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RBC Royal Bank's Online Banking Initiatives: usable design now and for the future

White paper

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Project Director

About the author

■ **JEFF LEES, M.S., CUA**, has worked in the professional human factors field since 1994, as a Project Director with Human Factors International, Inc. He has completed numerous projects, applying user-centered design principles to create intuitive computer interface applications. Specific areas of expertise include task flow analysis, information and navigation architecture design, screen design, screen design standards, Visual Basic programming, document creation, and management presentations.

He is responsible for working directly with clients to analyze complex computer-human interface issues, and for designing systems that are more intuitive and usable. His activities require expert skills in the areas of task flow analysis, high-level architecture development, user-centered screen design, rapid prototyping, document creation, and management presentations. Jeff works effectively with client system developers and user representatives to ensure technical feasibility and satisfaction of system requirements.

Jeff is a member of the Human Factors and Ergonomics Society, and the Usability Professionals Association.

Acknowledgments

I would like to thank Nicole Poirier, Manager of e-Commerce Initiatives at RBC Royal Bank in Toronto, for her help in preparing this case study.

I would also like to thank HFI's CEO, Eric Schaffer for contributing to this paper.

Background

Need to Improve Usability of RBC Royal Bank's Online Banking

RBC Royal Bank has offered online banking to its customers since 1996. The site has been very successful—providing over 2 million of the bank's 10 million plus customers with Internet access to account balances and transactions, as well as the ability to transfer money and pay bills—all from the comfort of home (or the office). While this original site, designed by RBC Royal Bank staff that had participated in some usability training, was quite good, it was not adequate for the bank's future strategy.

In late 2000 and early 2001, the bank began to realize that there were some potential usability problems with the site. Several new features and functions that promised to reduce costs and improve service had been added to the site (e.g., ordering checks, changing addresses, and being able to display account information from several different banks and financial institutions). But, the vast majority of customers didn't even know these functions were available (as evidenced by external interviews with customers and calls to customer service). As we say on one of HFI's tradeshow buttons says: "If the user can't find it, the function is not there."

The bank realized that something had to be done. The navigation model of putting all services and functions behind a single "Services" button was not working. Online banking needed a structural makeover.



RBC Royal Bank's Online Banking Initiatives

RBC Royal Bank's project for online banking initiatives set a road map for future functionality needed in RBC Royal Bank's Online Banking (such as financial planning tools and ready access to finance-related content). The high-level goals for the project were to find ways to make money for the bank, save money, and increase customer satisfaction. Toward this end, the project had the following objectives:

The overall objective was the creation of a self-service interface for personal and business banking including room for growth to later encompass financial planning. More detailed objectives included:

- Bring the best of what the bank has to offer its clients together in one place through seamless integration of features, services, and transactional banking (e.g., a “branch in your home”)
- Provide direct access to financial offerings, tools, and products to those that are most interested in them (the current customers)
- Enhance support for a multi-channel strategy (bank at a branch, through automated phone IVR, by phone bankers, ABM's, and online)
 - Enhance service and support in the online channel but allow use of all channels to maintain customer choice
 - Provide better coordination between channels
- Align personal and business online banking
 - Need a holistic view of clients—current offering is fragmented
 - 70% of small business customers are personal banking clients
 - Need capability for a unified view (single sign-on)
- Increase perceived value of online business banking
- Minimize support calls through a compelling and easy-to-use interface
- Create a world class, up-to-date look and feel reflecting the RBC Royal Bank brand
- Implement all of these changes while maintaining high satisfaction levels with the core functionality of the site (checking balances and transactions as well as transferring money)
- Provide a development blueprint for ensuring usable design in future iterations of the site

After talks with several outside vendors, RBC Royal Bank contracted with Human Factors International, Inc (HFI) to meet these needs. This decision was influenced by HFI's experience in the financial sector as well as HFI's unique ability to handle all phases of the usability process (from review, to design and standards, to institutionalization). In addition, HFI's ability to address the ‘big picture’, a factor of great importance to bank executives, was a key ingredient.

