For an ethics of personalized recommendation at the French National Library

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Abstract:

AI ethic-related issues are the subject of numerous reflections and contributions from scientific research, institutions and, project operators. We propose to take the example of a service under development at the BnF to step into the conversation. What questions and ethical principles guide the French National Library as it embarks on the development of a personalized content recommendation system powered by artificial intelligence (AI)? How does this approach reflect the institution's overall AI policy?

The integration of recommendations into Gallica appears to be an increasingly necessary tool for enhancing the value of its rich and diverse collections while responding to the users' needs (particularly researchers). Beyond the technical challenge, its implementation raises many ethical concerns – trust, transparency, and avoidance of filter bubbles–and forces the Library to clarify the position it intends to occupy in the documentary landscape. The meaning of recommendation and the definition of the librarian and its role are at stake.

Keywords: Artificial intelligence, personalized recommendation, digital library, ethics

Introduction

Today, if you do a search using [Gallica](#) (the digital library of the National library of France – BnF – and its partners), you'll get the same results as any internaut who would perform the same search: Gallica has no personalized recommender system. This is due to an ethical principle to which the BnF is committed: Gallica's search engine won't make use of users' personal data, especially users' logging traces, to select and rank the results shown to the user. It just considers the bibliographic data related to documents.

However, this position is challenged by several factors that might make the BnF's policy evolve. First, many technologies are now fully developed and increasingly enable systems to process, in real-time, a considerable amount of data. Second, new gates towards collections and new ways to put content in perspective are required by the evolution of users' expectations and by the ever-growing cultural content available, especially when it comes to French-speaking areas, not completely nor naturally included in algorithms training corpuses.

To take better account of such a digital turn and build an accountable AI policy, the BnF has set up a global framework through its [AI roadmap](#) published in 2022. It specifies how the field of AI applications encompasses all the activities and services of the Library. It also highlights key projects and priorities while setting up a firm strategic background and a set of change management measures (training, evaluation…).

The Gallica personalized recommendation project is developed in this promising and exciting context that also bears many questions and issues: how the public services deontology can be connected to the opportunities offered by technological evolutions in terms of service improvement?

The project we're speaking about is the first ethical-by-design project at the BnF. It will be described through a more and more precise definition of what personalized recommender systems consist in. In each part, ethical questions will guide this definition: do we really need such a service? Can we avoid systematic harvesting of personal data? What rules and safeguards can we collectively set up?

What is algorithm-based personalized recommendation and why is it useful?

To begin with, let put our steps in the designer's steps, that is to say on the point of view of a library driven by its national public service responsibility.

The principle of recommendation

Any work involving artificial intelligence leads to considering in a new way your Library's everyday life activities, organization, and regulations. For instance, when designing a chatbot for users, you wonder what a human conversation really is, and as you try to translate into computer-language the rules you impose on users, you realise sometimes how inappropriate they are.

When it comes to a personalized recommendation, you notice how various and numerous the operations it covers are. Imagine you're in a reading room or chatting through an "Ask a librarian" service and a user comes to ask you for a book recommendation. You try to know more about what she/he wants, ask for precisions, inquire about what she/he has already found or read, gather your knowledge about the field the user is interested in, analyse this field thoroughly, make a request in the catalogue thus using metadata, and, if needed, seek external support (databases, more expert colleagues…). Eventually, you adapt your answer to the user and to the time she/he has, and you make sure you provide her/him with access to the content itself, as you know it's what she/he really expects. Throughout this process, you will have had time to wonder: isn't my answer biased by my prejudices about the user? For example, haven't I underestimated his ability to understand one resource or another? Where is the limit between recommendation and prescription?

Recommendation by algorithm

Such doubts don't concern algorithms because they're made of nothing but computation and organized prioritized parameters. The objective of recommendation systems is to propose the items most suited to the needs and preferences of users to facilitate research and access to information.

The data mobilized by the algorithm are twofold: data relating to contents and data relating to users. The first type concerns descriptive content metadata, data relating to the use and consumption of content, and content evaluation data that may be provided by users. User data include personal authentication data and behavior data (browsing and logging data). These data can be collected explicitly through filling in a form or answering a questionnaire or via implicit tracking techniques such as cookies, web beacons, browser footprint, or cohort targeting[1].

