
BIG DATA FOR MEDIA 2015

Big Data for Media 2015 is a part of a nine-part series of research reports that comprise Global Digital Media Trendbook 2015.

GDMT 2015, in its tenth year, explores revenue and usage trends across digital platforms, including social media, video, mobile, tablets, the Internet and beyond. The yearbook also

analyses data from 60+ global research companies in order to project plausible futures of digital channels for media companies worldwide.

The World Newsmedia Network publishes GDMT with the support of two major research partners: European Publishers Council and FIPP.



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The World Newsmedia Network is a not-for-profit, multiple media research company devoted to assisting media companies achieve their business objectives across the media spectrum through research, events and consultancy. WNMN consults to and produces events and research for media companies around the world.

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BIG DATA FOR MEDIA

“Big Data” is a buzz phrase at the height of its popularity. Industries across the spectrum are exploring how they can leverage Big Data to create more and better business opportunities. But how has the definition of Big Data evolved and how can media companies create Big Data strategies that will create insights and revenue across their value chains?

What are Big Data?

Media companies collect, process and generate data of all kinds, big and small. One definition for “big” data might be data that cannot be processed on an average personal computer, that is, computers that have processing capacities in gigabytes (GB). The digital content universe is measured in zettabytes (ZB). One zettabyte is equal to 1 trillion gigabytes.

Small data can be processed on personal computers. This might include spreadsheets with structured data, and media companies’ daily quotients of unstructured data, such as the unstructured data output of an average newsroom, including video, social media, photos, audio and text.

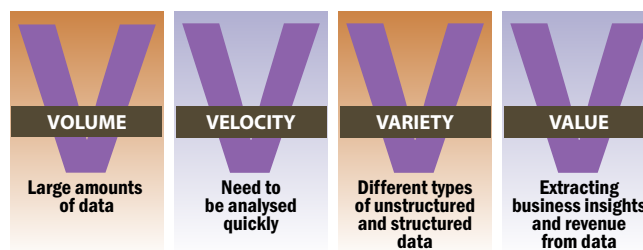
However, once these data multiply and accumulate over time, they can very quickly become “Big Data” and require gigantic storage solutions, powerful processing capability and software that is able to analyse and parse these data instantly.

No matter the industry, the catchphrase “Big Data” has encompassed three key elements in the past. They are: Volume, Velocity and Variety. That is, volume, or large amounts of data;

velocity, or the need to be analysed quickly; and variety, or different types of unstructured and structured data.

As Big Data becomes more utilised, a fourth, and perhaps most important, “V” is being added. That “V” stands for value. Without value as part of the end game for Big Data, the first three “Vs” are worthless. Audience insights and revenue are the most sought-after values from Big Data circa 2015.

Big data: The four Vs



Source: World Newsmedia Network

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Big Data popularity: Why now?

Structured and unstructured data are proliferating exponentially. Unstructured data, including video, photos, audio/music and text, make up 80 percent of all data coursing

through the byways of digital media platforms, while only 20 percent are structured data, or those data organised in fields and categories within databases.

Structured databases could include governmental databases such as census data, taxpayer logs, real estate transactions, school records and police records, or business-oriented relational databases on mobile phone records, bank accounts, cancer incidences, shopping trends and more.

The digital content universe will more than treble between 2013 and 2017, according to audit, consulting, financial advisory, risk management, tax and related services firm Deloitte. Video and photo generation, consumption and sharing, and social media usage, will make up the bulk of unstructured data during that period.

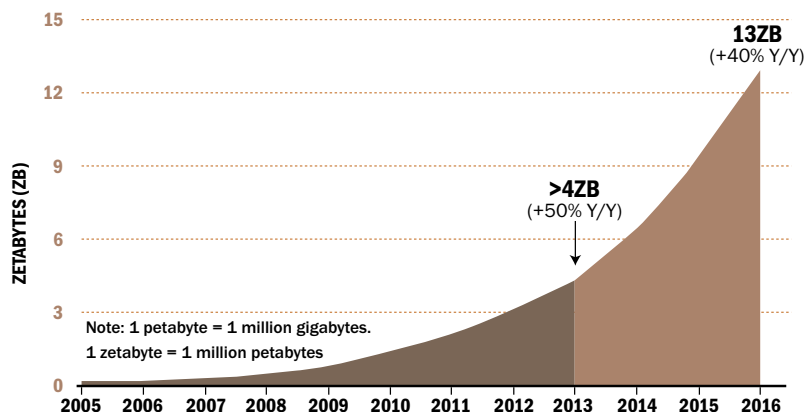
Among the online consumer activities that contribute to the proliferation of Big Data are the following actions that happen every minute, according to Intel in 2014:

A huge contributor to the explosion of data consumption, generation and sharing is global mobile data traffic. The average mobile data user consumes and generates 900MB of data each

- US\$400 million spent during Alibaba peak day sales
- 438,801 Wiki page views
- 10 million WeChat messages at its peak
- 34.7 million instant messages sent
- 194,064 app downloads
- US\$133,436 in sales on Amazon
- 31,773 hours of music played on Pandora
- 38,194 photos uploaded on Instagram

Digital content universe generated by consumers

Video and photo generation, consumption and sharing and social media usage made up the bulk of online content in 2013.



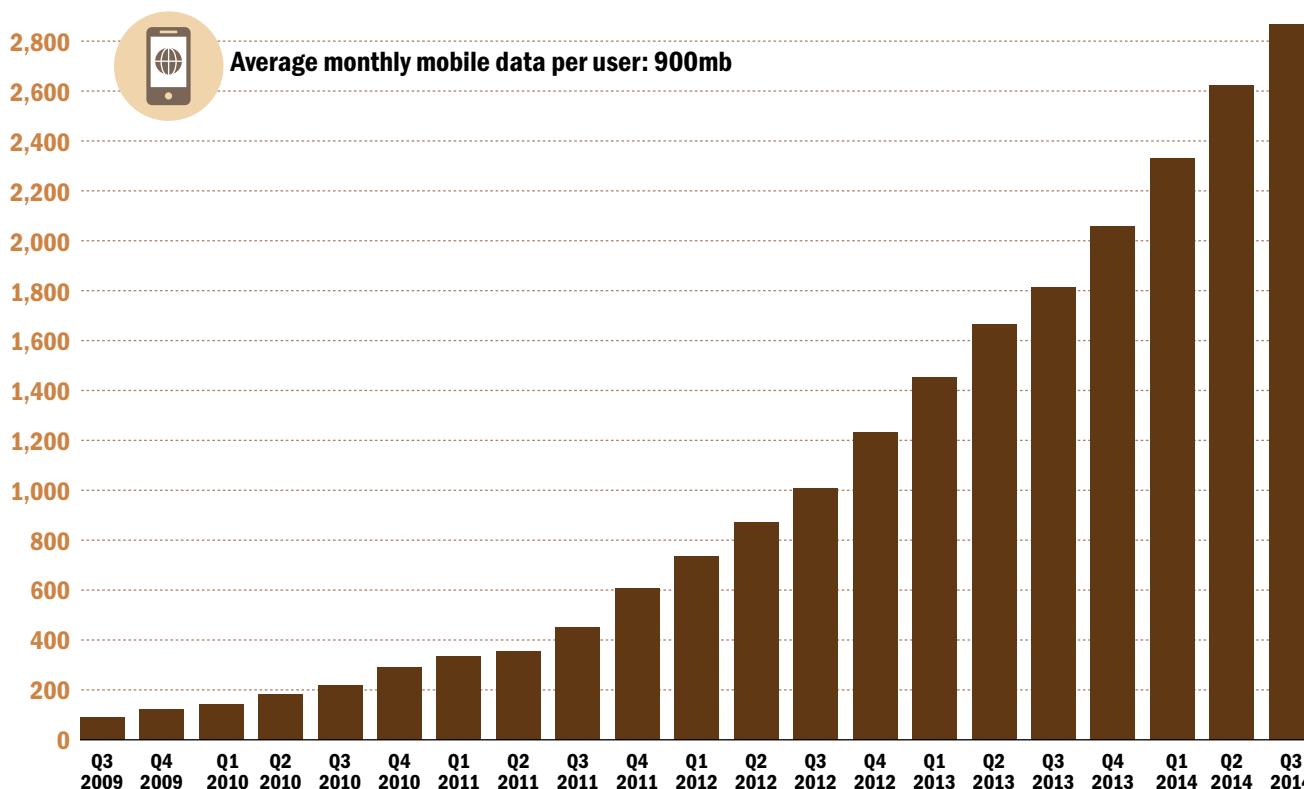
Source: Deloitte, May 2014, as reported by Internet Trends 2014 by Mary Meeker for Kleiner Perkins Caufield & Byers

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- 57,870 page views on Pinterest
- 347,222 tweets on Twitter
- 3.3 million pieces of content shared on Facebook and 6.9 million messages sent
- 23,148 hours of video watched on Netflix
- 138,889 hours of video watched on YouTube and 100 hours of video uploaded
- 4.1 million searches on Google

