A New Contingent Methodology For Developing Marketing Websites

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Abstract— This paper discusses the development of a new methodology for creating effective websites, especially those used for marketing. It was found that existing methodologies were often missing, or under-utilizing, some key aspect, including user participation and "real interaction" (i.e. monitoring of user interaction with a prototype site). This has led to users being frustrated and lacking loyalty to the website. There is great potential for combining aspects of methodologies from different disciplines; however, these need to be integrated in a coherent way. After studying relevant methodologies and integration techniques, the strongest aspects of the various methodologies were combined into a new methodology. This new methodology was assessed by two research phases; interview and questionnaire. This led to revision of the new methodology. An overview of the contingent methodology is provided together with proposals for further research.

Keywords— Developing Websites, Human Computer Interaction, Integrated Methodology, Usability.

I. INTRODUCTION

Internet marketing is a "*new branch of an old tree marketing, which can be defined as the process of satisfying human needs and wants with information, services or products, through the exchange of money*" [1; 22]. Consequently, Internet marketing "*is a system for selling products and services to target audiences who use the Internet and commercial online services by utilizing online tools and services in a strategic manner- consistent with the company's overall marketing program*" [1;17]. Therefore, to be a successful online marketer, the basics of the marketing process should be established first, which are, "*needs assessment, market research, product development, pricing, distribution, advertising, public relations, promotions and sales*" [1;22]. Internet marketing has its roots and "*basis in traditional marketing concepts but branches out in a most important manner - "interactivity"*" [1;22]. Today, suppliers have the capability to deal interactively with consumers at any time of the day or night in their home or office. The buyers can interact with their suppliers in two-way, not one-way, communication.

It is obvious now that there are various advantages to companies in using online retailing such as "*quick access to the information, capturing a global audience 24 hours a day, seven days a week. Lately, the longer working day is driving customers away from queues at shopping malls and turning them to the convenience of the Internet*" [2]. Furthermore, the benefits to consumers and marketers include the ability "*to create dialogues that lead to long-term relationships*" [1;6].

Internet marketing opportunities can be "*neatly divided into two areas: products and services*" [3;10]. The usefulness of the Internet depends directly on the products or services of each business. There are different benefits depending upon the type of business, whether a supplier, a distributor or a retailer. The Internet is rapidly becoming an active marketplace for buyers and sellers for a fast-growing pool of consumer goods and services. Though still a small slice of the total shopping pie, the World Wide Web in just a few years has become an important outlet for manufacturers and retailers of everything from information, clothes, food and books to computer toys and travel arrangements. Online ordering is also becoming increasingly common. Often this involves an initial setting up of an account for an individual by providing a credit card number or other sensitive information by completing an on-line form or via fax, telephone or postal mail.

By using the capabilities of the Internet, businesses can become more efficient and produce higher quality products, improving the commercial market for consumers. Internet marketing provides faster and more up-to-date information than traditional search techniques, allowing businesses to find essential information to integrate into their products more effectively. It is a magnificent research tool and communications device. By searching through databases and discussion groups, businesses can find information on their competitors, generate new product ideas, solicit the opinions of consumers, and learn new approaches to the way they conduct their business. However, successful Internet marketing still relies on "*many of the same basic principles that apply to any marketing efforts: knowledge, reputation, customer services and consistent image*" [4; S2].

Internet marketing also improves customer relations as businesses can interact more closely with the public and understand their customers' needs. By using Internet resources, businesses can make larger quantities of information available to the public than by using traditional

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marketing media. By posting important information about their products, businesses allow consumers to educate themselves about the products at their own pace. Consumers can easily access web pages with lists of commonly asked questions and answers when they have difficulties with products. They can instantly access only that information which is pertinent to their needs. Consumers can shop from the privacy of their own homes 24 hours per day without the interference of sales people.

By using the Internet in the business sector, two important outcomes can be achieved: a) time and money can be saved, increasing business profit; and b) increasing consumer satisfaction. Since this media spans many countries throughout the world, companies are able to achieve an international presence for their products and services at low cost. Additionally, on the Internet, every business has an equal opportunity to sell its products and the companies with higher quality products and better customer service will succeed. The effects of commercial Internet use will benefit both businesses and consumers and change the marketing techniques of the future.

