KoKoo (Kontent Kooration)
Evolving a Content Curation System To a comprehensive Editorial backend platform

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1. Introduction

The aim of this paper is to show how a prototypal system, designed as a general purpose stand-alone *content curation* tool could be evolved by following some alpha user's feedbacks to an comprehensive multi-service platform. The widespread diffusion of mobile devices, such as smartphones and tablets as long as the availability of mobile wideband services are increasing day by day the number of players in the ICT Market.

In such a scenario, following the user needs becomes a critical issue, since it is likely for the users. to find products and services quite similar to the one you are offering, better fulfilling their needs. KOKOO (KOntent + KOO(Ù)ration) is a comprehensive platform made by Telecom Italia R&D division.

It is a solution for solving the growing content provider needs to find new and most interesting news to offer to other users on different media, aggregating them in a personal journal with a similar look and feel. Chapter 2 will show the old system (presented also at Nem Summit 2012 showcase), chapter 3 will present user feedbacks and chapter 4 will show the new system and all of its aggregated services, stressing how this was designed by following user feedbacks.

2. The Old Content curation Service

The first *content curation* tool, shown at Nem Summit 2012, was developed in order to offer the users a platform to create their personal journals by means of aggregating content coming from different sources. The initial implementation included twitter and *Youtube* as sources. Afterwards the code structure was redeveloped in order to make simple for the developers to add other new sources and as a proof of concept, *Virgilio* and *OkNotizie*, two Italian news providers were added to the *curation* tool.

The idea was rather simple. An editing environment composed of a dashboard and a simple search box.

Typing the keyword on the search starts the search over the enabled sources, each "found" news is "normalized" to a standard format called "nip" and by simply dragging and dropping the nip on the dashboard, the news is added to the journal.

Concerning the view of the journal, the layout is automatically computed basing on the number of articles inserted in the journal.

From a service perspective, the idea was to give the user an environment to build and share their personal journals. Moreover, we were trying to develop dynamic queries, a mechanism of automatic journal generation on a topic base, an interesting use case in which the user sets the system so to build up a journal on a specific topic with the first n news from the x source.

The next figure shows a snapshot of the old interface.

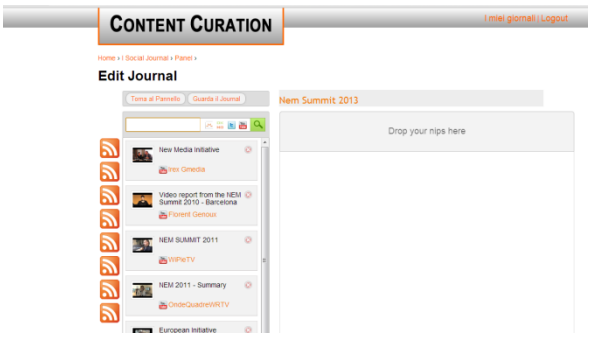

Figure 1 – The old tool's interface

3. Alpha User's Feedbacks on Content Curation

As long as the first prototype evolved, we felt the need to check whether the application design performed by IT experts fits well with the final user needs or not.

Following the approach theorized in the User Centered Design paradigm, two focus groups were performed aiming at verifying the acceptability of the application, its easiness of use and its pleasantness.

Both focus groups were organized with users belonging more or less at the same age. The first group was for young people with ages spacing from 16 to 24, while the second group was composed of adults aged 35-45.

The results was that for this kind of users, the platform as it was built, was almost useless. It seems that users did not feel the need to build their own journal to share with friends on a specific platform. The idea to create a newspaper just for himself to read all alone was perceived quite useless and a bit complicated. Users have considered instead that build a newspaper with others collaborators would be very helpful and could meet the needs of organized groups (such as. Companies, associations, etc ...) with the necessity to create content and spread news. Almost all of the users evidenced the strong need to share whatever to online social networks such as Facebook or Twitter.

Very positive on the other hand was assessed the possibility of having an intelligent news aggregator that would allow people to select, automatically and with little effort, relevant news about topic of interest. To be able to have multiple sources in parallel in searching content seemed very useful and enriching, so that our platform, for users interviewed, had a benefit compared to other types of services available.

