DATA FOR MEDIA

POSITION PAPER

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Abstract

With the growth in data, content, and end-users, information will need to be metered and managed. 2020 will see the rise of predictive analytics, collaboration and workflows that impinge upon all aspects of media business.

Big Data can open up the lane to fast success to businesses in the entertainment and media industry. It can help negate the biggest risk factor in the industry – changing customer behaviour.

Big Data can help have a steady pulse on the shifting customer preferences. It helps reduce customer churn, creates alternate revenue channels and also boosts customer acquisition and retention through data intelligence.

In the end, it creates a new ecosystem where customer experience is put as the centrepiece.

The main challenges and risks regarding the unstoppable integration of big data within media workflows and business models are the main purpose of this position paper.

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1. Introduction

Data is fuelling many organizations across all industries. Insights from data help innovation and make smarter decisions based on facts. Being data-driven is about giving the business decision makers the power to explore data and make predictions.


The media sector is no stranger to this trend. This report considers how big data will enable the media, entertainment and information industries to create more value for businesses and audiences. Creativity, media, contents, advertising, marketing, branding and reputation are currently firmly supported by the analysis of data. And we need this data to understand how all these topics affect digital business.

Creativity is being redefined by the undeniable rise in Customer relationship management (CRM) and data-driven marketing. The better industries know their clients, the better they can react to their everyday more frequent behavioural changes. Big Data helps drive better consumer insight, but it is necessary to infuse creativity with Big Data focusing increasingly on mobile and other interconnected devices (as a brand's ability to connect with a consumer will primarily exist through mobile connections). The new paradigm means one is now able to go from "people" to "person". Such as when, based on consumers' personal preferences, brands provide contextual content that seamlessly transitions into serving a location-specific value, that fulfil the forecasted preferences of the targeted user.

2. Data-Driven Content

Data-driven brings together all business environments in which data has become the key to success, becoming a competitive advantage. A data-driven business is defined by data as a basic requirement acting as a value-generator, and where data are leveraged to create real value as the ultimate goal. [COWAN]

Fully exploiting data and analytics requires managing multiple sources of data, and gathering all these data in analytics models that may be able to forecast and optimize outcomes.
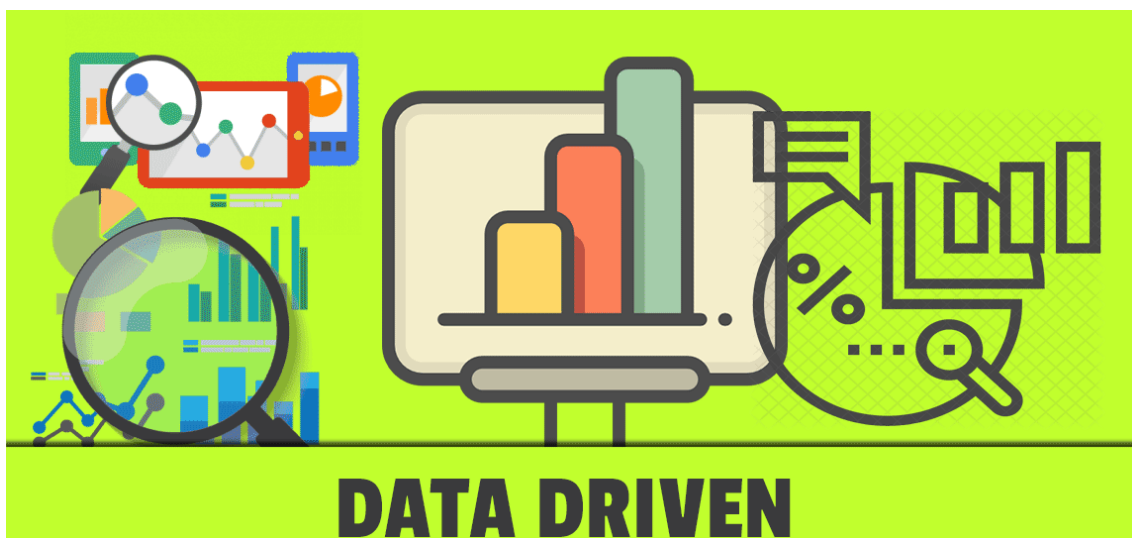
The rise of IoT enabling data acquisition through smartphones, wearables and social media has provided a wealth of potential new data to be exploited. [LAWSON]. This is continuously fed by users' constant connectivity to the online world, so data and users have a very high spatio-temporal correlation. This yields better decisions and serves as a great opportunity for marketers to create profiles with what a modern consumer wants and to develop a content marketing strategy. This can only happen through a framework that takes into consideration the audience's habits, preferences, and needs.

