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An integrated approach towards linking intranet information portal with CMS and CRM: a bank application

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Abstract: - Information overload and customer relationship management have been issues for many large banks. In this paper, a Web-enabled integrated approach towards linking an intranet information portal, content management and customer relationship management functionalities is put forward, developed and tested. The evaluation findings from a bank case in London suggest that the proposed approach and associated software system are user-friendly, efficient and effective.

Key-Words: - intranet information portal; content management system; customer relationship management; system evaluation; bank; Web-based information management

1 Introduction

A number of large banks across the world have been experiencing the problems and difficulties in managing their information. To list some: Inability to handle the quantity of information received; poor efficiency and poor effectiveness; poor security; difficult to find the desired information; compliance issues (e.g. Data Protect Act); and related hidden business costs. In addition, customers and customer relationships are becoming essentially important to business success and should be carefully considered in the formulation of marketing strategies and the applications of advanced information systems [10, 11].

This project is to deal with the above-mentioned business issues through a Web-based solution that integrates information portal, content management and customer relationship management, with an application focus on the London branch of a large European bank.

2 Proposed solution

The proposed solution is an integrated approach that links an Intranet-based information portal

with a content management sub-system (CMS) and customer relationship management (CRM) functionalities for banks with information overload and CRM problems.

Bank employees can access to a wide range of information. Accessing to such information can increase productivity, improve decision-making and reduce the needs for reproducing information each time when it is required.

The CMS provides the capabilities to create, capture, manage, secure, store, retain, destroy, distribute, search, personalize, and present digital contents for a bank. This will bring such major benefits as enriched information and knowledge sharing and collaboration; improved data security; standardization and lower web publishing costs; scalability and cost efficiency; and 're-usability' of the contents for multiple media [1], as well as promote common corporate culture, centralisation of data and cross-platform capabilities. The CMS enabled knowledge management will help improve business performance and marketing performance by using technology to capture and share the lessons of experience [2, 15]. By embedding knowledge, companies can reduce

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the information overload of their employees and improve the consistency and effectiveness of knowledge use throughout the company [3].

The CRM functionalities will help the account managers to manage their relation with customers better, helping to consolidate the current business and increase their portfolios in a more controlled and efficient way. All the information of customers should be available, with functions to perform queries, help the commercial department in order to prepare targeted campaigns. It can also be very useful for the compliance department with regard to enquires on expired documents and keeping documentation up-to-date.

CRM enhances customer relationships and improves retention rates. Building relationships with customers helps account managers to better understand and satisfy customer [4]. The recent shift away from the transaction-based view has paid attention to the beneficial effects of dealing with customer relationships [5]. Many businesses now believe that long-term success is contingent upon good customer retention and successful customer acquisition [9]. This is particularly true in financial sectors, where the combination of product complexity and intangibility has tended to emphasise the importance of the relationship with the service provider [6].

An Intranet portal can be the access point to the new information repository. It can provide an easy and intuitive navigation through the information using taxonomy and search functions, enabling to retrieve the information in a more efficient and effective way.

The tools employed to implement the intranet-based system are: Web server *Apache*; programming and scripting packages such as *PHP*, *HTML*, *JavaScript*, and *MySQL*; content management system *Drupal*; customer relationship management *CiviCRM*; WC3 the World Wide Web Consortium standards, and others.

The development methods employed in this project include user centred design and prototyping. The integration and communications amongst relevant components, elements and sub-systems are achieved using a Web-enabled inter-communicating hybridisation method [12, 13, 14]

The proposed general system navigation architecture is illustrated in Fig.1. It shows an overall framework for the main contents and functionalities grouped into categories for banks. Obviously, this framework can be tailored or extended to meet the business needs of a specific bank.

3 System evaluation and findings

An application system of the proposed method has been implemented in the London branch of a large European bank. An illustration screen shot is shown in Fig. 2.

The intranet-based information portal, CMS and CRM applications have been evaluated with the users in the bank. Our evaluation research aims to explore the value of the proposed approach and associated system, with a focus on usability, information quality, efficiency, and effectiveness [7, 8].