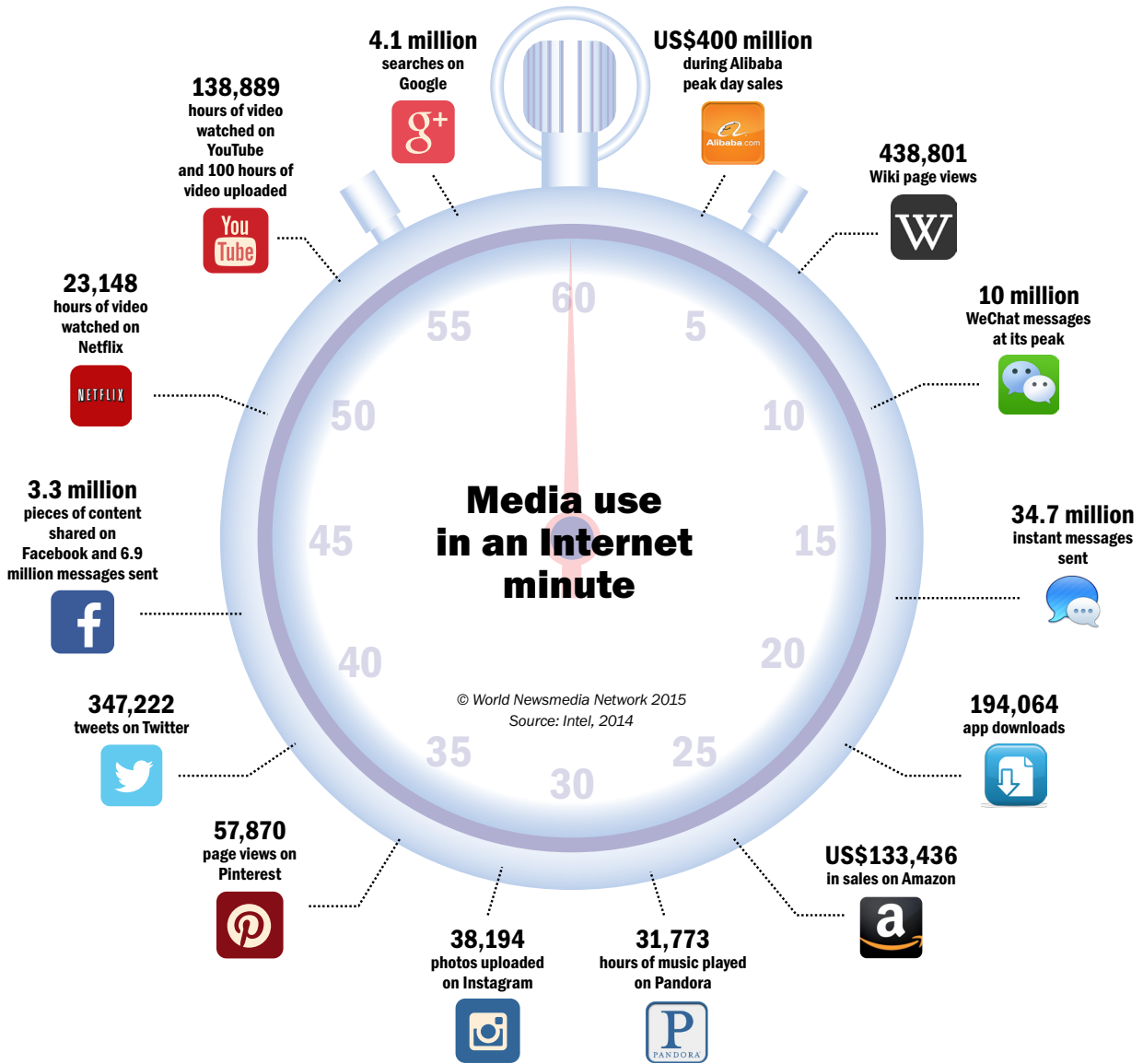
Global mobile data growth

Total monthly mobile global data traffic (uploaded and downloaded) in petabytes (millions of gigabytes)



Source: We are Social, Ericsson Mobility Report, November 2014

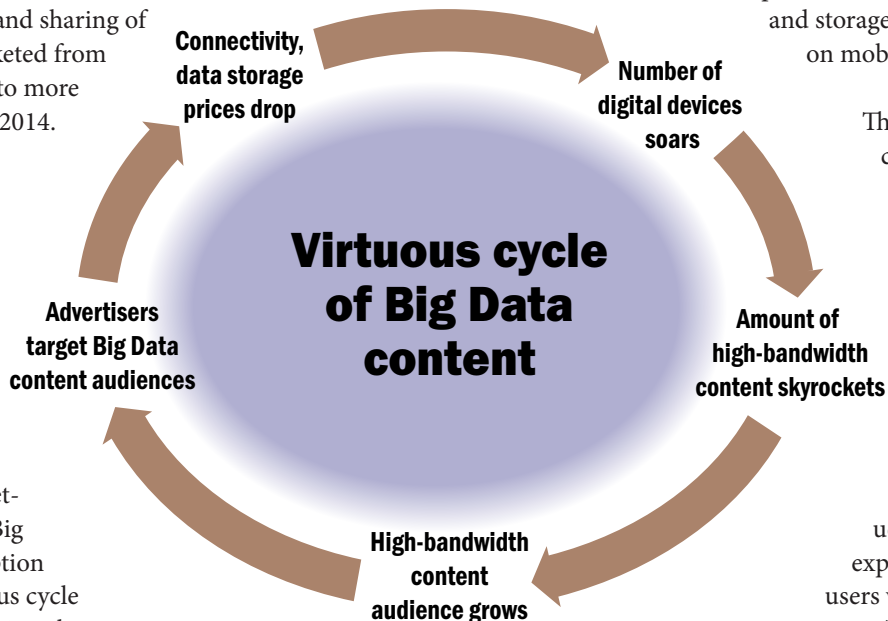
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month, according to Ericsson's Mobility Report, published in Nov. 2014. Since 2009, the consumption, creation and sharing of mobile data has skyrocketed from less than 100 petabytes to more than 2,800 petabytes in 2014. A petabyte is 1 million gigabytes. The surging trend shows no sign of relenting.

The digital ecosystem has been growing at the speed of light. The growth has accelerated a variety of factors, which in turn has perpetuated the explosion of Big Data creation, consumption and sharing. The virtuous cycle of Big Data content is driven by the consumer, who is motivated by the affordability of digital devices such as

PCs, smartphones and tablets, and also by the steep decline in the price of data usage and storage on these devices and on mobile networks.



This proliferation of consumers' digital usage behaviour drives exponentially more high-bandwidth content consumption and sharing, which in turn causes high-bandwidth audiences to grow. When advertisers and publishers see high-value content groups expanding, they target the users with advertising and content. The virtuous cycle continues as the number of digital users and their frequency of use surges.

Source: World Newsmedia Network 2015
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The Big Data strategy

Big Data actually is a catch-all strategy for multiple strategies, including audience analytics, advertising and content targeting, sentiment analysis, data journalism, budget analysis, efficiencies analysis and much more.

The No. 1 strategy for media companies regarding Big Data is audience analytics, according to a global survey of media companies by World Newsmedia Network. The No. 2 overall strategy for CEOs of companies in all industries is data mining and analytics, according to PricewaterhouseCoopers. Data mining and analytics were only second to mobile technology for customer engagement, with 81 percent and 80 percent responding these were important strategies for their companies, respectively.

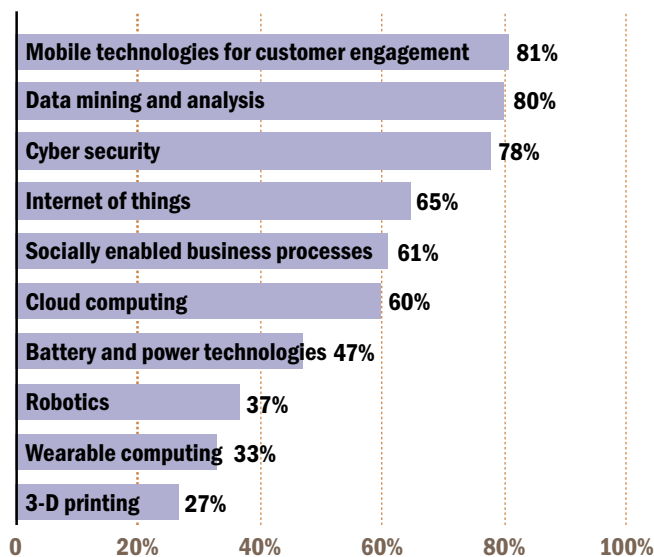
WNMN's Big Data for Media survey

Seventy respondents from 32 countries and five continents concluded that audience analytics was by far the most important Big Data strategy for their media companies in 2015. Media executives took the survey from the third and fourth quarters of 2014 and the first quarter in 2015.

The Big Data strategy is relatively new for media companies around the world. About half of the responding companies are only launching one Big Data sub-strategy, such as an audience analytics or data journalism strategy to start.

