Transforming data dissemination and personalizing the digital user experience

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Abstract

We are in the age of the customer. Customers expect a personalized experience, which anticipates their needs even before their interaction, and they expect to receive information that is easy to consume, customize, and share. Businesses are quickly realizing that investing in user experience is critical to delivering on their mission. How does a statistical agency keep up and meet the ever-increasing expectations of their customers?

The challenge for statistical organizations is how best to serve content and statistics to enhance the user experience. Currently, census.gov presents a fragmented data and content experience with separate data tools, narrative content, web applications and systems for dissemination. The isolation of data creates a disjointed digital experience, affecting customer satisfaction and overall user experience.

This paper examines how the Census Bureau plans to integrate the data with the website experience as one platform through system integration and robust metadata, enabling data and web content as a single interaction that provides customer with useful information. This paper will also detail the journey to make Census.gov the main entry point of all Census Bureau content, including its valuable data, and customer services. Data display will leverage census.gov capabilities such as faceted filtering, smart search results, personalized experience based on analytics and content association powered by the content management system. These efforts will enable an integrated, personalized experience that surfaces easy to consume content that is most relevant to that user.

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This paper examines how the U.S. Census Bureau plans to integrate our data with the website experience to create a single platform through system integration and robust metadata – enabling data and web content as a single interaction that provides the customer with useful information. This paper will also detail the journey to make Census.gov the main entry point of all Census Bureau content, including its valuable data and customer services. Data display will leverage capabilities such as faceted filtering, smart search results, personalized experience based on analytics, and content association powered by the content management system. These efforts will enable an integrated, personalized experience that surfaces easy-to-consume content that is most relevant to the user.

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Digital Landscape

According to Forrester's 2016 Digital Experience research, "on average, U.S. online adults have 4.3 connected devices and 70% use smartphones." The complexity that firms must deal with to support digital customer experiences is growing, as are customer expectations.

Firms have aligned their 2016 investment priorities to support these increasing expectations. Sixty-nine percent prioritize user experience, 68% prioritize personalized experiences, and 46% prioritize customer self-service. Additionally, many firms look to ramp up investment around technology and the people to support end user experiences: nearly 40% of firms are prioritizing integrated technologies, and one in three is investing in agile development teams.

The Census Bureau is the largest statistical collection agency in the United States. Our data are of such high quality that it is often the centerpiece of news reports, research reports, and new business ventures. However, the inordinate amount of data can also be daunting. In addition to our high volume users, we have a growing body of novice users.

At the Census Bureau, we are conscious of the changing digital landscape and are responding accordingly. A quick visit to Census.gov shows that we have gravitated towards a topic-centered format with hyperlinks, drop-down menus, and data visualizations. Our mobile optimized site now shows statistics right from the search results. Additionally, we are proactively creating data products with an express focus on consistent access, format, and functionality across devices.

Personalized Digital Experience

Creating a personalized experience involves not only using data to learn about your customers, but also using the data to deliver experiences that your customers find relevant and engaging. This knowledge is gained through analytics, interactions captured through customer relationship management systems, and historical customer interactions with your organization.

Content-driven personalization is the primary focus of the digital experience. Businesses and organizations are investing more to deliver relevant content and to target it to the right audience through traditional and non-traditional channels of customer consumption.

Through data analytics, we have learned how to personalize data products tailored to the desires of our user base. This has increased the consumption and utilization of Census data by both low and high volume users. We are now taking this effort a step further: we are working to improve customer experience by allowing users to manipulate the data and create visualizations from the data based on their unique inclinations. For instance, we currently offer

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"Best Bets" suggestions to identify what we believe our users might be interested in accessing. That is personalization. Our transition to *individualization* will allow users to gather, manipulate, and visualize data according to parameters of their own choosing.

Census.gov Fragmented Experience

So what is the Census Bureau doing to improve its digital customer experience, to integrate technologies and to create a personalized experience?

First, we looked at our current state. Currently, Census.gov presents a fragmented data and content experience with separate data tools, narrative content, web applications and systems for dissemination.

Second, we invested in the technology needed to improve our digital presence, customer analytics, and customer services. (See Figure 1)

Figure 1 Technologies supporting digital customer experience
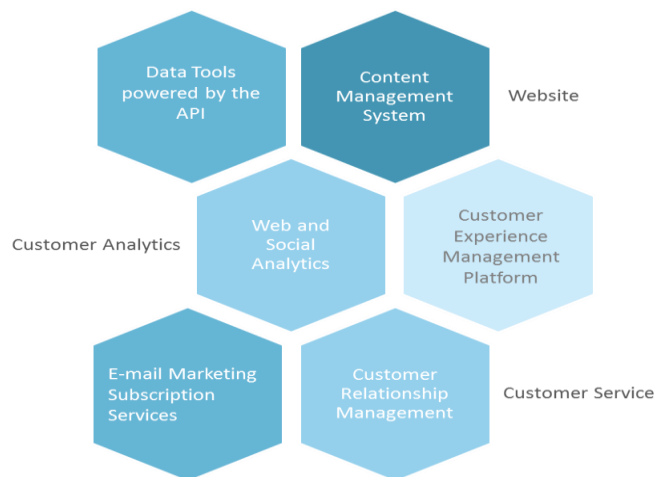
In the last few years, the Census Bureau's Communications Directorate and IT Directorate launched a digital transformation. This initiative focuses on investing in a new content management platform, solutions grounded in analytics and key metrics, and establishing enterprise-level digital platforms to build an integrated ecosystem.