Five managers and supervisors, and seven clerks, participated in the evaluation in late 2007. Their comments on the integrated information portal, CMS and CRM system were collected using questionnaires with scales ranging from 1 to 7 where 1 - strongly disagree or least important, 4 – Neutral, and 7 - strongly agree or most important.

Taking into account that the users, by nature, have a resistance to change and use a new system, the results are still encouraging and show that the implementation has been a success.

The system has created a paperless environment, speeded up some business processes, improved quality of work and user satisfaction, and thus have enhanced efficiency and effectiveness. The results are summarised in Table 1.

When analysing questionnaire feedback in more detail, we can see that the five key players (managers and supervisors) in the organisation have a more positive view of the system and they can feel more benefits. The findings are given in Table 2.

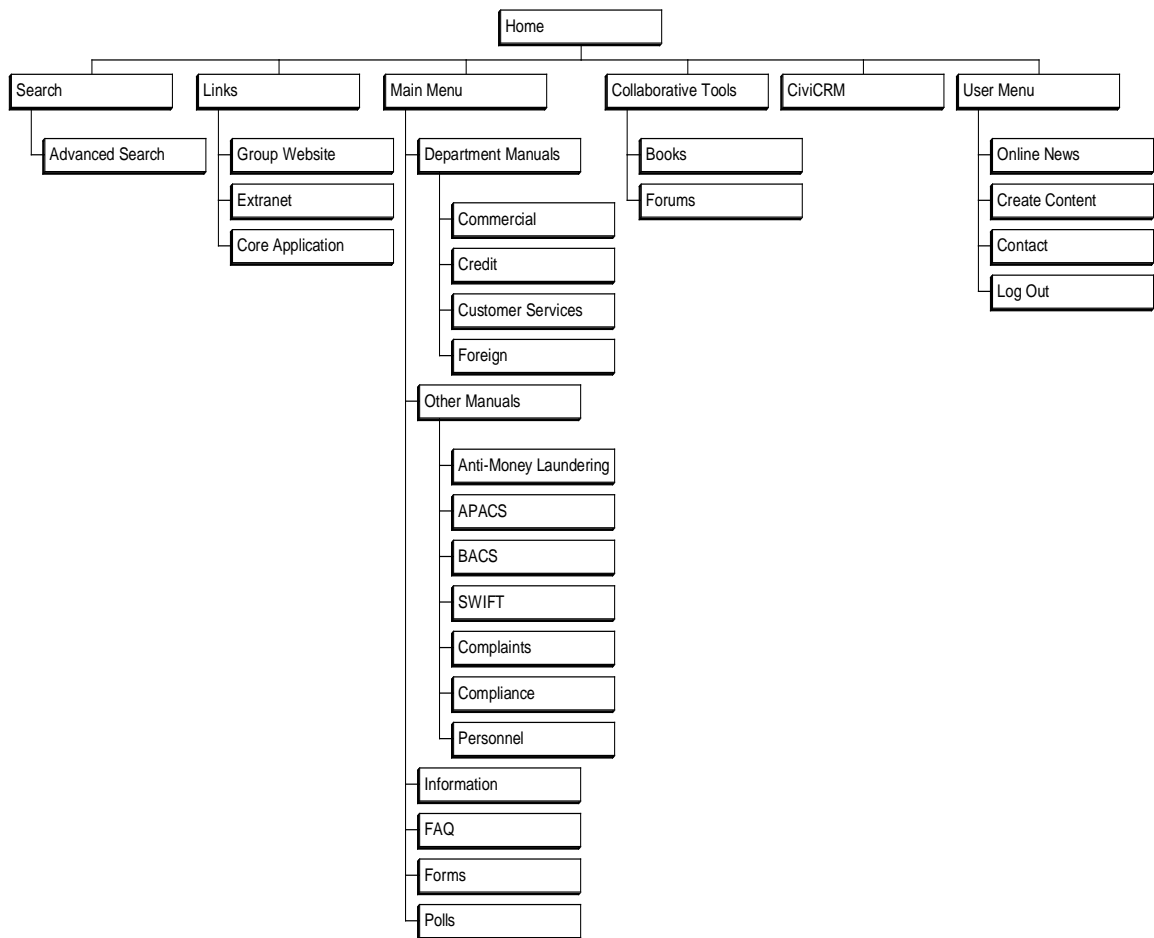


Fig. 1. The proposed general system navigation architecture

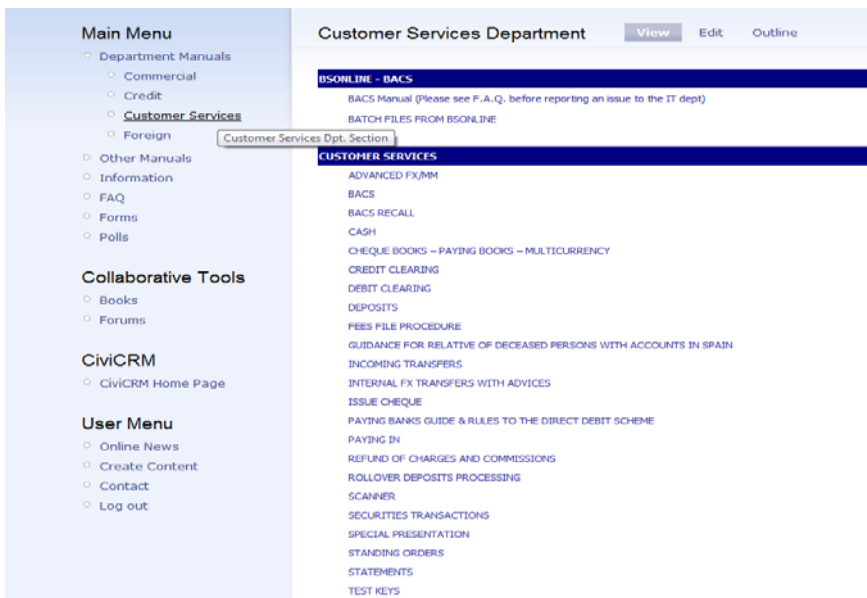


Fig.2. An illustration screen shot

Table 1. Data collected from the 12 participants

Usability	Average
1. The system is easy to learn	5.5
2. The system is easy to use	5.5
3. The interaction with the system is clear and understandable	5.25
4. The system has an attractive appearance	6.33
Usability Average	5.65
Information Quality	
5. The information portal provides accurate information	5.08
6. The information portal provides timely information	5.8
7. The information portal provides relevant information	5.08
8. The information portal provides easy to understand information	5.3
Information Quality Average	5.29
Efficiency	
9. The system helps save time	4.58
10. The system helps reduce costs	4.42
11. The system helps save labour	4.42