Top technologies for strategic purposes

CEOs from industries around the globe prioritised technologies that drive strategy



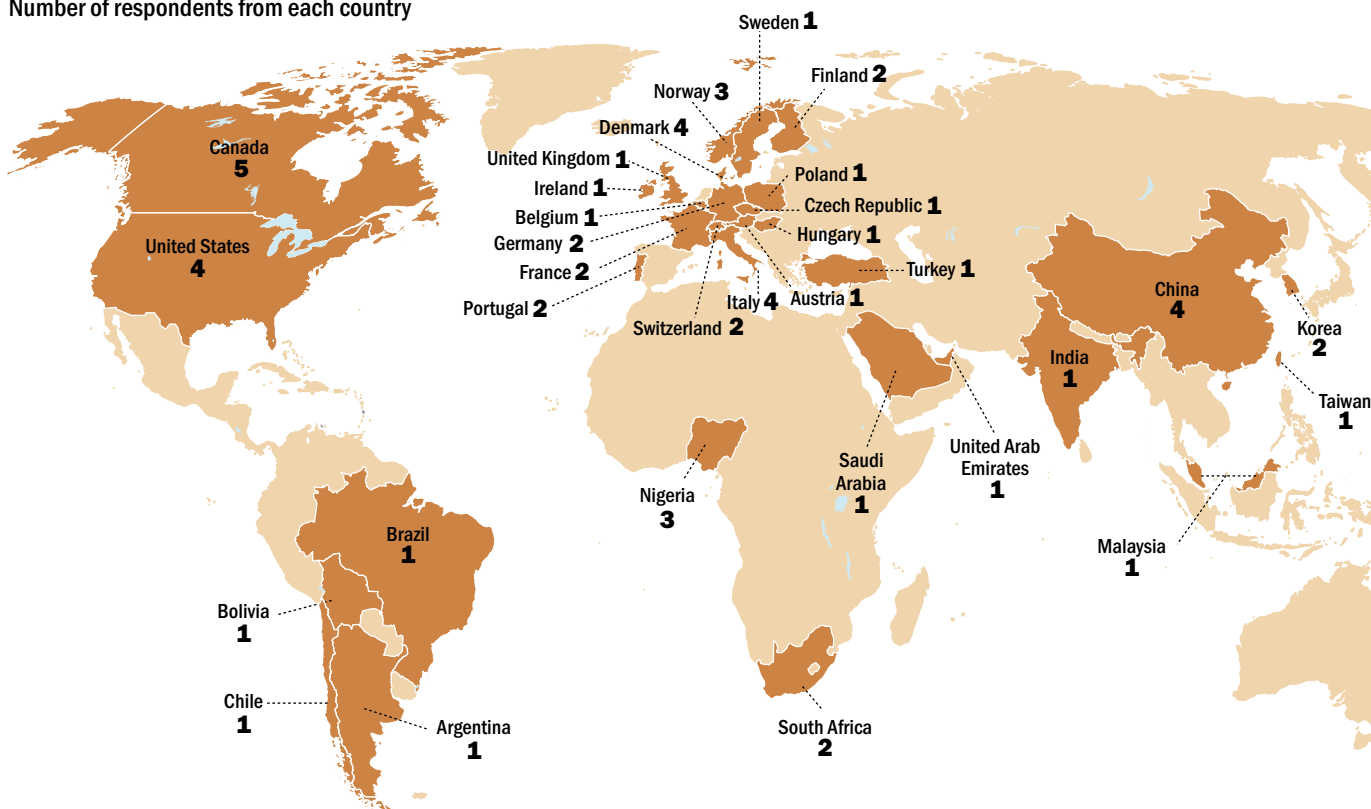
Source: eMarketer, 2015

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2015 is the year of the Big Data strategy launch, according to the survey. The majority of the respondents (22) declared their launches to be this year, while almost the same number of respondents (19) said they launched their strategies in 2013 or 2014. Seven respondents each said they either launched their Big Data strategy between 2010 and 2012, or will launch

70 respondents, 32 countries, 5 continents

Number of respondents from each country

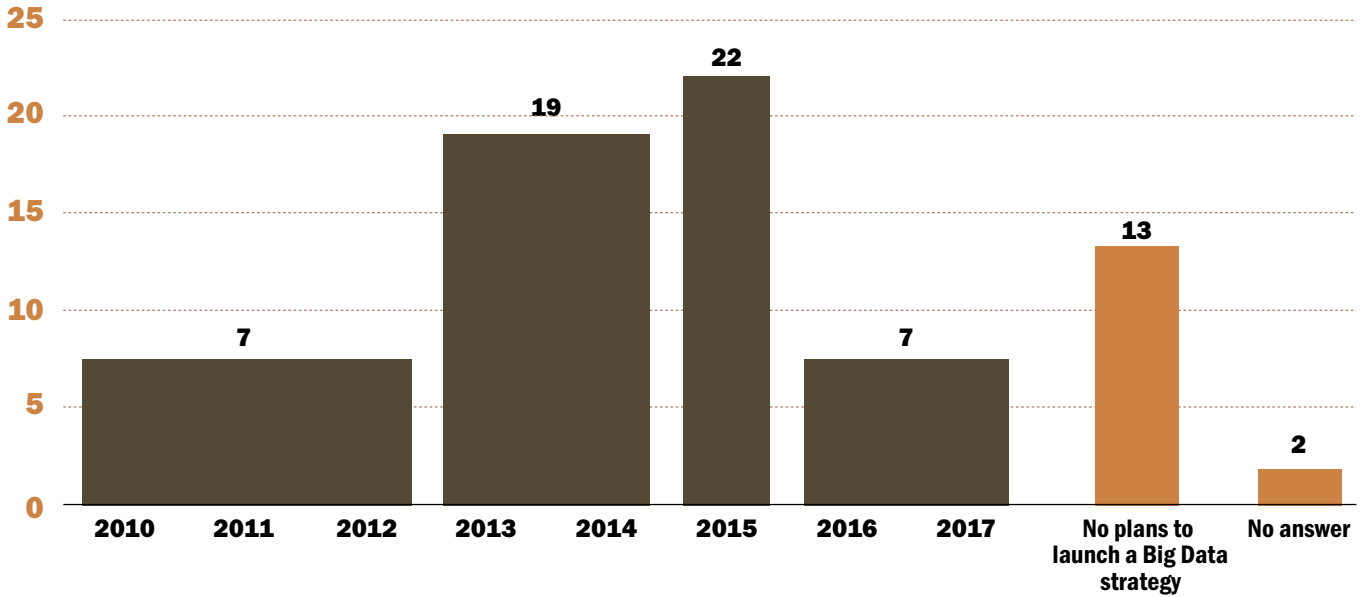


Source: World Newsmedia Network, "Big Data for Media Survey," 2014-2015

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Launch dates for Big Data Strategies

Number of respondents from each country



Source: World Newsmedia Network, "Big Data for Media Survey," 2014-2015

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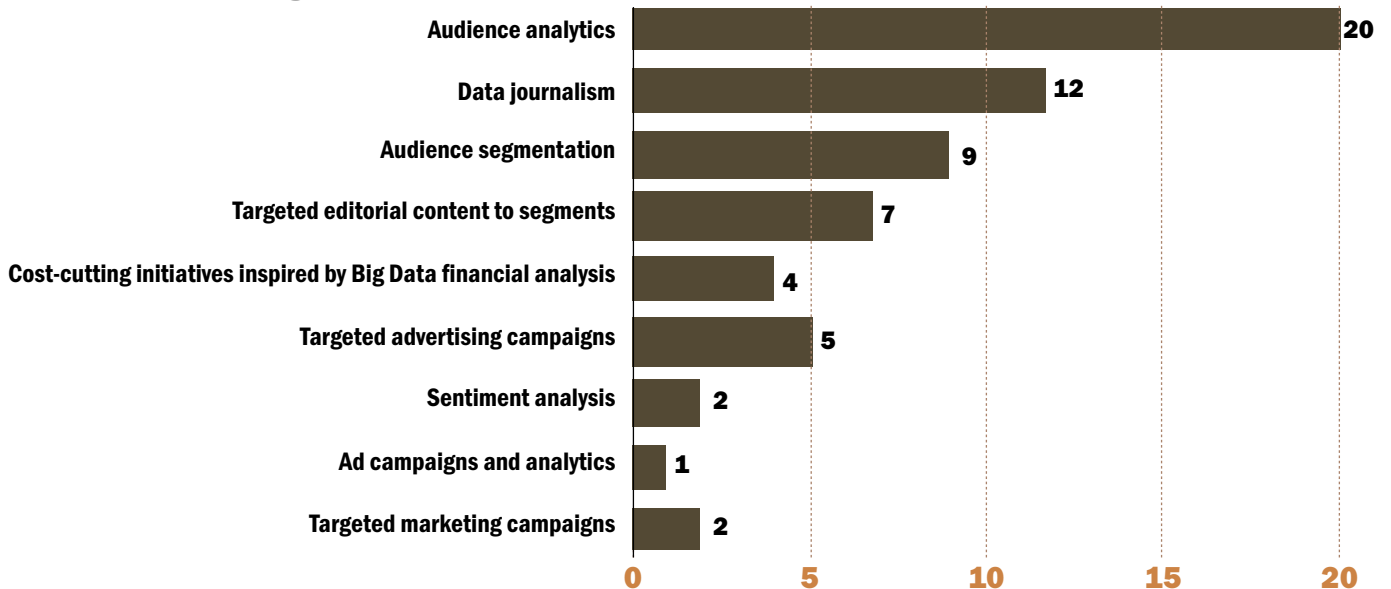
between 2016 and 2017. Thirteen respondents said they have no plans to launch a comprehensive Big Data strategy, but a handful of them will launch sub-strategies, such as audience analytics or data journalism practices.

The most popular sub-strategy for Big Data is audience analytics, with 20 companies responding it is their No. 1 strategy. Data journalism is the second most popular strategy, with 12 respondents, followed by nine respondents for audience segmentation, seven respondents prioritising targeted editorial content to segments, five for targeted advertising campaigns

and four for cost-cutting initiatives inspired by Big Data analysis.

More than half of the respondents said they wanted to launch multiple Big Data initiatives in the future. Newspaper respondents made up more than half of the survey respondents (41), while digital media was the second most popular respondent category (16), followed by broadcast (four) and magazine and multimedia, each with two. Four respondents chose "other," as they were consultants or vendors.

What is your company's most important business-side or journalism-side initiative with Big Data?

