

Towards a new vision of Web 2.0

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Abstract

The web has known great changes over time starting with the static and dynamic web through the collaborative web and finally to semantic and symbiotic web. These continuous changes will bring undoubtedly enormous benefits to the informational, economic and social aspects in countries all over the world. The collaborative web or Web 2, which has emerged since 2005, has been a real advance when he proposed a new vision that considers the Internet users as producers of information and thus forming communities participating in the communication, sharing and dissemination of information. Therefore, via thousands of software and services that are available on free version on the net and the significant increase of the amount of information on websites that encourages users to international exchange. Then a large Internet connection on the net is registered which provides significant financial gain publicity for businesses and individuals on the one hand and diversifies the population interested in this movement. Moreover, the future of the web proposed and expected by the various components in the later web versions (web3.0, web 3D, web 4.0, ..) does not overcome the problems posed by the collaborative web but rather to think add other elements of change such as using software or online interaction in a virtual world in 3D.

The current web presents certain limits such as information overload that makes users lost and have difficulty to follow the news, in addition to information's poor quality (a lot of duplication, unnecessary) that cause an enormous loss of time for relevant research.

This article proposes an improvement of 2.0 web called 2 + which covers the component of information's quality; it presents many concepts that help to good management and organization of information, sorting, selection and adaptation.

This new vision of the web will make optimal use of information by eliminating redundancies and by adding a precision aspect to searching information by professionals. In fact, they will optimize the time, effort and cost.

Keywords: *web2, evolution, information's quality, optimization*

1. Introduction

At the twenty-oneth century, information management has known a remarkable and an uncontrollable evolution which is the result of technological advances on three important levels which are the hardware (new types of mobile equipment: PDA , Smartphone, Iphone, ..), software (new movements: open source, free, ...) and communication (new types of wireless networks: WiFi, WiMAX, 3G, 4G, Broadband networks, ...). In addition to this evolution, there is the price which is lower over the time for communications networks and the emergence of packages through competition, which increases the quality of the Web service broadband anywhere, anytime and at lower cost.

This evolution has also affected the concepts of the web in its two components: content and container. With these multitudes of visions, even contradictory, the future of the web is unknown at the moment and there are several trends. This embarrassment is the fruit and one of the drawbacks of web 2.0 [21] when I give the possibility to many people to speak and say their opinions at the same time, each one with a different vision, I obtain several ideas which aren't organized and evolution can go on several levels by without knowing which one will begin. There is also the diversity of the Web and their objectives, there are those who use it for personal and professional goals [19], but some companies use it to make benefits and are interested by the web's future knowing that they have visions which are already prepared and that they are being introduced [24]. The web is a mean of wealth for some and a means of knowledge and training for others.

In this work, we present the dynamic research on the web through two major sets:

- The first focuses on web 2, through the general context of innovation that is already to generations 3 and 4, that are presented in the 2ND paragraph ; the second paragraph is devoted specifically to the mechanism of web 2, while its innovative content and limitations are discussed in paragraphs 4 and 5.

- The second is dedicated directly to the web 2 +, its mechanism that is described in paragraph 6; then we appreciate innovations and benefits of web 2 in paragraphs 7 and 8. Paragraph 9 addresses the issue of the cost, because the development of an innovation remains dependent on its financial feasibility in the field.

2. The innovation's context

The web's context of research is characterized by the rapid evolution and the trend to explore new versions of technologies which are increasingly sophisticated.

2.1. The rapid evolution

Indeed, the World Wide Web [33] was seen in the early 90s as a public information system, which consists of a set of multimedia inter-connected by hyperlinks. This is the Web 1.0[4]. A new vision of the Web called web2.0 has emerged since 2005[20],[30], we consider the Internet as a primary factor that contributes to the production, consultation and dissemination of content over the net. This evolution brings together people in communities, and facilitates the dissemination as well as the sharing of information. Such a vision has been very successful thanks to growing communities via the web. Note here that many technologies of web 2, such as: wikis, blogs, RSS, social networks, etc [1].

