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The data, APIs and toolkit in the production of information of social relevance[1] (news)[2]

Dados, APIs e toolkit na produção de informação de relevância social (notícias)

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ABSTRACT

This paper aims to analyze the current context of Application Programming Interface (API) technology, with focus in External API (Public API or Open API) by news organizations. The adoption of API has been considered a technological strategy that introduces innovation processes in media groups. This technological approach allows the public access to data, increase the distribution of journalistic information and transparency which improves the credibility of organizations. However, there is not a pattern strategic in the use of API adopted by news organizations and the external developers have used various technologies, named toolkit, to store, process, analyze and visualize data. The study cases were The New York Times, The Guardian, NPR and, ESPN.

Keywords: News. Journalism. API.

RESUMO

O artigo tem como objetivo analisar o atual contexto da tecnologia "Application Programming Interface (API)", com foco em APIs Públicas ou Abertas utilizadas por organizações noticiosas. A adoção de API é considerada uma estratégia tecnológica que introduz processos de inovação em grupos de mídia. Essa tecnologia permite que o público acesse dados, aumentando a distribuição da informação jornalística e a transparência, melhorando a credibilidade das organizações. Entretanto, não há um padrão estratégico no uso de API adotado pelas organizações de notícias e também no uso de toolkit (conjunto de ferramentas) por desenvolvedores externos, com o objetivo de armazenar, processar, analisar e visualizar dados. Foram analisados os veículos The New York Times, The Guardian, NPR e ESPN.

Palavras-chave: Notícias. Jornalismo. API

Introduction

The global number of databases is quickly increasing. As a consequence, there is a plethora of digital information available to us. In 2020, researchers estimate 5 zettabytes of structured data and 45 of unstructured data. Within this technological context, we live in the Era of Big Data. The volume of data available to media organizations today is rising, and some of them are developing internal

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Application Programming Interface (API) allowing them to share content within their platforms, intern API´s, as well as public API's (Open API).

The API is an interface implemented by a software program that facilitates interactions with other software, similar to the way we interface with computer operating systems or internet browsers. It allows mashup, aggregation and, delivering targeted content for different platform as mobile. This technological strategy introduces innovation processes in the news organizations, improving the journalistic quality and by providing more technological possibilities of accessing to information of social relevance. However, the news organizations that use data for building their contents don't use the same strategies because they are in the living experimentation moment, trying to consolidate business model in this area. Despite some of them disputing the same segment in the analog medium business, in the digital environment, these media companies have formatted different roads when it comes to competing in the digital data field to supply intelligence. The NY Times, The Guardian and NPR have many contents based on data, but the NY Times gives priority to its own database, the Guardian bets on Open Data, but its core is data journalism and, NPR advanced creating the StateImpact project. ESPN puts in the air the ESPN Development Center with the slogan "Where sports and code live in harmony".

This apparatus allows the public access to data, increase the distribution of information of social relevance to society, and also provides greater transparency which improves the credibility of organizations. They shifted from being a passive news site to be a more active platform. News and information websites became news and information platforms. These different options are supported by the application of the toolkit. The toolkit is a single utility program, a set of software routines or a complete integrated set of software utilities that are used to develop and maintain applications and databases. Nowadays, there are toolkits for developing almost everything and media groups and programmer communities are experiencing to get value in its news business. Some news organizations are developing APIs in order to produce tailored and mashep up contents, "with additional information on other web sites. It's one more way for a news organization to take part in and make its content available to a larger online network".3

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3   Retrieved November 15, 2014, from <http://multimedia.journalism.berkeley.edu/tutorials/digital-transform/api>

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Application Programming Interfaces (API)

The great evolution in the Computer Science field is the capability of technology named Application Programming Interfaces (API) allows exchange data, services and complex resources with internal and external partners. The API´s can be public or private. The access rules are defined by the data provider. APIs is mainly a technical structure, but its functions can also be comprehended as a pattern of connection that enables a way of how business is done.

