...Empowering Distributed Knowledge

Visionspring

Business Plan Competition

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BUSINESS COMPUTING FEATURES

A new line
of questioning

COMPUTERTIMES

Empowering Distributed Knowledge

Empowering distributed knowledge

iOn

Summary – *"Elevator Speech"*

"The iOn started off as an idea spawned across the shores of the Atlantic Ocean during the founders' Industrial Attachment in the United States and United Kingdom respectively. Highly charged discussions with a rapid prototyping process culminated in the first alpha version of the iOn -- a true technological achievement in a span of less than 6 weeks. The Sun Microsystems | SingAREN Distributed Applications Competition provided the additional impetus required to get a complete working model up and running. The iOn has evolved from a simple system for interaction between novices and expert users to its most recent incarnation that encompasses full-fledged knowledge management functionality for the enterprise. The iOn is an asset to corporate and individual consumers alike, serving to bring together users into an online knowledge community thereby empowering distributed knowledge. A combination of micropayments from corporate agreements and targeted marketing constitute the multi-pronged revenue model. It is our belief that harnessing information and knowledge sharing are global in their scope, and our vision is to incorporate the iOn as a venture in Singapore, followed by aggressive expansion (via joint ventures, wholly owned subsidiaries and strategic alliances) in Asia, Europe and the United States. The iOn guarantees good Return on Investment and is an ideal prospect for an institutional investor looking for a consistent performer with long-term returns"

Business Idea: Corporate & Individual needs for Knowledge & Information Sharing

With the advent of the Internet revolution, there has been a tremendous increase in the information available on electronic networks. This profusion of resources on the World Wide Web has given rise to considerable interest in the development of virtual communities. Legacy information retrieval techniques have been applied to the information and knowledge collection on the Internet, and panoply of search engines and tools have been proposed and implemented. However, the effectiveness of these tools is far from satisfactory. Recent studies show that search engines index a meager 16% of the entire web, not to mention extracting any "knowledge".

At the same time, the Singapore economy is slowly, but surely changing from a product-based economy to a knowledge-based economy. Knowledge management has become the biggest focus of organisations, governments and society at large. In his paper 'On the management of Knowledge', Karl M. Wig defines Knowledge as the insights, understandings, and practical know-how that all individuals possess: the fundamental resource needed to function intelligently. Over time, knowledge also manifests itself in other forms such as books, technology, practices, and traditions - within organisations and society in general. These transformations result in accumulated expertise and, when used appropriately, increased effectiveness. Knowledge is one, if not the principal factor that makes personal, organisational, and societal intelligent behaviour possible. This huge potential for knowledge management and its significant impact on society leads, as a logical step, to our development of an *i*ntelligent *O*nline knowledge-sharing *n*etwork – *iOn: Empowering Distributed Knowledge*.

Empowering distributed knowledge

By designing and implementing an intelligent network, we are spearheading the formation of a network of knowledge workers not only in Singapore, but all internetworked parts of the world. The driving force is to promote the symbiotic sharing of knowledge between experts and novices by capitalising on the widespread usage and extent of networks.

Products / Services Offered:

One of the prime motivations behind the design of the iOn was to use the latest technologies and telecommunications infrastructure to create an environment promoting effective sharing and distribution of knowledge. The intelligent exchange of information will be a definite value-added service that will enable Singapore to become a knowledge hub of the world.

The iOn allows knowledge seekers to select a topic and post a free-form text query. A natural language query processor then analyzes this query before checking the central database. If a matching query is present, the solution is retrieved. If not, the query, along with a list of active experts is submitted to the mobile agent to automatically push the request from one expert to another. Experts having the capability to provide the solution to the query will almost immediately be informed of the query thus ensuring real-time responses to the knowledge seeker.

The system incorporates additional features to index and document previously posted queries in a central database such that future queries requiring previously asked question is directly retrieved from the central knowledge repository. Eliminating the need for the question to be posted to the experts will reduce the response time of the system. However, if the knowledge seeker is not satisfied with the answer retrieved from the central repository, he/she has the option of *pushing* the question to the experts.

The system accumulates information from all online experts in the required field, consolidates them to present them to the knowledge seeker. On receiving the information, the knowledge seeker has an option of validating the information gathered to update the central repository, which will act as a valuable source of information for future use.

The iOn provides multiple interfaces and hence does not restrict access to the information repository from any one particular interface. The current system has 3 interfaces, a web browser for users that prefer web-based access, a Windows®-based shell application and thirdly, wireless access via wireless application protocol (WAP)-enabled cellular phones.