Data is mainly where user is, so for some time now social platforms have raised as main contributors of the media mix, alongside traditional TV, print and out-of home advertising. As Forbes states, social media is the heartbeat of marketing to millennials, but it's not as simple as a static digital presence. This leads to a clearly need of improving data acquisition, focusing on experiences and interactivity, as viewing patterns are shifting while advertising media channels are becoming ever more fragmented.

At this point, content marketing can't be successful without data and a data-driven content marketing strategy is imperative. The role of advertising now, more than ever, is to

create a relevant connection between a brand (or a concept) and what people really care about.

Data-driven content should be based on meaningful information as the customers' reaction to the existing content, the preferred types of content, consumption habits, and additional communication involved.

Nowadays, it is easy to identify brands building their own brand platforms, attracting their consumers to gather around a shared point of interest. Video is becoming increasingly important and powerful because of the ways it can be integrated into social platforms. From them, an analysis of the available data can help tailoring content to the target audience. [AMA]

Data-driven businesses are built upon both human capital (skills and expertise) and technical capital (technology, systems and infrastructure).

3. (Improving) Users' knowledge

As stated in the report of World Economic Forum "*Digital transformation of the media industry has been driven by changing consumer behaviour and expectations, especially among younger generations who demand instant access to content, anytime, anywhere*". [WEF] Coupled with these changes in consumer habits, impressive technological advances in recent years have enabled media organizations to begin offering the digital services that users are demanding. Big Data has been one of the key technologies to achieve this.
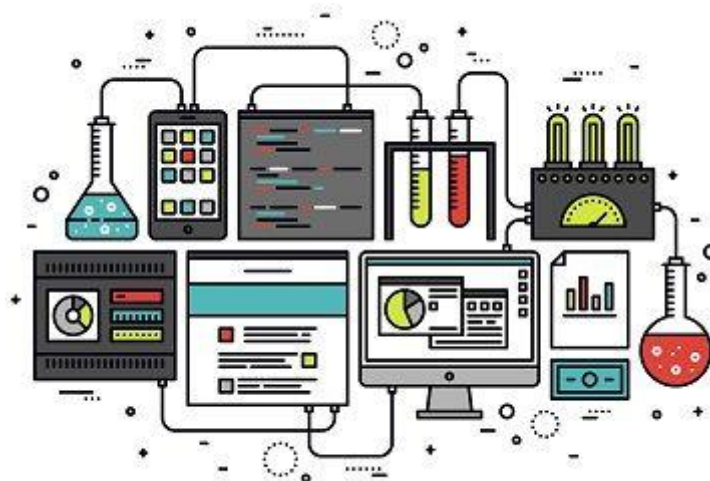
Acquisition and modelling user information

Data acquisition is the input to Big Data world. It is important to investigate new and flexible procedures to acquire as much information as possible from the users without

being invasive and in the most transparent way possible. For this, it is necessary to take into account the type of platform in which the interaction with the user is developed, and that serves as the access point to the user's information.

The proliferation of mobile devices and their integration over content distribution platforms and social media applications has paved the way for accessing and capturing different types of content and user related information, allowing challenge to characterize the preferences of users from their audiovisual consumption, including valuation (by means of explicit opinions), actions executed on the item and implicit comments expressed in various media. Thus, it is required the modelling of heterogeneous information by the user.

It can be seen that social media enriches the information provided by means of the exploitation of the concept of communities and other types of relationship between different users and their strength.

Therefore, the main future challenge is to profile each user by integrating explicit and implicit information: the explicit information being that which the user supplies directly to the system, and the implicit information that the system infers from the habitual behaviour of the user, such as the consumption of content, activity or comments in a social network, etc. [NHP]

Redefining user experience model

Marketing departments are moving from classic advertising and non-interactive communication toward becoming a natural part of the sales cycle and an extension of customer service with the main objective of achieving more effective customer engagement. Marketers, using integrated tools, can engage with customers online, track the buyer's journey, measure sentiment and loyalty, and match behaviour with outreach tailored to meet their audience's needs and interests. But for customers already bombarded with information, a great customer experience is becoming baseline.

4. Audience measurement

The media and entertainment industry has been searching for a reliable way to measure and engage audiences. This need has become a priority as media consumption is characterized by a combination of audience fragmentation and audience duplication, evolving from few large audiences gathered around a few media outputs.