> An API (Application Programming Interface) at its most basic level, allows your product or service to talk to other products or services. In this way, an API allows you to open up data and functionality to other developers, to other businesses or even between departments and locations within your company. It is increasingly the way in which companies exchange data, services and complex resources, both internally, externally with partners, and openly with the public (Lane, 2013, p.1).

The result of software development is a change for individual businesses (e.g. Personalization information), allowing to deliver tailored information. This new characteristic makes it extremely flexible because it enables connections and engagement among data. This trend of technology allows for mobile expansion, inserting social elements in your processes through cloud access. News producers that use APIs improve the way they operate to deliver tailored information, near real time.

This capacity of delivering information through a readable interface is possible because structured data is provided by technological libraries that can access the distance. Sometimes registration and an authorization key are required to access the library. "An application, or Web application, is accessed via Web browser and relies on a client-server architecture to generate the result the users expects. As a case study, an application will be designed and developed using these newspapers' Open APIs" (Pietoso, 2009).

Open APIs are a mode of data access, allowing content can be exchanged efficiently with external collaborators. This access needs to be open (no fee), transparent, free, and reusable. The other kind of access is by internal API, that authorized users have permission or paying a fee for usage. The APIs are Web application because the content is generated, manipulated and consumed by user on different way. The web service is distributed via an API.

Advantage Provide By API

Growth in the use of APIs is explained by capacity of technology to "allow software developers to work in parallel and independently" (Souza, 2009, p.4). APIs are becoming more sophisticated and ubiquitous because there are available in a new ecosystem of tools and service providers, allowing the news business a revenue model. APIs are Web service because the content is generated, manipulated and consumed by user on different way. The web service is distributed via an API. ProgrammableWeb's Research Center maintain regarding the API. The website has 2,148 APIs listed and updated daily. Among the APIs category that are in fastest growing Financial, Enterprise, Backend, Payments, Messaging, Advertising, Government, Mapping, and Social Science. The Social and Financial APIs were grew more. The Media APIs have 385 APIs in the ProgrammableWeb list.

Graphic 1: Growth in Web APIs since 2005.
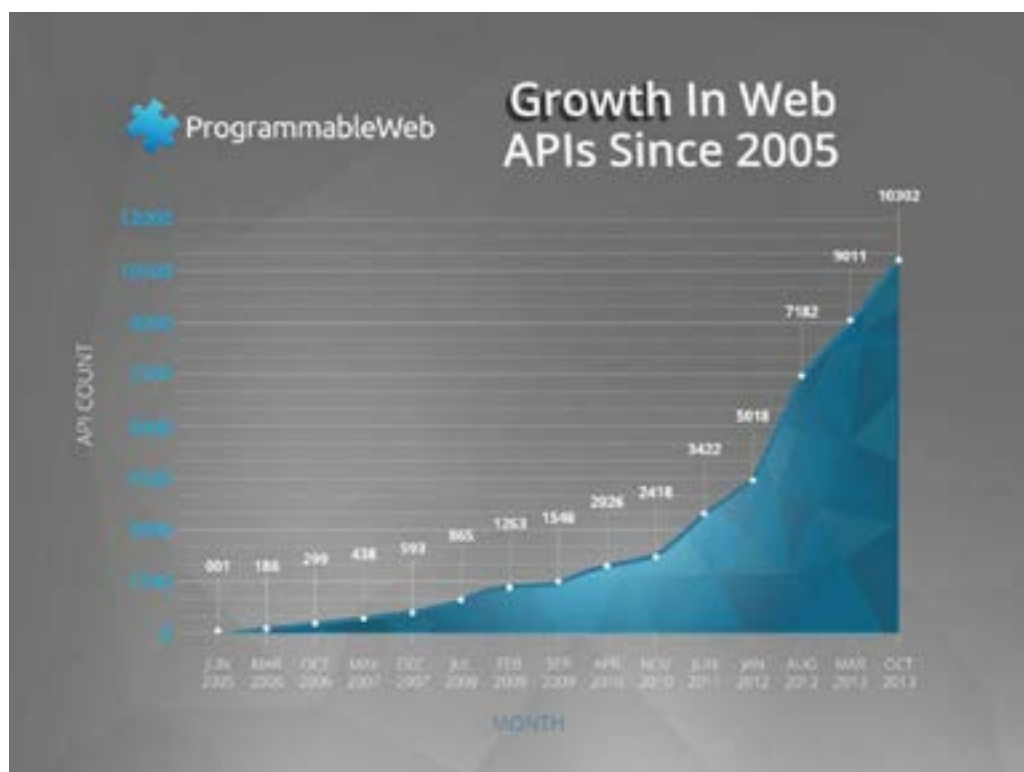
■ **Source: Programmableweb. Chart of Web API Growth From 2005 Through 2013. Retrieved November 15, 2014, from <http://pt.slideshare.net/ programmableweb/web-api-growthsince2005?next_slideshow=1>**

