

Darpan - Simplification and Relevant Usage Models

A Case for enriching computer usage.

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Abstract— India's PC penetration is relatively low compared to other developing countries. India's Total market size of PC connected to Internet is about 9 million devices^[A]. At the same time, mobile subscriber base has cross 500 million. Though Personal Computers have become a part of daily life and its services are being increasingly used by consumers across India, its widespread adoption for personal use is yet to happen.

Use of Personal computers is limited to technology savvy English literate users. The research done by Intel team showed that there is a need to simplify the PC user experience and this will directly result in more usage of PC and Internet. Use of local language for content Internet content consumption and availability of relevant usage models will increase the Internet and PC penetration in the country.

To validate these assumptions, Intel team worked for 8 months to create a simplified UI interface and create an ecosystem of software and content partners. The fundamental design principles of this simplified UI initiative (Project Darpan) were defined as

- Simplified UI to take away perceived complexity in Computing
- Create relevant usage models for Indian consumers for PC + Internet
- Use Local language to provide access to India relevant content
- Create a framework for monetizing for content providers

The paper will discuss the assumptions and data pertaining to this research, field activities to validate these assumptions, Challenges faced while developing the Simplified UI framework and opportunities for the ecosystem in following this approach. The paper will also share examples of how this project is being used as a proof of concept in some of the large PC penetration campaigns across the country.

Keywords— Personal Computers , Simplified , User Interface, Local Language

I. INTRODUCTION

Darpan, initiative was formed to explore ways to improve usage of computing devices among masses and strategize methods to remove barriers that prevent usage. In this paper,

we intend to briefly introduce the problem statement of usage and briefly present the current strategies to stimulate the usage for PC and Internet from an Indian Consumers.

The base research for this study came from various internal market research done by Intel Corporation and particularly research done by Internet and Mobile Association of India (IAMA).

It is very articulated fact that the number of mobile subscribers in the country has crossed the 500 Million mark. However, in the same market the number of Personal Computers owned by consumers are about 9 million. However while the owners of Personal computers may be 9 Million, there are over 71 Million people who use internet and computers in some form, supposedly using shared computers. It was interesting as to why only 9 million users thought of investing to buy a PC while the rest chose to use shared resources. Interesting dependency on language literacy emerge which hinges on English awareness of the user population.

2. DEMOGRAPHY OF INDIA

This population is spread across different socio economic classes and speaks and read different languages. Does their non familiarity with English blocks them from even using technology tools such as PC and internet.

India is a country of many languages. It could be safely inferred that, existing computers and computer interfaces clearly require Knowledge of English.

Figure 1: Shows for the purposes of this study, figurative analysis of Indian population bifurcating based on literacy, and English language awareness, further divided based on urban and rural distribution.

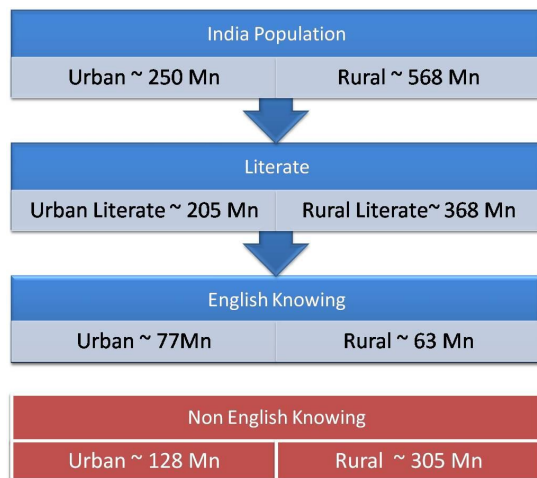


Fig. 1 A population distribution model for India in Urban/ Rural and English literate Vs Non literate

Research indicates that 63% of urban population and 83% of rural population are not familiar with English. Could the lack of awareness of English a major reason for less usage overall?

Out of ~ 77 Mn English knowing urban population , the PC literate population is anticipated to be ~ 62 Mn. This establishes clear correlation between adoption of PC and comfort level of English. Apart from access and affordability , another deterrent for the adoption of computers is the absence of local language computing and content. To spread the PC awareness and consumption , breaking the language barrier is very essential.