Recommendation systems work in three stages: user data collection (1) allows the generation of a user profile or preference model (2) which is exploited by machine learning methods (i.e. families of algorithms) (3) to determine the recommendations best suited to the user. The algorithms used in learning methods are generally grouped into two distinct kinds: collaborative filtering and content-based filtering.[2] These two approaches are not exclusive and can be combined to mitigate their biases and side effects. Once the choice of data collection and processing has been made and the model has been trained, human intervention is no longer necessary. Content suggestions are made to the user through an interface, without human intermediation. It is therefore interesting to study the interaction established between the user and the algorithm: the more feedback the algorithm receives on what it proposes, the more refined it becomes.

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[1] Cohort targeting (or *Federated Learning of Cohorts,* FLoC) is a Google initiative that consists in targeting a group of users with similar behaviors instead of a single user. Once common centers of interest and logs have been identified, users are aggregated into anonymous groups labeled with a unique and persistent identifier that is shared by all the users of the same cohort and managed at the browser or operating system level.

[2] Content-Based recommender system tries to guess the features or behavior of a user given the item's features, she/he reacts positively to. It does not require other users' data, unlike collaborative filtering systems which do not need the features of the items to be given but consider other users' reactions while recommending a particular user.

Algorithm's appeal in a big data era

The first reason why the BnF should get involved in a personalized recommendation project (in other words, should choose to spend public money to create a new service based on algorithms), is because it cares about what users wish. According to its 2020 uses observatory (Bastard, 2022, p. 15 to 20), 90% of the Library users are globally satisfied with Gallica, but 49% of them consider improving the search engine a priority, and only 11% feel they find support while doing a search (41% of PhD students; almost one third of PhD students think the engine's results aren't always relevant). Among their remarks, let's quote: "As I don't have time enough, I can't satisfy my curiosity or make the most of GALLICA, a marvelous library. The only negative point: such a plethora that it's difficult for me, sometimes, especially as I haven't time enough, to spot my centers of interest" [3] or "The search engine frequently returns a large amount of results that are difficult to sort"[4].

A need for simplicity echoes these expectations: simple search is the favourite way to access Gallica content (78% use it "every time" or "frequently"). As a respondent puts it, "browsing the digital BnF (…) seems complex"[5]. Such answers clear up how misleading it is to believe users have a natural ability to use digital tools (and to use Gallica in particular). As librarians, we're used to challenging our approaches to knowledge, for example to fiction books and novels (Pernoo, 2001), and all these studies may lead us to wonder if a classical-designed search engine is the best tool to guide users toward the content they're looking (or longing) for.

Alongside these conclusions, user-oriented content management is constantly evolving, engaging more and more partners and users. During the last few years, the BnF's partners have been enabled to contribute to Gallica's blog[6], and new thematic or geographic selections and insights have been provided to users by collaborating with partners[7]. The BnF also has interacted with Gallicanautes on social networks and involved YouTubers in the adaptation of heritage content for different types of audiences… For a long time, the librarian's art has been founded on the excellence of the collected bibliographic metadata[8] (and such metadata is still at its core). The user was expected to know how to search in a catalogue or a digital library, without librarians really being aware of the knowledge and skills she/he could bring to her/his search on her/his side. Such a user is more and more recognized as an "expert" as she/he when browsing other websites, especially commercial ones: we will come back to this expertise.

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[3] Irène Bastard, p. 10-11. Words of a "Woman, 50-64 years old; provincial; level of education Bac+3; profession craftsman / tradesman / entrepreneur; centers of interest: Binding / History of books; uses only Gallica"

[4] Irène Bastard, p.18. Words of a "Woman, 50-64 years old; lives abroad; researcher; uses Gallica and the catalogues; has never come in the BnF's premises"

[5] Irène Bastard, p.18. Words of a "Man, over 65 years old; provincial; retired; no special hobby reported"

[6] For instance, The National Museum of Natural History contributes to a blog posts series about plants entitled "Gallica's Herbarium" (« Herbier de Gallica », https://c.bnf.fr/MrN), and the University of Lille, to the series dedicated to textile fabrics (« Tissus et textiles », https://c.bnf.fr/Ogx)

[7] In 2020 (the French Ministry of Culture decided that 2020 would be a year devoted the 9th Art), the BnF and the Cité internationale de la bande dessinée et de l'image (International Centre for comics and images) launched on Gallica a thematic research guide dedicated to comics (https://gallica.bnf.fr/html/und/litteratures/bande-dessinee)

[8] The BnF is a key stakeholder when it comes to disseminating bibliographic metadata, especially identifiers (ISNI, etc.). In 2011, it launched data.bnf.fr which acts as a reference website (Bermès et al., 2016). Currently, it's developing a new cataloguing tool that will further increase the potential represented by this data, and it's designing new relationships with cultural and creative industries, fostered by the digital legal deposit shift.