12. The system helps increase speed	4.83
Efficiency Average	4.56
Effectiveness	
13. The system helps improve satisfaction	4.33
14. The system helps improve the quality of work	4.5
15. The system helps improve customer relationships	4.92
16. The system helps customer retention	4.67
Effectiveness Average	4.60

(Note: The scale for the questionnaire items ranges from 1 to 7 where 1 - strongly disagree or least important, 4 – Neutral, and 7 - strongly agree or most important)

Table 2. Comparison of the feedback between managers and clerks (averaged scores)

	Usability average	Information quality	Efficiency average	Effectiveness average
Managers & supervisors	6.05	5.90	5.40	4.70
Clerks	5.36	4.86	3.96	4.54

4 Conclusions and further work

We have proposed an intranet-based integrated information portal, CMS and CRM approach towards bank information management applications. Our approach and associated software system has been implemented and tested in the London branch of a large European bank.

The intranet information portal has improved efficiency and effectiveness across the bank. The CMS sub-system has helped the users to create, manage and publish electronic contents efficiently and effectively.

The CRM sub-system has enhanced the quality of work of the commercial department, through improving customer retention rates and managing a bigger portfolio, and therefore the bank branch can grow in a more controlled way.

In addition, other departments of the bank and specially the customer services have benefited from the know-how container, where the rotation of staff is very high. Training new staff is also easier and new employees find the system very helpful.

The evaluation findings indicate that the approach and system work well and can bring positive changes and obvious improvements on information quality, information sharing, and customer services.