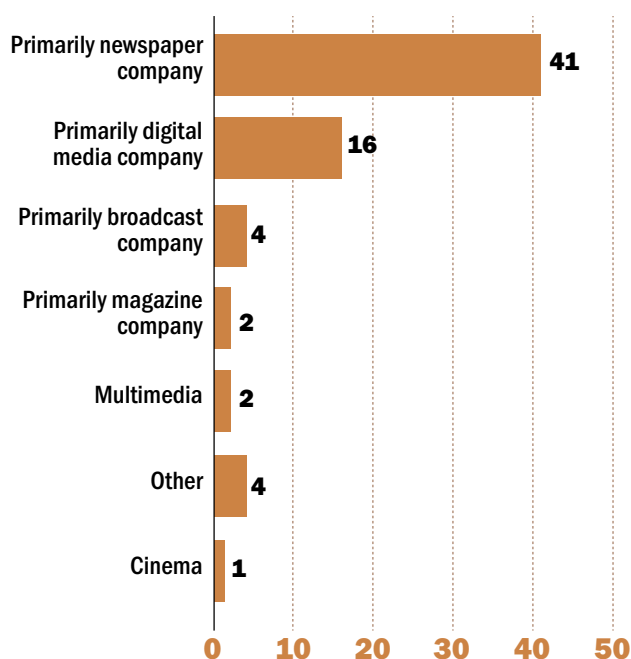


Source: World Newsmedia Network, "Big Data for Media Survey," 2014-2015

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What is the primary form of publishing for the media company you represent?

In number of respondents



Source: World Newsmedia Network, "Big Data for Media Survey," 2014-2015
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Those companies with the longest-lived strategies of three to five years tended to be from large media companies in Asia, North America and Europe and from developed countries. Those companies that launched in the past one to two years tended to be European from innovative medium to large companies, plus two from North America and two from South America.

Planning next year included primarily newspaper companies: four large and medium media companies from China, one from the Nordic region and one from India, plus medium-sized companies from Latin America, Europe and Africa. Those planning two years from now tended to be smaller papers from countries such as Korea, South Africa, Italy, Portugal, Argentina, Finland, Germany and Hungary.

Respondents who said they had no plans were either from emerging countries in South Africa, or from Saudi Arabia and the United Arab Emirates, from small publications, or from businesses supporting media companies such as strategic consultants or vendors. Some of the media companies declared they were experimenting with smaller strategies, such as data journalism or audience analytics, and not considering an overarching Big Data strategy.

Big Data for Media conference 2015

The World Newsmedia Network founded the Big Data for Media conference in 2013 at the University of Oxford's Reuters Institute for the Study of Journalism. The international conference focused on the 2013 and 2014 Reuters research associate

projects by Martha Stone. The conference drew more than 100 participants from around the world, first at the Open Society Foundations in 2013, and then Microsoft Corp. in 2014 in London.

In an effort to expand in order to reach more of the news-media industry, the International News Media Association joined Stone's research company, World Newsmedia Network, to create the third annual Big Data for Media conference at Google's London headquarters in March 2015. The conference played host to a sold-out crowd of about 200 participants from 30 countries and five continents.

Among the speakers for the first day were Simon Rogers, data editor of Google; Jim Roberts, chief content officer of Mashable; Shane Murray, executive director of analytics for The New York Times; Martha Stone, founder and co-host of the Big Data for Media conference; Earl Wilkinson, CEO of INMA and co-host for the conference; and Jodie Hopperton, an international media consultant and the conference emcee. Big data company dunnhumby hosted a pre-conference session with three members of its Big Data team: chief data scientist Giles Pavey, head of data analytics; Jason Nathan; and Tom Langley.

Key trends and opportunities for media companies

By Caroline Lees

What is the state of Big Data for media companies as it regards bridging legacy and digital cultures? What is the status of Big Data at media companies? What are the key trends and opportunities, according to media executives?

No subject touches the essence of the transition of media companies — from enterprises based on serendipity and gut-based decisions to ones based on analytics — better than Big Data.



Martha Stone

Martha Stone, CEO World Newsmedia Network, introduced the Big Data for Media Survey of 70 respondents from 32 countries, primarily from newspaper companies.

The survey revealed that most respondents are launching their Big Data strategies about now. The second key finding was that audience analytics was considered the most important business side or journalism-side initiative with Big Data.

While there is still no agreed upon definition of Big Data for media, the standard definition continues to be the "three Vs": volume, velocity and variety of data," Stone said. The challenge

for the conference was to agree on a definition of Big Data, suitable for the media industry, she added.

“I would like to add a fourth ‘V’: value. Business insights and revenue from data. If there is any focus of this conference, it is the value of data,” she said.

Stone outlined key areas where the media could use Big Data, in particular product development: “Product development is the No. 1 area where we can benefit from Big Data and analytics.”

Earl Wilkinson, executive director and CEO of INMA, offered a global view of Big Data in Media. “This conference is about what adds value,” he said. “I want to bring together some best practices.”

Wilkinson described the current state of the media as “two ends of a rope burning towards each other. On one end are legacy media companies, like most of you in this room, on the other end are digital media companies,” he said.



Earl Wilkinson

Legacy media companies “are companies that think and innovate through heart and soul, at the other end, digital companies are making value judgments.”

At digital companies it is often about “raw eyeballs visiting a site,” he said. Data is crucial to building bridges between the two cultures, Wilkinson said. He outlined four key technology trends for news publishers: “Connectivity, personal data centres, access ownership, and proliferation of screens as devices proliferate.”

“I believe we are drowning in information today. In the future, it is going to be about simplification and become the signal in all the noise, becoming a trusted voice.” Wilkinson said that INMA was focusing on Big Data issues in response to requests from its members. “We asked our members what we need to be focusing on and they said mobile, data and data analytics.

“I believe that Big Data is bang on the centre of the burning rope,” he said. “It is the tension between data analytics and human judgment. I believe that data is one of the four priorities for news publishers, and I believe we are under-selling it.”

Peter Barron, director of communications and public affairs at Google for Europe, Middle East and Africa, agreed that data is at the heart of media.

“This event is not just about data journalism. It is everything you need to know about engaging audiences through smarter use of data,” he said.

Barron outlined ways Google is trying to be helpful to the media industry. First is product development: Google is doing a wide range of fusion tables, analytics, Google cloud platform, as well as using Google’s internal tools and making them useful to the broader media industry.

“Education and training is a big area,” Barron said. “We are doing a lot of work and workshops with newsrooms around the world to help them get to grips with these tools. We are trying to bring them in a meaningful way to newsrooms around the world.”

Another way Google is supporting the media industry is by supporting and stimulating innovation. Barron explained that there is a variety ways Google can do this, such as grants and funding awards such as the data journalism awards: “It is also about supporting events like this event today.”

Rogers: Understand, plan, engage

By Brandon Tensley

Google data editor Simon Rogers encourages news media companies to look at hashtags for trending stories they might be able to tell with Big Data, decide what makes sense to share, then find an engaging way to do it.

What are some ways to harness the power of Big Data?

Understanding sentiment about news topics, spotting stories before they go viral and developing better business acumen are three tools that some media giants use to leverage data for success.

This requires an understanding of data journalism: taking apart the Big Data that’s all around and making it small, manageable and easy to understand, because, according to Rogers, “numbers without context are just numbers.”

But the good news is that anyone can do this. According to Rogers, a key first step is finding out what readers are interested

in. “Journalists aren’t always experts,” he pointed out. Seeing what’s bubbling to the fore of conversations – looking at those Twitter hashtags, for example – is a great way to gather data.

So, you’ve got your data. But just having a bunch of it isn’t really helpful. If you want to tap into the payoffs of data, then think about where you’re headed, what you want to show, for instance, changes in public attitudes or burgeoning public trends.



Simon Rogers

Were the 2011 London riots concentrated in certain parts of the city? (They were.) What part of the world was particularly keen to snap up the midnight release of Beyoncé's 2012 album? (The United States, predictably).

And last, how can you tell this information in an engaging way? Interactive maps are an option, said Rogers. With a healthy dose of consumer-centered thinking, maps can be as informative as they are appealing to the eye. And they don't require the aptitude of a software engineer.

Rogers doesn't pretend to have the gifts of a data scientist or a statistician, but he can still conjure up a user-friendly map of all of the Underground stops in London in about 45 minutes.

In short, trend-spotting stories that are resonating with the public and then disseminating them in an easily digestible way are part and parcel of using big data successfully. And luckily, "none of this is new," Rogers said.

Taking in data has always been the *modus operandi* of journalists, and making people hungry to consume it has always been their end-goal. The only twist now is not to let the media's digital shift obscure business sense in the quest toward big data success.

New York Times pay model success

By Brandon Tensley

The New York Times' analytics team has been redesigned to meet the evolving needs of consumers and the news media company in its post-paywall era.

The New York Times launched its digital pay model in 2011, and by 2014, it had already reached some 910,000 digital-only subscribers. How did the news media company do it?

"Analytics and data have had to evolve to support strategy, measurement, and optimisation," said Shane Murray, executive director of analytics at The Times. Over the past few years, the Times' analytics team has been re-organised and re-fashioned to include three

teams that support specific internal customers and two teams that maintain a centre of excellence around the media giant's functional capabilities.

These teams compared The Times' pre-paywall metrics

(page views, sessions, and unique visitors) with the post-paywall ones (sessions per visitor, articles per visitor, and paywall flow of visitors). Looking at these metrics allowed the teams



Shane Murray

to generate, explore, and refine ideas on a level that's more user-friendly and consumer-oriented.

This led Murray to ask a more fundamental question: "How do digital subscriptions happen?"

It turns out, the answer is best explained in three steps:

1. People develop a habit. This stems from providing content that people want and in a style they want.
2. People are met with an important decision point: To pay or not to pay? In other words, how big is this "want"?
3. People justify the cost.

