survey research	Publications	Sales figures	Types of problems experienced	Name	Number of calls before problem resolution	Warranty information
Customer Satisfaction metrics	Literature reviews	Profitability	Frequency of experience	Customer ID	Number of rings before call is answered	Licensing information
Customer Loyalty metrics	Product reviews	Value to Company	Severity of problem	Segment	Call Center representative	Customer ID
NPS status	Trade press	Last sales contact	Customer ID	Persona	Customer ID	Other information about customer
Competitor ratings	R&D materials	Date of last sale		Age	Was a manager needed?	
Customer ID	Competitive Intelligence	Customer ID		Tech savvy		



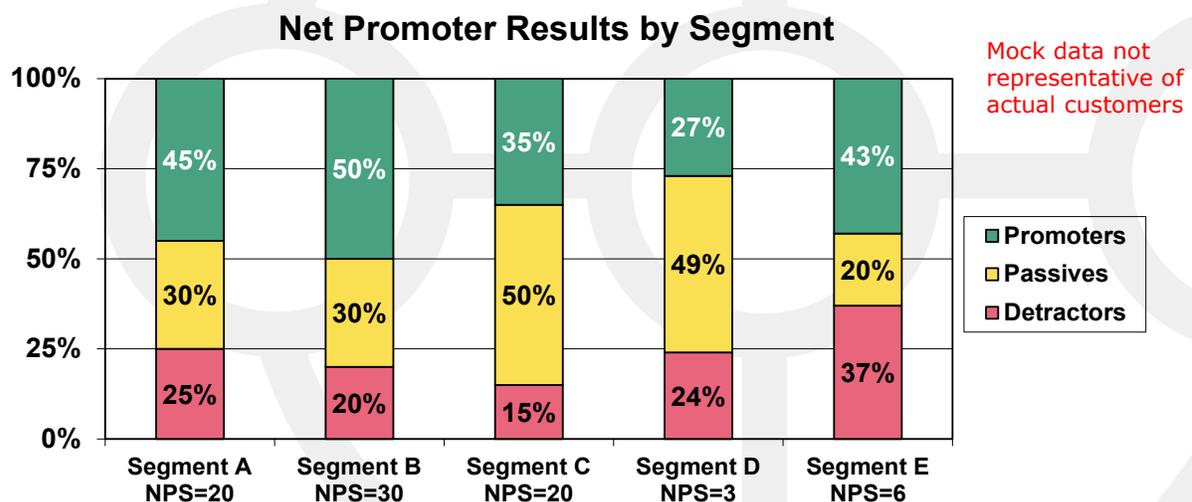
It is important to remember that *companies do not need to invest in a completely new Customer Relationship Management (CRM) system* in order to effectively integrate multiple sources of information in the ways we are describing. The primary need is simply a thorough understanding of the information available in each of the diverse sources you do have.

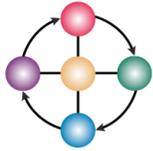
Getting the Answers You Need

Once you have your data gathered and integrated, you are ready to start the process of data mining. These are some of the most commonly used techniques in data mining:

- **Artificial neural networks** – These are non-linear predictive models that learn through training and resemble biological neural networks in structure.
- **Decision trees** – These are tree-shaped structures that represent sets of decisions, which generate rules for the classification of a dataset.
 - Examples include Classification and Regression Trees (CART) and Chi Square Automatic Detection (CHAID).
- **Genetic algorithms** – These optimization techniques use processes such as genetic combination, mutation, and natural selection in a design based on the concept of evolution.
- **Nearest neighbor method** – These technique classifies each record in a dataset on a combination of the classes of the K record(s) most similar to it in a historical data set (where $k \geq 1$). This technique is sometimes called the k-nearest neighbor technique.
- **Rule induction** – This involves the extraction of useful if-then rules from data based on statistical significance.
- **Complexity science** – This technique is based on Chaos Theory of Mathematics and is used to ferret out relationships between unrelated variables.

