Study of the role of information professionals in Web information systems of the Canadian federal government1, 2, 3

Results synthesis
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École de bibliothéconomie et des sciences de l'information (EBSI), Université de Montréal

Christine Dufour, Ph.D.
christine.dufour@umontreal.ca; http://www.esi.umontreal.ca/~dufour/

On several occasions, information professionals have had to rethink their profession. Presently, they are challenged by technological developments that are transforming information as object and as process. Some such technologies, Web information systems (WIS), are increasingly adopted by organizations, in particular governments as they move toward becoming e-governments. However, no consensus exists as to the information professionals' role in WIS and few empirical studies have been done to examine this phenomenon. Thus this study seeks to outline, in an organization willing to become electronic, the Canadian federal government, a typology of WIS and to detail the WIS-related tasks of information professionals and of their partners working in WIS. This text describes the background, objectives and methodology of the study and presents the main findings, as well as a discussion of them.

Background and purpose

Web information systems (WIS), that is, information systems based on Web technologies and falling into four general categories (intranet, external Web site, extranet, e-commerce system), are some of the technologies currently challenging the information professionals. These WIS are increasingly adopted by organizations such as governments, as they move toward becoming e-governments. No reference models seem to exist for the many involved in WIS nor for the related organizational units and competencies. The role of information professionals in WIS, in particular, is not well known and, when it is documented, no consensus arises. But, as potential players in information and knowledge management in organizations, the information professionals should be involved in WIS.

This study thus seeks to illustrate, in an organization willing to become electronic, the Canadian federal government, the tasks of information professionals in WIS, to outline the types of WIS in which the information professionals are involved, and to describe the functions of information professionals' partners in WIS.

Methodology

This descriptive and exploratory study based on an qualitative approach used four means of collecting data: (1) an analysis of the WIS-related pan-governmental policies, (2) in-depth, face-to-face interviews with information professionals involved in WIS, (3) the relevant documentation, and (4) an analysis of the WIS in which the information professionals interviewed are involved. Different types of analyses were conducted on the gathered data such as a qualitative content analysis of the interviews and a comparative analysis of the data obtained from the WIS analysis.

Interviews were conducted with 32 information professionals4 from the head offices of 7 departments of the Canadian federal government chosen for their involvement in WIS. These information professionals, identified by telephone interviews with persons in charge of WIS-related units as well as from the snowball effect, are involved (1) in specific WIS such as the intranet of an information service, and (2) in more global tasks affecting the overall WIS of an organizational level such as developing policies for all the WIS of a department. The information professionals interviewed are involved in 21 specific WIS (11 intranets and 10 external Web sites). Fifty WIS-related information policies were identified: 7 policies that consider WIS in a global way, 14 policies concerning specific aspects of WIS, and 29 policies related to information management and information technologies.

Findings and discussion

The following sections present the main findings obtained and offer a discussion.

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2 Acknowledgements: Pierrette Bergeron, research director; Suzanne Bertrand-Gastaldy and Gilles Deschatelets, members of the research committee.

3 Acknowledgements: all the respondents to this study.

4 In this study, an “information professional” is someone with a master degree in information sciences or librarianship and information sciences (or equivalent).
Information professionals involvement in WIS

The information policies analyzed present different roles for the information professionals\(^5\): (1) "classical" roles related to librarianship and records management tasks, such as the intervention of archivists in an organization, (2) formalized roles in information management and communication as information specialists and "functional specialists", (3) roles extended to the electronic context, such as the consideration of electronic media by the National Library of Canada, and (4) some new roles specific to WIS, such as the participation of information services in the editorial committees of WIS.

In the reality observed, 24 WIS-related tasks executed by information professionals, divisible in 6 families, were identified through interviews with information professionals involved in WIS (Table 1). The predominant tasks are those related to content, but technological tasks, as well as the WIS management task, are also very present. The less frequent tasks are those related to graphic interface, to users and to policies.

In fact, three factors arise that can have an impact on the tasks of the information professionals in WIS as well as on the importance of the different families of tasks:

(1) **WIS general types**

One task differs between the external Web sites and the intranets: the development of electronic collections. As those collections are usually subject to fees, this task appears only in the controlled environment of intranets.

(2) **Information professionals' position types**

For example, the information professionals working as managers are more involved in tasks related to planning and management of WIS. The webmasters, also involved in the management of WIS, are strongly involved in the content management. The system librarians work mainly on the technological aspects.

(3) **Organizational levels represented by WIS**

For the WIS representing departments, for example, the information professionals are mainly involved in the management of the WIS and of its content. For information services' WIS, the information professionals usually are in charge of all the families of tasks.

Both the literature and the results show that information professionals are involved in the same six families of tasks. The predominant tasks are those related to the content, while those related to the graphic interface are almost absent. Some respondents said that this "multidisciplinarity" of information professionals predisposes them to manage and coordinate WIS, as well as to act as intermediaries. The reality observed shows that information professionals perform some tasks not documented in the literature: technology management, design management, updating knowledge, evaluation of the WIS performance and compliance with policies. The information professionals interviewed are more involved in the technological tasks than the literature suggests. In the reality observed, their involvement in policies varies in terms of the policies' scope and of the decisional power of information professionals therein.

**WIS in which information professionals are involved**

In terms of the general characterization of the WIS in which the information professionals interviewed are directly involved, the WIS analyzed represent three organizational levels: departments, divisions and information services (Figure 1). The information services are the most represented (a little bit more than 50% of the WIS analyzed). In terms of general types, an almost equal number of intranets and external Web sites have been found (respectively 11 and 10).

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\(^5\) In the policies analyzed, the "information professional" concept can be associated (1) to individuals with related professional titles such as librarians and archivists, and (2) to related organizational entities such as information services, the National Library of Canada and the National Archives of Canada.