To keep the experts interested in providing solutions to the queries, an innovative credit allocation scheme has been designed. Registered users are allocated initial credits, termed *KnowledgeDollars*. These *KnowledgeDollars^{tm}* are used by knowledge seekers to pay for the information he/she is looking for. Every valid answer provided by an expert and accepted for use by the initiator is awarded the credit, which was allocated to the particular query. Thus, healthy competition is maintained within the community, which provides online ranking of the top experts in the various topics supported. At the end of every month, top-notch experts can claim rewards by converting the *KnowledgeDollars* into product vouchers.

To the best of our knowledge, this is the first information sharing system to provide three comprehensive interfaces, the hybrid Win32 (desktop client) - Java subsystem, the Web-

Empowering distributed knowledge

based client-server subsystem and a WAP-based subsystem targeted for use with WAP-enabled PDAs and cellular transceivers.

Acceptance of the iOn System

- The iOn was recently awarded the Best Java Application prize in the Distributed Application Competition organised by SingAREN (Singapore Advanced Research and Education Network) and the Sun | Netscape Alliance to promote applied research in broadband and distributed computing. The award was given as recognition for the application with maximum commercial potential.

- The iOn system was also the subject of a full-page article in the Singapore Computer Times January 26th, 2000 edition under the title "*A new line of questioning*" and this resulted in a number of queries and commercial presentations to industrialists and organizations.

- Out of over 250 entries, the iOn business concept was selected into the final round of the National University of Singapore (NUS)-organized Startup@Singapore Business Plan Competition.

Market Analysis: Existing Product/Service/Business

The Web and other online data stores will eventually hold the majority of published human knowledge. Despite the richness of this repository, a report by leading database researchers underlines the challenges still ahead for the research community to produce methods for sorting through this collection. At present, information can be extracted from the Internet using search engines and web crawlers, which generates a list of results often irrelevant to the requirement of the user. Most search engines lack the ability to generate intuitive, human responses to the users query and cater to the users specific needs.

Another traditional method of information gathering is through newsgroups and discussion forums available on the Internet. A newsgroup refers to a virtual forum using its own set of protocols to store and retrieve messages, while discussion forums are newsgroups developed over the World Wide Web. These primarily consist of facilities to post questions to the forum, accessible by other participating users and allowing them to reply to the previous post, thus providing the required solution to the person posting the question. Internet forums and newsgroups cater more to the users' specific needs and relieving him of analysing the information to look for his needs. However, it lacks the speed at which the search engines and web crawlers generate the results. Users often have to wait for hours or days to receive the results to his query. Taking the drawbacks of these systems into consideration, the **iOn** integrates the power of a search engine along with that of an online forum, eliminating the individual drawbacks of each system while promoting a knowledge-sharing system.

Target Markets

Empowering distributed knowledge

The iOn is positioned at a strategic ledge with respect to the Internet usage scenario in Singapore. As reviewed by an NCB-commissioned study, the growing number of Internet users in Singapore rose nearly 171% to 677,000 in 1998 from 250,000 in 1997. The Internet penetration level stood at 15.8% at the end of 1999. It is reasonable to expect that a large number of these individuals need not necessarily be "power users", and might require assistance in performing regular computing tasks. This heralds a large market that iOn will target from a "**community**" perspective.

Since iOn also provides a comprehensive distributed framework for knowledge sharing, it is logical that an iOn-enabled system would fit very well in large transnational organizations. This is a very powerful target audience where iOn will serve to optimize the existing Knowledgebase and streamline the concept of "information anytime, anywhere" to the employees of the organization, via various distributed modes of access. The ability to interact with the iOn via a simple Windows® desktop client, the World Wide Web, and even via a WAP-enabled mobile phone or PDA while on the move makes it a very attractive proposition for deployment in a distributed organization. This is the class of users that iOn will target from the **corporate** perspective.

Market Segmentation

Users of the iOn will comprise primarily of subscribers to dial-up/LAN Internet, in Singapore and abroad. Since iOn aims to serve to bring people together as a community rather than just a tool to share information, it is imperative that we target individuals from all walks of life to share their unique perspectives and solutions.

Initially, we intend to provide iOn as a free package downloadable from the Internet. It has been commonly acknowledged that any tool offered free assists in building a large customer base over a period of time. In this case, the additional motivation is provided by the ability for the customer to gain access to a shared repository of information and knowledge at his/her convenience unparalleled by any other system so far.

Parallel to the community building, iOn will also be aggressively targeted at the corporate users in Singapore, and around the region. The beauty of the system lies in the manner in which it can be customized and deployed on distributed networks with easy integration to contemporary technologies.