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The API´s were used in the early days in mashup application. The mashup is a technique by which a website or Web application uses data, presentation or functionality from two or more sources to create a new service. Mashups are made possible via Web services or public APIs that (generally) allow free access. Most mashups are visual and interactive in nature4 but there are numerous new ways that API usage is evolving further connecting the data and resources we need to build the next generation of web and mobile apps (Willmott, 2013, p. 36). In the field of social and personal data, API aggregation is used to combine services like Twitter, Facebook, LinkedIn and, Instagram. "APIs can be used for commerce, payments, social, cloud computing and much more, mobile phones and tablets are the biggest driving force in providing APIs and consuming them." (Lane, 2013, p.2).

Data and resources as the API is allowing the growing of new market production and consumption of information, consolidating a new kind of economy based on information, "API Economy", defined:

> The emerging economic effects enabled by companies, governments, non-profits and individuals using APIs to provide direct programmable access to their systems and processes. The opening of APIs typically enables organizations to innovate more rapidly and provide uniform data and transaction interfaces to internal and external developers, partners and customers, for improved data access and transactions. Such organizations can also develop software applications to access these APIs to create new functionality and value both for themselves and the wider world. The resulting economy enables many new classes of applications with the potential to transform the way business is done (Willmott, 2013, p.65).

The traditional media industry has flirted with API Economy, because of its digitization of news content and creation of database politics to be distributed by various platforms (mobile phones, tablets, smart tvs, google glass), no more focusing on analog platform or website (portal). Using the characteristics of API Economic enables the media groups to create other ways of delivering content from partners that are outside the company´s network security system.

API And News

The journalist content producers are looking for a new ways to reach new audiences in different ways. The use of the API provides new opportunities to

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4   Retrieved November 2, 2014, from <http://www.techopedia.com/definition/5373/mashup>

engender new ways to reach customers, create revenue value and build external partnerships with other enterprises, startups and, people who are experts in technology.

> Open APIs also enable developers to build products for niche audiences – or groups that initially may appear as minor but later evolve into a bigger market. This is an advantage for news organizations that must focus on bringing products to mass markets rather than targeting marginal audiences (Aitamuro, 2012, p. 322).

In the last decades, the software industry has evolved, creating new possibilities of consuming of news through various connected digital devices. The power of technologies is true in the automation and information delivery process, transactions and, distribution. "Open APIs can encourage the culture of "Remix", that one day might end a war that benefits no one and start a dialogue that might lead to a society which allows and supports derivative works" (Pietoso, 2009, p.11).

Despite admirable initiatives of the news organization as the New York Times, The Guardian, NPR, ESPN and USA, some them started the opening its data by API in 2008 as NY Times, the implementation of external APIs (Open APIs) has not advanced, in other words, has not been implemented by other news organizations, being discontinued or even "forgotten" in some precursor groups as evidenced below yet. This observation has not been corroborated by adopting innovative technological processes that enable users to help groups to build media content from its digital assets. According to Tanja Aitamurto and Seth C. Lewis, "the use of Open APIs represents a shift toward an open innovation paradigm that may help address twin challenges facing the news industry: the need for improved R&D and the need for new revenue streams" (Aitamurto; Lewis, 2012, p.1).