This situation has placed consumers in as position of power leading the beneficiaries of the media and entertainment transformation produced by online video, media consumption across devices, and the raise of social communities and gaming.
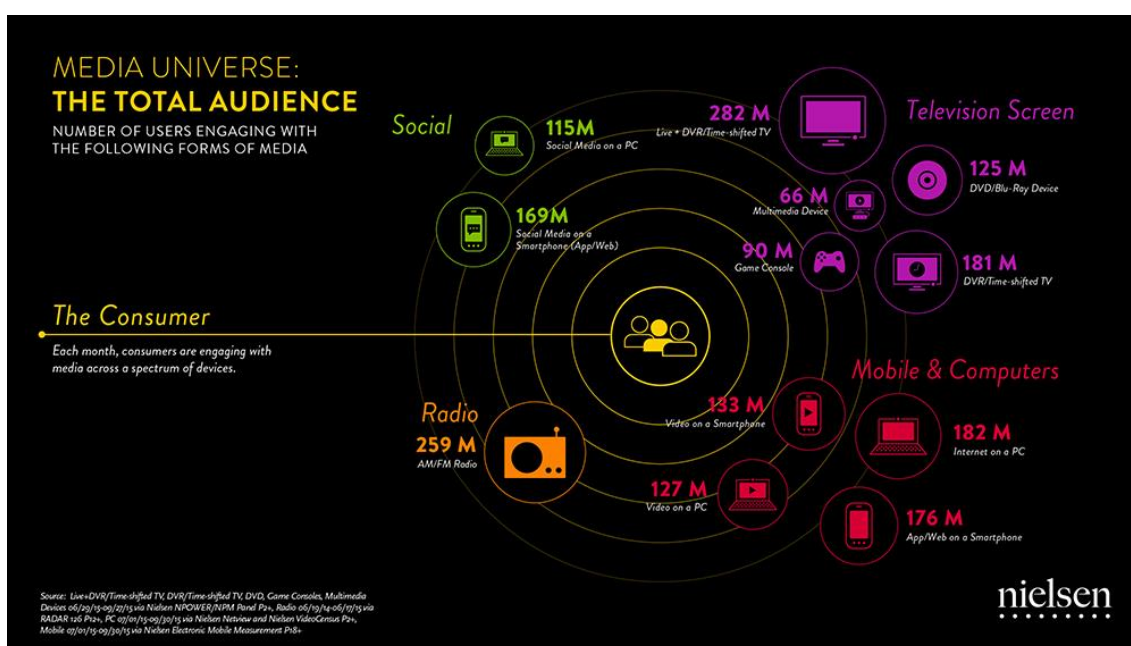
This disruption has affected primarily to advertising that has been largely migrating to digital platforms as close to the final users as possible. Audience research is obviously essential for advertising; It facilitates the decision making. However available data, user profiles and communication models still determine the models applied. Anyway, Big Data technologies are providing the mechanism for deploying new models of audience measurement and user behaviour understanding. Big Data is is marking the path of transformation.

Data are now more comprehensive, available in real time, and cheaper to acquire, enabling accurate and fine-grained digital media audience measurement and content ratings; audience analytics can help capturing audience response from multiple sources so the right content to the right person at the right time can be delivered [IBM]. These changes in audience measurement tools represent a new era in the relationship between consumers and producers creating a customized viewing experience that tailors on-demand content and advertising for audiences.

5. Interest prediction and recommendation systems

A recommendation is based on the combination of knowledge that is available from the content, product and/or service to be recommended, and the user to whom it is recommended. It can be described as a system that produces individualized recommendations as output or has the effect of guiding the user in a personalized way. Therefore, the success of a recommendation will depend both on gathering the appropriate information and managing it in a way that provides the best possible knowledge of each person's individualized preferences [NHP]. Recommendation is built upon the most appropriate algorithms and metrics to generate predictions extrapolating, as precisely as possible, the previous knowledge of user preferences to items whose nature has been previously characterized.

The recommender design aims to replicate the psychology of human information processing, reasoning, and decision making, by means of personal and community data, content characteristics, aesthetics and other contextual information.

One common thread in recommender systems research is the need to combine recommendation techniques to achieve peak performance [BURK]. However, the continuous increase of data generated provides recommendation systems a good opportunity to analyse information to learn more about the customer, and here is where the ability to integrate, synchronize, manage and valuate this data through Big Data tools becomes essential. Netflix, Warner Bros, the music industry and Bollywood are successful cases of application of these techniques. Even users are to some extent willing to provide further information in return for a better quality of recommendations.