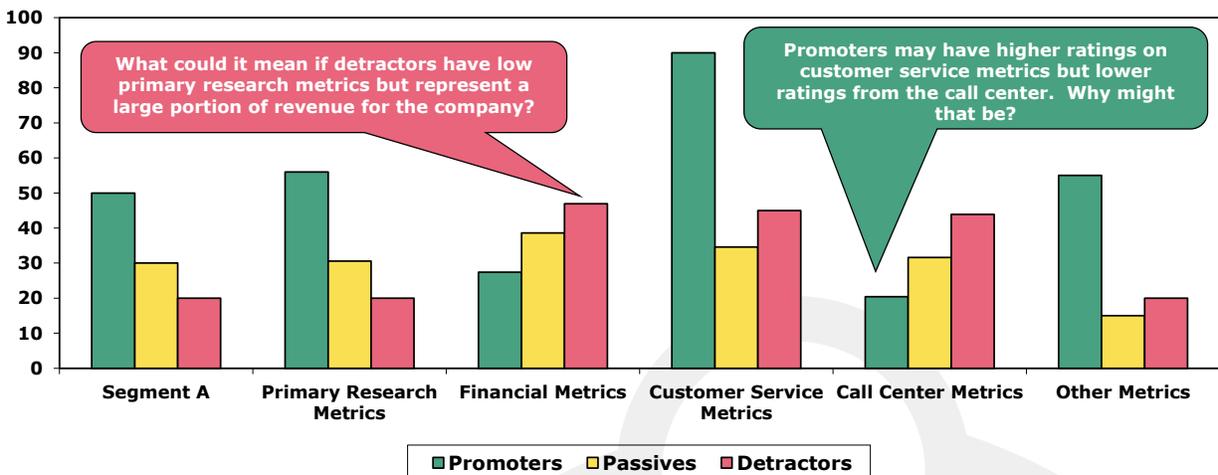
Let's examine a simple example involving Net Promoter analysis. Net Promoter results by segment provide an initial look at which segments are most likely to recommend your company to their colleagues. Let's assume you are using a predictive analytics tool that looks across many of your data sources by segment.





How can you translate these results into a holistic view? Drivers of willingness to recommend your company may vary, not only by segment but also by whether they are a Promoter, Passive, or a Detractor. In order to get a more holistic view of your customers and how you can best meet their needs, examine these key drivers by overlaying them on the various sources of data.

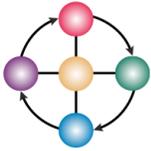
Key Metrics from Various Information Sources by Segment



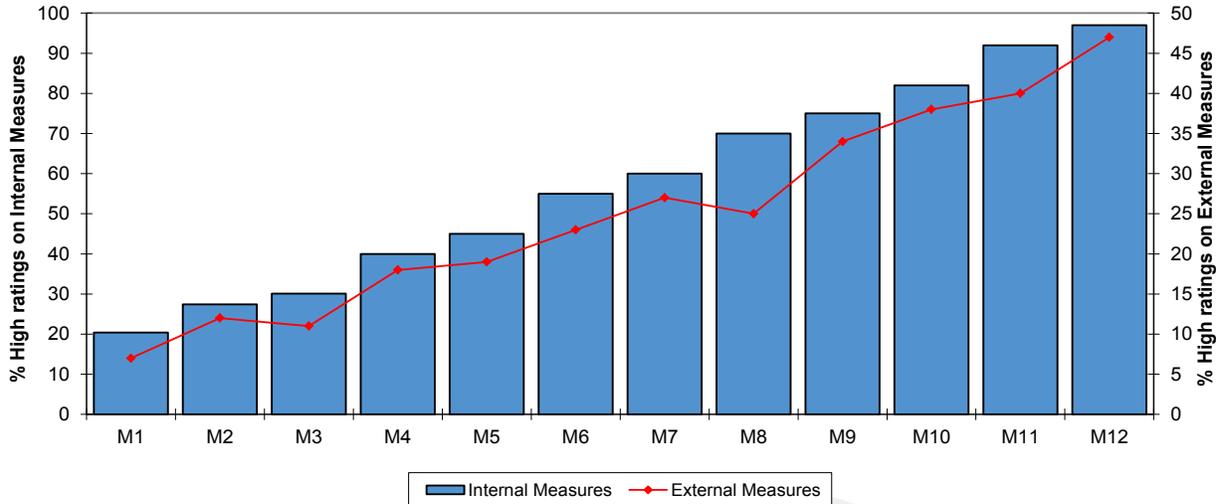
Positive performance can increase willingness to recommend while at the same time, negative performance has the opposite effect. Determining which drivers have the greatest impact, either positively, negatively, or both, will help guide you in best serving your customers.