Thanks to permanent technological evolution, we are already talking about the new vision of the future of the web (Web 3.0, Web 3D or Web4.0) [29],[31],[11]. The following figure (Figure 1) shows the evolution of the web through the time since its creation to nowadays (more developments are planned for the future):

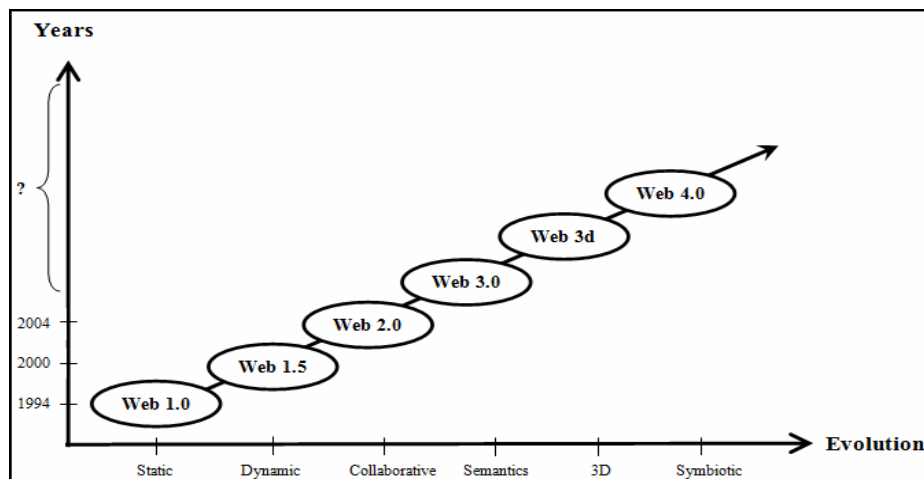


Figure 1. Evolution of the web through the time

2.2. Prefiguration of web 3

The new version of the web concerns the Web 3.0[31], which consists on adding to the applications of Web 2.0, the total independence towards any type of material (producer, manufacturer, screen, printer, ..) and software (operating system, software, plugin); this is analogic to Java which seems to be portable. The applications of this Web must be in harmonious with W3C and open to heterogeneous databases. Basics of Web 3.0 are presented in the following:

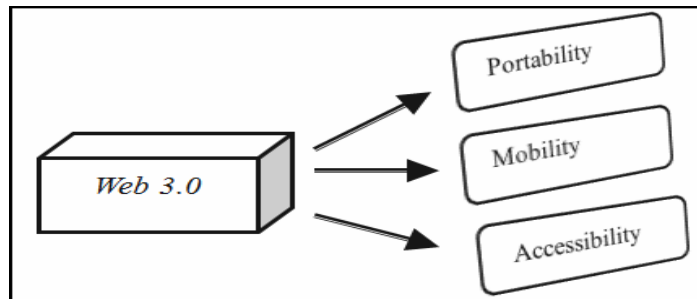


Figure 2. Basics of web 3.0

2.3. Perspectives of the web 4

Web 4.0, already in development, will be the symbiotic web [10] and will be the requirement of webOS (Web Operating System) [26] or operating system which simply a simple operating system, intelligent and adapted to the needs and habits of Internet users. It will offer the opportunity to work with tools available online. There is another trend that speaks about the Web 3D which is located in the web 4 and which referred to virtual world.

3. The web 2.0

Web 2.0 is a real evolution of the web which consider the web according to different dimensions: technical, sociological and editorial one[21]. Indeed, this vision is changing the role of the Internet from a single consumer of information, just surfing the web pages to a producer of content, who interacts with the content of pages and have links and interconnections with communities. Web 2.0 is actually a series of principles for the use of existing technologies offering a new way to create, publish and share information on the Internet. Thanks to the growing community of Web 2.0, thousands of software and services are available free of charge. The success of Web 2.0 is due to the number of participants, for example in 2007, 24% of Europeans had published online content or participated in forums [25]. Moreover, the applications of web 2 are numerous and are grouped in the following figure:

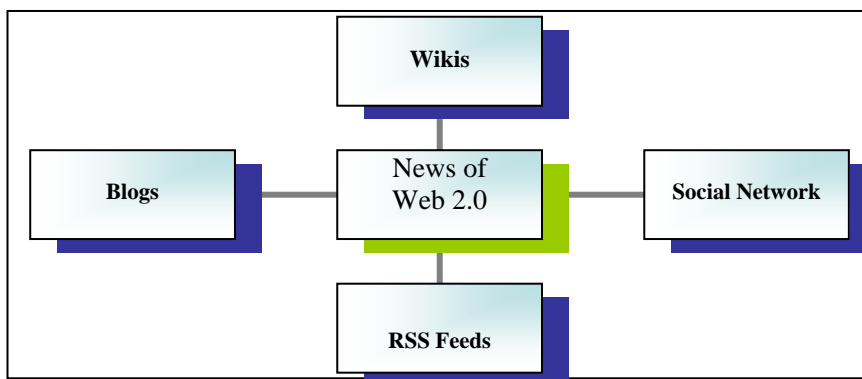


Figure 3. The application of web 2.0

3.1. The blogs

A blog or a web log (web log) is an online journal that allows a user to publish regular information or comment on a news topic determined [8]. Some people view it as a journal that is available on the web and permit to publish easily news (articles or notes) on a particular subject, to illustrate it via multimedia tools and share ideas by gathering comments about articles [13]. Generally, it is a web site with real hierarchy where one or more authors publish over time content in the form of texts, images, objects and data, arranged in reverse chronological order. It is a tool for publishing content, research and monitoring that enables Internet users to report on developments in a given area[5]. It is characterized by the simplicity of use and allows collaborative work and sharing knowledge via forums. Similar to a book, a blog is identified by an Internet blog ISBN[17] Serial Number given by individuals and assigning a number to a list of over a thousand blogs. The strengths of blogs are the ease of use, speed and ease of publication, great freedom, great capacity for interaction, cheap cost or even free archive of articles, possibility of grouping by subject or specialty. Its boundaries are the validation of the information that can be problematic; the lifetime of information which is very short, it must be fed regularly to avoid losing its users and more controlled (advertisements). The problem of blogs is the dropout rate of thousands of blogs per month which don't follow the same pace all the time and there also is one of the web 2's inconvenient.

A blog is generally free access and private, password-protected replacing the vision of messaging chat. All the blogs on the planet was named after the blogosphere. Among the providers offering free to create a blog, we can mention Over-Blog, Blogger, Skyblog ...

3.2. The wikis

Invented by Ward Cunningham in 1995, a wiki is a content management system of website making its web pages freely editable by all visitors who are allowed [6]. It is a tool for collaboration and discussion space that offers the possibility of constructing by prproposing content structured and organized. The origin of this name means quick in Hawaiian (wiki wiki). Wikis are used to facilitate collaborative writing of documents with a minimum of constraints. Access rights can be imposed [32]. You can create a wiki with one of two ways:

- Use an online site known as farms, such as wikimatrix;
- Use a software engine known as wikis, like Wikipedia.

As blogs, wikis have advantages: the fact that any user can edit, and that they offer an ease of use. There are no tools required heavy and expensive to develop a wiki and the wiki is fast, instant; it promotes collaborative work, allows the collective preparation, production and diffusion of content, it does not require knowledge of computer languages, the wiki keeps track of all changes made and is not expensive (by using open source environments). Among the limitations, everyone can edit the content (misuse), open SPAM and vandalism; flexible structure can ensure that the content becomes disrupted at anytime. Among the wiki tools, we can cite Mediawiki, Wikidot, PBwiki. Note that since 2001, Wikipedia has become the website the most visited in the world written with a wiki.

3.3. The social networks

Social networks include features such as personal profiles, videos, blogs, chat, RSS feeds and discussion groups. They are sites which offer the possibility to create communities in a way upward. Each user creates its own page containing personal data available publicly or only to individuals that he define [15]. These communities may have common goals or common interests. They allow the exchange of online photos and videos as well as the integration of widgets tools permitting the prospection of clients; they allow access to many Internet sites. Among the social networks's softwares available on the net, we cite : Facebook, LinkedIn, Viadeo,

3.4. The RSS Feeds

To follow the news on a website, the RSS feeds (Really Simple Syndication) come to fill this vacuum. Indeed, the web 2 offers RSS feeds as a tool which permit to users to be informed of the news via websites, through one place by the hyperlink allowing the reader to read the following news online without being obliged to consult them[7]. It is a simple tool and very efficient one; it saves time and effort when doing continuous documentary research. Technically, it is a file containing information dissemination on a website developed in XML format and must be maintained by day. To benefit from RSS feeds, you will need a tool called RSS reader or RSS aggregator. Usually, they are used by most Web browsers such as Mozilla Firefox, Opera. Some RSS readers include RSS Owl, FeedReader, RSS Reader.