The Results

This white paper walks through the process that was followed by HFI in support of the project and concludes with what steps are being taken at RBC Royal Bank to institutionalize usability. The portions of the project described in this paper were completed between May 2001 and January 2002.

Account Balances

Account Type	Account Number	Balance
Banking Accounts		
Checking	02342-3011381	\$ 870.07
Checking	02342-3011348	\$ 4,028.28
Checking (ATM)	02342-3081280	\$ 153.35
Checking (ATM)	02342-4913029	\$ 1,128.94
CD	4112-394-008-009	\$ 408.74
Royal Bank Card	07922-2201950-001	\$ 970.07
Investment Accounts		
Money Fund	04260400	\$ 11,007.73
CD	0615009002	\$ 25,369.00
Total Investment Accounts		\$ 36,376.73
Debitage		
Active Debt - CD	3000000	\$ 29,020.00
Active Debt - Investment	3000000	\$ 25,020.00
Total Debitage Accounts		\$ 54,040.00
Loan Accounts		
Personal Loan (CD)	07922-2275441-001	\$ 962.34
Mortgage Accounts		
Consolidated Business Mortgage	02342-401-2621-001	\$ 110,000.00

ACCOUNT BALANCE - June 2008

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Before

After

Initial indications are that the site has provided a smooth transition to the existing customer base of over 2 million users. Previously available, but seldom used functions (such as ordering checks) are seeing increased use. The bank's goals of making money, saving money, and providing better customer service are being realized.

User-centered design process

HFI applied its user-centered design process—The Schaffer Method™—in support of the project. (See full-size chart on page 18.)



Following The Schaffer Method process, these steps were performed:

1. **Evaluate current applications** An Expert Review of the public Web site was conducted with attention to how it interrelates with the online banking site. This step was completed concurrently with step 2.
2. **Know what the organization wants** One-on-one interviews were conducted with executives and key stakeholders across the bank to understand their needs and vision. This process took a little over one month.
3. **Know what the users want** One-on-one interviews with current RBC Royal Bank's Online Banking customers were conducted to gain an understanding of the needs and expectations of the users. This step took a little over one month.
4. **Design the structure** The high-level navigation structure for the site was created with detailed page designs for key functional areas. A simple (navigation only) HTML prototype of these pages was created and tested with users. Iterations were made as needed and the final design was presented to the bank. This step took approximately one and a half months.
5. **Check standards** The existing standards only defined the banner, footer, and general aspects of page layout. A new template-based user interface standard was created in a cooperative effort between HFI and the standards committee at RBC Royal Bank. This step took approximately 3 months.

Evaluate current applications

How good is the usability of the current site? There are many ways to gain an understanding of where a site or product stands in terms of its usability. Expert reviews, competitive reviews, and usability testing all provide valuable insight. However, time and budget rarely allow ALL of these methods to be employed (nor are all of these methods needed in many cases).

For RBC Royal Bank's project, an expert review of the public Web site (www.royalbank.com) was chosen as the best course of action.

Conducting an expert review was chosen instead of conducting usability testing because:

- Usability tests take longer to complete and are typically more expensive than an expert review.
- An expert review can focus on overall issues across the site. Usability testing is generally focused on specific areas—providing insight into specific usability questions.
- Best practice recommendations that come only from the expert review can be applied to a wider range of sites.

A review of the public site was chosen instead of a review of RBC Royal Bank's Online Banking site because:

- The design team already understood the need for redesign of the current site, but wanted to get insight on how current practices on the public site might best be leveraged by the new RBC Royal Bank's Online Banking site (and a clear determination of whether or not the practices should be leveraged).
- A key function of the public site is to get existing customers into online banking. Focusing part of the review in this area would provide insight on how to best integrate access between the two sites.
- A review of the public site (which was undergoing redesign at the time) would provide much wider exposure of the initiative across the bank as a whole.

