

Big Data and Hospitality in V Major

By Sanjay Nadkarni, Ph.D.

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Big data, AI, IoT, blockchain are words that are being bandied about a lot in the past year or two. Let's look at the big data story here from our industry's perspective. There is scant evidence pointing to a single source origin of the term big data, though there is some level of consensus that it entered the technical lexicon in the mid-'90s at Silicon Graphics International (SGI). Search volumes of ProQuest Research Library show a significant uptick in the popularity of the term from 2011 onwards, possibly attributable to massive investments by major technology vendors in the analytics space.

As with any trending term that has captured the fancy of academia, industry and the popular media, big data eludes a universally accepted definition, though a common thread across descriptors includes an array of *V* words. The original three Vs: volume, velocity and variety, were used in the context of conventional data management in the early-2000s, devoid of the adjective *big* and subsequently morphed into the founding attributes of big data as the term gained traction in usage well over a decade later. Variability, veracity, visualization and value made their way into the V-mix over the years. The Vs notwithstanding, a convincing definition as an enabler of a concept's scientific devel-

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opment has eluded big data. De Mauro, Greco and Grimaldi have proposed the following definition using the least common denominator of existing definitions: “big data represents the information assets characterized by such a high volume, velocity and variety to require specific technology and analytical methods for its transformation into value.” Let’s look at how the core Vs can be put in the hospitality context.

Volume

Volume, as the term suggests, refers to the quantum of data. A hotel’s traditional guest facing data sources include PMS, POS, booking engine, CRM and website; to which apps, IoTs and beacons are more recent additions. Back of house data sources can include the human resources, finance and supply chain platforms. The data these sources generate is massive. Add to that, third party data such as social media reviews, KPIs from consulting and research entities, and you begin to appreciate the extent of the volume of data being generated in this industry. How effectively this data is being leveraged is a moot point. Data silos, legacy platforms, skills deficit are the usual suspects which leads us to the question: are we a data rich, but analysis poor industry?

Velocity

The next V is for velocity — the rate at which data is generated, stored and consumed. With trends and cycles evolving and changing rapidly, the past is not necessarily a good indicator of the future. Couple that with data being generated and captured from a growing number of platforms 24/7, the shelf life of data assets is increasingly being shortened. It

is far more useful to know what is your car’s current speed than what it was five minutes ago. Real-time analytics is what velocity brings to the business dashboard wherein the KPIs can be visualized and analyzed ‘here and now.’ Dynamic pricing is a case in point at which the OTAs are unsurprisingly the masters. As the volume and velocity of demand and supply data of structured and unstructured variety is such

reviews, e-mails, call center logs, images and videos. A branch of analytics called natural language processing which allows machines to understand human language is used to create guest sentiment scores. Algorithms for image recognition and sentiment analysis based on facial expressions are also gaining traction in the artificial intelligence and machine learning domain. Is it time to ponder whether these big data tools

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that their algorithms harvest and analyze happens in near real time. Perhaps, the time has come for us in the industry to rethink our quarterly and annual forecasts and budgets done on spreadsheets using a mix of batch data and gut feeling?

Variety

The last of the core Vs is variety. Data comes in all shapes and sizes — some structured, others unstructured. Structured data refers to measurable variables: metrics associated with weight, length, time and money, essentially. RevPar, ADR, Occupancy are prime industry examples. Unstructured data includes text, voice and multimedia. In hospital-ity, examples include social media

will render conventional guest satisfaction surveys redundant, or at least reduce their value for decision makers?

Making sense of this growing volume of data moving at a rapid velocity in such a variety of forms is the holy grail of business intelligence. There are a number of proprietary and open source tools available to harvest, store and analyze big data. That said, what makes big data smart is the domain expertise which is very much a prerequisite to derive value. There is a lot to learn in terms of best practices from other sectors, particularly in financial technology. In hospital-ity, we’re just taking our first steps, and that too in the looming shadow of GDPR. Data, data everywhere, but not a dot to link? *