Last but not least, the increasingly growing number of documents and their diversity can't anymore be properly echoed by all the research guides and discovery tips that already exist in Gallica: selections, popping up blocs designed by human intelligence after Google's "knowledge graph" device, search results report, geographic or neighbour search facilities… Most users don't even imagine that not only books or newspapers but also photographs, sound recordings, videos and 3D objects can be found in Gallica.

The challenge is therefore twofold: to help users find their way around very large collections, and make unknown items more visible, all this in real-time, whatever the time of day, and with regard to the diverse and changing expectations of the users.

What is an ethical recommendation?

The use of a recommendation algorithm is justified by the need to improve user satisfaction, but at the same time presents the risk of displeasing users if the results proposed by the recommendation system are judged to be irrelevant, opaque, or resulting from intrusive practices. The trust of users in the algorithm is based on general ethical principles that are commonly mentioned in numerous ethical charters and subject to various definitions: explicability, robustness, fairness, responsibility, transparency, human supervision (controllability), security, safety (privacy and confidentiality) [9]. The statement of those ethical principles of recommendation is a response to the problems identified since the use of recommendation systems has become widespread in many areas (social networks, sales platforms, streaming platforms, etc.): misuse of personal data, manipulation of behavior, biases, discrimination, etc.

The awareness of such problems explains that examples of the use of a personalized recommendation algorithm for a non-profit website dedicated to digital cultural content (e.g. a library) are rare and, when they do exist, rarely go beyond the stage of industrialization [10]. This rarity reflects the specificity of the issues raised by the design of such an algorithm with regard to the singularity of the target audiences ("general public" and expert public), the data that feeds the algorithm, and the public service issues specific to the institutions, and prompts us to question the ethical challenges generated by the use of new recommendation technologies: what underlying technical requirements are at work to counter these pitfalls, and what metrics and controls allow the evaluation of a recommendation based on algorithms?

Ethical challenges related to the use of a personalized recommendation system in a library

The collection, storage, and use of user data raise numerous ethical questions, the main one being to ensure that the user trusts the recommendation system. These questions address the

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[9] The eight principles mentioned here correspond to the key characteristics of trust listed by the AFNOR (French Agency for Standardization) when shaping the French strategy of AI standardization. Other trust characteristics such as traceability or nudging are also regularly mentioned in ethical charters by national and international organisations (CNIL, Arcom, European Commission, UNESCO…).

[10] Among institutions holding collections, let's evoke the recommender system based on MARC21 bibliographic records developed by Bibliothèque et Archives nationales du Québec (BAnQ) in 2017, the online catalogue of the National Library Board of Singapore, the "Maken" service developed by the National Library of Norway, or the recommendation tool Bookarang purchased by the NDB Biblion in 2020.

double challenge of documentary relevance of the results proposed by the algorithm and of respect for users' privacy. On the one hand, it is a question of avoiding locking the user into closed filter bubbles and, on the other hand, of guaranteeing respect for confidentiality in order to preserve the intelligence of individual searches.

Collecting, storing, and using users' data: the challenge of security and transparency

The filtering algorithms deployed in recommendation systems are based on the construction of "user profiles". These user profiles are more or less personalized depending on the data they are based on (personal data filled in by the user in a form, usage data, logging traces, or even data from external sources linked to the user). To propose a list of suggestions according to his request, a matrix is constructed based on the user's data (collected explicitly or implicitly) to compare them with the data related to the contents and uses of other users. Various techniques have been developed based on algorithmic solutions (cryptography, data anonymization[11]), protocols, or standards (RGPD[12] in Europe) to prevent personal data from malicious use at the different levels of the recommendation system. However, existing solutions often are either slow or not scalable: to tackle this issue, experiments related to privacy-preserving collaborative filtering need to be further encouraged and explored.