Linking information from different sources can also assist in identifying areas of concern. For example, if Detractors experience increasingly slow deliveries (*from primary research information*) the larger their orders are (*from financial information*), this may explain their unwillingness to recommend the company. Correcting these issues can then be demonstrated to have a quantifiable impact on the company's bottom line.

Linked information can also be tracked over time to illustrate improvements in both internal and external measures.

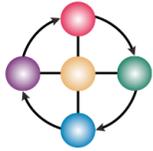


Internal vs. External Measures Over Time

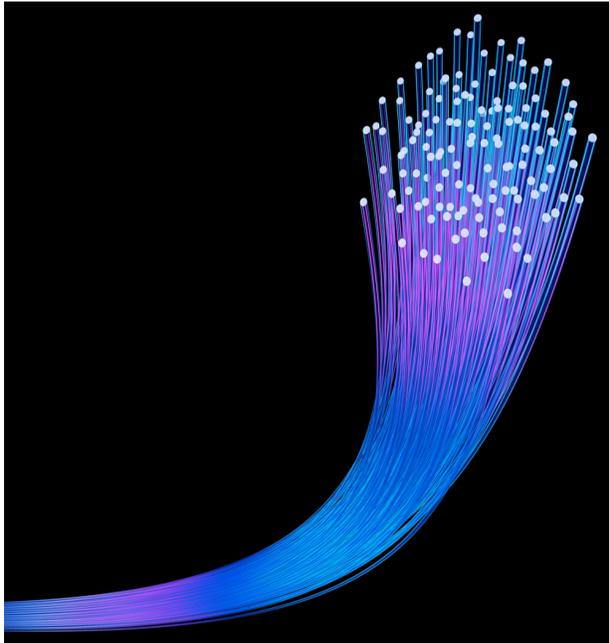


Discussion of Four Case Studies

Now we'd like to look beneath the surface and share some actual case studies with you to provide additional illustrations of how integrating data from multiple sources can help to achieve primary business objectives such as growing market share, improving performance, eliminating barriers to growing market share, and reducing churn. We will present one case study for each of these business objectives.



Acquisition – Growing Market Share



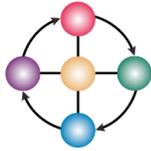
This client is a billion dollar manufacturing company whose equipment is used to transmit data, video and voice signals. They offer network access/transport systems & equipment that enable carriers to build fiber-optic backbone networks. Customers include incumbent local telephone carriers, cable operators, corporations, government agencies. Their current market share was about 10% while the market share leaders enjoyed 35% and 25%, respectively. The organization reported having difficulty growing market share over their competitors. Although the CEO of this company supported Voice of the Customer (VOC) research, middle management in the company provided only lip-service to the concept and senior executives initiated no clear vision or strategy.

This company was using two methods of capturing VOC information:

- Over-arching strategic customer loyalty research program that runs on a quarterly basis, and
- Monthly transactional survey for customers who have had these types of service experiences:
 - Recent installations
 - Calls into customer service for hardware or software support
 - Billing issues
 - Recent “up-sells” or upgrades initiated by business development staff

Customer Lifecycle (CLC) was asked to assist with the deployment and integration of VOC research results into the organization. Developing a holistic data review was part of this process. Historically, resources were not allocated for action implementation and internal financial incentives to change were not instituted. Furthermore, since the organization grew from entrepreneurial roots, they relied heavily on conventional wisdom and “gut feel” for decision-making.

Research data clearly indicated areas for improvement and the “research guy” became the “champion of change,” instituting a data dashboard of key metrics to educate executives all the way up to the board level. In addition, he identified middle manager owners for process change and worked to secure their cooperation. The CEO began to apply more top-down pressure.



CLC's involvement was to oversee data integration and mining, conduct senior/ middle management education workshops, action planning sessions at all levels, conduct quality functional deployment input sessions, instructional sessions on how to interpret research data and implement action plans based on the results. CLC was invited to participate in the strategic planning process and development of specific action planning targets.

The results were very impressive! Customer-focused improvements were internalized and implemented, resulting in **steady growth in market share**. In the first twelve months, the company logged a gain in share of 2% points. In the second year, share increased by another 2.5% points. Currently, share is up yet another 3% points! This **overall gain of 7.5% points in market share in just three years** is in sharp contrast to flat market share growth in the previous five years.