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For different reasons, the specific analysis of the WIS has been done only for the external Web sites. The specific characterization of the external Web sites based on general, informational, technological, graphic interface-related and system-users' interaction-related characteristics of the WIS shows (1) a set of common characteristics corresponding, in part, to the requirements of the pan-governmental policies, such as the navigation means used and the visual identity, and (2) variations in, for example, the quantity of information, due, in part, to the organizational levels represented.

Therefore, the results show that the WIS can be characterized by their general types, their specific types and the organizational levels they represent:

- **WIS general types**
  The information professionals interviewed are not involved in extranet and e-commerce system – the absence of these two WIS types is also found in the literature, very few authors have written on the involvement of information professionals in extranet and e-commerce system. Yet these types of WIS also have an informational dimension where the information professionals can be involved.

- **WIS specific types**
  In term of specific types, the rich description obtained can also be useful to gain a better understanding of the professional competencies needed for WIS.

- **Organizational levels represented by WIS**
  The involvement of information professionals in WIS representing organizational levels other than information services shows that a certain recognition of the information professionals exists outside the information services. However, most information professionals are still belonging to information services (a little more than 60% of the information professionals interviewed) and involved in WIS representing information services (a little more than 50% of the WIS analyzed). The literature also supports the contention that information professionals' involvement in WIS is concentrated in information services.

### Information professionals' partners in WIS

In the WIS-related pan-governmental information policies, we find some new profiles dedicated to WIS, such as the Web page designers. In these policies, the roles of those involved in WIS are of two types: new roles added to existing positions (for example, the involvement of communication heads in the verification of the visual and editorial content of external Web sites) and roles extended to electronic context, such as the participation of the Treasury Board Secretariat in the management of policies extended to WIS-related policies.

The information professionals interviewed have identified individuals and organizational entities involved with them in WIS, both internal and external to the federal government (Table 2). The configurations of those involved can differ from one WIS to another. The simplest configurations have been found for WIS representing information services and the more complex, for WIS representing department particularly when the tasks are strongly decentralized.

Those identified are involved in the same families of tasks than the information professionals interviewed. However, they are not involved in some tasks of the information professionals, particularly the tasks more related to librarianship, such as the development of documentary tools. Only one new task has been found: policy management.

### Table 2. WIS-involved partners of the information professionals interviewed.

<table>
<thead>
<tr>
<th>ORGANIZATIONAL ENTITIES</th>
<th>CATEGORIES OF INDIVIDUALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partners internal to the federal government</strong></td>
<td></td>
</tr>
<tr>
<td>• Chief information office</td>
<td>• Content program manager</td>
</tr>
<tr>
<td>• Communications group</td>
<td>• Content provider</td>
</tr>
<tr>
<td>• Department division</td>
<td>• Manager</td>
</tr>
<tr>
<td>• Government On-Line office</td>
<td>• Technologist</td>
</tr>
<tr>
<td>• Graphics group</td>
<td>• Webmaster</td>
</tr>
<tr>
<td>• Group in charge of the content approval</td>
<td></td>
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<tr>
<td>• Information management and information technologies group</td>
<td></td>
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<tr>
<td>• Information service</td>
<td></td>
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<tr>
<td>• Policy group</td>
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<tr>
<td>• Security group</td>
<td></td>
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<tr>
<td>• Technological group</td>
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<tr>
<td>• Translation group</td>
<td></td>
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<tr>
<td>• Web accessibility service</td>
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<tr>
<td><strong>Partners external to the federal government</strong></td>
<td></td>
</tr>
<tr>
<td>• Technological company</td>
<td>• Content provider</td>
</tr>
<tr>
<td>• Web training company</td>
<td>• Technology consultant</td>
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<tr>
<td></td>
<td>• Translator</td>
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</tbody>
</table>

The partners identified by the information professionals and associated with technological and content-related tasks correspond to the literature. However, differences also exist, in part due to the context of the Canadian federal government. This is the case for the partners...
involved in tasks related to the graphic interface, who are not very present in the reality observed, but clearly identified in the literature, and for the partners associated with communications, who have an important responsibility in the WIS as we observed, but who are not very present in the literature.

In summary

Different variables affecting the intervention of information professionals in WIS emerge from this study (Figure 2). In general, as a component of the information environment, the information professionals will be influenced by the evolution of this environment. More specifically, three variables can be identified that have an influence on the intervention of information professionals in WIS: namely, the WIS types (specific, general, organizational levels represented), the types of position filled by the information professionals (managers, webmasters, system librarians, other information professionals), and the policy (information policies and organizational configurations). These variables will impact on the nature of the tasks, on the importance of the different families of tasks and on the proportion of the WIS-related tasks in the information professionals' work.

Other variables could be identified, for example, by studying the other components of the information environment. The extent to which the findings may be generalized may be affected by the milieu chosen (the Canadian government), by the restriction of interviews to information professionals (the information on the WIS-involved partners of information professionals is indirect) and by the WIS chosen (only WIS where information professionals are involved have been analyzed and, more precisely, only the external Web sites).

Conclusion

This study contributes to knowledge concerning the roles of information professionals in WIS, the WIS in which information professionals are involved, and the partners working with information professionals in WIS. In addition to theoretical and methodological implications, this research has practical implications in the form of recommendations for (1) institutions and associations which are in charge of the training of the information professionals, on the training related to WIS, and (2) organizations on the understanding of WIS and of the related tasks and competencies.

Further researches will continue to increase this understanding by the study of other aspects of this phenomenon, such as the study of other types of WIS (extranets, WIS in which no information professionals are involved, etc.), in different contexts (other types of government, other types of organization, for example), and from different perspectives (such as the impact of the competencies of the Web team on the usability of WIS or the use of WIS by information services).