Companies can exchange data with suppliers and test new products more easily. As the Internet makes information readily available to employees, it encourages independence in the workplace, causing more employees to take the initiative to find their own answers and ideas on the net. Furthermore, businesses are less likely to hire several specialists to iron out specific problems since answers can be found through Internet resources such as discussion groups.

Ellsworth et al. [5;xviii] confirmed that *"the web is a system on the Internet that allows anyone to have a 24-hour-a-day 'presence' on the Internet"*. The web page can accept data entry, and can allow for direct secure sales, either through a web site or in a cybermall or virtual storefront. Most companies with web pages offer a large assortment of information-rich files about their products, their industry and related subjects. Most business web sites contain product descriptions, pricing and purchase information; however, it is more important for them to make the web site interactive, interesting and provide reasons for it to be visited repeatedly.

The *"Internet has become a major component of the marketing strategy and operations of businesses"* [6;300]. Although Websites have great power for marketing and spreading the good word about a business, it also has the power to damage a business's reputation. The key is the effective design of websites; however, currently users are not very satisfied with website designs. Therefore, this research focused on developing a new methodology to develop effective websites, which meet the users' requirements.

To create an effective website, designers need to work with a specific methodology to create a website, which meets the requirements of the users and encourages them to revisit the website. This requires that the users feel comfortable, confident and satisfied with working with the site. Van Duyne, Landay and Hong [7;32] stated that *"to understand your customers, consider the completing elements of every design: your customers, their tasks, their technology and their social context. Each of these elements has certain capabilities and limitations that exert forces on your design. To create a successful site, you must understand and balance these forces so that none dominates and each is considered in your final decision"*. Furthermore, Holzinger [8;74] stated that *"many aspects of usability can best be studied by querying the users. This is especially true for issues related to the subjective satisfaction of the users and their possible anxieties, which are difficult to measure objectively"*. This research sought to identify and evaluate a more effective, participative methodology for developing websites used for marketing.

II. BACKGROUND

HCI *"is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them"* [9;7]. Therefore, the reasons for studying HCI in the development process are to create interactive computer systems that are easy to use and practical as well [10]. The term HCI relates to several stages in the development process, including the design, implementation and evaluation of interactive systems, in the *"context of the user's task and work"* [11;4]. Additionally, HCI is *"concerned not only with how present input and output technologies affect interaction, but also with the consequences of new techniques such as speech recognition and generation (input and output)"* [13;5]. The goals of HCI are to produce usable and safe systems, as well as functional systems. These goals can be summarized as: safety, utility, effectiveness, efficiency and appeal. These goals focus on the services that the system provides, how quickly the tasks can be achieved, and ensuring that users like the system.

The implementation of HCI can be perceived as an art as well as a science because it requires a comprehensive range of skills, including an understanding of the user, an appreciation of software engineering capabilities and application of appropriate graphical interfaces. *"If we are to be recognized as developers with professional capabilities, as competent practitioners, then it is critical to understand what makes an application interactive, instructional and effective"* [3]. Vora [12] describes a framework, which provides for effective HCI for websites, with the main task being to have a clear understanding of user needs: who the users are, and what their tasks and environments are.

Usability is an essential concept in HCI and is concerned with making systems easy to learn, easy to use, and with limiting error frequency and severity. Usability refers to the *"quality of the interaction in terms of parameters such as time taken to perform tasks, number of errors made and the time to become a competent user"* [14;52]. Alternatively, Usability *"is a quality attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the*

design process " [15].

The usability evaluation stage (in a methodology) is an effective method by which a software development team can establish the positive and negative aspects of its prototype releases, and make the required changes before the system is delivered to the target users. Usability evaluation is about observing users to *"see what can be improved, what new products can be developed"* [16]. It is *"based on human psychology and user research"* [17]. HCI specialists *"observe and talk with participants as they try to accomplish true-to-life tasks on a site (or system), and this allows them to form a detailed picture of the site as experienced by the user"* [18].