User And Toolkit

There are many applications and online tools (free or pay) that can used by journalists to make different content products. "As the demand for APIs grows, the number of existing database and software vendors that are deploying API deployment tools and services are growing" (Lane, 2013, p.5).

If the media groups provide access to APIs through custom consoles, making ease the search for content being requested (item, content, tags, section, etc.), users beyond building an application to access to library, they

need modeling (abstraction), cleaning, processing and, its data by technologies (Java, Python, PHP, spreadsheets, Databases, Cloud services, Cleaner data, Statistic programs, Data visualization, Maps, etc.) display it with customized styling and distributed by different mobile devices. According to Jeannette Wing, abstractions are the 'mental' tools of computing. The power of our 'mental' tools is amplified by the power of our 'metal' tools (Wing, 2008). Thus, we have two types of tools, mental and technological. We have to know how to use the various combinations they provide to achieve the project objective with efficiency, efficacy and effectiveness.

Graphic 2: API Guardian Console

■ **Source: The Guardian. Content API. Retrieved November 7, 2014, from** <**http://explorer.content.guardianapis.com/?api-key=test**>

There is a huge amount of free software, free tutorials and online courses that teach produce content. The combination of tools and techniques according to the proposed objective, allow the product to be formatted differently from other productions. Thus, depending on the choice of databases, crossing of databases, programs, and how to display the contents (suite of technology tools), become particular expressions of the design goals and the technologies used.

> A handful of new services have emerged to help address journalism's data challenges. Usually free for small-scale or non-commercial use, they facilitate analysis, visualization, and presentation of structured data. Another set of tools created for other purposes, often experimental or academic, shows promise for the fast-paced, ad hoc nature of reporting challenges (Cohen e outros, 2011, p. 70).

API Media: Different Focus

The media groups utilizes internal API technologies in its process "to restructure and organize internal system to supportive innovative new projects in a uniform manner—reducing maintenance costs and increasing agility" (Willmott, 2013, p. 22). The users of news services don't perceive the internals API working to deliver content tailored and some them in real time. According Willmott (2013), nowadays, API is a fundamental technology to who aims to provide new opportunities to generate content, new ways to reach customers, generate revenue and build partnerships.

However, when the news organizations deal with External API (Open API), they don´t use the same strategies because are living experimentation moment, trying to consolidate business model in this area. Despite some of them disputing the same segment in the analog medium business, in the digital environment, these media companies have formatted different road when they are competing in the digital data field to supply intelligence. But, some of them have slowed down the implantation of External APIs or even discontinued the service, interrupting an innovation tendency very well identified by Aitamurto and Lewis to redefinition of news organization.

> The emergence of open innovation reflects a cultural and structural shift in these news organizations as they transition from a closed to an open business model. Open APIs are seen as tools for business development and an important initial step in this move to an open model. However, news organizations face challenges in attempting to integrate this new open thinking into their business and innovation management strategy. The cultural mind-set of traditional news organizations hinders Open API deployment (Aitamurto; Lewis, 2012, p. 321).

This paper analyses four news organizations that have External API politic: New York Times; The Guardian, NPR, and ESPN. The choice of these news organizations was based on API business model and as they implement the API services in different ways.

