Guiding Users to Improve Personal Information Management

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ABSTRACT

The challenges involved in the practice of personal information management (PIM) has become greater than ever due to dynamic and diverse environment, and increased responsibility for the user. Based on this observation, this position paper argues that more research efforts should be put on guiding users to improve their own PIM practices (behavioral approach), as opposed to building and evaluating tools (tool-based approach). I first describe several trends in the practice of PIM, and difficulties involved in the tool-oriented approach. Then I propose the behavioral approach as a promising research direction, suggesting a three-stage model of user guidance.

Keywords

Personal Information Management, User Education, Behavioral Approach

1. INTRODUCTION

In recent years, there has been several challenges in both the practice and study of personal information management (PIM). Personal information is increasingly scattered across many devices, applications and online services, especially due to the widespread use of mobile devices and 'apps'. Moreover, the introduction of new hardwares and softwares, or even new versions of existing ones require adaptation by users. Finally, as many PIM tools provide 'social' capabilities, each user increasingly performs the role of a producer, as well as being a consumer.

Collectively, this represents both a great opportunity and challenge to the information management of an individual user. Enhanced capability to access and share more information is certainly a blessing, yet the amount and variety of information to process, and the increased role of individual user can potentially aggravate information overload.

PIM research community has responded to this challenge, either by analyzing the PIM behaviors of users [3, 2] or developing tools that support PIM [4, 5]. Since most analysis studies were primarily aimed at providing guidances for tool designing, it is fair to say that most of PIM research efforts take tool-oriented approaches that are focused on the design and the evaluation of PIM tools.

However, considering the landscape of PIM practices, this tool-oriented approach is prone to several difficulties. Above all, given there there are a plethora of PIM tools freely available, getting a new tool adopted by sizable user population is a major effort, as evidenced by most PIM studies [4]. Even after it is adopted [5], few research tools can be supported for continued use, eventually incurring a tool-switching cost for the users who adopted them.

In this position paper, as an alternative to this tool-oriented approach, I propose a behavioral approach to PIM. The behavioral approach assumes that there exists enough PIM tools out there, and that we can improve the practice of PIM by guiding users to choose and use PIM tools effectively, instead of providing them with a new tool.

2. TOOL-ORIENTED APPROACH

As briefly mentioned above, most research efforts for improving PIM is, in some way or the other, centered around the assumption that users need better tools for supporting their daily information tasks. While this tool-oriented approach is certainly valuable in some cases, it seems that the challenges involved in this approach is growing over the years.

The first problem is that there already exists a lot of incumbent applications in not only major categories of PIM (e.g., calendar), but also in relatively new categories. For instance, in the category of goal-tracking software, which aims at helping people to manage and achieve goals, there are current 84 tools registered at an authoritative website [1].

It might be possible to create an application that fills some needs not fulfilled by any of existing applications, or applications can be built for the purpose of collecting data for research. However, a thorough evaluation of a tool in many cases relies on the tool being adopted by users in everyday tasks. And it would be certainly non-trivial for tools developed for research purposes to achieve the adoption by a sizable population.

Even if adoption is possible, the nature of research tools make them hard to be supported over periods beyond the lifecycle of the research. Given the pace of change in the landscape of PIM, tools that are not supported will become obsolete rather quickly (e.g., due to the lack of compatibility

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[1]http://www.quantifiedself.com

with a popular social networking service). Considering the cost of adopting a PIM tool for a user, this raises a moral issue in the tool-oriented approach: is it right to ask users to adopt a tool that is doomed to be short-lived?

3. BEHAVIORAL APPROACH

Given the difficulties involved in tool-oriented approaches for PIM research, here I introduce an alternative approach, which I call the 'behavioral approach' to PIM. It is motivated from the following question: if we have a number of PIM tools out there, wouldn't it be better to guide users to improve PIM themselves using existing tools, as opposed to providing them with yet another PIM tool?

There are several previous works in PIM literature that seem to validate this behavioral approach. Barreau et al. [1] questioned the skew toward tool-oriented approaches. Another recent work [3] performed a naturalistic study on the change in people's PIM strategies. The following observations and responses from study participants suggest that users do need some guidance in PIM:

- It seems that some people do not have a good mental model of their personal information as a whole, and that they happen to forget portions of their personal information collections and related strategies.

- For example, a participant feels overloaded by email, but she does not use any mail client, because "no one ever told (her) how to use them"

- Other participants also asked the interviewer for advice in their PIM or complained that they never have received lessons or hints for doing PIM.

The study concludes that: "Various people even asked us to help them better organize or train them to do better. But what is the best way, since each way seems suited to a particular person, job or tasks?" And this captures the essence of behavioral approaches for PIM. In what follows, I introduce a possible model of user guidance that is the key in the behavioral approach to PIM.

3.1 Defining PIM Requirements

As noted previously, in providing a guidance for PIM practices, a major problem is that a individual user has different needs and styles for PIM. Therefore, it is necessary to start the guidance procedure by defining PIM requirements. Specifically, we need to identify everyday information tasks of each user, and requirements from each task, and preferences in how he or she manages personal information.

Through this stage, users can form a concrete idea on what kind information they collect and need at various occasions, and requirements for tools that can support these tasks. It is critical to start from this specification of requirements, before considering which tools to use, because it is better to find a tool that fits the requirement of a given task, as opposed to fit the task into the given tool.

3.2 Guiding the Choice of PIM Tools

Once we have a specification of requirements for PIM, we can then provide guidance on the choice of PIM tools. Since there exist a myriad of options for tools of different categories, we can build a database of PIM tools and use it to guide the user's selection procedure. For instance, we can catalogue the input / output format of each PIM tool, and guide the users to choose a set of tools which are compatible with one another.

PIM requirements derived from previous stages would provide important criteria in evaluating various alternatives. For instance, if two types of information need to be accessed at the same time, they should be put into a single application, or at least in the same device or a pair of devices that can be accessed together. At the end of this stage, users can identify a set of PIM tools that can best satisfy their unique requirements.

3.3 Guiding the Use of PIM Tools

After the choice of PIM tools, remaining challenges are concerning the use of PIM tools. Firstly, an effective workflow should be established based on the tools of the user's choice. For instance, decisions should be made with respect to how (if ever) each information silos can be maintained. Also, this workflow needs to be re-evaluated to identify problems and possible improvements.

Also, many PIM tools are sufficiently complex that just using them effectively can be a challenge. For instance, Evernote, a universal note-taking applications, supports multiple and silos (notebooks) each of which can contain notes of multiple modalities (text, audio and pictures) and metadata (tag and location). For instance, the decision on which is the right unit of information for each note, and how to organize tags all requires considerations for information collection and use.

4. CONCLUSIONS

In this position paper, we described several difficulties of the tool-based approach for PIM, and introduced the behavioral approach as an alternative. Future work includes identifying user needs for guidance in PIM through surveys and naturalistic studies to validate the claims made in this paper.

5. REFERENCES

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