Moving into its fifth year of the digital subscription model, The Times continues to see success with attracting subscribers who crave having more digital content.

On the surface, it doesn't seem as if this success can be easily replicated. Though business operators and data engineers have built an environment to support advanced analytics, fancy calculus isn't really needed. Rather, what you have to do is analyse reader behaviour and measure success.

All you have to do, concludes Murray, is "incorporate the user experience."

Roberts: Data journalism at Mashable

By Caroline Lees

Mashable leverages the data gleaned from its audience usage to identify trends in content consumption, which impacts its internal processes.

How does Mashable use Big Data to create more compelling content from the editorial operation? Big Data is essential to the operation, Jim Roberts, the company's executive editor and chief content officer, told delegates at the conference. Mashable has a small staff and relies on data to enable it to find stories, as well as to understand audience behaviour.

Data allows Mashable, which employs 60 reporters globally, to successfully compete with news organisations that employ thousands of reporters, such as The New York Times, which employs around 1,100 journalists.

Roberts, a former editor at The New York Times, said that in the past, journalists, including himself, did not understand the role of data.

"For decades, newsrooms weren't on good terms with data. Editors paid more attention to their budgets. Most of us had no clue about what our audiences were consuming and ... for the most part we didn't care," Roberts said. "Our attitude was we know what news is. We are the people trained to do that."

He said the only thing that mattered was that readers kept buying the newspaper. "In fact, most of us thought that if we only published what the audience were interested in, we would

end up publishing fluff,” he said.

But Roberts said that since arriving at Mashable, his attitude towards data has changed: “Many people in the news business fear data because it will tell them they are doing something wrong. But I can assure you that data is our friend — in fact it is our lifeblood at Mashable.”

Mashable’s website, which has 42 million unique monthly visitors and 21 million social media followers, uses its own Velocity software to aggregate news and reveal trends on social media, Roberts said. “It is a multi-purpose predictive tool and it helps us find good stories.”



Jim Roberts

Velocity also promotes cooperation between Mashable’s data experts and its editorial team, which work together to understand audience behaviour. It also allows Mashable to maintain an automated home page. An algorithm places stories on the home page according to the number of shares they have received on social media, he said.

It is essential to understand how the website’s content is shared, he pointed out.

“We are constantly asking ourselves what data science can tell us about audience behaviours,” Roberts said. “People are looking for different things at different times of day. It’s very likely that someone at 11pm is looking for a bit more entertainment. So we wonder if we are differentiating our content enough. We are starting to think what types of stories we should be sharing at different times of day. This is where data is essential to us.”

Mashable also uses other data tools, such as location-based social media monitoring platform Geofeedia and Dataminr, which crawls real-time information on social media sites, to help find and break stories before the competition.

Big Data panel: What keeps you up at night?

By Caroline Lees

Wrapping up the first day of the Big Data Media conference, Shane Murray of The New York Times, Simon Rogers of Google and Jim Roberts of Mashable discussed business models, privacy, making money from data, the best data tools and future trends.

The panel was asked to what extent they allow data to inform their editorial decisions. Roberts said that while data influences editorial decisions at Mashable, it does not dictate them.

“There are stories that we pay attention to that we think are important to our identity,” he said.

Roberts gave the example of Mashable’s recent decision to cover the Scottish referendum. “I found it interesting, but it didn’t move our audience needle very much. But I liked it because it made me feel we were expanding our field of vision. On the other hand, there are stories that we will go for because we know they will enter the viral jet stream.”

The panel was also asked about what “keeps them awake at night.”

Rogers said that, apart from his children, he is kept awake by the desire to tell compelling stories that are interesting to other people.

Murray said for him it is the drive to make sure that data is used in the right way.



Emcee Jodie Hopperton (right) led the panel of key Day 1 speakers, from left, Murray, Roberts and Rogers.

“I am trying to use the best of design and the best of the newsroom to feed into the way we use analytics,” he said. “So not to simply use data to make decisions.”

Roberts said he is kept awake by the knowledge that Mashable needs to innovate to stay ahead of the competition. Some of the “tricks” and tools that have helped make Mashable so successful are easily learnt and replicated by competitors. For example, tools Mashable employs, such as Dataminr and Geofeedia, are widely available.

“When those tricks are adopted more broadly, we will lose our competitive edge,” Roberts said.

Martha Stone, head of WNMN, asked the panel what data tools they could recommend to the audience. Murray said The New York Times analysts use Python and Tableau, describing them as “good predictive visualisation tools.”

Roberts mentioned Geofeedia and Dataminr, but also Mashable’s own Velocity software.

Rogers said he rated Raw, by Density Design, “a way to make vectored charts, and it’s free,” and Excel.

The panel also agreed that even small organisations can use Big Data effectively.

“Focus on a few things you can do well and try to be as good as you can,” Rogers said. “Then focus on partnerships; lots of organisations are up for helping. It is not about size; with one person you can do amazing things.”

dunnhumby's Big Data legacy

By Brandon Tensley

Do you know your customers' online shopping habits? What kind of reviews do they write about products or services? Has someone asked them if they're happy with your company's service? You should.

How your company uses customer data can drive customer loyalty and sustain overall success, say the top data executives of dunnhumby, an international success story for the implementation of a 25-year Big Data strategy. dunnhumby hosted a pre-conference session to share their wealth of experience in the realm of whole-company Big Data strategy implementation.

According to dunnhumby chief data scientist Giles Pavey, the answer to a company's problems usually lies in first adopting a customer-focused approach. In other words, making a customer's needs and wants at the epicenter of decision-making.

dunnhumby was established to deliver services through Big Data. The concept isn't totally clear-cut, but keep in mind the “four Vs: data that's high in validity, variability, velocity, and volume,” he said.

But how does dunnhumby realise success? Getting good data – paying attention to a customer's demographics and transaction history – is a critical starting point. Companies ought to understand and document data, which gives insight into a customer's journey – discovering, shopping, buying, and reflecting – and then they should benchmark and score this data against the known best practices of other organisations, Jason Nathan, head of data analytics for dunnhumby, told the attendees.

Generating data, including “hidden data,” comes in many forms. A few examples of essential known and unknown data-gathering techniques include:

- Online shopping (does the customer like to use substitutes?)
- Customer reviews (what does the customer like to talk about?)
- Phone conversations (was the customer ultimately satisfied with the journey?)

But having data isn't enough; the key is to translate data into action.

“[Data is] only a function of value, depending on what you do with it,” Nathan said.

dunnhumby was among the first companies to use a customer loyalty scheme: For instance, introducing a loyalty card, which rewards repeat customers, at Tesco stores doubled the company's profits over the course of only a decade. This is important for connecting gathered data around a single customer view.

The takeaway, according to Pavey and Nathan: Make goods relevant. This is the core idea of segmenting, or knowing as many people as possible as well as possible. And it fuels dunnhumby's customer-centric principle that anything that can be personalised should be personalised.

If you've followed the above tips, then chances are, you'll see a change in customer behaviour, they said.

Achieving this vision of success isn't easy, but dunnhumby's tried and true embrace and utilisation of the power of Big Data has helped the data science company to create better experiences for more than 770 million customers all across the globe. dunnhumby's model – data,

insight, action, and change in behaviour – is the crux of its success.



From left, Giles Pavey, Jason Nathan and Tom Langley

Day 2 of the Big Data for Media conference

The second day of the Big Data for Media conference focused on specific case studies of subscription retention, data department staffing, customer focus, targeted advertising, data journalism, automated journalism and mobile strategy. Speakers presenting during Day 2 of the Big Data for Media conference included:

- Andy Day, business intelligence director of News UK
- Laura Evans, vice president of audience development and data science at Scripps Networks
- Stéphane Pere, The Economist's chief data officer
- Klaus Miller, head of digital research and analytics at Ringier
- Jan Willem Tulp, data experience designer at TULP Interactive
- Greg Doufas, vice president of data science and audience intelligence at The Globe and Mail
- Kirk MacDonald, AdTaxi president
- Dirk Milbou, De Persgroep's business manager of consumer relations
- Larry Birnbaum, co-founder of Narrative Science and professor at Northwestern University

- Helena Bengtsson, editor of digital projects at the Guardian
- Alison Holt and John Walton, data journalists at the BBC
- Chris Babayode, managing director, EMEA, Mobile Marketing Association
- James Collier, managing director, EMEA, AdTruth
- Ben Crain, chief strategy officer, Improve Digital
- Frederic Joseph, CEO, Performics, ZenithOptimedia Global Mobile Lead
- Aly Nurmohamed, vice president, Global Publisher Strategy and RTB EMEA, Criteo
- Paul O'Grady, senior communications planning manager, Unilever, UK

Decision-making at News UK driven by data, customers

By Brandon Tensley

What is at the heart of decision-making?

“Data and customers,” said Andy Day, News UK’s business intelligence director. And this twin focus is what helps to drive success, even for “old guard” newspaper publishers, he told conference delegates.



Andy Day

But it wasn’t always this way. A quick look at newspaper sales over the past decade shows that the figures are in decline. So why did Day, a self-described “data geek,” join a dying industry? Because he believed in News UK’s core mission: People should be paid for good journalism, content should be differentiated and distinctive, and the industry should be customer-driven.

Plus, there’s room for a data geek to maneuver because there’s value in the data game. Day said he has found that companies that invest heavily both in advanced analytical capabilities and in developing analytical skills see huge bottom-line payoffs. Putting data in the broadest sense at the heart of business has been key to News UK’s success. The newspaper publisher uses a multi-pillar strategy:

- Putting all of its data in one place
- Democratising the use of this data
- Making customers the centre of the decision-making process
- Helping to deliver a significant measured value

Adhering to this multi-pronged model has been one of the underlying mechanisms that has driven News UK’s success.