Next generation of recommendation systems aim to create more personalized recommendations, specifically, how psychological constructs such as personality and

emotion could be integrated to improve the outcomes. This leads to the need of multifaceted user models that describe contextual and situational preferences. [SCHED]

6. Monetization. Branding, marketing and advertising

Big Data, including market and customer insight and predictive analytics, has become common tools for taking decision on a market level. Brands' focus is shifting from merely analysing the data to interpret them in terms of return on investment based on patterns, online consumer actions and acquiring behaviour of end users. Thus, relevance across consumers will play a key role.

Content marketing will take a powerful and serious turn from content that is general to relevant to completely personalized. Brands will truly understand the power of content from it being perceived as a factor to improve search engine optimization or SEO score towards generating true value across end readers. Content marketing will play a crucial role in creating a Knowledge Resource Center for organizations, institutions and individuals with a clear idea of adding real value and building brand ambassadors online for long term loyalty in the form of trust.

This aim should be supported through three main cases [PRIYA]:

- Increasing acquisition and retention. To develop promotional and product strategies to attract and retain customers.
- Ad targeting. To increase digital conversion rates by exploiting micro-segmentation of customers.
- Content monetisation and new product development. To incentivise consumer behaviour and measure the real value of content.

Finally, at infrastructure level, new storage and computing resources will be required more by corporations that have terabytes, Petabytes[1] and Exabytes of information with them. Improved management systems, including enhanced structured information and the addition of capabilities through deep and machine learning.

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[1] A petabyte (PB) is 1015 bytes of data, 1,000 terabytes (TB) or 1,000,000 gigabytes (GB).

7. Data trustability

The proliferation of IT has been accompanied with an increase in information security risks. Data circulating through different interconnected networks and going in and going out from devices sum up large amounts of information whose confidentiality, authenticity and integrity can be exposed. Nowadays, it is not usual users are really concern of these risks, while their data escape from their control, endangering information, privacy and, in some cases, the physical integrity and patrimony.

There are still some basic problems to solve: security in passwords, encryption or access permissions, and mobile device applications that do not encrypt communications.

Data is key for the new business and organizational models, and personal data has a higher commercial value which makes it attractive to subtract. Thus, one of the most important challenges facing the new technological scenarios is the protection of users' privacy and personal data.

As aforementioned, users are prone to share information to feed systems that improve their quality of experience and in exchange for free services, but the procedures of interaction and the data management are far to be completely safe. As far as this becomes a real concern, people start to refuse to participate in such kind of exchanges. Therefore, it is necessary to reiterate the need to respect the rights of people over their personal sphere in the digital environment [8].

A reliable Big Data can't be deployed until all the actors involved in the operation provide users with all the necessary information about the management of their data. So that the real integration of the user as a data provider can be solid and sustainable over time. Thus, it is absolutely necessary that users should be aware of the level of privacy they get in accessing a given service.

The challenge is how to improve user/consumers awareness and participation in process of management and exploitation of personal data in service provisioning. And in terms of security, Big Data analytics are gaining momentum to be their own data custodians.

8. Personalization

The global trend towards the extreme differentiation of offerings in products and services from the recommendation of content to the integration of the final consumer in the design processes (users are more than active part of the process of creating demand or defining the final service offering) has been progressively built from the increasing capabilities big data technologies are offering. Personalization through very precise targeting is expected to ensure not only the best potential impact but in parallel higher added value of products and services.

Big Data seems to be a killer application for applying a next step personalization within the entertainment and sports industry. Main strength of media sector is its proven better access to consumer data. Just by consuming content, users give insights on multiple very valuable information such as successful formats, consumption patterns and even recommendations for improvements.

Big data analytics can help media enterprises making decision that may guarantee user satisfaction: content more likely to be consumed, scheduling, and indeed, the way to offer well-targeted personalised entertainment from the wealth of options.

Moreover, it will help to gather user behavioural information across devices and media types. All of this multi-factored information, when properly assumed, can provide the competitive advantage their offer [PRIYA].

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Annex. Social Media and artificial intelligence

Social Media, through many different applications, is the main source of user information, taking advantage of social interaction, content, and communication media. Social media has created a new landscape in supporting the socialization of information, and making easier the access to activities, practices and behaviours from the community.

The spread of Social Media has converted social data in massive data, thus it is one of the most important field of application of "data for media". However, it increasing importance has leaded to be approached independently in a specific paper.

Similarly, machine learning techniques and artificial intelligence (AI), has overcome big data techniques by adding the ability to learn and to provide forecasting. As one of the main trends in the media ecosystem, AI has been profusely analysed in its proper position paper.