It is worthy of note that proposed system architecture, framework and associated software applications will need tailoring, maintenance and upgrading. New functions should be added in line with dynamically changing business requirements. Furthermore, the system’s contents such as new standards, new policies, new roles and responsibilities should be reviewed regularly and should be maintained up-to-date.

Further work on this topic will focus on the extending the architecture and frameworks, and will

be concerned with the development and testing of Web-based knowledge automation expert systems and multi-agent systems [7, 17] for banks, environments-sensitive rapid reaction smart system [16] for customer relationship management, and hybrid intelligent monitoring and assessment for business performance and marketing performance [15].

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References:

- [1] V. K. Gupta, S. Govindarajan and T. Johnson (2001). Overview of Content Management Approaches and Strategies. *Electronic Markets* 11 (4):281-288.
- [2] T. Stewart (1997). *Intellectual Capital: The New Wealth of Organizations*, New York: Doubleday.
- [3] R. Cross and L. Baird (2000). Technology Is Not Enough: Improving Performance by Building Organizational Memory. *Sloan Management review*, 41(3), 69-78.
- [4] P. Kotler (2000). *Marketing Management*, Englewood Cliffs: Prentice Hall.
- [5] C. Gronroos (1989). Defining Marketing: A Market-Oriented Approach. *European Journal of Marketing* 23(1), 52-9.
- [6] S. Dibb and M. Meadows (2004). Relationship Marketing and CRM: a Financial Services Case Study. *Journal of strategic marketing* 12(2), 111-125.
- [7] S. Li (2005). A Web-enabled hybrid approach to strategic marketing planning: Group Delphi + a Web-based expert system. *Expert Systems with Applications*, 29 (2). pp. 393-400.
- [8] S. Li and J. Z. Li (2011). WebDigital: a Web-Based Hybrid Intelligent Knowledge Automation System for Developing Digital Marketing Strategies. *Expert Systems with Applications*, 38 (8). 10606-1061.
- [9] F. Reichheld and D. Kenny (1990) The hidden advantages of customer retention. *Journal of Retail Banking* 12(4), 19-23.
- [10] S. Li, R. Kinman and Y. Duan, and J. Edwards (2000). Computer-based support for marketing strategy development. *European Journal of Marketing*, 34 (5/6). pp. 551-575.
- [11] S. Li and J.Z. Li (2010). A web-based hybrid system for blended electronic, mobile and social media marketing planning. In: *IEEE Proceedings of the International Conference on Computer Science and Service System (CSSS 2012)*. IEEE, pp. 3549-3552.
- [12] S. Goonatilake and S. Khebbal (1995). Intelligent hybrid systems: issues, classifications and future directions. In *Intelligent Hybrid Systems*, Goonatilake S, Khebbal S (eds). John Wiley & Sons, Ltd: Chichester.
- [13] S. Li and J. Z. Li (2009). Hybridising human judgment, AHP, simulation and a fuzzy expert system for strategy formulation under uncertainty. *Expert Systems with Applications*, 36 (3, part 1). pp. 5557-5564.
- [14] S. Li and J. Z. Li (2010). WebInternational: Combining Web Knowledge Automation, Fuzzy Rules and Online Databases for International Marketing Planning. *Expert Systems with Applications*, 37(10), pp. 7094-7100.
- [15] S. Li and J. Z. Li (2013). A web-based hybrid system for evaluating marketing and e-commerce web site performance. In: *Proceedings of 2013 Fourth International Conference on Digital Manufacturing & Automation (1st International Conference on Computer Integrated Manufacturing and Automation (ICCIMA2013))*, 18th - 19th May 2013, Qingdao, China. IEEE, pp.94-97.
- [16] S. Li (2012). A hybrid self-surviving, self-organising and adaptive foraging multi-agent approach towards advising and optimising combined strategies for marketing and competing in China. In: *IEEE Proceedings of the International Conference on Management and Service Science (MASS 2012)*. IEEE.
- [17] A. A. Hopgood, A.A. (2012), *Intelligent Systems for Engineers and Scientists*, 3rd edition, CRC Press, Taylor & Francis Group, Boca Raton, FL.