

To Swim in a Lake or in a Pool? How to achieve the best possible customer experience Part II.

Andrej Gustin

Many companies in diverse industries are struggling to design perfect cross-channel experiences for their customers – solutions that incorporate the advantages of digital technology to provide their customers with invaluable personalized, up-to-date and on-time service.

In this series of short articles, we demonstrate WHY you must be the best at providing optimal ‘customer experience’ and HOW you can achieve this with the help of just 5 elements. Follow us over the next few weeks and be a part of this exciting [journey](#). Previous article about Omni-channel is [here](#).

Today’s Topic is Data Integration.

A popular claim that you’ve probably read many times is: “Data is the new oil!”

What does this mean and how is it related to the customer experience? At the moment, at least two major changes are shaking up existing perceptions of data sources and their integration.

First: Business needs and technical ability to store and use a large amount of structured and unstructured data. Most data has been around for a long time but the powerful tools and machine learning techniques that are capable of processing this data for optimal business benefits have just recently been developed. Data sources are becoming increasingly sophisticated and can be integrated into any device (IoT) to capture and store nearly any measurement available in time and place (*i.e.*

temperature, movement, velocity, position, weight, humidity, torque, sound frequency, etc.)

Second: The possibility of using predictive analytics algorithms (based on data history or data patterns of the past) to create data-driven models for predicting (customer) behaviour. Historically, the Business Intelligence (BI) domain was used to create reports based on what had already happened in the past, while Artificial Intelligence (AI) provides the ability to forecast and predict what is expected to happen in future. To successfully utilize these tools, we must ‘train’ models with a large quantity of good and consistent data that helps machine learning algorithms find patterns and business rules that are related to the observed problem. With exponentially increasing computer power, the applications of AI are becoming much broader in spectrum and are being applied to various new industry verticals like manufacturing (predictive maintenance), medicine (diagnostics), logistics (path and movements optimization), marketing (sales and promotions), to name just a few.

But developing and effectively using the power of data integration requires some basic steps and actions:

***) Sourcing** – Data can come from many different sources across organizational processes and customer touch points. These sources can be structured (like databases, XML) or unstructured (like email, posts, spreadsheets, work plans, documents, etc). You must first identify these data sources and gain access to their historical and current values and formations.

***) Denominating** – In this step, we must reveal all data structures and identify each single semantic meaning of the data (what is the data describing and what are the independent dimensions of the data structure). Furthermore, data should be assessed for quality and prepared for further action. Two key challenges in this process are:

First Key Challenge: Many divergent data models and structures that describe the same object or entity can be found across an organization’s channels and processes. So, how can an organization logically fit all of these differing data structures together? **Solution:** Logically map data entities and dimensions at the basic level and identify the differences that need to be reconciled in the denominating process. For example, the position of an object in time (using GPS) can provide data on the velocity

of the object (as measured from a car). Gross margin can be calculated from total sales revenue and cost of goods sold.

Second Key Challenge: How to handle data that is irrelevant to the problem or business need? **Solution:** To ensure data relevance, start with the value of each single data dimension. What data is going to add the most to your business need and is essential to the ROI of the solution you seek? You can use AI and ML tools as well as data driven models and predictions to find the optimal contribution of the data dimension.

*) **Cleaning** – Data sources are rarely ‘clean. This means that they have some errors, missing elements, duplicate values, inconsistent keys and identifications, single structures, etc. Using care and patience, enforce single data standards, correct errors and eliminate duplicate entries. Domain knowledge and expertise are sometimes needed to perform this step correctly (think of the rule “GIGO – Garbage In, Garbage Out?”). Two key challenges in this process are:

First Key Challenge: Data quality in terms of completeness and accuracy of the data elements present in each source and structure. Errors most often accrue during data capture (in many cases, due to manual errors) and are then propagated from one activity to another and from one data source to another (within integrations and data exchange). Ultimately, these errors result in escalating operational costs and in the retention of poor customer experience. **Solution:** Assess a representative sample of records from each data source and automatically or manually verify the accuracy and completeness of each data dimension (data type, range and constraint, cross-reference, structure). Try to improve data source validation functions and build integration process rules that perform data validation checks during data capture.