An example page from the review shows how the review identifies each problem, but also includes suggestions for improvement.



While hearing the results of the review was at times painful, it was deemed an indispensable part of the project. The review reached more parties across the organization and increased awareness of the usability initiatives occurring in the project.

Internal data gathering: understanding what the bank wants

An understanding of the organizational needs is required for any design effort. In this step, requirements as well as the vision of the organization are identified. 42 interviews were conducted with executives and stakeholders representing all facets of the RBC Financial Group. These interviews served two purposes:

1. Gaining an understanding of each stakeholder's vision and needs for the site. This includes a high-level understanding of branding, marketing, technical, product and service needs of the organization.
2. Providing increased visibility to the project and the design process. This was a new development process for the bank and the interviews allowed the Blueprint team to set early expectations while gaining insight on requirements.

Most of the interviews were one-on-one. The interviews consisted of a brief overview of the goals of the project, a brief discussion of HFI process and methodology, and a question and answer session in which HFI staff focused on the current initiatives as well as vision and needs of the stakeholder's department. Interviews also included a discussion of what had been learned so far and how information gained in each particular interview might integrate with the overall picture.

To gain an understanding of the issues that current customers had with online banking, additional interviews and observations were scheduled with Customer Service representatives in the Moncton and Mississauga call centers. While not the same as talking to actual customers, this additional step brought attention to potential problem areas and allowed for better preparation going into the user data gathering interviews.

Communicate early concepts by sketching the vision

Traditional human factors methods indicated that it is better to avoid drawing a design before you have a good understanding of the user's needs. There is a danger in locking into a design too early in the process—making it hard to change the design even when you find the users real needs demand a different design direction. However, it is also very difficult to discuss abstract concepts without having something visual to point to.

Pencil and paper (or whiteboard) sketches of the initial conceptual design were made during each interview. Rather than showing the participants a previously created drawing, the sketch was recreated for each interview. This allowed us to visually communicate what we had heard so far from the interviews while incorporating concepts from the current interview. This technique proved to be very successful in focusing the interviews as well as in obtaining new insights and feedback from each of the interviewees.

The keys to the success of this approach are as follows:

- Use low fidelity sketches. Focus on functional areas and high-level navigation, not detailed design and content. Convey the concept, not the detail.

- Re-create the conceptual sketch for each interview. This makes the process more interactive and engaging for the interviewees. The non-verbal communication being, “we are listening to your input and the design concept is still easily changeable”. The use of a rough sketch also conveys that the design is conceptual better than the use of a polished picture.
- Remind yourself and the participants that the sketch is probably wrong! When you talk to users in the next phase you'll refine it and get it right..

The Strategy Session: A Checkpoint

After completing internal data gathering, a strategy session was conducted with all of the key stakeholders present. In this meeting, the team reviewed what had been learned so far and how it translated to a conceptual design. The strategy session also provided an opportunity for the design team and stakeholders to correct any misconceptions and/or adjust the scope of the project as needed.



Figure. The culmination of the internal data gathering is shown in a conceptual design presented to the stakeholders and design team. This design represents a combination of requirements gathered from the internal data gathering interviews with best practice design input from HFI.

Understanding the users

Understanding the users is the most critical step of the user-centered design process. Through interviews within the organization, it is possible to get an impression of the types of users for a system. However, this impression is often flawed since it is filtered through the organization. Data gathering through interviews and/or observation is the best way to truly understand the users of a system.

A total of 63 interviews were conducted in this phase. The table below shows the number of users interviewed in each segment:

Personal Banking	35 participants (of these 19 had a financial plan, and 15 were owners of small businesses)
Business Banking	28 participants (a mixture of executives, controllers, and accounting clerks that would use online business banking)

Interviews were conducted at two locations: in downtown Toronto and in suburban Toronto. This was a cost saving step since previous research conducted by the bank indicated that there was not likely to be a significant difference in responses of English speaking customers across Canada (some differences were expected with French Canadians, but these would be accounted for in a later phase of the project).