The perception of this service was quite different from the expected one: users expected the system to make something for them, rather than the contrary. The Service profile described by the focus groups was something standing in the middle between *Pinterest* and *Flipboard*, that is why we decided temporarily to abandon the "general" user target for the *curation* system.

We then tried to understand if an (even modified) version of the tool could suite someone else needs and so we could point out that such a tool could be of interest for users needing to produce content quickly to send to other users. Our new target was then made of bloggers, editors, TV provider aiming at broadcasting additional content quickly and so on as if being a content producer could be the way to overtake the natural user expectation of a system "making things" for the user.

4. The new KoKoo tool

Since the focus groups and alfa-user testing had shown that this service seemed to be more suitable for users who were "expert" in aggregating and dealing with content. Our idea was to evolve it into a comprehensive "backend" platform, integrated with other services developed or in development in Telecom Italia, a platform in which the final user is standing on a different level with respect to who is using the platform.

Kokoo is a tool that emphasizes the aspect that gives more importance to the content curation, unlike automated services (e.g. Google News), that is the human nature of who is the content curator: in fact, it offers to the user a complete tool to search and find quality contents in line with what user wants, by using multiple sources at the same time, social networks (*Facebook, Google+, Twitter*) and the web in general, an important aspect for our new target.

Contents are listed for their intrinsic value, calculated according to several social and internal parameters: once selected, and customized if necessary, they are aggregated in social journal, easy to share on various social networks, and automatically saved on the platform. The web platform architecture is shown in the following figure 2 below.

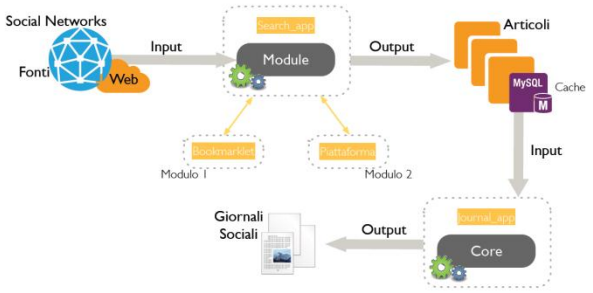

Figure 2 – Kokoo internal architecture

In the current web content's generation and curation scenario, Flipboard seems to be the only competitor, but besides the possibility to create personal journals, belonging to both platforms, Kokoo enhances the user experience by its own set of APIs: in fact, the creation of social newspapers is extended with other specific services.

Users can publish a newspaper with a specific summary, generated by a powerful algorithm carefully designed, They can compose articles using several sources of information; not only those related social network but also TV programs watched in real time and blog articles from around the world, enhance the lessons in a class with interactive content made available by the teachers.

At The time of writing, there is no content curation platform used in the public administration: Kokoo will also be a tool to generate information content made available by the government to the citizens of their communities, with the main aim of making more active the figure of the people within the institutions themselves.

User searches contents by using a module called *Search_app*, composed of two sub-modules whose activation depending on whether the user is adding news to its journal by using the platform or the *bookmarklet*. The first sub-module uses social network APIs (Facebook, Google+, Twitter) to collect information on a specific topic while the second just allows the user to add to his social journal the content of the web page who is visiting.

Moreover, the platform has been designed to show to the user the latest social contents according to a specific order (using a caching engine and a ranking algorithm specially studied), on the basis of the most influential *hashtag* during day.

Once the contents have been added to the social newspaper, the core module of *Kokoo*, called *Journal_app*, organizes them, caring on graphics and persistence of the same newspaper within the platform. The final output will be the complete social journal, accessible directly on *Kokoo* and on various social networks.

Kokoo has been redesigned with the role of middleware in a more complex system, whose architecture is shown in figure 3.

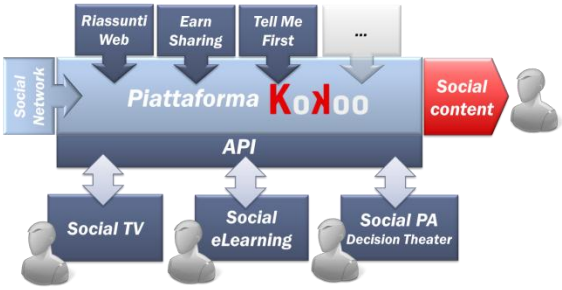

Figure 3 – Overall System Architecture, Involving Kokoo.