From the user's perspective, usability is considered a very important aspect in the development process as it can mean the difference between *"performing a task accurately and completely or not"* and the user *"enjoying the process or being frustrated"* [19]. Alternatively, if usability is not highlighted in website design, then users will become very frustrated working with the resulting site. Usability is a critical issue for websites as it improves competitive position, improves customer loyalty and drives down costs [17]. Therefore, if usability is highlighted in website design, it will keep the organization in a powerful position compared with their competitors, as *"Usability = simplicity = user satisfaction = increased profits"* [17]. In addition, *"motivating user interaction is an important challenge for on-line marketers as the knowledge accumulated on their potential clients depends directly on their willingness to interact"* [20;256]

III. NEW WEBSITE DEVELOPMENT METHODOLOGY

For systems (or websites) to be widely accepted and used effectively, they need to be well designed. To achieve this, designers and users need to use a specific methodology to produce the system (or website). A methodology *"should tell us what steps to take, in what order and how to perform those steps but, most importantly, the reasons, 'why' those steps should be taken, in that particular order"* [21;242]. Use of the term "methodology" in information systems development indicates that each methodology should have a set of stages and steps, which need to be followed in sequence if the work is to be done successfully. 'Stage' is a *"convenient breakdown of the totality of the information systems life cycle activity"* [22;21], while 'step' is *"the smallest part of a design process"* [22;21]. Each stage consists of a set of steps. The sequence of the stages may not always be fixed. In some projects, iteration between stages will occur and this may have a different impact on the methodology as an iteration may *"take different forms and thus impact differently on what one can do with a methodology"*[22;30]. According to Avison and Fitzgerald [23;264], the main requirement is for methodologies that can lead to improvements in the following three aspects: *"A better end product; A better development process; and A standardized process"*. For these reasons, a designer needs to understand users' requirements for the project before choosing the most appropriate methodology, in turn to successfully complete the work and to accomplish profitable

results; this is a 'contingency-based' approach [24].

In the research study, various types of models and methodologies were analyzed, including: lifecycle models; IS development methodologies; methodologies with explicit human factors aspects; websites methodologies; marketing methodologies; and additional detailed techniques such as task analysis and detailed website design and implementation. There are numerous similarities in respect to the stages between methodologies for developing information systems, websites, or marketing strategies; however, integrating stages from information systems methodologies into website and marketing methodologies is very beneficial in order to develop websites that are more effective and efficient. Human factors experts should be involved in these methodologies to make sure that transaction processes, tracking, maintenance and updating of the website meet the users' requirements.

Firstly, the researcher reviewed the methodologies to identify two aspects: 1) the stages needed for the system development process; and 2) how best to incorporate the four key research principles (user participation, usability, iteration, real interaction (i.e. monitoring of user interaction with a prototype site). These four key principles were considered the main foundation for this research so as to produce websites with high usability. Secondly, the stages of information systems development methodologies were checked to assess how effectively they match the four key principles at each stage and to identify the strongest stage in each methodology. Thirdly, for the website and marketing methodologies, the researcher: checked the availability of techniques covering the four key principles in these methodologies; listed the extra stages to be added to the new methodology; and identified the strongest stage in each methodology. Finally, additional detailed techniques of task analysis and website design and implementation (navigation design, promotion and staff training) were added. Such additional detailed techniques will play a key role in the new methodology, as most of the existing methodologies have neglected these. A new methodology was assembled from the most suitable parts of the methodologies examined.

IV. RESEARCH METHOD

Interpretive (Qualitative) approach was used in this study to understand and explain social phenomena (i.e. website design practices) [25]. A Qualitative approach was used (i.e. interviews and questionnaires) to collect a wide range of information from the industry in order to provide a more complete picture of the major and minor research questions being addressed in this study. The first step was to clearly define the purpose of the study, and this was achieved by using an explanatory method, seeking to discover *"Why things are the way they are"* [26;22]. This approach is aimed at focusing on, and looking for, causes and reasons.