Second Key Challenge: Duplicate data of a single entity (i.e. a customer, product, order, etc.). Duplicates can arise at any data entry point and are commonly human mistakes (due to rushing, superficiality or carelessness). **Solution:** Build rules into your integration process to check record duplication and use advanced matching services to spot similar records (of a customer, product, order, etc.).

*) **Integration and Storage** – ‘Data Lakes or Pools’ – Is this now the question? This step involves extracting and transforming raw data across all systems and applications, storing (loading) data in storage facilities

such as data lakes, pools or data warehouses, creating an accurate and consistent view of information assets and leveraging these assets to drive business decisions and operations. Two key challenges in this process are:

First Key Challenge: ‘The only constant in life is change’ – we all know that change is inevitable. Organizations therefore cannot afford to be locked into ‘today's way’ of doing things by using rigid solutions. Flexibility and control over the integration processes are key to embracing change and being able to adapt. **Solution:** Plan for frequent modifications in advance. Make sure that your data integration procedures are flexible – that they are able to grow and expand quickly without disrupting operational business.

Second Key Challenge: IT Dependence – we commonly hear the complaint that ‘IT Departments are overloaded and overbooked’. Lack of competent IT resources causes project delays. By the time problems are finally resolved, business needs have changed and restructuring must re-start. **Solution:** Develop a ‘do-it-yourself’ platform that serves to empower business end users with easy-to-use solutions. Use a visual design environment and templates that assist business users in developing their own ‘what-you-see-is-what-you-get’ solutions that don’t require significant IT involvement.

*) **Data Delivery** – For analytical or further transactional purposes, applications and users need to access correct and relevant data in its proper form, granularity, time frame and location using queries or results.

*) **Data Management** - According to DMA: “Data Resource Management is the development and execution of architectures, policies, practices and procedures that properly manage the full data lifecycle needs of an enterprise.” Key focus areas also include availability, usability, consistency, data integrity and data security, and include developing processes that ensure effective data management throughout the enterprise.

Conclusions: If you want to achieve the best possible customer experience, you must develop the means to control data and collect it across all channels. Today’s world is saturated with structured and unstructured data so that all data sources must be very carefully managed. Transforming data records into useful information entails a long and thoughtful process. This article aims to provide you with some useful tips and guidelines on how to effectively achieve optimal solutions.

If you have any questions or would like to see how this works in practice, join us at the:

<https://balkanbaconference.org/>

<https://balkanbaconference.org/workshops-bba2018/digitalize-your-customers-journey-with-cross-channel-data-integration/>

Recommended Business Analysis Techniques (according to BABOK 3.0) that are capable of supporting cross-channel optimization:

- 10.11 – Concept Modelling
- 10.12 - Data Dictionary
- 10.13 – Data Flow Diagrams
- 10.14 – Data Mining
- 10.15 – Data Modelling
- 10.24 – Interface analysis
- 10.35 – Process Modelling

This is the second in a series of six articles designed to assist and guide you in becoming the best at providing the ultimate customer experience. Join us again next week for the next article in the series that focuses on ‘the customer journey’.

Additional sources:

- 1) International Institute of Business Analysis. A Guide to the Business Analysis Body of Knowledge® (BABOK® Guide); www.iiba.org, 2018.
- 2) Chelsea Barone: Creating A Single Customer View Through Effective Data Integration, <https://www.retailtechnologyinsider.com/creating-single-customer-view-effective-data-integration/>, 2018.

- 3) Bernard Marr: Here's Why Data Is Not The New Oil, <https://www.forbes.com/sites/bernardmarr/2018/03/05/heres-why-data-is-not-the-new-oil/2/#5f3d302d2e44> , 2018.
- 4) Raju Bodapati: Data Integration Ecosystem for Big Data and Analytics, <https://www.smartdatacollective.com/data-integration-ecosystem-big-data-and-analytics/>, 2018.
- 5) Peter Chase: <https://www.itbusinessedge.com/slideshows/seven-data-obstacles-you-need-to-overcome-to-drive-cross-channel-marketing-09.html>, 2018.