NY Times API: Semantic And Tag API

The New York Times has thirteen open API calls, being source of news and information: The article search API (search times articles from 1851 to today, retrieving headlines, abstracts and links to associated multimedia); The best

sellers API (get data from all New York Times best-seller lists, including rank history for specific best sellers); The campaign finance API (get presidential campaign contribution and expenditure data based on United States federal election commission filings); The community API (get comments by nytimes.com use

rs); The congress API (get U.S. congressional vote data, including information about specific house and senate members); The districts API (get political districts based on a pair of coordinates, currently, the districts API is limited to New York city); The event listings API (get information about hand-picked events in New York city and the surrounding area); The geographic API (use linked data to enhance location concepts used in the New York times' controlled vocabulary); The most popular API (get links and metadata for the blog posts and articles that are most frequently e-mailed, shared and viewed by nytimes.com readers); The movie reviews API (get links to reviews and NYT critics' picks, and search movie reviews by keyword); The real estate API (get aggregate data for real estate listings and sales in New York city); the semantic API (get access to the people, places, organizations and descriptors that make up the controlled vocabulary used as metadata by the New York times); The times newswire API (get links and metadata for times articles in an up-to-the-minute stream); The timestags API (get standardized terms that match your search query, and filter by times dictionaries).

Despite NY Times is one of the first online newspapers to have a policy of the API, actually, it's "a premier source of data" has a few new projects. The NYTimes API page lists the five most recent additions in the gallery5, but some of them are about 2008. The "Dewey D. iPhone app" helps manage the reading list. By application is possible to get information about books and authors and browse the Times Best Seller list. The producer uses the technologies Freebase and Best Sellers API Utilizing the Article Search API, the visualization "We Read, We Tweet" has the technological structure also connected by the Twitter API, BackTweets API, Google Maps API. The "Windows 7 Movies" is an app about movie reviews for Windows Phone 7, thus, it utilizes the Times Movie Reviews API and Microsoft Silverlight technology, that allows create engaging, interactive user experiences for Web and mobile applications. APIs and technologies used in "Nooblast" were Times Newswire API, Twitter, YouTube, Technorati, Digg, Flickr. Nooblast is a visualization of real-time data. The visualization calculates the

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5   Retrieved November 15, 2014, from <http://developer.nytimes.com/gallery>

"network buzz" of two keywords and maps them on globes, creating noösphere (the sphere of human thought) clouds.

However, the NY Times' APIs are used by programmer communities worldwide and NY Times also conducts annual meetings (Hack day). In 2013, in its last meeting, the media organization drew more than 80 participants who created about 30 projects.

API NPR: Wordpress Plug-in

The API system of National Public Radio (NPR) has a content held its databases, where digital assets as stories, photos, audio and other kind of data are associated with npr.org and member station content. These NPR programs, dating back to 1995, have stored text, images, and other web-only content and its "archive consists of well over 250.000 stories that are grouped into more than 5.000 different aggregations"6. According to NPR, when content is pushed inside the NPR Story API it's mainly distributed in 3 ways: 1) Create Once, Publish Everywhere (COPE) - Stations and npr.org push content into the API and then pull the content onto 2) other platforms, such as other station-owned websites and mobile apps. 3) Station Networks - Content is shared between multiple stations on a content network, both on web sites and mobile apps. 4) National - Station content is featured on npr.org and NPR mobile apps with links back to station digital properties7.

Among the Widgets available on the NPR website are quickly viewed NPR Music's latest Song of the Day built for run Apple platform. The NPR/ Simile Timeline allows the users to display a listing of NPR stories on a timeline. According to producers, "this timeline, made entirely of open source technologies, connects the NPR API to MIT's Simile Timeline javascript application"8. But, the widgets showed on NPR website were created in 2008. There is another area on the NPR website about API, Story API It´s an area more advanced because allows access to the open project code by the GitHub. GitHub is repository web-based hosting service. The repository has become an essential element in the connection between the open-source development communities.

According to the NPR website, the Story API was NPR's first and still most popular API, "the Story API returns stories from NPR's on-air programs and NPR. org. The Story API is the workhorse that sends NPR's stories to mobile devices,

6   Retrieved November 11, 2014, from <http://digitalservices.npr.org/post/api-101-what-api>
7   Retrieved November 15, 2014, from <http://digitalservices.npr.org/post/api-101-what-api>
8   Retrieved November 15, 2014, from <http://digitalservices.npr.org/post/api-101-what-api>

connected cars, and NPR member station sites"9. This system has enabled a gateway to content published by stations and npr.org.