The explanatory step was examined in the study by exploring various methodologies for website design to identify the reasons why many users are frustrated and confused when working with websites. The researcher also reviewed the basic concepts behind a wide range of

methodologies. From this information, a New Participative Methodology for Developing Websites from the Marketing Perspective was developed. This methodology will help the designers and users to fill the gaps in the current methodologies and to help avoid the frustration currently experienced by website users.

The qualitative method is centered mainly on an ethnographic approach [27] through which data is collected mainly from interviews and observation. Interviews were utilized in this study to explore the type of methodology, tools and techniques that are adopted by the website development industry in Western Australia and to learn more about their technical experiences and knowledge of how to develop a website. The interviews also identified existing problems and provided an indication of the likely usefulness of the principles behind the proposed new methodology. The purpose of the interview in this study was: 1) to identify the type of methodology(s) that is carried out by the industry in Western Australia to develop a website; 2) to obtain expert feedback on the prototype new methodology; and 3) to generate the questionnaire for the second phase of this study. The interview method was well suited to this study, as participants provided rich and historical information about their methodology(s) to develop a website.

The second approach used in this study was an on-line questionnaire, which was generated and developed from the qualitative research after *"analyzing the interviews and observations to derive categories for questions that focused on the primary expectations expressed by interviewees"* [28;578]. The questionnaire approach was used in this study: 1) to evaluate the "practicality" and "benefits" of adopting the proposed new methodology in the website industry in Western Australia; 2) to consider the various requirements for promotion and adoption of the methodology; and; 3) to evaluate whether it is possible to achieve effective user participation in website design, via the new methodology.

V. INTERVIEW PHASE

The researcher interviewed representatives of nine companies in Western Australian asking the interviewees questions concerning their methodology, tools and techniques for developing a website. The set of interview questions also covered each of the four key principles for this study. From the interviews, the researcher observed that most of the industry methodologies are based on experience and knowledge derived from past projects, rather than on academic theory perspectives.

The researcher provided details of her prototype new methodology and discussed it in detail with the interviewees. The interviewees raised questions concerning the prototyping, testing, evaluation, implementation and maintenance stages, and about tools to encourage user feedback. After examining the data gained concerning all the topics from all the interviews, the researcher identified the new information about methodologies provided by the industry. This was very useful for revising the New Participative Methodology for Developing Websites from

the Marketing Perspective, as it assisted the new methodology to become more practical.

VI. THE QUESTIONNAIRE PHASE

Designing the questionnaire involved interpretation of the interview data and analysis in the context of the major and minor research questions for this research. The questionnaire had to receive the approval of the Ethics committee at the University before sending it to the industry participants and IS Professionals. The questionnaire was divided into seven parts: User Participation; Real Interaction; Usability and HCI; Iteration; New Methodology for Developing Websites; General Questions; and Background Information.

A Likert five-point scale was used in each part of the on-line questionnaire to *"examine how strongly subjects agree or disagree with statements"* [29;197]. The five points on the scale are: Strongly disagree, Disagree, Neutral, Agree and Strongly Agree. Besides using the Likert five-point scale for this questionnaire, the researcher provided a section for participants to write down other comments regarding each part. The 16 participants who completed the questionnaire were drawn (in equal numbers) from the website companies who participated in the interview phase and IS professionals. After reviewing the entire questionnaire responses from the Industry Participants and IS Professionals, it was clear that there was strong support for the proposed new methodology. The only key additional insight gained from the questionnaire regarding the structure of the new methodology was identifying use of HCI design principles as a separate step under the design stage. The rest of the stages and steps remained the same.

VII. CONTINGENCY AND WEBSITE DEVELOPMENT PROCESS

This research created an integrated methodology for developing websites from basic concepts derived from lifecycle models; IS development methodologies; methodologies with explicit human factors aspects; websites methodologies; marketing methodologies and additional detailed techniques. Most of the current methodologies provide for little flexibility of use and/or offer little or no advice about how to adjust the methodology to suit the needs of different projects. They hence require experienced practitioners in order to adjust the methodology for a specific case. What is more desirable is an explicitly 'contingent' approach [24], to make adoption of the methodology easier for less experienced practitioners.