Beyond the issue of privacy, the use of behavioral data may raise confidentiality issues. The uniqueness of BnF's users lies in the diversity of their uses, ranging from extremely targeted searches for a document that the user knows to be part of the content available in Gallica, to an unrestricted exploration of the collections guided solely by the user's curiosity. While researcher and expert profiles will be attached to the confidentiality of their research in order to guarantee the unedited nature of their work, other more novice users are guided in their discoveries by the various existing forms of recommendation and have a real need for them. The integration of an algorithmic recommendation system into the search engine of a site such as Gallica must meet the requirements of these two opposing types of audience.[13]

Furthermore, the "black box" effect of algorithms, whose explicability is not always guaranteed, arouses mistrust and fear among users with regard to a system that could manipulate them by using their data without their knowledge. Letting the users the ability to control user profiling manually and to choose the criteria on which the algorithm's recommendation is based is identified as a way to overcome the lack of transparency and increase user satisfaction and trust in the recommendation system (Paraschakis, 2017).

Filter bubbles, pertinence and diversity

Depending on how algorithms are designed, recommendation systems can lead to hiding part of the offer from users and locking them into their tastes assumed by their browsing history. Locking users into filter bubbles entails a risk of standardization and impoverishment of research. Indeed, if the algorithm does not take into account diversity, researchers with

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[11] As part of a research project conducted with Télécom ParisTech, which included experimentations with the analysis of Gallica usage traces, the BnF had the opportunity to be confronted with the challenges and technical solutions of anonymization (Nouvellet, Adrien, Beaudouin, Valérie, et al., "Analysis of Gallica and Data BnF logs and Modelling of Behaviour Patterns: Presentation of the Main Results", 2017)

[12] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

[13] The literature on privacy-preserving collaborative filtering and privacy-preserving data publishing techniques is extensive and requires a thorough review (Majeed et al., 2020, Paraschakis, 2017).

similar fields of search will get the same results, unlikely to take them to other scapes of thought than the one in which they are used to evolving (Farchy, Méadel, and Anciaux, 2017, p. 194). Field observations[14] and several studies have shown that diversity has a positive impact on user satisfaction. However, it can lead to mistrust and misunderstanding if the link with the preferences expressed is too distant (Castagnos et al. 2014).

Moreover, users' behavior is constantly evolving and may change from one connection to another: depending on the stage of progress in his or her research, a researcher may, for example, have an increased need for diversity rather than relevance in his or her search results. Locking users into standard fixed profiles runs the risk of quickly ceasing to satisfy their expectations. The algorithms used in recommendation systems must be able to take into account the evolving nature of users' practices, behavior, and expectations.

Ethical principles for the design of a recommendation system

Ethic by design

Moral dilemmas (user privacy vs. personalization, data anonymization vs. data utility, etc.) emerge at every stage of recommendation system development (user profiling, design of the algorithm, creation of the user interface, experimentation, and testing). Addressing ethical issues is complex and requires a global vision of the project. The work on data anonymization, the parameterization of the algorithm itself (insertion of an element of chance, of "side-stepping" in the suggestions made, or even of proposals that are the opposite of the user's supposed tastes; use of consultation data at an aggregated level[15]) are all means of protecting oneself from the ethical risks at stake at the various stages of recommendation system development. The integration of ethical metrics in the evaluation indicators of recommendation systems is also part of an ethical approach "by design".[16]

Users and librarians as active stakeholders in the recommendation system

When implemented on a non-profit website dedicated to cultural content, recommendation systems are not intended to replace the librarian's advising role. Proximity metrics used by the algorithm to propose recommendations can be located on a two-axis diagram according to the degree of autonomy left to the algorithm and the personalization of the recommendation proposed to the user (Figure 1).

Figure 1 highlights the fact that the risk of being locked into filter bubbles is greater when the algorithm makes the most use of the user's personal and behavioral data and when the advising role of librarians is put aside. It also suggests that this risk is less perceived by users when their data are collected without them having been asked to declare any preferences.

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[14] The aforementioned woman, who pointed out a negative aspect of her Gallica browsing experience immediately tempered her words by adding that it gives her the opportunity to discover disregarded or unknown fields.

[15] For example, to qualify the application of the rules: if only one user makes a given choice in a list of results, this will be considered a particular practice. On the other hand, if twenty people have the same behavior, it will be considered as a behavior likely to be shared.