But take care: This may come as a surprise to attendees, but it’s not all about data, Day said. This data has to be valuable in order for customers to find it significant. There’s a tendency in editorial rooms to pitch content to one type of person. However, it’s crucial for staff to be in sync with their readers and put out information that keeps an audience active and engaged in the content. Or to put it more plainly, Day said, “forget the customer at your own peril.”

Even the most basic of insights can start to challenge a business to do better by thinking better.

“It’s all about gut feel and looking for simple stuff in data,” advised Day, whose takeaway point was that companies shouldn’t get too wrapped up in this burgeoning talk of Big Data.

Changing the mindsets of business-side and journalism-side employees to focus on customers hasn’t been an easy task for News UK, but it has paid off. The trick is not only in harnessing the power of data – data without context is just data – but also in leveraging data to empower the editorial workforce to think more about customers and potential and existing products, and to understand and predict consumer behaviour in a more nuanced, thoughtful way.

Keeping in mind both data and customers will ensure that you’ll never lose sight of what makes your product great.

Milbou: How to make data actionable

By Brandon Tensley

Data must be collected, stored, controlled and analysed properly before it can be put to use in real-time action.

“How do you turn Big Data into smarter and actionable data?”

Dirk Milbou, De Persgroep’s business manager of consumer relations, asked conference attendees.

In response, he provided audience members five easy steps to create data coherence across three different domains: audience, editorial, and advertising.

First, companies must collect the right consumer data. This requires going from the anonymous to the social by looking at user information, operational data and brand interaction, Milbou said.

Steps two and three work jointly: Companies must store and

control the quality of the data, which can be done in many ways. These include external sources, operational systems, offline interactions and online interactions.



Dirk Milbou

The fourth step is to analyse the data to derive insights.

Think about what has already been attained and what is still needed. There are different ways to model the data. What's the difference between active and churn?

"There's much power to be found in the churn model," he noted.

Companies can also use an acquisition model: Who subscribes? Who doesn't? In general, the more interaction readers have with the brand, the more likely they are to subscribe.

Finally, turn the data into real-time action.

"Build reach and create relevance," Milbou said. "Go from one-size-fits-all to segmented offers."

Of course this isn't easy. Using Big Data effectively never is. But understanding the relationship between better customer data management and a better business is a critical first step, he said.

Team, not individual, drives Scripps Networks

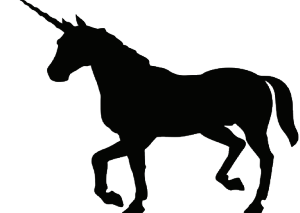
By Brandon Tensley

No single employee can do everything an organisation requires to manage data, but successful companies can build comprehensive, cohesive and innovative teams.

The term "data science" is admittedly broad and almost nebulous, but a few of its key components are that it encompasses both business understanding and analytical capabilities, including statistical expertise, data architecture, coding and development skills.

It's hard to find all of the above skills in one person. It may be easier to find a unicorn, said Laura Evans, vice president of audience development and data science at Scripps Networks. But newsmedia companies are in luck: Evans assured delegates there are many benefits of using a team.

The Data Scientist



The easiest way to make this clear is with an example, she said. Site recommendation engines, for instance, are useful, but "they can take up a lot of a site's real estate." Moreover, organisations don't always know how effective the engine is at warding off missed-clicks, and, according to Evans, "what people click on a site is just as important as what they don't click."

There are six steps that Scripps Networks used to surmount this particular obstacle, she said:

- Understand and be clear about what the company wanted to achieve
- Create a data warehouse and extraction options for data processing
- Review and analyse the data collected in order to



Linda Evans

determine what key metrics and associations drove the desired behaviour

- Create an algorithm that reflected the optimal content path
- Build an algorithm so it could be applied to user experiences
- Iterate base-level formulas to outpace the current vendor performance

If that's too much to remember, then keep in mind these three things: "Capture and collection; report and analyse; and use and grow," Evans said.

Reorganising Scripps Networks' strategy around the data development lifecycle allowed the company to sidestep challenges and get on the path to success. Specifically, it clarified what works best, where, and with whom, which unearthed how to make site recommendation engines both more effective and more personal to users.

Those replicating this process may learn a few more things along the way, such as patience and the importance of actually starting at the beginning in order to reach the end, and it's important to not skip steps, she said.

The takeaway? "I don't have a data scientist," Evans said. "I have a data organisation."

Each step of the process allowed Scripps Networks to tap

into individuals' areas of expertise, which could range from statistical modeling to front-end development and anything in between.

"Don't wait around for mythical, omniscient data scientists." They're probably not coming, she said.

Economist: Personalisation driving insights and engagement

By Caroline Lees

At The Economist, data is used to understand the customer and derive insights that drive engagement through content personalisation.

"Data is a new currency," said Stéphane Pere, The Economist's chief data officer. "Our ability to collect and make sense of data at scale is very valuable."

The goal is to "increase advertising revenue and reduce costs using data," he noted. Key questions remain, however; namely how can we make money from data, and how can we leverage data to drive value?

"We need to elevate data as a corporate asset, protect this corporate asset, and explore the potential unlocked by Big Data," Pere said.

But where to start?

The Economist uses data to achieve a single view of the customer and derive insights to drive engagement through personalisation. It leverages its audience via its own platforms as well as external platforms beyond the company's own websites.

"We build content people are willing to pay for to build our audience, and we give marketers access to that audience," Pere said, describing The Economist's business model.

That's a lot of information, but Pere said he learned a key lesson when he started at The Economist nearly 18 months ago: "It's important to think big, but you need to start small."

He noted his first move toward leveraging data was with revenue. "It is the best way to attract attention internally about the potential of data."

Changes to the media industry have hit advertising particularly hard. "There are so many more outlets online and our customers are spending more time elsewhere," he said. "This has a huge impact ... we used to know our competitors but now nobody does."

As such, he noted, "advertisers don't need publishers anymore. They want to be publishers." However, by leveraging data, these trends can be addressed in the following ways:

- Leverage media with data. "We used to sell media only. Now we have data about our readers that we can leverage."
- Incorporate automation. "It is good to have data but you need to be able to activate the data and leverage it using inventory and price."
- Companies can target the audience beyond their own channels.
- Embrace digital budgets. Re-target readers on social media, video, mobile, and search marketplaces.
- Use an integrated agency set-up. Run promotional and digital activities for advertisers looking for content solutions.
- Measure campaign impact ROI with reach and engagement.

The Economist uses data to enhance engagement and lower "churn." It also uses a personalised approach to leverage engagement and retention.

Pere described a new project that learns to identify when a subscriber is about to cancel a subscription. The aim is to pick up on the signs when a subscriber loses interest. "When we notice the signs, we send a push notification with personalised content," he said.

Pere acknowledged that data security and privacy is an ongoing concern. "We have to find the right balance."

He said his job is to enhance the role of marketers at The Economist, not

replace them. "We want to make it easier to scale and personalise," he said.

Since the appointment of a new editor at The Economist, data is increasingly being used to support editorial. "This is a huge shift for us," he said, noting the new editor is committed to getting new readers and doubling the publication's audience. "The big change in the last two weeks has been that we are trying to understand what type of content is more appealing to readers."

What's next? Data can drive value and it "can bring a contribution to the bottom line, but for this to happen you need a good organisational framework," he said. "There is always a new solution coming in. Keep an open mind."

Big, small data support Ringier's digital transformation

By Caroline Lees

An assortment of Big Data and small data tools assist with content personalisation and recommendations, comment moderation, headline optimisation and consumer research at Ringier.



Stéphane Pere

“Ringier is a legacy media organisation, and our biggest challenge is digital transformation,” said Klaus Miller, head of digital research and analytics at the Zurich-based international media company, which publishes more than 120 newspapers and magazines internationally.

Ringier has developed a mobile and digital strategy. “It was a lot of work to get print editors to work with mobile and digital, but they are open to the change,” Miller told conference-goers.

Ringier’s Big Data strategy was first developed in 2011. “We use data to understand why things have happened, and we also want to move toward predicting why things happen,” Miller said.

He said the company’s analytics work focuses on five key areas: mobile, social, video, advertising, and technology. “Big Data tools we use are real-time dashboards, comment moderation and the recommendation and personalisation of content,” he said.

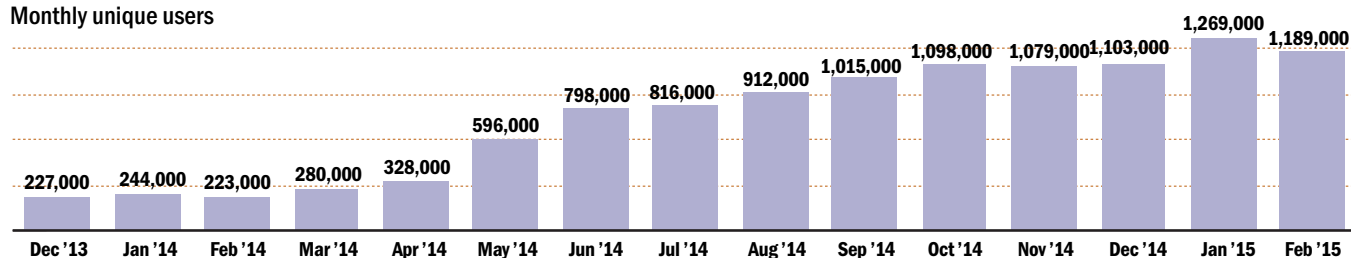
Small data tools are reporting and content efficiency, headline optimisation and consumer research.