One-on-one interviews were conducted in a focus group research facility with one-way glass and video taping to allow members of the bank's development and management teams to observe the interviews. The protocol for the interviews was as follows:

Personal Banking

- Background questionnaire and release form (pre-interview)
- In-depth interview to understand banking and financial planning needs
- Questionnaires
 - Terminology
 - Preferred Features
- Card sort of banking products and services
- Usability test of conceptual design
- Rating of Concept (USE survey)

Business Banking

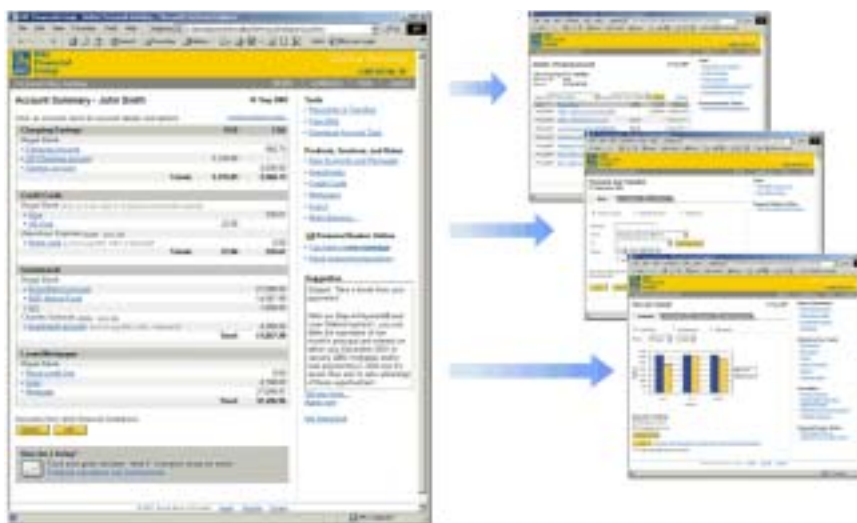
- Background questionnaire and release form (pre-interview)
- In-depth interview to understand need for business banking tools.
- Questionnaires
 - Terminology
 - Preferred Features
 - Preferred method of communicating with bank
- Card sort of bank products and services
- Feedback on business online banking concept

While a variety of questionnaires and survey techniques were used answer specific questions, the overall goal of the data gathering interviews was to understand the mental models of a variety of online banking customers. The design of the interface would come from this understanding.

Design the structure

With the inputs from the internal organization and users of the system in place, design work begins in earnest. The tried and true method of design at HFI is to first design the underlying structure of the site with a small set of detailed design pages to support the design as it is carried forward into initial usability testing of the navigation structure. This approach is similar to that of city planning: before you start designing each individual building, you need a plan for how the city will be zoned and what types of structures are planned in each area (i.e., you know that there will be a park in a given location, but you do not need to design each park bench yet).

Unlike many projects, this one was very thorough in the data gathering phase—allowing the design concept to grow and change considerably before the “official” design phase. This head start allowed the team to concentrate more on detailed design than is typical at this stage of the design process. Nine screens were developed in detail and put together in a navigable HTML prototype (using static screens). The HTML prototype was then used in usability testing.



Check the Design through Usability Testing

Usability testing of the site was conducted to verify the self-evidence of the navigation structure using a navigable prototype. Possible graphic treatments of the site were also tested at this point to provide direction on the look of the site.