4. New Web 2.0

Web 2.0 is the result of technological, social, cultural, economic change of the Internet[2]. It is not a new version of the web as is the case for the software when the old version is outdated but rather an evolution of the latter. It probably has enormous advantages, but no shortage of limitations and drawbacks. Some advantages of this type of site may become disadvantages. That is why we present, in what follows, the evolution's aspects of the new web 2 over the web 1.x and discuss them.

4.1. First change: Participation of users

The web 1.x was a website or producer developed for many consumers. Now users have become producers and consumers. So rather than just consume, we can also participate. In other words, if the Web 1.x is "one for all" now it is "all for all".

In the 1.x web site, designer was the person who is responsible for the production of content and its update, now everyone creates his site without restriction. In this new context, each page is a collaboration. So everyone can have its place in this web 2 (professional, business, beginners ...). It is a form of democratization of information and freedom of opinion which allows sharing, collaboration and exchange ... This mode promotes teamwork, collaboration and participation which combines human knowledge and allows a strong capitalization and Co-construction simplified while adapting to a wide audience. It promotes the mobilization of collective intelligence and teamwork without geographical or political restrictions.

It remains to give importance to identify who produce, when, what is his age and intellectual level! So, certainly the amount of information will increase but at the expense of quality.

4.2. Second change: Wide range of tools

Unlike the Web 1.x, Web 2 is simple and easy to use; it has become a service platform rather than a group of sites. To do this, it offers tools for communication and information sharing across and therefore services on the web through various applications (blogs, wikis, social networks, RSS, ...). These tools are primarily focused on users who are also contributors and beneficiaries. They are simple and easy to use and don't require any training; They disseminate information and can be interfaced very quickly and easily with other tools. Thus, we have a gain of time, effort and cost.

For example, with RSS feeds we can do competitive intelligence. Users can subscribe to a web page and be notified of any changes. With Tags you can do good research but redundancies make this possibility too expensive. The Web 2.0 can be a learning tool and therefore a tool for training but can still undergo improvements.

4.3. Third change: Portability and programming flexible and lightweight

Driven by technological advances in storage media, broadband and the evolution of web protocols, we don't speak just of text and photo, but also about sound and video (Blog: Audioblog, podcasts, videoblogs). The size of backups has migrated from MO to see even GO and TO. The web 2 has become widespread, due to lower prices, and even faster with broadband. It follows a significant number of users spread over all the world and especially the integration of third world countries by reducing the digital divide. Furthermore, the use of AJAX (Asynchronous JavaScript

and XML), which is a language that allows light to extend the possibilities for coding in browsers, being very interactive, leads to pages friendly. The Web 2 can also diversify terminals with versions of Ajax for mobiles through their browsers and the emergence of mobile networks (WiFi networks, WiMAX and 3get 4g). This allows the use of less powerful machines such as the mobile and iPhone. As an example of the contribution of web 2 are the encyclopaedia Wikipedia has looked for years to be the most widespread wiki and reference for researchers and users without paying the costs of content unlike many companies who have spent much time and money.

5. The limits Web 2.0

As already noted the web 2 has benefits but also limits. Based on new web 2, one can identify many limitations.

5.1. Limits 1: Poor quality of information

Thanks to Web 2.0, everyone can create, publish, share, connect, influence, collaborate; Yes, but what is the quality of what is published and its relevance?

From my own experience as a teacher researcher, in the same class, there are always bright students, those who are median level and those who are very weak. So the participation will never be the same. Then there are those who want to participate and those who don't want to do it. To participate, at least minimum level of knowledge and skills are required before addressing a relevant topic. This will apply exactly on the web 2; people do not have the same training, the same experiences, and the same ideas. So, among the boundaries of web 2 is no real verification is made of people, giving a possibility of lies or misuse (use of false IDs). The current web 2 gives a lot of redundant information, useless and not interesting ones what compels us to rehabilitate.

5.2. Limits 2: Low participation rates

Web 2.0 introduces a new way of democratization of information which gives access to read and participate in the entire world. Yes, but does everybody publishes or at least the majority [3]. According to several studies [12], few users do, indeed 1% of users produce 2 / 3 of production [14]. In 2004, for example, Wikipedia has a total of 68,682 Internet users. 80% of all changes to Wikipedia is made by 10% of users and 5% of users have written more than 66% of all articles [27]. In addition, this number is declining overall. So with this new method there are many readers yes, but not many of them participants.