At the Collection of NPR Story Lists API stories consist of the following topic or subject matter: Music Genres: Collection of NPR stories that represent a given musical genre (e.g. Rock/Pop/Folk, Jazz); Programs: Collection of NPR stories that aired on an NPR program (e.g. All Things Considered, Tell Me More); Bios: Collection of NPR stories as reported by an NPR personality. Personalities are sorted by letter (eg. Nina Totenburg, Steve Inskeep); Music Artists: Collection of stories that are about music artists. Artists are sorted by letter. (e.g. Bob Dylan, Death Cab For Cutie); Columns: Collection of stories containing opinions and perspectives of an NPR personality (e.g. Watching Washington, Song of the Day; Series: An ongoing collection of NPR stories on a topic. (e.g. Climate Connections, Summer Books); logs: Collection of posts on a theme (e.g. Inside NPR.org, All Tech Considered); Categories: A short description for a blog (e.g. Editorial, API, or Audience Estimates for the blog Inside NPR.org); Tags: A short description for a blog post. (e.g. actors, approval rating, feedback, zombies)

An NPR internal API links the StateImpact project10 with Story API. StateImpact contains stories that explore State issues, explaining local policy choices. This technological connection allows that reporters can share its work, providing information to Story API, providing information through meta-data that can use for other users in its systems based on NPR API. This project was created as a pilot project and it will no longer be updated since September 2013. But the visitors can continue to use the resources.

An NPR external API was created to allow access of Story API to projects established on Wordpress platform (Content Manager System) in order to allow that content producers can "provides both push and pull functionality for the Story API". The NPR announced in 2013 its WordPress Plugin for connecting any WordPress blog with the NPR Story API, allowing stations to interact with the NPR API through easy to configure plugin features. "When pulling content, individual NPR stories are retrieved directly into WordPress posts while preserving the story meta-data, e.g. author, audio, and images. Additionally, a WordPress administrator can set up automatic, timed API queries to regularly update their blog with new stories. These queries are completely customizable by the administrator. For example, a query can be a simple pull of the Top News (api id 1001) or can be a custom query that pulls specific content from NPR or

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9   Retrieved November 15, 2014, from <http://digitalservices.npr.org/post/api-101-what-api>
10   Retrieved November 13, 2014, from <http://stateimpact.npr.org/>

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other stations as created by the API Query Generator. When pushing content, a WordPress editor can push local blog posts to the NPR API for retrieval by other stations and API users. The plugin can be easily configured to use the NPR API staging servers so that developers can test the implementation before going live. As always, users of the plugin wishing to push content must contact NPR Digital Services to have their key correctly provisioned.11. Thus, it can transfer nicely content from WordPress to NPR, by plugin, Regular posts (including bylines and excerpts); Inline Images (including captions and credits); Audio; Video embeds (and other iFrames that can be inserted into posts). The toolkit suggested by NPR is formed for Google Fusion Maps for Maps; Google Spreadsheets and Google charts for Charts; Scribd for Documents; HTML for Image (embedded code).12

The Guardian API: More Focus In Data Journalism

The Guardian Open Platform enables a mechanism for selecting and collecting content. The system offers four products: Content API; Data Store; Politics API and MicroAPP framework. The Content API allows to access to over 1M articles going back to 1999, articles from today's coverage, tags, pictures and video. The directory called Data Store is curated by Guardian´s journalism. In this dataset are stored news published Guardian team as spreadsheets and data visualizations using information collected or received in the news process via the Data blog13.