Testing was conducted with 22 participants, representing a mix of personal banking customers, business banking customers, and combined “crossover” customers (users of both personal and business banking). Each one-on-one session lasted one hour and used the following protocol:

- Background survey
- Usability test scenarios
- Subjective usability measurement survey (USE survey)
- Graphic treatment survey

Results of the test were used to provide recommendations for iteration to the prototype:

Additional areas needing improvement: Personal Account Summary

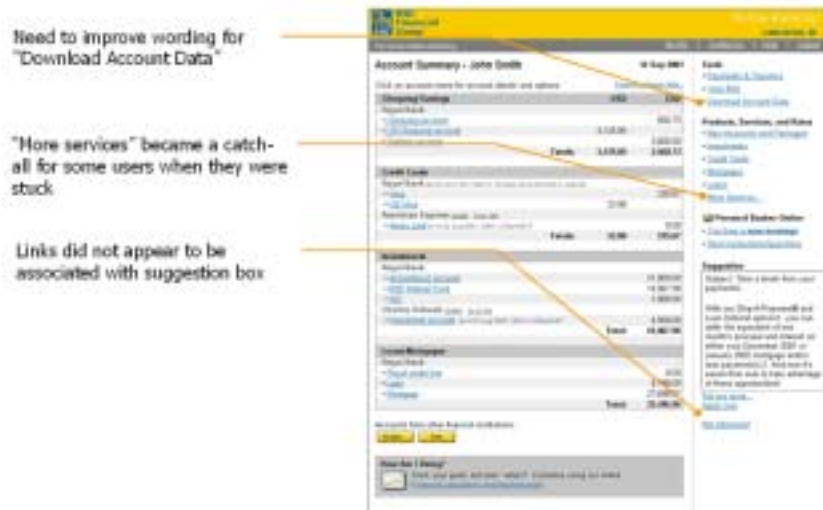



Figure. An example of the results from the testing sessions.

The graphic treatment test showed definitely favorable results for one of the designs over the others. The most promising aspect being that this design was closest to the new design the bank was releasing at the time.



Easy to use	3	5	1	0	8
Engaging	5	6	1	2	3
Awkward	4	2	5	6	6
Professional	2	3	4	1	7
Confusing	2	3	3	5	4
Reliable	2	6	2	0	8
Accountable	2	4	2	0	8
Out-of-date	3	1	6	2	5
Innovative	8	9	0	3	3
Efficient	5	5	0	1	8
Comfortable	4	6	1	0	8
Secure	2	3	1	3	7
Annoying	5	3	4	2	3
Friendly	5	6	1	0	5
Logical	3	4	2	1	7
Impersonal	3	0	4	2	7
Casually Elegant	4	5	1	2	5
Liked Best	5	4	1	0	7

Development of standards

Even the best navigation structure can become an unusable mess if poor detailed design is applied to the framework. Consistency and solid examples of good page design are keys to successful implementation.

Realizing this, the project team began reviewing the need for improved design standards before completing the structural design phase. The goal was clear: be efficient in design—design it once and speed the development process by allowing the development team to concentrate on developing the functionality of each page as opposed to getting stuck in endless discussions about fonts, colors, and proper page layouts.

Once again, HFI assisted the team by providing coaching and facilitation through the standards development process. A potential six-month (or more) process was reduced to less than three months. The approach was as follows:

- Form a small standards committee within the bank (fewer than 20 members). Staff the committee with key decision makers from areas across the bank. Members of the committee would then serve as spokespeople for their department throughout the process.
- Leverage existing standards from within the bank as well as HFI Usability Central Web Design Templates.
- Create a list of reusable page exemplars (visual layout templates) that will be needed by developers (e.g., menus, forms, confirmation screens, etc).
- Use HFI to act as the facilitator in committee meetings. The facilitator makes recommendations, but the standard and its decisions belong to the committee.
- Hold a series of three meetings. A kickoff where potential page types are recommended and decided upon, a second meeting where the selected page types are presented with supporting text, and a third meeting where the final page types and supporting documentation are presented and agreed to. The process is iterative. In between meetings, each committee member had 2 days to meet with their area/department and then provide additional feedback into the process. This kept everyone involved, but also kept the process moving forward.
- Conduct training sessions to introduce the standard. A series of training sessions were conducted with developers at RBC Royal Bank prior to the release of the standard.
- Remember that the standard is always 92% done. The only successful standard is one that adapts over time and is a living document.