5.3. Limits 3: Life of information very short

Among the problems of the web 2's applications figure the problem of the update, because blogs and wikis must be fed regularly to avoid losing their users. The information it contains is often inactive. The blogs are created and die quickly because of the dropout rate which is very high. The information has greater value and does not archived on servers even if it is very interesting; in fact, it must store information in reversed chronological order but rather in order of importance.

5.4. Limits 4: Lack of security and copyright

Copyright represents a big problem for the web 2. Customers benefit from existing information on the comments posted on a blog for example. It may oppose any reproduction without permission of the reference or at least require that it be mentioned. In my opinion, this problem should not even be asked to resolve in court as an example we can cite the problem of YouTube and copyright videos that compose it. The company gave U.S. courts the details of employees and created a big problem that should not even be asked. In addition to copyright there are Spam and criminals who do not let us take benefit from this collaboration and sharing offered by Web 2.0.

5.5. Limits 5: Lack of semantics

The Semantic Web [28] was first proposed by the inventor of the World Wide Web, Tim Berners. The network of Web 2.0 is not a semantic network. Indeed, the information has no meaning or interpretation and is reflected by the non possibility to do particular and relevant search which will interest specialists. The content can be enriched in order to give meaning to enhance and customize search results with content. Adding meaning allow increasing the relevance of content; you need also to think about building a database across the web.

6. The mechanism of web 2 +

Collaborative web is based on user's participation as actors on the production and dissemination of information thereafter forming communities. While the size and mass of information will increase the quantitative level; the qualitative component remains. In the current web 2, the consumer and the author have the same rights and obligations. The quality of information is absent in this type of philosophy and there is no strategy to show it. The information gotten from these different types of users is the same, which is not normal. Teamwork is key element to successful change but we must order the users according to their profiles and give more privileges. It is not enough to communicate, publish and share any type of information but rather offering good information; for this, we propose a new version of the web 2 called Web 2 + which is based on exceeding the problems mentioned in the preceding paragraph.

6.1. Subdivision of information

The information of the web 2 + will be divided into two parts: the public or current one aiming to preserve the current existing web and validated part which constitutes an extension of the previous one and which contains information validated by validators, sorted and not redundant. The figure below shows the parts of the web 2 +:

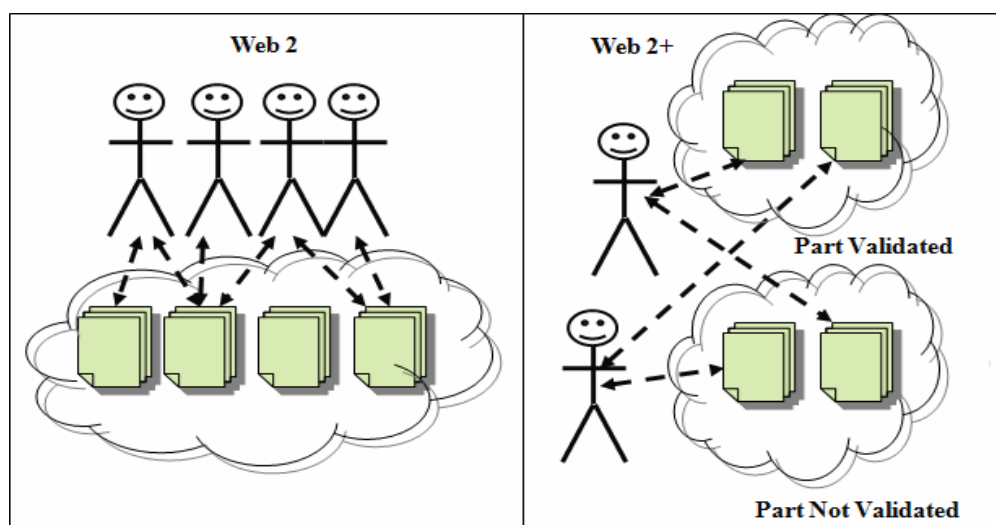


Figure 4. Parts of the web 2+

6.2. Groups of users

We suggest in this context to break down users into three groups:

- Users who consume and produce content and may do so after a digital signature on the filing of information;
- Validators that validate the content;
- Experts who ensure the conducting of validations by designing two validators for each content and its publication.