Avison and Fitzgerald [30;9] stated that most *"methodologies are designed for situations that follow a stated or unstated 'ideal type'. The methodology provides a step-by-step prescription for addressing this ideal type. However, situations are all different and there is no such thing as an 'ideal type' in reality".* Therefore, a contingency approach should be used.

The new methodology produced in this research project is "contingent"- meaning that it will allow the designers and users to choose the particular stages, steps, tools and

techniques, which *"suit the type of project, and its objectives, the organization and its environment, the users and the developers and the respective skills* [31;82]. The intended benefits of making the new methodology contingent are to allow users and designers to select the techniques, which meet the requirements of the website, since each website has a different goal and objectives.

Analysis of the questionnaire outcomes indicated that 50% of respondents agreed that this methodology should be contingent. However, this term was new to the industry participants and this probably led 62.5% of these respondents to register a neutral response regarding the need for this methodology to be contingent. On the other hand, 62.5% of the IS Professionals agreed that this new methodology should be contingent. These IS Professionals have an academic background that makes them more familiar with the concepts and terminology of contingency. IS Professional 2 stated, *"It is essential to be able to determine the factors that a development is contingent upon. Contingency is important provided that good decisions can be made and acted upon to respond to the different circumstances"*.

For example, if one wants to develop an existing website, the users and designer can select stages, steps, and techniques, which meet the project objectives. If the user requirements are already known, the users and designers need only use that part of the methodology that covers the design to the maintenance stages. Another example of contingency is the development of a new website with limited functions, which means no "real interaction" and feedback tools, need be used. Therefore, the users and designers will use all the stages and steps except the step which incorporates the real interaction and feedback tools.

VIII. FINAL VERSION OF NEW METHODOLOGY

The draft methodology, which was reviewed in the interview and questionnaire phases, was revised to produce the final version. It is summarized in Figure 1, which shows the final structure of the new participative methodology for developing websites. Additional detailed information about the new methodology is available in [32] and [33].

IX. PROPOSALS FOR FURTHER RESEARCH

Further research will be carried out in the future with the website development industry and the education sectors. From the interviews and the questionnaire, the researcher noticed that most of participants have limited knowledge with respect to the usability and HCI aspects. Most of the industry organizations paid little attention to these aspects in their methodologies. Therefore, the researcher plans to run intensive courses for the industry concerning usability and HCI aspects, since most of the industry participants and IS Professionals agreed (in the questionnaire stage) that these aspects should be part of the website development process.

Currently the researcher is running a postgraduate course to introduce the benefits of the adoption of the usability and HCI in the website development process. The new

methodology will be introduced as a part of these courses, by providing detailed information about how this methodology was created and discussing the stages, steps, tools and techniques, which are part of this methodology. In addition, the researcher will discuss how the new integrated methodology needs to be "contingent" and how to implement this approach.

In the future, the researcher will develop a website about this methodology (in a similar style to the UsabilityNet (www.usabilitynet.org) website). This website will incorporate a software tool to facilitate selection of particular stages, steps and techniques from the contingent methodology to produce a tailored methodology for any specific project. This means that the researcher will assist the designers and users to select the most appropriate stages depending on the situation. These situations vary with respect to project objectives, budget, time available, etc.

X. CONCLUSION

This research was focused on the development of a new methodology for developing websites for marketing purposes. It was derived from studying various methodologies from the Information Systems development; human factors aspects; website and marketing methodologies. To assess the new methodology the researcher used two phases – interviews and a questionnaire. The responses from the two phases supported the structure and style of the new methodology and identified ways that it could be improved.