Miller said the company uses real-time dashboards and analytics tools such as Chartbeat. The company has also developed its own tool called Life Monitor.

Data-mining tools used by Ringier to find news stories and determine social trends include Dataminr and Geofencing,

Ringier’s Blick: A study in Big Data implementation

Monthly unique users



Social media, mobile

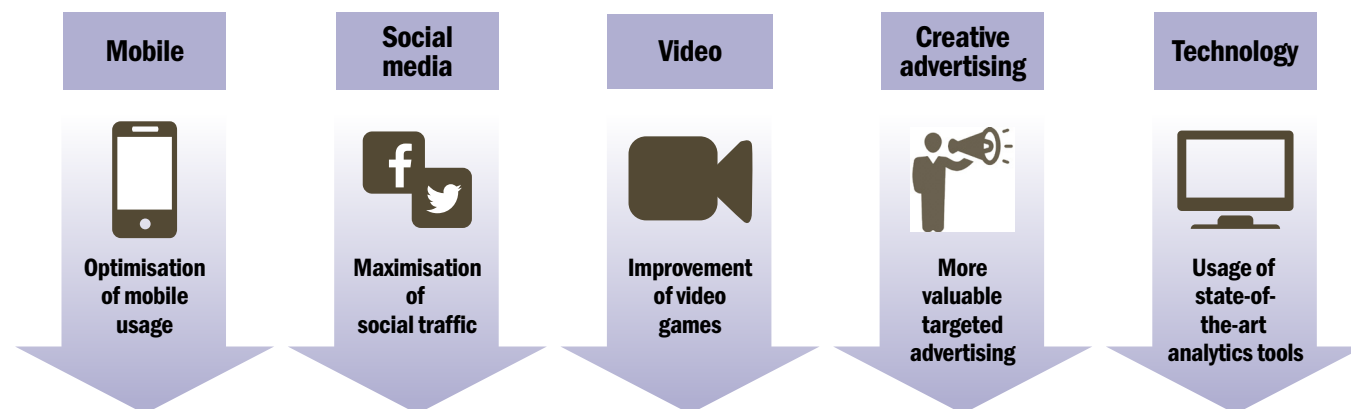


Source: Ringier, 2015

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Blick analytics

Big Data and small data feed into analytics strategy



Big Data

Real-time dashboards and social trends

Comment moderation

Recommendation and personalisation

Small data

Reporting and content efficiency

Headline optimisation and search engine optimisation

Consumer research

Blick analytics

Source: Ringier, 2015

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a location-based software. However, editorial decisions are still “driven by humans,” rather than data-mining software, he said. Ringier editors also use social media and crowd-sourcing to create news stories.



Klaus Miller

Comment moderation is done by software, which segments and analyses comments in real time, Miller said. The tool filters offensive language, using capital letters, and content, which makes comment moderation much faster and saves money.

Personalised content recommendations increases reader engagement, he said. Ringier uses semantic analysis and content tagging to better understand content consumption.

“We can tell if readers are male or female and what their interests are. We can then use this to display personal recommendations on the website, based on the data, as a way to keep our readers on the page for longer.”

Ringier extends this behavioural targeting across platforms within the group’s extensive network, he said. “We use information across all our media brands within our networks, so if a reader looked at a car on one website, he would get a car ad on another.”

Another new tool Ringier uses is one that uses data to determine which headlines work best.

“We found out that if you speak directly to readers using ‘you’ and with a good picture, they click through. We are trying to find out why,” he said. With this data, Miller said his company is better able to advise editorial staff on creating effective headlines.

“We want to build this tool into the CMS, so that the system can pick the optimal headline,” he said. “This will help us optimise our traffic.”

Miller pointed out that making customers feel comfortable with data usage is important.

“We want consumers to share the data voluntarily ... we do not force them to do this. It is important to help the user, and use their information to give them a better experience and better service,” he said. “We place a lot of emphasis on data security. We do not want to step across the line so that it does not backfire. We want a trusted relationship with the user.”

Miller ended the session with three key takeaways that has helped his company:

- Big and small data can help drive content engagement and revenues. The editor should take responsibility for the article and help market the article

- Individualised and exciting user experiences increase consumers’ willingness to share personal data. There has to be something in it for the reader
- User is king, so guarantee data security and good data governance

AdTaxi: Programmatic advertising drives higher revenues

By Brandon Tensley

Programmatic advertising is one piece of a bigger sales model, and in the digital realm it offers opportunities not contained by physical borders.

How can companies use data-driven programmatic advertising buying to increase revenue? “This is an important question,” AdTaxi president Kirk MacDonald told delegates, “because this is the first time legacy media companies have the opportunity to go outside of their countries.”

It’s the end of geography: If your business is a digital company, then your geography has no borders, he said.

Programmatic advertising is the pairing of data and media on the right platforms, MacDonald explained. Real-time bidding is a subset of programmatic, which fits into a broader sales model that includes the following:



Kirk MacDonald

- Local newsmedia (display, mobile, and video)
- Social media, native advertising, and e-mail marketing
- Programmatic
- Search marketing

MacDonald hones in on programmatic, integrating advertising campaigns with a blend of display, mobile and video through limitless sources. Data is about campaign performance using demand platforms.

“It’s about possibilities and not about boundaries,” MacDonald concluded. Programmatic is a customer experience, not merely a marketing strategy. If they are leveraged effectively and efficiently, programmatic advertising and real-time bidding data matter for a publisher’s profitability and targetability.

Globe and Mail: Big Data roadmap

By Brandon Tensley

Big Data strategy is evolving, and Greg Doufas, vice president of data science and audience intelligence at The Globe and

Mail, has laid out a roadmap for harnessing the power of Big Data.

Businesses hoping to harness the power of Big Data need to understand and implement the organisation's Big Data objectives, develop an appropriate staff, acquire the right data assets and manage the data infrastructure, he said.

"I'm not really a data guy," he told conference delegates, "but a businessman who understands the power of data and how it relates to doing good business."



Greg Doufas

First, it is critical to start with business objectives. That is, what are a company's intentions and values? Figuring this out requires being transparent and understanding evolving audience metrics. Businesses should also increase engagement, or optimisation, and figure out how this fits into lifecycle management.

Second, these objectives aren't important without talent. One of the core competencies is Web or digital analytics, which is focused on tools. The second is data science, which is a discipline that uses exploratory and predictive modeling, machine learning, and data engineering, he said.

Third, data assets are key to the roadmap. Digital logs (such as traffic or events), registration/first-party/third-party, and billing (transactional) are a few examples of data sources.

And fourth, businesses shouldn't forget infrastructure, which includes analytical and reporting tools (such as Adobe Analytics, Google Analytics) and data science (Python, R, and other cloud-based tools).

Using the above balanced, clear and concise plan can help practitioners drive an effective capability within their organisations to acquire an audience, engage and stimulate these people, and retain them over time. Big Data strategy is evolving, and it's time to embrace it, he said.

Narrative Science: Data-driven content

By Caroline Lees

Though insightful, automated journalism is unlikely to replace traditional journalism, automated programmes can help news organisations tell what their customers like based on behaviour in social media. However, there are still uncertainties that rely on human judgment.

Larry Birnbaum, a professor of computer science at Northwestern University, and one of the masterminds behind Narrative Science, a Chicago startup, enables the automated creation of stories from data.

"It is clear that there is a lot of data and a lot of stories in that data, but it is not easy to find them," he said. "I tend to start with a question."

In his talk, titled "Finding and Telling Stories at Internet Scale," Birnbaum outlined a number of free tools to exploit free data built by journalism and computer science students at Northwestern University.

The first, TweetCast Your Vote, is an engagement tool used to predict how a user will vote according to their tweets. Type in any name and it will search for key words used in that person's tweets.

LocalRx (local recommendations) is another tool, also based on tweets, which currently only works in the United States and in Barcelona. "It can tell you what people who patronise your business are tweeting about, which helps business owners to

build a profile of their customers," Birnbaum said.



Larry Birnbaum

Another, NewsRx (news recommendations), aggregates news stories based on tweets. For example, if a user regularly tweets

about food, news stories about food or restaurants could be recommended.

Birnbaum pointed out these tools allow access to free data because they are based on Twitter, an open platform.

"If you are The New York Times or [The Times in London], you have a lot of access to data about your readers. Small publications do not have a lot of data about their readers," he said. "By using these tools, you can find out about your readers. All you need are their Twitter handles."

Birnbaum said these mechanisms were relatively simple to build. "It only took 50 lines of code to build them. The first version of NewsRx was built by four undergrad students in 10 weeks.

"Another system we built is Local Angle to help locally relevant stories surface in national news. It goes through a news feed, pulls out names from the feed, then finds locations

associated with the people mentioned, and it sorts stories into local areas,” he said. Birnbaum described other tools including Buzz Lite and Quill Connect, which also analyse Twitter behaviour.

Birnbaum also described his work for Narrative Science, a U.S. technology startup company that builds algorithms to write stories from data. Most of the stories created by algorithms currently are based around sports reports and finance news.

“The critical thing is working out what to say and how to say it. We use a language generator,” he said. “Clichés are great because people get them. Clichés are good.”

He said automated journalism is unlikely to take the place of human journalism, but he acknowledged that there are still uncertainties around automated journalism. “A lot of the work the company is doing is not traditional journalism,” he pointed out.

In answer to a question about legal problems that might arise when an algorithm describes a company as “performing badly,” Birnbaum agreed it was an unresolved issue.