In order to further refine the targeted audience, dividing the user base along usage proficiency/Usage of computers was found useful. Figure 3 depicts the division along existing usage. PC Literacy term is coined to indicate understanding of basic working nature of PC and having basic usages understood. Attributes were developed to describe the users. These attributes in parts or sum total depicts the user categories. Further it should be added that these attributes may not be comprehensive.

PC Literacy	Category	Attributes
Literate	Power User	Owens a PC, Uses it very often. English educated. Savy Users.
Recent Literate	Explorer	Recent Owner, or User but not owner. Could be fluent in English/Vernacular language, May have been introduced to computers at work / home / Vocational courses.
Illiterate	Potential near Future User-1	Literate. May know English. Or may know only local languages not English. May never been introduced to PC

		at schools/work. May have fear of technology. May not have seen value to his lifestyle.
Illiterate	Potential Future Users-2	Potential far out user. Illiterate. May be already a cell phone owner. May not simply be able to use PC in its existing forms. Needs Innovations to address needs as well as methods of access.

Darpan Initiative focuses on Enhancing usage could be potentially focussed on Explorer and Near Future categories .

A further breakdown of factors affecting the usage disparity, study focussed on enhancing further usage of existing users and understanding the needs of non users.

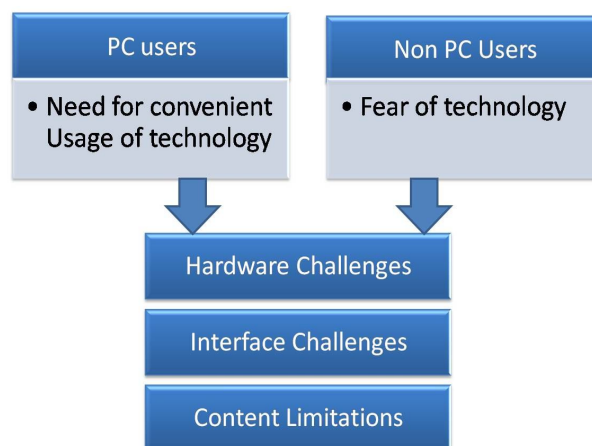


Fig. 2 Barriers for Personal Computers Usage

Figure 2. Breaks the problem among three large categories. Fear of technology, lack of familiarity with user interface and finally lack of relevant usage models for persistent usage.

III. DARPAN THOUGHT PROCESS AND MARKET POTENTIAL

Darpan focussed on understanding these challenges and develop a novel and innovative approach which will make Personal computing devices a integral part of an Indian house hold. Darpan focuses on developing interventions to ease barriers experienced at each stage and for various categories of users.

Traditional personal computers, characterised by extensive use of Keyboards and mouse, Ionized and menu driven user interfaces that need users to develop good on screen navigational skills using sensitive mouse and finally

keyboards which have non sequential letter arrangements, may appear all too familiar for the proficient users. Through formal/informal education, existing users have understood the finer details of using personal computers.

In order to understand the challenges posed by Interface, Darpan hypothesized that Simpler interface, characterized by large ICONS depicting usages (not applications) ,could potential develop larger usage.

Further on, Internet as understood by most of proficient users needed good understanding of what internet is, and how one would use it. One would need to understand the terminology of internet such as a address of websites and meaning of search, hyperlinks so on so forth. It is amazing to understand the speed with which these nuances are understood and assimilated by newer categories of users.

Darpan further hypothesized that the user interface

- that never requires user to type address in the address bar,
- provides for magazine like experience with most of the commonly used categories of articles/web content,
- accessible using clicks, six button interfaces

Will significantly boost simpler usage of Internet.

In the IT sectors, Indian local language usage has been significantly enhanced over years. With development of Font layouts and innovative translation/transliteration techniques, Users are able to interact / develop content in local languages. For obvious reasons, users tend to like to interact and consume content in their local languages. One of the research articles suggest that over 70% of internet users prefer to consume local language content. [1]

Darpan team first explored internet for local language content. Through transliteration technology, many current users were exchanging / developing well developed content on Internet. However, it was also found that use of native keyboard layouts are very complex to learn and needs lot of training before they can be used proficiently.