Following the training, the Blueprint team retained the services of HFI for follow-up coaching and reviews. Within a couple of months, the development was going full speed and the need for coaching was minimized.

**Making it stick:
institutionalizing usability
at RBC Royal Bank**

Following completion of the standards, the real work of development and maintenance begins. How does an organization ensure future success?

RBC Royal Bank is making usability engineering a routine part of its development and maintenance process. There are a number of factors that must come together to ensure success (see How to Make Usability Routine on page 17), including:

Management Focus The RBC Royal Bank site managers have a clear understanding of the value of usability. However, it is hard to provide good executive management without clear metrics of success. RBC Royal Bank is establishing a set of metrics on the quality of user experience and the effectiveness of user performance on key tasks. These metrics will provide a focus for ongoing work.

Staffing RBC Royal Bank has a central executive responsible for user experience. But it has also created a position within the development organization. This position is “Manager of User Experience.” This manager is responsible for bringing usability engineering methods and technology into the site development work in her area. This development position is very acutely focused on business objectives and bringing usability engineering to bear on the business needs. The principles are simple: Make Money. Save Money. Satisfy Users.

Methodology RBC Royal Bank is incorporating a user-centric development method based on The Schaffer Method. Employing this methodology means that the user concerns are put first in the process. The organization's business model is understood, but the realities of the user needs and limitations are primary. RBC Royal Bank will implement rounds of testing to ensure that the designs really work.

Standards The project included the development of a customized standard. HFI facilitated a process that led to the development of a standard for the retail-banking arena. RBC Royal Bank staff found that 85% of pages could be designed by copying the best-practice templates in the standard. Having the standard in place has reduced development time by over 10%. Developers are saving crucial time by avoiding the need to reinvent the wheel. Most importantly, there was an improved quality of design and consistency experienced by RBC Royal Bank customers.

While RBC Royal Bank built the standard only for the retail banking arena, there is evidence of a growing acceptance of the standard within other parts of the bank. For example, “Direct Access,” RBC Royal Bank's brokerage site, just completed an evaluation and found that the standard will work for the brokerage activities as well. Almost no enhancement of the standard will be needed to cover most brokerage tasks.

Training RBC Royal Bank has provided training in usability for over eight years and is continuing that tradition. One of the classes taught regularly is HFI's Basics of Web Usability, a general orientation to usability seminar, which RBC Royal Bank purchased. RBC Royal Bank also hopes to see some of the staff complete HFI's Certified Usability Analyst program.

Conclusion

RBC Royal Bank's original retail site provided an adequate level of transactional capability. However, there was a need to restructure the site so the bank could provide more advanced online functionality.