Data journalism ultimately about storytelling

By Caroline Lees

Instead of letting Big Data overwhelm, journalists should hone in on details to find uncovered stories.

Helena Bengtsson, editor of digital projects at the Guardian newspaper, does not like the term Big Data. “I don’t talk about Big Data,” she told delegates. “I do ‘large data’ for journalism. Big Data is complex, and you can’t process it using traditional tools.

Bengtsson gave a number of examples of how Big, large and small data have been used in journalism in stories at the Guardian and worldwide.

The first, Reading the Riots, the product of a collaboration between the Guardian and the London School of Economics, was based on data acquired by analysing 2.5 million tweets during the 2011 London riots.

She also mentioned the Centre for Public Integrity’s data journalism project, Cracking the Codes. Based on data gathered from 84 million Medicare claims in the United States, it revealed that medical providers were getting extra Medicare fees by exaggerating medical claims.



Helena Bengtsson

Bengtsson then discussed a project based on Big Data conducted by Japanese Broadcaster, NHK. This consisted of a series of documentaries based on “disaster data” around the 2011 Japanese earthquake and tsunami. NHK analysed reconstruction and recovery efforts using Big Data, including demographic trends based on mobile phone signals, which showed where people were living after the disaster.

The data journalists collected and analysed information from 750,000 company computers, revealing that 20,000 business connections were lost after the earthquake. They also studied movement of traffic in the period after the disaster, using signals from car satellite navigation systems.

Bengtsson said that, although it was an example of excellent data journalism, NHK was able to use data journalists would not normally be able to access, she said.

The data in the WikiLeaks Iraq war logs, on the other hand were “the most exciting database I have ever worked with,” Bengtsson said.

“We analysed it using traditional and non-traditional methods,” she said. “One of the reasons I love data journalism is that it helps me to pick that needle out of the haystack. It is about finding the story, finding the detail, more than finding the trends.

“We could have found more stories from the WikiLeaks data if we had had some of the tools we have now,” she said.

Asked by an audience member for advice on how to persuade reporters not to be afraid of data, Bengtsson answered: “I don’t know why journalists think it is too difficult for them. I find it baffling that journalists can take on the complexities of stories, yet when you try to teach them to understand an Excel five document, they panic.”

But, she said, as data journalism becomes more widely practised, the better journalists will become proficient. “We just need stories, stories, stories,” Bengtsson said.

BBC: Data-driven public service tool draws traffic

By Caroline Lees

The BBC used publicly available data to create a tool to help its audience understand a new government policy about funding social care in the United Kingdom and attracted 400,000 interested users in the process.

Alison Holt and John Walton of the BBC used data journalism to build a Care Calculator for the BBC’s website using publicly available data. The Care Calculator was designed to help the public understand a new government policy about funding social care in the United Kingdom.

Working with a team of three journalists, a data analyst, a Web

designer and a Web developer, the project was an attempt to model the government's policy. It took one year to build.

"We wanted to boil down all the information and numbers and present it to the audience in a way that wouldn't terrify them," Walton told delegates at the conference. "We needed to make sure that when we had finished, people could understand it and use it."

Through extensive user testing and re-testing, the team identified two key groups of people who would be using the Care Calculator: those older than 65 and their grandchildren, or children, looking at the calculator on their behalf. When it was launched, the Care Calculator had one million unique browsers, and 400,000 active users.

Here's how it works: Users input their postal code into the calculator on the BBC's website and are given an estimated cost of residential care. There is also a means test with about seven detailed, personal questions about home ownership and income – questions the government would take into account. The final figure informs users how much social care could cost them under the government's new policy.

Holt, also speaking at the conference, said the motivation for building the Care Calculator came from the complexity of the subject. She had been asked to explain the new policy on BBC's Today programme, but had found it difficult.

"We needed to get to the core of changes to social care policy and explain them in an accessible way," Holt said. "We believe the Care Calculator is a good example of using data for public service broadcasting. We might think that social care has little to do with us, but we probably all know someone it will impact at some time."

Walton said the data used by the BBC team was all publicly available.

"The data wasn't particularly big, or particularly glamorous. It was more utilitarian than that. Data projects can be messy, complicated and time consuming, but at the end of the day, they are worth it," he said.

Walton closed the session with advice for those thinking of initiating a similar data journalism project: "If you have a good idea, don't let complexity throw you. Data projects are often lengthy, but they can offer a unique insight for audiences," he said. "If you are going to spend all this time and effort you need to make sure that when somebody sees the Web page they know what to do with it."

Data should tell stories, stimulate interest

By Brandon Tensley

Big Data can be overwhelming and difficult to comprehend when simply presented as a collection of numbers. Finding a way to illustrate this information makes it much more appealing to people.

Data is much more than simply a collection of numbers. "It's all about the human side of data," Netherlands-based TULP Interactive's data experience designer Jan Willem Tulp told delegates.

Tulp made the convincing case that data visualisation – presenting data in a way that users understand – is becoming increasingly important to understand and communicate in a data-driven world.



Jan Willem Tulp

But why would someone want to visualise data? It's simple: Humans work best when abstract concepts and data can be digested and stored without too much difficulty.

Tulp was quick to head off the next question: "What makes a good visualisation?" The bad news is the answer is, in part, "it depends," he said. The good news is Tulp provided some direction.

First, remember that content should explain by presenting insights and explore by helping audiences to discover these insights. Data, in other words, should tell a good story and make an impression. Ideally, Tulp said, people will be left thinking, "Wow, this story is really big and important!"

And second, visualisation should ask several key questions:

- It should ask "what?" What type of data are you dealing with? What is its availability? What are its attributes?
- It should ask "why?" Why do users want this data? Why do they want certain types of it?
- It should ask "how?" How is the data arranged? How is it manipulated?

There are lots of questions to turn over, and these questions churn out lots of possibilities.

Tulp concluded with some advice about how to put the concept of visualisation into action: Primarily use prototypes, and figure out both what's worked and what hasn't. Entrepreneurially spirited visualisers should keep in mind that real data should be used to create various sorts of data visualisations, but the main thing to keep in mind is aesthetics.

In fact, even in his presentation, Tulp's beautifully designed data-visualised charts and schematics shone a light on the importance of techniques and technologies used in creating engaged and engaging data visualisation.

Closing panel: Data and mobile offer opportunities

By Caroline Lees

A panel of executives from media, technology and advertising companies agreed that media alliances and consumer focus are important for monetising Big Data. The future of Big Data monetisation will likely require better cross-device tracking, a focus on the people who use mobile devices and media alliances that share data.

Members of the closing panel at the conference discussed how newsmedia companies can attract mobile advertising revenue through the understanding and application of Big Data and analytics about their audiences.

In a wide-ranging discussion, panelists Chris Babayode, managing director, EMEA, Mobile Marketing Association; James Collier, managing director, EMEA, AdTruth; Ben Crain, chief strategy officer, Improve Digital; Frederic Joseph, CEO, Performics, and ZenithOptimedia Global Mobile Lead; Aly Nurmohamed, vice president, Global Publisher Strategy and RTB EMEA, Criteo; and Paul O'Grady, senior communications planning manager, Unilever, UK, all had a chance to discuss their insights into the barriers to monetisation in mobile and the need for publishers to take control of their data.

The mobile panel

For Joseph, the priority is the need for more efficient “cross-channel, cross-device tracking.” He also highlighted the need for better creative content designed for mobile devices.

O'Grady, an advertising planner, agreed. He said mobile devices are not the best platforms for advertisers because they are too small. “We want our products to look great in a great space, but mobile doesn't allow that. There is a lot to be done in that area,” he said.

Nurmohamed noted that 30 percent of sales from his company's advertisers are from mobile devices, with 40 percent in the United Kingdom, “so something is being done right,” he said. However, his company's advertisements receive far fewer click-throughs on mobile devices than on desktop. “So we see that some ads work on mobile and some do not. We have to make sure we solve that ad format problem.”

Joseph said there was a danger of seeing mobile as a single device. “It is actually more than that,” he said. “When you start thinking of those people who rush to the office on a Monday morning and snack content on their mobile, it's a different device from the one someone might use on a Saturday afternoon to buy something with. Mobile users use their devices very differently.”



The mobile panel

The panel agreed that publishers need to take control of their data if they hope to leverage it. “Data is a currency. It is an asset and as with any asset, you need to protect it,” said Collier. “Publishers need to take to control by developing data management assets now ... They must link, control, and understand what the consumers are doing.”

Nurmohamed said there was a danger that the industry was focusing too much on devices and not on the people who use them. “Looking at people is the most important thing,” he said. “One person might use three devices. Recognising that is the only way we can move forward.”

O'Grady agreed. “From an advertiser's point of view, consumers are using lots of different devices,” he said. “Mobile devices are useful because they allow us to get them out of their homes and to the point of sale, but at the moment there are too many disconnects to manage that process properly.”

Crain said the big technology companies had seized the initiative from publishers. “Who is winning now on mobile? The data-premised businesses such as Amazon, Google, Apple,” he noted. “Publishers must start to think in the same way as these companies. There is an opportunity for publishers to be more like Amazon themselves.”

The panel discussed a recent new initiative in which the Financial Times, the Guardian, CNN, and Reuters collaborated to form the Pangaea Alliance, a digital advertising proposition that will allow brands to collectively access a highly influential global audience via the latest programmatic technology.

Collier said that, although it was too early to know if the alliance would be successful, it made sense to be able to compete in the marketplace. “I think you will see more of these alliances. I think a lot of these businesses will come together to compete,” he said.

“As long as they share data, alliances like this can make a real difference,” Nurmohamed agreed.

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