Darpan further hypothesized that local language content consumption is far higher priority for the user than letting users develop their own content. As an example, reading a Hindi web page may be far higher on their list of usage as compared to writing email in Hindi. Accordingly, the simple user interface in local language was hypothesized to enhance usage across vernacular sections of our populations. Technology evolution may result in efficient translation technologies, simpler inputting techniques can create significant content generation.

Usage of any device is dependent on types of applications and services available on the device. In order to create further

sticky usage models, darpan team proposed that a new ecosystem of application/content developers be created who will develop content according to darpan’s other principles especially around simplified local language interfaces for use with various computing devices from Personal computers, handphones and smart TVs.

It was hypothesized that without these sticky usage models, users may not find internet interesting enough and may be deterred by complexity of using the internet.

In order to validate these hypothesis, intel teams conducted extensive market research including end user testing/pilot activities/

While it is obvious to see that persistent usage may lead to eventual ownership. A possible sequence of interventions leading to usage and eventual ownership is depicted here in the 3.

The size of the opportunity was derived at by the basic research and the estimated potential was arrived at by estimating the number of house holds which can potentially buy a PC. It was estimated that with this approach, there is a great opportunity for PC market to grow in India.

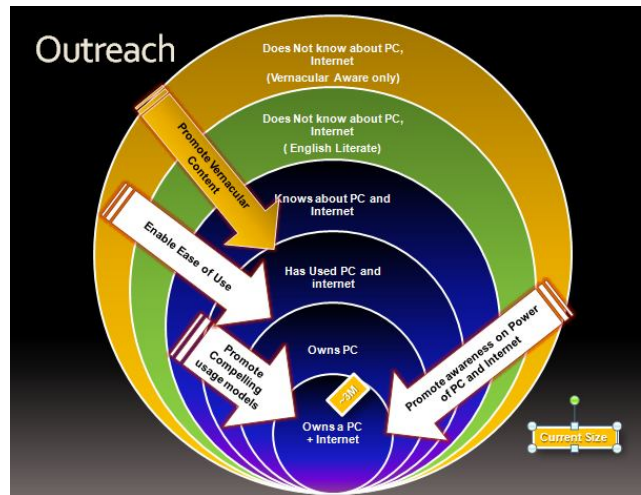


Fig. 3 Market Opportunity with *Darpan initiative*

IV. PROOF OF CONCEPT – DESIGN AND VALIDATION

We used the Intel Software Partner Ecosystem to identify possible partners to engage on this initiative. We zeroed in on M/s GoDB Tech Pvt Ltd to create an early Proof of Concept solution to validate the assumptions made earlier . The early POC was available in October 2009 and was

tested across existing PC channel partner communities and through focused group discussion with consumers across India. The field research validated the assumptions of Ease of Use , Relevant usage models and Local language and provided valuable insights in the consumer’s wish list for content and usage behaviour.

Some of the feedback during the research showed that the categories of the purposes preferred by the consumer are as followed :

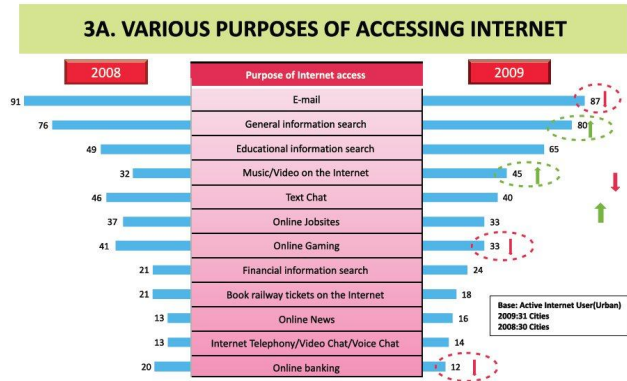


Figure 1

Fig. 4 Source IAMA-IMRB research and Intel field research

V. PRODUCT DESIGN AND ROADMAP

The Proof Of Concept was then evolved into a software & Content framework design which allows easy integration of content feeds from various sources. A detailed product roadmap was conceived to address the 4 vectors of *Darpan* initiative .The focus of the Content Framework and UI framework was restricted to content consumption in the first phase and challenges of content creation to be tackled in the subsequent phases.