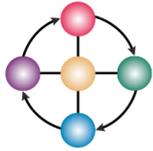
Service – Improving Performance



This billion dollar company is the leading provider of personal finance, small business accounting, and consumer tax preparation software for consumers, accountants, and small businesses. Other software offerings include industry-specific accounting and management applications for construction, real estate, retail, and wholesale distribution organizations. They also provide payroll services, financial supplies, software for professional tax preparation. This organization has three main business segments: Small Business, Tax, and Financial Institutions.

The company was organized into discrete business units, but VOC listening occurred at the overall corporate level. Corporate leadership sponsored VOC and left it to each individual business unit to implement change. The company wanted one overarching loyalty measure that would define the overall direction of the organization. At the same time, this loyalty measure would need to meet the needs of the individual business units for more information to diagnose product and service performance issues.

The CEO mandated corporate VOC which had a great deal of visibility at the top-most levels of management. However, the needs of each business unit varied greatly and no integrated data solution was being used. Furthermore, no training in continuous improvement methods had been used historically and no plan was in place for appropriate use of VOC data to improve service performance. In addition, VOC data had not been linked to operational

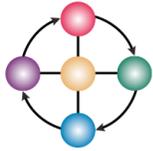


processes and standards. Consequently, process improvement goals had not been set and employees had no incentive to implement changes.

CLC was engaged to communicate the importance of VOC data, improve the understanding of the data, and educate employees about its impact on service improvement. CLC reframed the existing VOC data with the overlay of information from other internal sources. Training sessions on continuous improvement methods were established, teaching individual business units best practices on how to incorporate VOC data into their strategic planning process. We implemented on-going customer requirements education at the senior-most level of the organization and created processes for the release of funding to provide employee incentives for implementing service changes.

Subsequent VOC tracking waves indicated significant improvements in customer loyalty driven by improvements in product and service performance. Ratings on specific key metrics improved by 15-25 percentage points. This was possible due to the integration of VOC data being linked to internal business process metrics. The organization is now working on translating these improvements into a 10% annual improvement in profitability.





Growth – Eliminating Barriers



This organization is a billion dollar data storage company that owns the lion's share of the market (40% vs. 10-15% for major competitors). They make tape drives and automated cartridge libraries, disk arrays, and network management/backup software that helps businesses and government agencies store and manage large amounts of data. They also offer storage networking products, including 3rd-party hardware devices. Their services range from maintenance and support to consulting and design. The organization sells directly and through Value Added Developers (VADs)/Value Added Resellers (VARs). They have recently been acquired by a technology company whose specialty is servers and routers.

Despite being the market share leader, company profits had been weak over a number of years due to flat growth. Turnaround efforts included a management shake-up, layoffs, and spin-off of its managed storage device business. The company remained committed to its core tape storage products, placing increasing emphasis on selling complementary networking and disk-based storage devices to form Storage Area Networks (SANs). The Top brass was pushing for increased new customer acquisition.

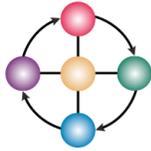
Problems with the growth strategy were many.

- Overall resistance to change within the organization was high.
- Business units operated in silos and through functional domination.
- Very few within the organization knew how to use primary research data.
- Buy-in or commitment to making changes was not easy to secure.
- Due to past deficiencies of information, no direct link had been established between VOC and business results, resulting in no data integration.

Executive leadership also contributed to the challenges:

- The organization had just named a new CEO to replace the top executive.
- The former CEO had systematically disassembled all market listening posts including market research and competitive intelligence.
- No VOC research was being conducted at that time.

The new CEO, however, was committed to reestablishing VOC research and other market listening initiatives although incentives for product/service improvements had not yet been



established and resources were limited in terms of action implementation. The company was focused on staying afloat.

CLC was engaged to incorporate the results of VOC into the day-to-day operations of the company. Our first step was to understand all data sources and develop an integration plan. We established VOC listening posts at both strategic and tactical levels and developed intervention strategies through informational sessions, direct hands-on workshops, and direct communication with the new CEO regarding strategic planning. Our efforts centered on breaking down barriers and resistance to change.

Success came in stages. Our major accomplishment was the establishment of cross-functional implementation teams who translated customer requirements for performance into market-focused process improvements. As growth objectives began to be met, the new CEO attributed much of the improvement to better alignment of functional processes with external customer requirements. ***This was a direct result of data integration efforts.*** Revenue has grown year-over-year by at least 10% for the last 3 years; net profits have increased 4-5% year-over-year.