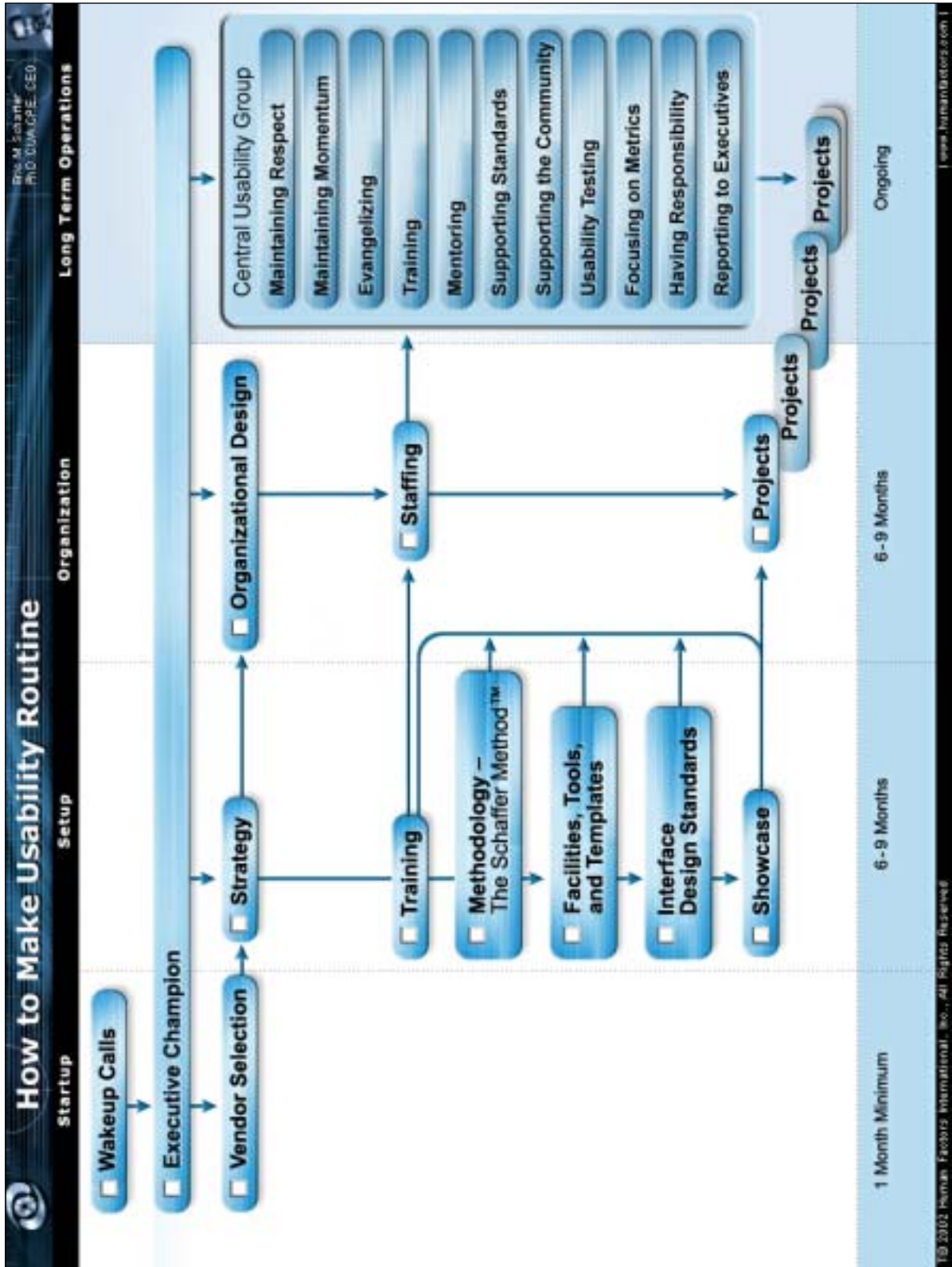
RBC Royal Bank employed HFI and its user-centric process to develop this new site structure. HFI worked together with RBC Royal Bank staff to conduct multiple cycles of data gathering with customers, which led to the eventual creation of standards for the ongoing screen design.

Following HFI's user-centric, practical process of development was reasonably quick and cost-effective. In fact, the use of the RBC Royal Bank standard probably reduced the development time by 10%.

The final design of the site met the strategic needs of the bank. The transition to the new site was quite painless, with few calls for clarification of the design. Once the new site was in place, RBC Royal Bank found that more customers were using the advanced functionality. The site was successful in making money, saving money, and increasing customer satisfaction.

RBC Royal Bank is moving ahead to make usability a routine part of their site and application development. The bank is bringing to bear staffing, training, standards, and testing, within a user-centric methodology. We believe this will create a long-term competitive advantage. Customers can expect to find that the bank will be progressively easier to do business with. Internal applications will be more effective and the resulting savings can be shared in more competitive rates. In the end, RBC Royal Bank will be a more attractive place to do business.

How to make usability routine



The Schaffer Method of user-centered design