On the one hand, the modularity that characterizes the web platform makes easy adding external services (e.g. *EarnSharing*) that can enrich the user experience throughout the process of *content curation*.

Moreover, using a set of proprietary APIs, the ability to interface *Kokoo* with other platforms such as *SocialTV*, the Social eLearning and Social PA is an advantage in terms of quality of contents produced and in terms of the degree of contents' integration in the social panorama.

As we said previously, the platform is interfaced with many different services that are going to be described in the next paragraphs.

4.1. KoKoo for Social TV

In a social TV scenario, *Kokoo* will be used by the broadcaster to quickly produce content to send on tablets running a second screen application synced with specific programs. Social Journal on second screen can give an hint of the most interesting social reactions to a TV program.

4.2. Kokoo for Social eLearning

In this scenario *KoKoo* acts as a content creation platform for school material. Internet and social networks, can be a rich environment for finding teaching content, teachers and students can search on *Google*, *Wikipedia*, *Youtube*, *Twitter*, *Facebook* etc. articles, videos and general contents related to the topic they are studying at school. Using *KoKoo* platform their can create collections of related content that can be exported as e-book and used as studying material.

4.3. Kokoo and EarnSharing

Earnsharing is a platform allowing authors of multimedia content to get money from the viral diffusion of content on online social networks. Money earned are shared between both the author and the people who shares the content. Kokoo has been integrated. Kokoo uses earnsharing repository in order to increase the number of sources available in kokoo.

4.4. Kokoo and “Riassunti Web”

Riassunti Web is a tool developed in a project work financed by Telecom Italia. It is basically a tool to summarize sets of content with a common topic by extracting statistically the most important topics. It is interfaced to *Kokoo* both as a summarization tool for a single journal and a tool to summarize a set of news coming out from a search keyword.

4.5. Kokoo and “Social PA”

Kokoo has been presented to subjects belonging to the public administration. It will be a backend tool for the public administration in which someone will

build a journal with specific news to be broadcasted to citizens via a specific apps, especially containing news about events etc.

4.6. Kokoo and "TellMeFirst"

We are working to integrate our platform with third party semantic service, called "tellmefirst" [http:// tellmefirst.polito.it]. This service, which was developed externally with a funded tutoring program by Telecom Italia is now released as open source. The service actually trying to understand the seven main topics in a text by performing queries on semantic databases.

5. Conclusions

5.1. KoKoo business model

The main KoKoo business model is based on advertising. Collecting user usage data, profiling and clustering users with similar interest (you can get this kind of information analysing content, keyword and main arguments of selected articles or joined journals), you can provide different and user centric advertising. Like traditional and printed journals or more recent social network business model, advertising is one of the most important kind of revenue on content curation system.
The model could be more intresting and innovative if adverting revenue is shared among different players in the content provisioning chain: the platform provider, the content creator that create the content and the curator that select, collect, share and promote the content. This kind of model encourage users to create and collect articles. Each click on an advertise on a curator's journal make a gain that is shared among the players.
Thinking about specific context environments, KoKoo could be a good backend platform for producing content at support of other kind of services.
In an educational environment for example, teachers can use KoKoo for selecting and producing content for their students. In a Public Administrations environment KoKoo could be used for collecting and producing content information for citizens and in very similar manner in entertainment marketplace could be used for producing and collecting contents from different sources but related to the same event.
In those scenarios, acting as a back-end platform, KoKoo could be provided as 'software as a service' business model requiring a feed for using the service for a defined period of time (i.e per month, year) and numbers of users that can use the platform as content curator.

This experience shows how a prototype must always be kept under discussion, until its very last release to the final users. The first "*content curation*" tool was quite an advanced prototype, advanced both in terms of development and technologies used, but in fact the user always has to be put in the center of the development process. On the other hand, even a negative indication coming from the final user, does not mean necessarily that a project must be trashed and forgotten: usually an innovative, well designed tool naturally has its own space, the challenge is in finding the right customers to turn a prototype into a real service.