Responsive design has fueled our thinking. No matter what device you are using, the display, fonts, and scalability of the data will fluidly morph into what is appropriate for the device in question. This level of portability is superior to past approaches like fixed width designs, managing redundant sites, and showing deference to browser-based experiences. The new

web experience is responsive, consistent across multiple devices, and provides a consistent look and feel, including navigation, metadata, and content structure.

Isolation Of Data

Currently, data are separated from the rest of the website experience through multiple applications. These applications have disparate processes that often do not talk to each other or work across data sets. This causes a fragmented experience, impeding the data from being search optimized or contextualized with the rest of the content. The isolation of the data creates a disjointed digital experience, affecting customer satisfaction and overall user experience. This causes customers frustration, and is reflected in customer satisfaction scores and feedback.

- ✓ Over 100 applications prepare and release data

- ✓ Lack of standardization and consistency across dissemination processes

- ✓ Complex for users to find data and create insights

As a result, the agency is moving into an integrated Census.gov experience, with data accessibility across different areas of the site and following users thought their website experience. The integration of data into Census.gov will:
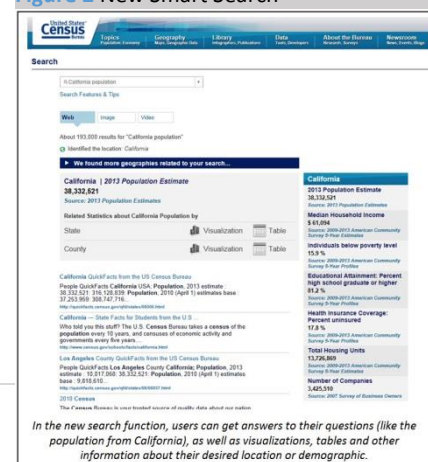
- ✓ Enable data to be easily discovered, accessed, and consumed via Census.gov

- ✓ Make data useful for a diverse set of customer needs

- ✓ Take advantage of digital opportunities

- ✓ Centralize and standardize the metadata

 The goal is to create content once, while publishing that content everywhere, best known in the industry as Create Once, Publish Everywhere (COPE). Content management systems, Application Programming Interfaces (APIs), and databases (among other technologies) enable implementation of this concept, which is being applied by private and public sector.

Having a display agnostic framework streamlines our operation. A more content-centric organization allows users to more

Figure 2 New Smart Search

In the new search function, users can get answers to their questions (like the population from California), as well as visualizations, tables and other information about their desired location or demographic.

quickly access the data they want, instead of being forced to wrestle with an outdated content management structure.

This is accomplished through the COPE strategy. A data point should be centrally located on the back end and found wherever you need it to be on the front end. Transitioning away from redundant and loosely organized pathways towards something more centrally organized permits distribution platforms to flourish. We are becoming more nimble and our work is becoming more scalable. As an example, the Census.gov landing page is now organized by topic and our search function is more robust than ever. This is only part of our ongoing content migration strategy.

Census.gov leverages the Census Bureau's public API and serves data on the most popular search terms in its search results. The website also shows visualizations of popular search topics and links to related information. You can now get statistics from multiple Census Bureau data sources on popular topics such as income, poverty, and population. (See Figure 2)

For example, if you search for "California population," the latest state population statistics, tables, and visualizations will appear. You will also see other statistics about California that you might be interested in, such as median household income or total housing units. The search function also includes NAICS (North American Industry Classification System) codes, making business information easier to access.

 In the future, access to data tables will be available through the data section of Census.gov. Users will be able to filter by topic, year, or survey/program – among other options – for quicker access to their desired data. The data will be viewable as a table, chart, or even via a mapping interface. (See Figure 3)

Figure 3 Filtering on Census.gov

 Personalized experiences will also be enabled through integration between the content management system and the customer relationship management platform. Users will be able to create a profile and have previously viewed content readily available, and receive notification when content of
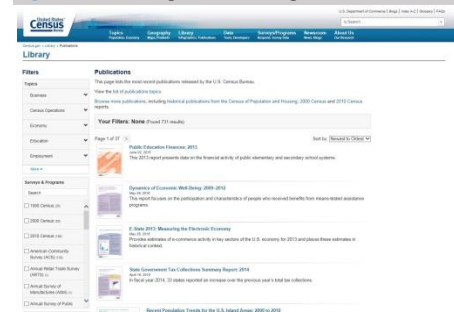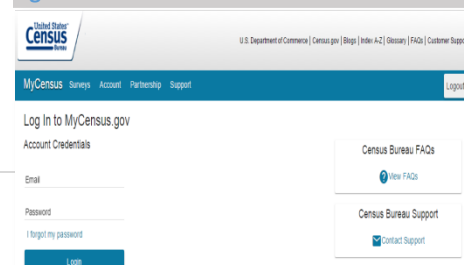
Figure 4 User Profile

interest is released in the future. These functionalities and others will improve our interactions with our customers and enable a more personal and individualized digital experience. (See Figure 4)

Conclusion

As the digital and internet experience continue to evolve, user expectations will continue to grow. According to Pew Research, by 2025 the Internet will become "like electricity" – less visible, and yet, embedded in peoples' lives. Information sharing will be effortlessly interwoven into our daily lives and big data will make people more aware of their world. The Census Bureau is preparing to meet growing customer expectations through transparent investment in an upgraded user experience.

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