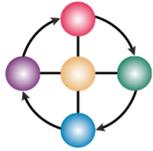
Retention – Reducing Churn



This organization is the result of a merger between two leading companies. The combination created a giant that aspired to take on the two market leaders. The company operated a nationwide customer network with more than 50 million subscribers and is valued at \$35 billion. Since the merger, the combined company has struggled to drum up and retain new customers and has used layoffs in two consecutive years to cut costs.

The merger resulted in technical snags due to each organization employing somewhat different technology. The integration of the two companies proved more difficult than anticipated, and the resulting quality problems contributed to customer defections which hurt the bottom line. This company suffered a notable loss when it was excluded from bidding on government contracts worth billions.

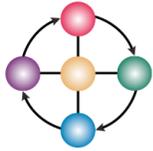
The new organization conducted a monthly VOC monitoring program among a myriad of custom research studies, and the data appeared to be fairly stagnant, showing little movement in the overall indices used to monitor customer loyalty. All levels of the organization supported VOC listening post initiatives, however the data were not always



available to key decision makers at the right times. Furthermore, the data was also used as a stick rather than a carrot. While management supported VOC, no follow-up for accountability or action implementation was established. In addition, understanding about continuous improvement methods was low. The implications discovered in the data were not clear and provided no strong guidance for reducing churn. Lastly, VOC data was not linked to any other data source or internal business process metric.

CLC reviewed end-to-end research processes to identify potential areas for improvement and change so that data would be more user-friendly and available for action planning. Part of this process involved a data integration review. We developed communication schemes and conducted workshops on how to gain access to the data and what to do with it once it was available. Action planning and deployment activities incorporated information and actions into the appropriate functional areas. After being invited to participate in the strategic planning process, CLC met with multiple research vendors used by this client to gauge the contribution of each vendor and the consistency in design and execution of the research conducted.

During the fiscal year following the process improvement implementations, the overall information services budget had been reduced by 27% through a better and more consolidated way of running primary research. ***This research was now directly linked to internal business process metrics.*** While churn continues to be an issue for this company and others like it, the main bleeding of customers has been alleviated. Churn rates have slowed into the single digits from the mid-double digits.



About Customer Lifecycle, LLC

www.customerlifecycle.us

Customer Lifecycle is a global research-based consultancy committed to helping our clients avoid costly mistakes by focusing on thorough front-end planning, appropriate support for research execution, and in-depth deployment consulting and implementation at the back end. Outcomes are rigorous and balanced customer-focused performance metrics, improved financial results, and a superior total customer experience. Its mission is to provide companies with insight into their industries and staff by deploying sophisticated analyses to answer tough business questions, and intelligence that clients can act on with confidence, thereby offering an edge in understanding customer choice, engagement, loyalty and advocacy.

Each stage in the customer lifecycle—acquisition, service, growth, retention—has its own unique challenges and solutions to address specific business issues. Customer Lifecycle helps both B2B and B2C focused organizations plan and conduct research to accurately identify and measure customer requirements for satisfaction, loyalty, and retention at every stage of the relationship and to deploy and integrate customer requirements for performance into the processes and internal performance metrics of the organization.

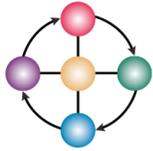
About the Author

Julie Margolis Worwa, Senior Research Director at Customer Lifecycle. is an accomplished and forward-thinking market research professional with over 25 years of experience in the marketing research industry. She has expertise in all facets of the research process from questionnaire design and respondent interviewing to data analysis and report presentation. She is highly skilled in client relations, research design, project management, multivariate analysis, delivery of findings, team building and leadership.

Julie is experienced in a wide variety of research designs and analytical techniques involving multivariate statistical analysis such as regression analysis, factor analysis, cluster analysis and importance analysis. She excels in producing comprehensible automated report designs, insightful written reports, and predictive/analytical models using the Microsoft Office Suite and VBA.

Julie is the author of several white papers for Customer Lifecycle which have been published in multiple market research professional journals. Topics of her articles have included predictive segmentation, choice-based analytical techniques such as DCM and Full-Profile Conjoint analysis, and other strategic analysis tools.

Julie holds a BA in Communications from Augsburg College and an MBA in Marketing Research and Management from the University of St. Thomas.



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Liaison

We welcome any questions you may have about this thought piece. Please direct all inquiries to:

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