[16] As an example, diversity metrics were combined with relevance metrics for the evaluation of the Culture Pass algorithm developed by the Ministry of Culture. The four indicators of this metric make it possible to quantify discoverability and evaluate the algorithm in terms of diversifying the content offered.
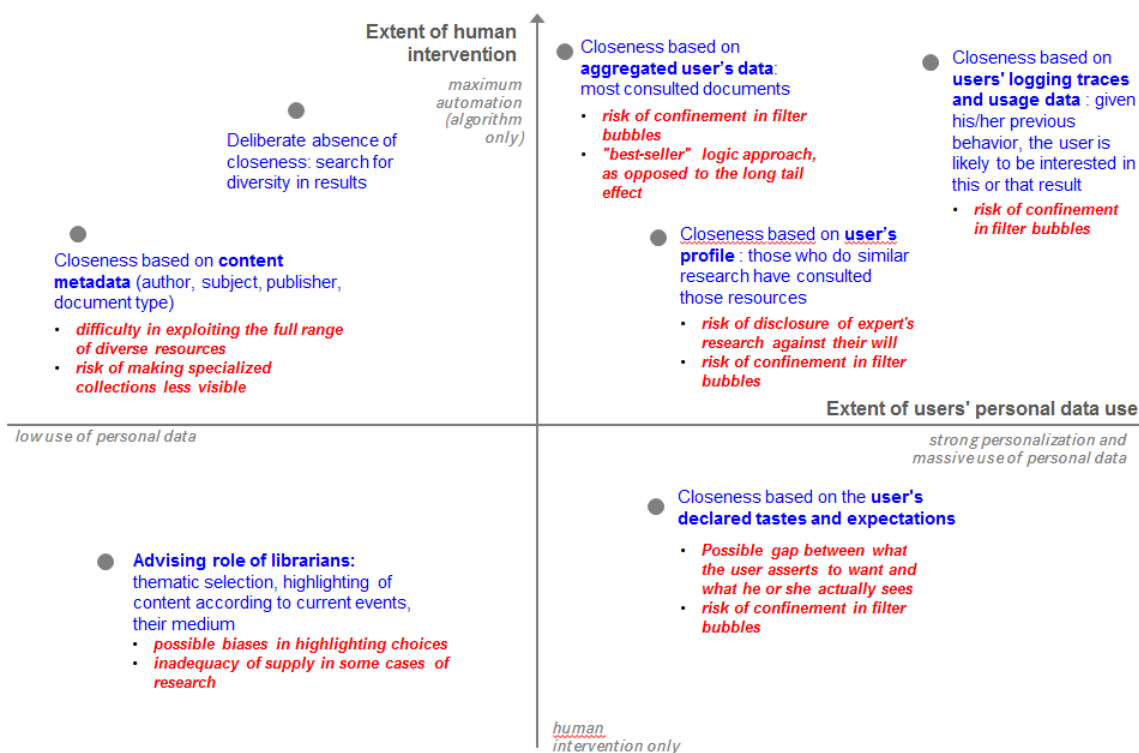
Extent of human intervention

maximum automation (algorithm only)

Deliberate absence of closeness: search for diversity in results

Closeness based on **aggregated user's data**: most consulted documents
- *risk of confinement in filter bubbles*
- *"best-seller" logic approach, as opposed to the long tail effect*

Closeness based on **users' logging traces and usage data** : given his/her previous behavior, the user is likely to be interested in this or that result
- *risk of confinement in filter bubbles*

Closeness based on **content metadata** (author, subject, publisher, document type)
- *difficulty in exploiting the full range of diverse resources*
- *risk of making specialized collections less visible*

Closeness based on **user's profile** : those who do similar research have consulted those resources
- *risk of disclosure of expert's research against their will*
- *risk of confinement in filter bubbles*

low use of personal data

Extent of users' personal data use

strong personalization and massive use of personal data

Closeness based on the **user's declared tastes and expectations**
- *Possible gap between what the user asserts to want and what he or she actually sees*
- *risk of confinement in filter bubbles*

Advising role of librarians: thematic selection, highlighting of content according to current events, their medium
- *possible biases in highlighting choices*
- *inadequacy of supply in some cases of research*

human intervention only

Figure 1: Several possible levers for setting up a recommendation algorithm, and their main limits from an ethical point of view

Beyond a dichotomy between user privacy (advocating for "manual" recommendations of librarians by thematic selections) and personalization based on massive use of user data, hybrid in-between scenarios could be considered where users could use adjustable settings within the recommendation engine (Paraschakis, 2017) and librarians would use the algorithmic recommendations resulting from aggregated data as an aid to manage content on the platform[17], without direct interaction between users and recommendation algorithms.