This website section is a most interesting regarding to data journalism practice. In its 10 point guide to data journalism14, The Guardian explains that user can use the free tools to produce data journalism in the Guardian. These technologies are Google Fusion Tables, Many Eyes, Google Charts or Timetric. In the Data Blog and Data Store, the Guardian provides for access to data used in that content for anyone. The file available to download or data visualization is Google spreadsheet. Other technologies used in the content for visualization, multimedia is Flash (Adobe). "Election map and swingometer"15

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11   Retrieved November 14, 2014, from <digitalservices.npr.org/post/announcing-wordpress-npr-api-plugin>
12   Retrieved November 5, 2014, from <stateimpact.npr.org/toolbox/2013/08/22/create-your-favorite-stateimpact-features-in-core-publisher/>
13   Retrieved November 5, 2014, from <http://www.theguardian.com/news/datablog>
14   Retrieved November 5, 2014, from <http://www.theguardian.com/news/datablog/2011/jul/28/data-journalism>
15   Retrieved November 7, 2014, from <http://www.theguardian.com/politics/interactive/2010/apr/05/general-election-map-swingometer>

and" Government spending: What happens to our money?"16 is interactive guides built on Flash technology.

Other API offered by The Guardian is the Politics API, includes a wealth of information on Election Day results, candidates, parties and constituencies. In this section is required for users utilize an open standard format, JavaScript Object Notation (JSON). JSON uses "human-readable text to transmit data objects consisting of attribute–value pairs. It is used primarily to transmit data between a server and web application, as an alternative to XML"17. The last mechanism is The MicroApp framework that allows you to integrate applications directly within the Guardian network. The system enables Guardian partners to use application framework to serve content, data and tools directly to users of guardian.co.uk.

In accord with the explication, the MicroApp framework will allow the Guardian to assign areas of a single page or, various types of pages to a MicroApp, which can be hosted elsewhere. On the Guardian website, there are two references on the use of the MicroApp framework mechanism, in 2010. The project "What Could I Cook" used Guardian´s recipes by Content API. The project was discontinued. Another experience with Micro App Frame Work was the project named Guardian Zeitgeist, that was a promise to be a new way to reveal and explore content on the Guardian site, according to "social signals". To access to Guardian API, the system used Google App Engine, that is a platform that lets to build and run applications on Google's infrastructure, supporting apps written in a variety of programming languages (Java, Python, PHP, Go)18. The Guardian App Gallery is outdated. Its last project is 2010. The Guardian also had a section about Tools19, but it also is outdated.

ESPN API: Closing

The ESPN launched the ESPN Developer Center in March 2012, "Home of the ESPN API", in order to serve sports fans in the best way possible. The area slogan is "Where sports and code live in harmony". According to ESPN, they have been designed to easy to use, allowing the users have the option of requesting an editorially-selected collection. (http://developer.espn.com/)

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16   Retrieved November 7, 2014, from <http://www.theguardian.com/politics/interactive/2010/nov/19/government- data-interactive-guide\>
17   Retrieved November 11, 2014, from <http://en.wikipedia.org/wiki/JSON>
18   Retrieved November 13, 2014, from <https://cloud.google.com/appengine/kb>
19   Retrieved November 12, 2014, from <http://www.theguardian.com/open-platform/tools>

The media group defines three categories of API consumers (users): Internal (ESPN employees and contractors using the API to build ESPN apps); Strategic Partner (strategic partners working w/ ESPN to include ESPN content in their products/services); Public (independent, pre-approved developers using ESPN content according to our Terms and Conditions). But, the Public category is being discontinued.