A user can become validators, if he is recommended by two experts. A validator on a theme must work together, through the web 2, with validators in coordination with one or more experts to

validate a subject on a particular topic. It is proposed to create a world association for the validation of content such as W3C. The types of users of the web2 + are represented in the figure below:

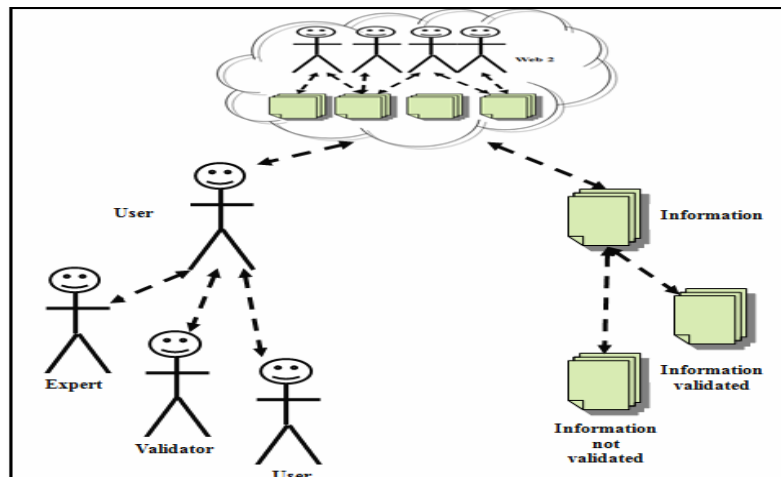


Figure 5. Types of users of the web 2+

In this new vision of the web (the web 2 +), the validated party does not contain anonymous interventions, information is validated only if it is signed digitally. In this case, the sites will be classified and managed by experts who publish information that is not redundant, well sorted and validated.

7. Towards the innovations of the web 2 +

7.1. Digital identification of the user

There must be a digital ID for each user; that is the case for machines with Internet addresses or IP, and also the case for the ISBN which is a form of identification for a book. To do this, the user will meet once a form on a central part of the web and receive a code with which he will share his views and comments wherever he wants through his identification in the network Web 2 +. Among the benefits of this solution is the fact that this identification will allow detecting criminals and profiteers. This solution will also be used to detect the imbalance of shareholdings (who participates and who consumes).

7.2. Encoding and storage of information

It also proposes that the information has a unique code and that information is stored in a database distributed across multiple servers, but the identification of users 2 + should be centralized. If a site can be attacked by hackers, normally his ID must be in the black list. The technical problem of Spam will be reduced.

7.3. Creating virtual money

It is proposed to create virtual money called web2 + dinar, which increase every time someone publishes information which is validated. Those employees must be paid by this money and they will, thereafter, access to opportunities not given to everyone. This value will depend on the participation-rate and also the notation that it affects by validators and readers. Each user has an account of the currency and, depending on its diet; it may receive additional benefits, such being informed of the latest valid information related to his areas of interest. If a user does more, we must prohibit any information validated. With this new mode, users will be encouraged to write and give opinions.

8. Towards the innovations of the web 2 +

8.1. Permanence of the connection

The philosophy of integrating the virtual money in the Web and provide access through the richness of the Internet with this money to provide an exemplary value of information. Customers can benefit unless they produce or actually pay. This mechanism will focus on Internet producers and collaborators and insist to stay connected all the time, which will affect advertising through banner advertising and subsidies for companies that affect range of interested.

8.2. Improve quality of information

In this new version of the web, the important factor is the quality of information. In fact, the information will be clearly identified, well sorted, well presented and in addition, of course, set in order of relevance. Validators and experts will ensure that information is not redundant and have a real quality before its approval.

8.3. Increase the number of Internet users on the Web

The quality of information is a major factor of individual and collective work. If we manage to ensure a better quality of information (without redundancy well sorted and selected in order of relevance), the number of Internet users on the Web will increase exponentially and participants will be more consistent in terms of information and new ideas.

8.4. Enlargement of the population of Internet

Among the users, there are all types: employees who have good faith, the opportunistic persons and generous ones. There is a very diverse population. What has been proposed as a vision of the web is to encourage everyone to work and publish, including lazy or those who want the recompense and therefore will open the Web on other people some for the first time.