Raising awareness through interface design

A way of enhancing users' trust in the recommendation system and confronting the privacy and personalization issues lies in the design of the interface and its ergonomics. Example of paths to explore could be: the explicit naming of recommendation criteria ("people interested in this title have also consulted this...", "surprising suggestions", "opposite to your searches", "what the BnF recommends to everyone"), letting users configure their preferences[18], update them and adjust the degree of relevance (as opposed to diversity) they want to reach, or even proposing two browsing modes, with or without a recommendation. Interface ergonomics and UX design are at the core of stake, as well as IT issues and social science approach.

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[17] The National Audiovisual Institute (INA) is moving towards this solution by mobilizing artificial intelligence technologies to strengthen its missions of promoting and preserving audiovisual heritage. Cf G. Poupeau, "En quoi l'intelligence artificielle constitue pour l'INA une opportunité pour renforcer ses missions de valorisation et de conservation du patrimoine audiovisuel", Fantastic Futures Conference, december 2021, https://www.bnf.fr/fr/mediatheque/en-quoi-lintelligence-artificielle-constitue-pour-lina-une-opportunite-pour-renforcer

[18] Not only by declaring them through filling out a form but also the possibility of balancing the weight of personal preferences in the list of results proposed to the user

While there are many trade-offs to be resolved when designing a recommendation system, avoiding ethical concerns would only lead to user fear and mistrust. Thus ethical issues must be addressed at every stage of development of the recommendation system, and across different perspectives ranging from data engineering and data sciences to UX-design, Human-Computer Interaction, and social sciences.

In practice at the BnF: towards a new pattern that requires exemplary choices

The BnF plans to develop, from 2023, a prototype to experiment with algorithm-based recommendations with ethical concerns. It will be designed according to three approaches: data engineering and algorithm training, prototype designing after UX design principles, and uses studying based on sociological science.

How the issues previously raised are taken into account, concretely, at the Library? How should such a new service be conceived to meet the interests and values of the citizens who are likely to benefit from it, but also of the staff itself and partners? Just as researchers' practices have been thoroughly transformed by the increasing volume of content available in text mode, in the same way, the introduction of algorithm-based recommendation will, indeed, lead to a groundbreaking change in the facilities offered by the Library to researchers and an in-depth upheaval in their research strategies. Several means will be combined: institutional ones, but also organizational, technical, and legal ones.

Taking part in a global strategy

First, as explained above, personalized recommender systems should not replace other user-oriented content adaptations, nor divert the Library from its way towards new mining methods or a new engine suitable for visual search in Gallica.

Besides, this project is mentioned in several roadmaps refining the Library's strategy, which guarantees that a consistent policy is developed about the institution's core missions: the MISAOA program (shared and innovative collection, preservation, and dissemination of audiovisual heritage), dealing with the digital legal deposit, plans to improve users' digital environment and experience with "intelligent" recommendations of audiovisual documents; the Library's 2022-2026 Objectives and Performance Contract echoes the main ambitions of its [Roadmap on artificial intelligence](#), where the personalized recommendation is considered a key project. This roadmap has already given rise to a number of internal workshops and meetings on ethics to take a step back, better highlight common critical points encountered while developing projects, and gather good practices. Such an approach is part of a global accountable policy regarding digital technologies (sustainability, assessment of digital impact, transparent and respectful use of cookies, most services and content available online without having to login…).

Beyond its own concerns in the management or librarianship fields, the BnF also carries out its mission as a public service by getting involved in critical mind training and in developing

media literacy (talks open to all about artificial intelligence[19], partnerships with educational stakeholders…). Designing ethical digital services is not enough: users will trust an institution all the more when considering the set of all its different commitments, and when a public institution chooses to implement a personalized recommendation system, it's also to display the algorithms' effects, to make them visible, in order to raise citizens' awareness about the different ways they may be invited to discover resources and information. Suchawareness can be levered both by the ergonomics of platforms dedicated to public services, and by the settings of the algorithm: the recommender system's aims are thus made explicit, explainable, and controllable, as multiple and evolving they may be (e.g. saving time by getting quickly the most relevant results, or strolling along the collections via "side-steps").