> As part of that evolution, we have made the difficult decision to discontinue our public APIs, which will enable us to better align engineering resources with the growing demand to develop core ESPN products on our API platform. Effective today, we will no longer be issuing public API keys.[20]

The APIs available by ESPN are until December 8, 2014: Sports API (Sports and leagues supported in the ESPN); Headlines API (News content about the hottest sports topics, covering dozens of sports and hundreds of athletes and teams); Athletes API (Biographical, profile, and statistical data for sports' biggest stars, covering all major sports); Teams API (Team information, including roster, stats, and more); ESPN Now API (Stream of the latest content published on ESPN.com, spanning multiple content types); Standings API (The latest standings, including win-loss record, for team and individual sports by league, division, conference, etc); Research Notes API (ESPN's vast library of exclusive sports facts and information); Medals API (Medal counts and competition scores for the Winter and Summer Olympic Games); Audio API (ESPN's on-demand audio content, including podcasts and live show clips); Video API (On-demand video clips including exclusive content, expert analysis, and game highlights); Score & Schedules API (Game and match information, including start times, venue, competitors, score, and stats across every major sport), Watchespn API (ESPN network listings and programming information by date, network, and more); Calendar API (A simple way to build navigational date pickers and event menus for sports; Photos API (Photo galleries and single photos, available by sport, athlete, and team); Leaders API (Stats-leading athletes by sport, team, and event.); Draft (Stats-leading athletes by sport, team, and event.21

According to ESPN, they have been designed to easy to use, allowing the users have the option of requesting an editorially - selected collection. ESPN Developer Center shows four projects that use ESPN APIs: Xbox 360 (Scores API);

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20   Retrieved November 11, 2014, from <http://developer.espn.com/>
21   Retrieved November 15, 2014, from <http://developer.espn.com/docs>

IFTT (Medals API, Headlines API); Pulse (Headlines API); Foursquare (Schedules API, Research Notes API). The Pulse is a news aggregator and reader app bought by LinkedIn. The application displays news from multiple RSS feeds and uses ESPN APIs. According to ESPN "Pulse is using the ESPN API to make the latest sports news, including MLB, NBA, NFL, NHL, College Football, and College Basketball, available to sports fans looking to stay up to date. The experience includes enhanced story summaries and photos to provide a richer experience than a standard RSS feed, which is displayed in an interactive mosaic. This integration was made possible with the Headlines API".22

Conclusion

Providing social relevance information through of the gathering of data is the main aim of news organizations in the last 400 year, since the creation of first newspaper. Nowadays, the data became digital data, being stored, related and, correlated by database innumerous, growing in quantity at each second. News organizations have digitized its content to order to generate revenue value with information of new content products engendered from various technologies, as Application Programming Interfaces. APIs has been considered an important technology in the innovation process, providing new opportunities to reach customers and build external partnerships in order to create products for niche audiences. However, the past few years, media groups that use APIs have not advanced, some regressed, in use of APIs.

The New York Times has a set of APIs, which calls were added to the Tag and Semantic APIs. The news organization traditional continues to organize hack days, but it is not advanced to creation open application with external developers. Betting in data journalism, The Guardian is also keeping a Public API support with various types of calls, but its efforts are concentrated on the creation of news from crossing through spreadsheet data. English media group Guardian is one the world's best in data journalism, but its main project the use of API, Micro App Frame, has been discontinued. National Public Radio is a good example of use Public APIs to build new content from external partnerships. To be a public organization, NPR puts available its content, allowing the developers to create new applications and collaborate with NPR content by WordPress

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22   Retrieved November 14, 2014, from <http://developer.espn.com/pulse>

Plugin for connecting any WordPress blog with the NPR Story API. Despite the announcement in 2012, as a slogan is "Where sports and code live in harmony", ESPN is discontinuing its API service in December, 2014.

Another important observation is in the use of diverse tools to capture, store, process, analyze, and visualize data. There is no pattern in the choice of the tool kit. The tool kit can be framed from many applications and online tools (free or pay) of according the content project target. The possible different combinations of data tools allow the creation of different types of journalistic content, furthering a content diversity and new approaches for a different focus.

Thus, despite the promise to create innovation using APIs, in recent years, the news organizations are utilizing the APIs more as internal function to aggregate content than Public API or Open API. In the cases analyzed, only NPR advanced the role and content through APIs to aggregate users. The production of news content is still expensive, so companies some companies do not adopt the policy of Open APIs of way ampler.

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