The user base will encompass a wide stratum of people, including students, senior citizens, housewives, mobile professionals, physically challenged individuals, and corporate users. This portends a large and fast growing environment for the continued interest and growth of the iOn. The market segmentation is expected to be as shown in the following figure.
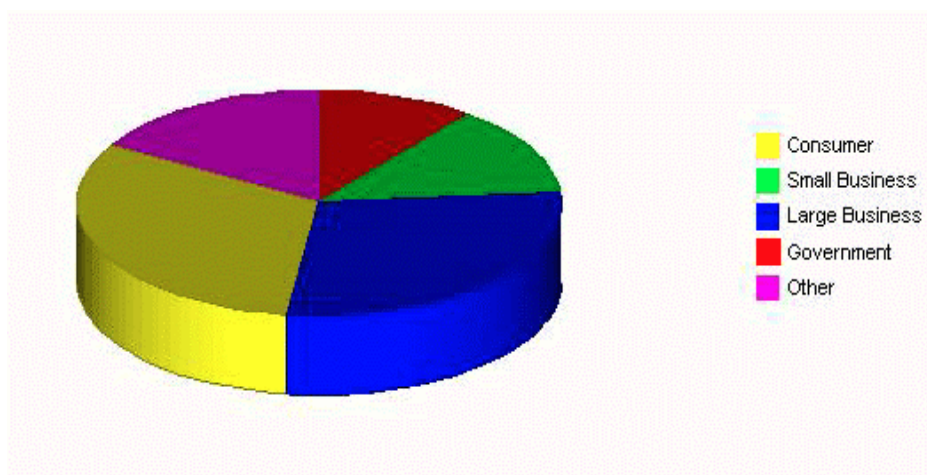
Marketing Program

A vigorous marketing program will be undertaken to realise the marketing objective of the iOn. Traditionally, marketing plans focus on the broadest customer segment. The iOn recognises the need to think differently, and plan so as to deliver value to each and every customer, since the Internet is all about choice, freedom and control for the consumer.

Marketing Objective

To obtain a market share of 25% of the corporate Knowledgebase applications deployed in Singapore within the first year of operation will be the initial marketing objective of the iOn. To increase the market share to 55% in the successive year and retain the market share by enhancing available features while building customer loyalty will be the next major milestone.

Marketing Strategy

The iOn took the emerging trends in the online habits of customers to formulate an aggressive marketing strategy.

The iOn has a marketing strategy aimed at
- Inculcating a fundamental change in attitude towards knowledge sharing online.
- Promoting the iOn as the premier destination online for locating and accessing useful information and resources amongst knowledge-seeking individuals.
- Promoting the iOn as a community in cyberspace, where people bond together to share views and hold discussions on the latest in technology, hence helping to build a truly intelligent framework.

Rationale behind the selection of this marketing strategy:

A large number of surfers online have indicated their displeasure with the current system of posting queries to newsgroups. The prime reasons this approach was found lacking included:

Having to wait for responses for extended periods of time from the newsgroups
- Needing to go online every time in order to check for any solutions
- Only a single point of access – typically requires a newsreader or mail client.

From the perspective of an organisation, the following factors were ascertained via surveys conducted between late 1998 to mid-1999:

- Most available systems used proprietary technologies that involve long and expensive maintenance contracts with the solutions provider.
- Integrating the system with existing systems for information interchange proved problematic because of the use of restrictive technology.
- No clear and concise methods for dissemination of information to employees and public information clearinghouses.

- Single access method provided – typically a separate client program.

The iOn provides a comprehensive framework that empowers distributed knowledge sharing. The advantages of this system more than equalise the demands from discerning consumers and organizations. The iOn provides a variety of services for individuals around the Internet and is an asset in a corporate structure.

The iOn provides **seamless access via 3 different modes of access** to the knowledge repository. These include a Windows desktop-based client, via a World Wide Web (WebPages) interface and even via mobile phones and Personal Digital Assistants that are WAP (Wireless Application Protocol) enabled. The iOn hence does not restrict users to any one mode of access, or to any one operating system, hence opening up the target audience manifold.

The iOn empowers a **disconnected mode of operation** that does not require users to keep checking to see whether a result is available. The information is sent to them as and when it is received. In a corporate LAN, this is not an issue, as 100% uptime is the norm. However, from a dialup users' perspective, this is a significant advance.

The iOn is built using the latest in Java, Mobile Agents and DCOM technology from the ground up, is completely cross-platform, and was built with an **open, standards-based operating interface** in mind. Developers have access to comprehensive API's, and organizations will have full control over customization and any tweaks required.

Organizations need not worry about dissemination of information to employees and knowledge-workers, as iOn provides differing modes of access that ensure that the required personnel (be they employees, or even students, in the case of an educational institution) have access to the solutions they need anytime, and anywhere.

Using the latest in technology, the iOn uses an intuitive backend database that makes retrieval and usage of information on intuitive web, mobile and client spaces interesting and effortless to use. System Administrators at large corporations who have viewed demonstrations of the iOn's capabilities have been impressed by the ease of installation as well as the intuitive interfaces and usability.