8.5. Best process of items

Each item will be created and digitally signed by one or more sponsors. It will be published only after validation by two validators globally recognized. The validation process is illustrated in the following:

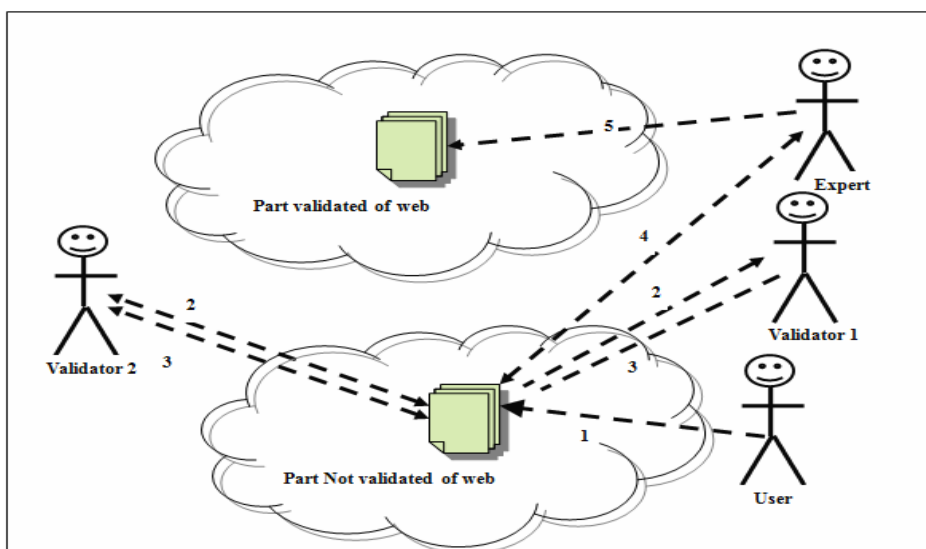


Figure 6. Process of publication on the web2+

- 1: Production of information by the user
- 2: Reading the information by the user
- 3: Validation and Correction
- 4: Extraction of valid information by the expert from the non-valid one

5: Filing of information by the expert by assigning it a valid number.
After publication, users can write depending on the relevance and content.

9. The terms of cost

For the implementation of Web +, it was developed formulas for a system of financing the ambitions of its development. This concerns both funding sources, the risk management problems and advantages of publications and the method of payment.

9.1. Sources of Funding Sources de financement

In Web 2.0, donations are the main modes of financing collaborations. Advertising plays a rather limited source of funding. In the new version of the web 2 +, this service will not be funded by donations, but by advertising on this sensitive part of the web.

The advertising will cover the charges and will be very costly for companies especially in the validated part. In addition to advertising, there is the contributions of people who do not produce to have access to various services web2 +.

9.2. Risk Management, problems and benefits of publications

In this new context of the web 2 +, a product may be personal or collective with a total respect of the copyright. Otherwise, laws can be applied and the identification of each user is done in a unique manner. The user assumes the risks and problems that may arise but will also benefit from the advantages of publications on the web 2 while respecting the ethical aspects.

9.3. Specific mode of payments

In our new vision of web2 +, To access or use content, you must be pay or buy the virtual money or freely by producing content. Technically, we must consolidate identities in a single centralized database and data users in distributed databases. The user only once by affecting one ID. The user will access the following tools through his password on his ID. The creation of a standardized language research information such as SQL databases would be interesting and facilitate research and its relevance.

10. Conclusion

The purpose of our proposal is to overcome the problem of the quality of information existing in the web2.0. The information, in this new mode, is well identified, well structured, not redundant, and will offer many benefits for research. This type of evolution push people to participate and benefit from their experiences. Gains on time pronged research effort to find the right information, the cost of work will be free for producers and paying for consumers who don't produce. As perspective, we would like having tools for the blind to expand further our community. We would like also have a web semantics that understand the meaning of information, whether multimedia speaking and listening with multiple languages or in 3d and in the form of distributed databases.

In conclusion, I can say that we revise the concept of open source, the source should be given, in my opinion, only to people who have their digital identities. These developments will have a significant impact on the cycle of the documentary chain from the production information to its dissemination.

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