Gaining Insights Across Customer Interactions

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Abstract and Paper

Statistical agencies are working to modernize data dissemination and create customer-driven digital experiences. To achieve this goal, they need to understand who their customers are to the greatest extent possible. While face-to-face interactions traditionally provide valuable information and help foster relationships, digital ones provide detailed information on how customers consume and use data.

At the United States Census Bureau, interactions include online behavior, call center interactions, social media, and bureau-specific touchpoints like regional offices, partnership programs, and training sessions. The Census Bureau has developed a platform to integrate this customer experience data to gain a better understanding of its customers. The platform provides a flexible, scalable design that allows the Census Bureau to have a better overall understanding of its customers and monitor key performance indicators for meeting goals to deliver a better experience.

This paper explores what the Census Bureau has learned about its customers, how this information drives deeper research and enables data-driven decisions about data products and services, and how the platform can serve agency programs in need of data dashboards to help inform decisions.
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Introduction

Statistical agencies are working to modernize data dissemination and create customer-driven digital experiences. To achieve this goal, they need to understand who their customers are. While face-to-face interactions traditionally provide valuable information and help foster relationships, digital experiences provide detailed information on how customers consume and use data. Customer experience can be thought of as the sum total of the interactions between an organization and a customer over the duration of their relationship. At the United States Census Bureau, interactions include on- and offline data usage, survey response, call center interactions, social media, and other bureau-specific touch points like regional offices, partnership programs, and training sessions.

In 2014, the Census Bureau initiated a pilot program to develop a platform to integrate customer experience data to gain a better understanding of its customers. The pilot project has enabled automated, daily dashboards visualizing interactions with customers. The project had three goals:

- Establish a framework and foundation for the integration of customer experience data.
- Allow analysts to leverage data across data sources on a holistic business intelligence platform, to drive customer-centric decisions about data products and services.
- Create an opportunity for a better understanding of patterns and trends of customer experiences that can lead to actionable improvement plans.

The platform, known as the Customer Experience Management tool, or CEM, provides a flexible, scalable design that allows the Census Bureau to better understand its customers and monitor key performance indicators for meeting goals to deliver a better experience. Several figures within this paper illustrate the existing CEM dashboards; however, the platform has an extensible infrastructure to provide interactive visual visualizations for any data sources, for example operational data.

How is the Census Bureau currently using the CEM platform, and what insights are driving actions to improve the customer experience across various channels for customer interaction?

As the CEM platform was being developed, tested, and refined, we also wanted to be sure a process was in place to look at the data, discuss anomalies, capture insights, and develop recommendations. Even before the CEM project began, a teaching/discussion group consisting of both CEM planners and those interested in learning more about Census data users met regularly to look at customer experience metrics. This group collected and worked with much of the customer analytics now presented in CEM,
but its work included much more hands-on labor and use of spreadsheets. In this early CEM team, newer analysts learned from more experienced staff about the various customer analytics available and how to work with them.

At present, the analytics team includes not only junior staff eager to learn, but also subject matter experts and customer experience analysts from across the bureau. This team meets weekly to

- look at the data
- suggest further research and hypotheses
- report on this research and capture insights
- develop reports on customer behaviors and indicators
- recommend promotions, improvements, and policies around data and information products

Cross-Channel Views

The CEM platform displays customer information from different sources combined in user-friendly, interactive, visual dashboards. While most CEM dashboards require no specific background in customer analytics, a couple of them provide information intended for analysts familiar with concepts like bounce rates, paths, and other more specific measures.

The cross-channel dashboards allow us to see patterns, highlight outliers, and dive deeper into the analytics. More importantly, they provide direction in knowing what set of analytics to further explore. Analysts use the dashboards as a guide to the more exhaustive sources of information after seeing high-level patterns or relationships in one tool. Figures 1 through 4 show how cross-channel views can be defined by audience segment, channel, and area of interest.

**Figure 1: Customers across interaction channels**
Insights About Census Bureau Customers

Some insights observed from examining customer analytics have confirmed long-term trends, while others highlighted newer trends.

1. New visits consistently outnumber repeat visits. This insight helps prioritize the development of tools and features for new visitors to the census.gov website—users who may be less familiar with census data or specific programs, or less willing to learn complex data tools. This insight also informs marketing plans to encourage more repeat visits, for example through email alerts or other inbound marketing.

Figure 2: New and repeat visits

2. Customers from different communities contact the Census Bureau in different ways for different kinds of information. We can use this customer behavior to help provide better customer service, for example, by surfaced content online that customers call about, mention in satisfaction surveys, or provide feedback through other means.

For example, although many of our phone callers seek assistance with web tools, the majority of them have very specific concerns. Figures 5 and 6 show, for example, that ancestry (and passport assistance, associated with ancestry and past decennial census information) is a popular topic among callers, whereas this barely registers among web users.