According to our market research, we can confidently conclude that once the iOn is introduced into the market, a fundamental paradigm shift is bound to occur in the way even a layman treats the availability of knowledge. This is very conducive to establishing our presence in the community niche. The benefit that the iOn provides corporations over their existing knowledge management setup is a strong incentive for them to install and deploy our system.

Advertising Strategy

The iOn proposes a two-pronged advertising strategy aimed at individuals and corporations.

Individuals:

- **Banner Advertisements** on popular websites will be worked on with known advertising strategists such as the Teknosurf Adwave, DoubleClick and AdForce to maximize the impact and ensure that we target customers with accuracy.
- **Magazines and Newspaper advertisements** will be placed in major dailies to create public awareness and ensure prominent "eyeball traffic".
- **Word of Mouse** is an innovative concept that will credit iOn users with attractive prizes and promotions as an incentive to reach more individuals. Appropriate credit will be given to users who assist 5, 10 or more of their friends/colleagues to sign up.
- **Internet Service Providers** around Singapore in the beginning, and around the region at a later stage will be recruited into promoting the iOn services as a strategic partner. This campaign will be run in conjunction with the banner ads system.

Organizations:

- **Personal Mails and Letters** to the concerned staff at corporations, including government organizations, educational institutions and statutory boards regarding the benefits of the system over any current setup they might have is to create an awareness and interest in the iOn.
- **Demonstrations** can be arranged at the organizations' premises to display to them the plethora of possibilities and options available to them with the iOn, and to get first-hand feedback about the actual requirements so they may be catered for in future releases.
- **Magazines and Newspaper** advertisements in major dailies will promote awareness and create a desire to learn more about the system.
- **The iOn Website** will be used as a prime resource for all information pertaining to the iOn and will include comprehensive links for potential and return customers to find answers to all their queries.

Competitive Advantage

iOn will follow a differentiation strategy to achieve a competitive advantage in the knowledge management and sharing market. By providing Internet based tool to manage and *access* knowledge, iOn separates itself from all other knowledge sharing communities on the Internet. In addition, iOn provides a user-friendly environment by providing various access mechanisms to access the system

This is the first knowledge sharing system to provide three comprehensive interfaces, the hybrid Win32 (desktop client) - Java subsystem, the Web-based client-server subsystem and a WAP-based subsystem targeted for use with WAP-enabled PDAs and cellular transceivers. Advanced networking protocols, disconnected mode of operation, reliability and load balancing have been effectively implemented in the system.

Organization and Personnel

The three founders John I C Gomes, Jayanth Nagarajan and Sneha N Shah and will have equal say in the proceedings with regards to the *iOn*, though each will have specific role based on their key competencies.

Being a Computer Engineer with an Honors degree and majoring in financial application development Sneha Shah is extremely interested and fascinated by the world of investments. Her family background also lies in the areas of finance and investments. With her past experience in IBM's mobile agents and Java programming, Sneha was responsible for the Mobile agent and the Java section of the *iOn* model.

Jayanth Nagarajan has always possessed excellent social and interpersonal skills. In addition to significant experience implementing and maintaining wide area networks, he has years of experience in development for the World Wide Web since its nascent stages. Coupled with programming expertise in Java and a strong strategy consulting focus, Jayanth was responsible for the development of both the web based interface and WAP development for the wireless access embodied in *iOn*, as well as providing business perspective.

John had the requisite technical expertise to manage the technology aspect of *iOn*. Always interested in managing technical projects and fascinated by the world of technology, he was responsible to design the entire framework of the system and allocating the individual components to the other members of the team for developments. With experience and understanding of the Windows Operating System, John developed the Desktop Win32 Shell extension for the *iOn* and also the Server application used both by the desktop client and the WAP Server.

We believe that the management team plays a highly significant part in the success of the iOn as a venture. Our immediate goal is to recruit a CEO with proven management experience and an individual who has worked in the IT industry and highly charged environments in order to spearhead the effort. In addition, our recruitment drive is bound to include the following personnel:
- Chief Financial Officer
- Industry Alliance Manager(s)
- Investment/Business Strategy Manager
- Marketing Communications/Public Relations Personnel
- Technical Developers and R&D Personnel
- Product Support Staff
- Human Resource Personnel

In essence, the iOn is an elegant blend of cutting-edge technologies to promote ubiquitous knowledge availability.

Packaging, deliver pricing and Launch timings

Ease of Use and Competitive Advantage Business Vision

External

Customer Value Proposition

Market Size and Market validation

Product Concepts
Schedule
Phases
Technical
Limitations

Infrastructure and technology involved

Internal

IOn Project Framework

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