Fig.5 Interface Menu screen shots

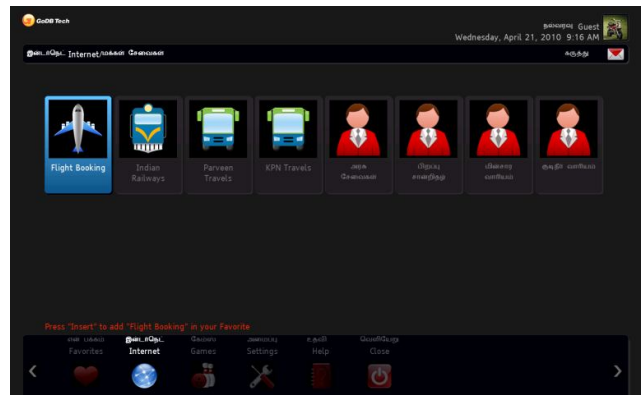
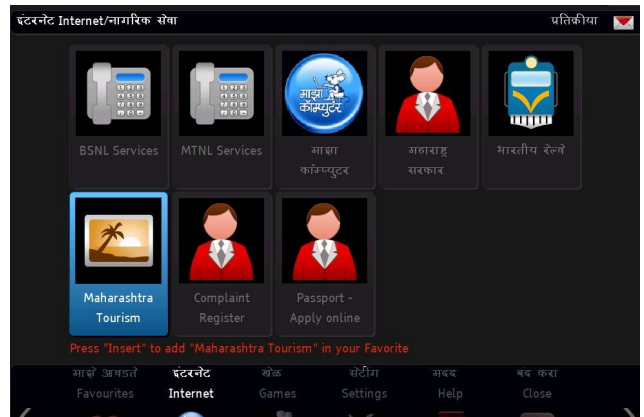
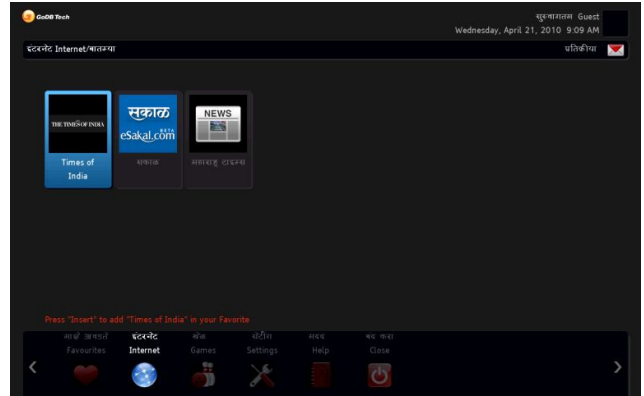


Fig.6 Interface Menu screen shots

The roadmap also defined the local language integration plan and the likely content partnerships. The framework allows integration of existing internet content using a set of rules and using industry standards protocols such as rss feeds .

The framework will allow multiple content providers to be part of this initiative and provide their content in a simplified format to the consumers. The roadmap also defines a plan to

monetize the premium content and provide revenue sharing opportunities with the content and software partner ecosystem.

We are also exploring evolution of multiple UI frameworks which will eventually address specific usage models such as Government Services , Education and Farmers PC etc.

Other area we are exploring pertains to Hardware design simplification. However, since it is in its early stage, most of the details pertaining to bag of ideas and its validation is in its infancy. We would look forward to discuss those in details in coming months.

VI. GO TO MARKET STRATEGIES

It was decided that the User Interface under the *Darpan* Initiative to be made available free of cost to all the potential users. The distribution mechanism is being worked out and will be available through a variety of sources in near future. Currently the interface can be downloaded from www.darpan.me .

The Darpan initiative will create an ecosystem of content providers and innovative software companies which will impact the consumption of internet content in a big way , thus by fuelling a local language content ecosystem spiral.

This initiative led by Intel will create a robust business models for all the ecosystem players and will benefit the end consumer immensely.

The early adoption of Darpan initiative has been done in large programs like “ MAZA PC “ in Maharashtra and we expect this to be used in many large initiatives in the future.

VII. ACKNOWLEDGMENT

We wish to acknowledge valuable contribution from M/s GoDB Tech Pvt Ltd and other Software and content partners who made this initiative possible in a quick time. We also wish to acknowledge the Sales and Marketing team at Intel India who had contributed immensely in the validation and the Go to Market planning of this initiative.

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LINKS