This study identified the need for further research, including the development of a website describing the new methodology. This website will incorporate a software tool to facilitate selection of particular stages, steps and techniques from the integrated methodology to produce a tailored methodology for any specific project, thereby implementing the concept of "contingency".
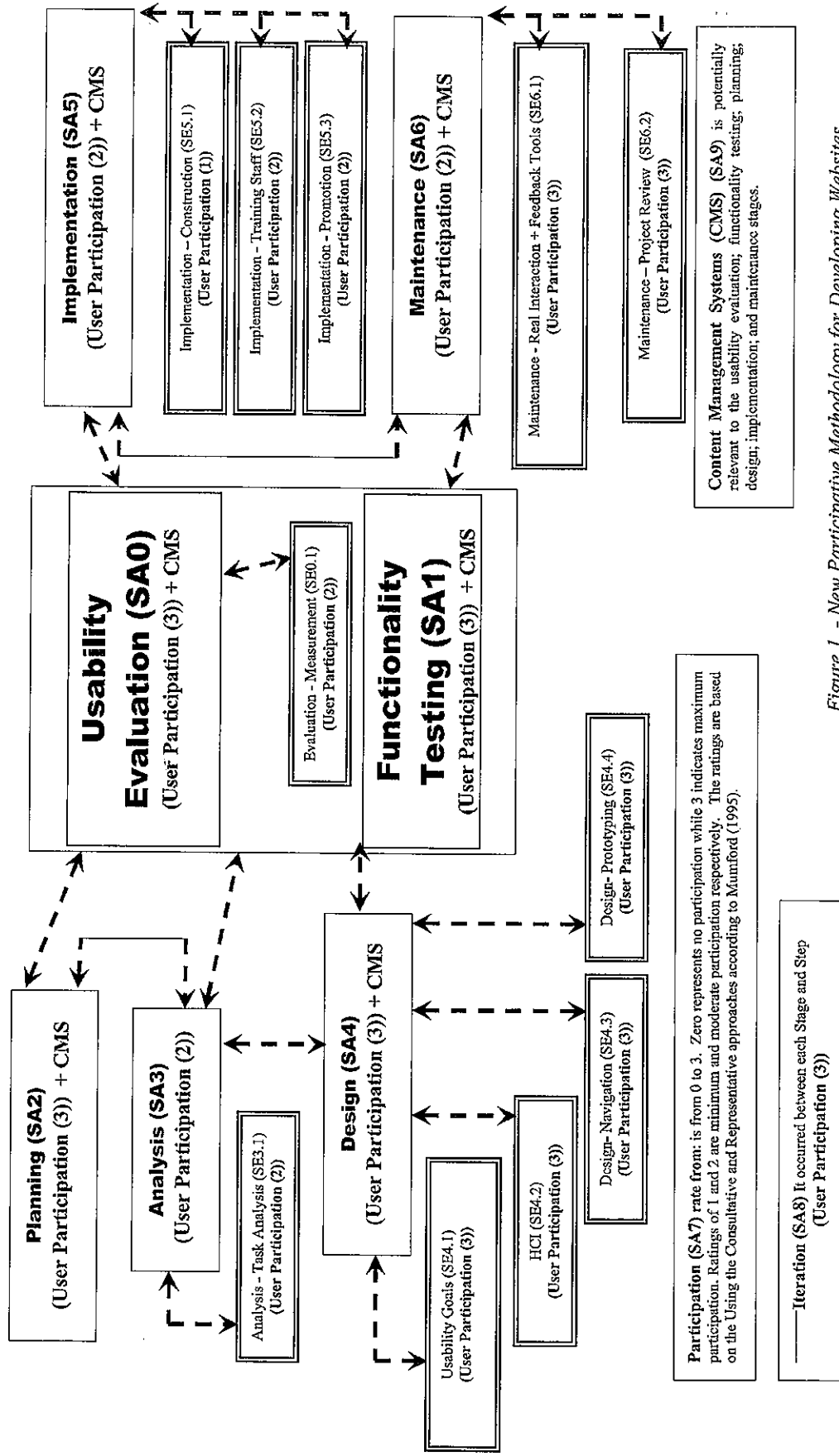
Figure 1 – New Participative Methodology for Developing Websites

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