Finally, The BnF is inspired by the government policy, especially the French Ministry of Culture's policy, on which it depends. In the document presenting its digital strategy (Ministère de la Culture, 2022), the French Ministry of Culture emphasizes the need to constantly monitor the evolution of uses, to maximize the discoverability of cultural content online, and it stresses how certain algorithms threaten cultural diversity, that feeds artists and creators. At an international level – if only one example is to be quoted – France and Québec have established several priorities in a common statement about the discoverability of francophone cultural content: what is at stake is, on the one hand, to strengthen the measures aimed at developing digital skills and at disseminating the idea of discoverability, and on the other hand to engage citizens so that they become aware of the role of large platforms, and of recommendation mechanisms in particular, in access to cultural content[20]. Regarding ethical issues and digital responsibility, many other international organisms inspire the BnF: UNESCO[21], European Union[22], etc.

Experimenting, evaluating

Conducted in complete transparency on a dedicated interface, with prior informed users and without generating prejudice for these users[23], the experiments will make it possible to measure the relevance of the results obtained by the recommendation system, the intelligibility and appropriateness of the service for the user, and to anticipate its long-term effects (is it likely, for example, to have repercussions on the digitization policy as such?). They won't pretend to encompass all issues at once but will focus on some points, various enough to take into account the different challenges raised: algorithms, interface… By identifying relevant evaluation indicators for the models and, generally speaking, by introducing validation steps along the whole development process, the Library will safeguard the project and its users.

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[19] E.g. a talk in French entitled "Is there an artificial intelligence?" (« Y a-t-il une intelligence artificielle ? », with Serge Abiteboul, Nicolas Sabouret, and Marie-des-Neiges Ruffo de Calabre, BnF, 20th of January 2022, https://www.bnf.fr/fr/agenda/y-t-il-une-intelligence-artificielle)

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[22] *The Artificial Intelligence Act*, https://artificialintelligenceact.eu

[23] To know more about the ethical approach of experiments, see Paraschakis, 2017, in particular p. 5-6 (« Online experiments »)

Sharing, welcoming various ideas and partners

Waiting for the magic time when operational and reliable recommendation algorithms are shareable according to an openness and transparency rationale but also to save investment costs, this project is already on its way toward pooled and networked developments, although it won't officially start before 2023. Senior and junior researchers and professionals, academic professors and postdocs, librarians with and without technical know-how, digital library managers, Gallica partners, lawyers, cybersecurity specialists…: all these people may fortunately currently meet at the BnF, but the Library also seeks external points of view to better share the discoverability challenge, especially of non-English-speaking content. International projects, in particular European, constitute a very suitable framework to ensure ethical recommendation by design.

Conclusion

In the course of this reflection, we have found the classic pairing of demand and supply that governs the development of library services. Considering the notion of personalization powered by artificial intelligence allows us to shed new light on the way the institution defines itself. Indeed, if the mission of a library – and the BnF in particular – is to enhance and develop diversity, openness, and curiosity, it cannot be satisfied with a demand-based logic and must also develop its offer. Not doing so exposes the library to the risk of losing what represents the core interests of its collections, however diverse and encyclopedic they may be, and of its documentary (or digitization) policy, i.e. the very basis of its existence. Not doing so compromises the heritage strategy, which aims to open up uses to unknown territories: in the wake of the ephemeral or neglected publications of past centuries, patiently collected by the library, the new objects that are now entering its perimeter (tweets, blog posts, Internet archives in general, NFTs, etc.) are likely to join the current collections of the digital library one day without any explicit or generalized demand calling for them at first. Within a narrow scope focusing on the satisfaction of demand, the librarian would become a simple statistician, analyzing traces of use and behavior.

In this combination of supply and demand, the role of the user takes on a new dimension. The integration of a recommendation system into the search engine allows the offer to be adapted in real-time to the demand of each specific user. The challenge is then to make the user aware of his new status. The aim is to empower him as an active and indispensable partner in the mediation process.

Thus, she/he must be respected, has rich humanity, and obliges us. The history that is beginning promises to be rich, but also demanding: in the name of the same diversity that applies to the documentary field, we must not accentuate the digital divide between expert users who have read a lot, explored a lot, and those who are just starting, who must, just as much as the former, be given access to a wealth of exciting documents.

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