Analytics also show that the majority of those requesting assistance by phone or chat are either members of the general public, or survey respondents, whereas the majority of web users who take the customer satisfaction survey are business users and members of academic communities, whether teachers or students.
Figure 3: Call center customers

Figure 4: Web customers who complete the online satisfaction survey
3. A few topics dominate traffic. This insight helps programs target content and functionality to benefit a large number of users. For example, in creating new search functionality to display data within organic results, we prioritized top key terms based on highly accessed topics on census.gov.
4. Most external searches tend to be generic; internal searches on Census.gov clarify customer interests.

Working with internal search information, we have found it helpful to sort individual search phrases into categories. This presents a clearer picture of users’ areas of interest. The information on internal and external search, site exits, and downloads, charted to show proportion, categories, and activity, helps us visualize the volume of searches and breakouts of user groups based on search actions in a far more intuitive and helpful manner than in earlier years, when we analyzed these data using spreadsheets.

For example, Figure 7, showing external search phrases and the bounce rates associated with them, demonstrates that the Census Bureau does better with branded searches than unbranded ones. This informs activities needed to improve search engine optimization.

Figure 7: External search terms

5. A bounce is not necessarily a bad thing.

Depending on the content, a bounce can show that the visitor found what he or she sought with one table or chart. In Figure 7, for example, the red or orange shades of the blocks with “population” in the search phrases indicate a high bounce rate, but the data tools offering results for these searches are concise and informative. Users find the population numbers they seek, and leave. Similarly, Figure 8 correlates downloads per visit with internal search phrases, showing that our most popular topics don’t necessarily prompt downloads, as the data and information are offered in tabular and visual form by the tools.
6. Customer satisfaction indicators can highlight trouble, but are best used to refine offerings.

The Census Bureau has learned that census.gov users value our content much more than they do our efforts to convey it to them. Reported satisfaction with search and navigation are reliable indicators of overall satisfaction with our website in general. In other words, satisfaction comes from finding useful content.

Dips in satisfaction scores can be correlated to other issues of website performance, timeliness of data, or even census/survey operations. This in turn helps us prioritize ideas for continued improvements in data tools and information.
What has changed in our understanding of customers?

1. We thought that referrals from other websites would be a strong driver of traffic to our site, but we have found that search engines and direct traffic (bookmarks, email referrals, and search engine referrals coded to mask the source) account for the vast majority of our traffic.

2. We were surprised to learn just how much of a share, and how consistently, of our web users were new, first-time visitors (or visitors who clean out their cookies). Future research will show us whether certain topics of interest are dominated by return visitors.

3. Mobile’s share of our web traffic has grown steadily, but is very sensitive to non-responsive design flaws and errors. For example, in March 2016 we updated QuickFacts, our most popular data tool, (1) to comply with new federal requirements for secure protocols and (2) to implement some redesigned functions; problems developed for mobile devices only which had not appeared in pre-release testing. These issues took some time to pinpoint and resolve, during which our mobile growth slowed and leveled out. We are still attempting to regain our earlier momentum.

Figure 10: Share of census.gov web traffic from mobile devices

4. We have matured beyond defining “social media success” as “web traffic referred from social media,” to a newer model of measuring social media buzz/attention around our data and information outside of census.gov. Measuring social media with native platform analytics has matured and is an area for continued efforts.
Future Work

The dashboards in the CEM platform are undergoing updates as the Census Bureau continues to dive deeper into customer experience analytics and gain more experience in this critical discipline. The remaining figures represent new designs in development.

One area of new development has been new dashboards that help programs learn more about the expectations and interests of customer segments that typically visit a particular area of interest. It is useful to break out analytics by topic area in this way so that program areas can better benefit from analytics and focus on their customer segments through easily viewed visualizations. While program areas have some individual goals and interactions in reaching specific audiences, with CEM we can break out analytics from the larger customer experience and not lose the consistent view of the enterprise. This breakout capability is also important so that topics of much lower interest are not always overshadowed by more popular ones in the dashboards.

Figure 13 breaks out economic topics and sections of census.gov. With these economic-related dashboards, we can gain a better understanding of those customers and how they might differ from customers seeking spatial data, for example.

Figure 11: Future design of a customer analytics dashboard
Figure 12: Path analysis visualization

Figure 13: Dashboard segmenting traffic to economic topics
Conclusion

In addition to data users across segments (media, educator, researcher, etc.), the Census Bureau is looking at a fuller customer experience model that includes the unique experience of data users, survey respondents, partners, and employees. What are the specific journeys and pain points of these groups? With the right analytics, these experiences can be visualized in CEM with information from our emerging customer relationship management system (CRM), respondent information, and a new partnership engagement platform under development. Understanding the customer is the first step to delivering effective experiences and journeys across all of these digital (and physical) interactions.

The information gathered and integrated from these systems into CEM will provide the high-level, cross-channel insights needed to connect the dots between touchpoints from different areas across the agency to create an optimal customer experience.