



## **A longitudinal technology trial – TVPrintCast**

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### **Research Question Addressed**

While the technology prototype was evaluated on the following parameters including Performance measures, Error free data transmission, Nature of errors, down time etc., ease of use and ability to problem shoot with the technology were the technical research questions, the study also focused on other research questions to answer as a part of the technology experience. These were to do with the end user experience.

- Does the technology experience generate Excitement?
- Do they perceive the learning experience as Richer and more Complete?
- Does learning become more Interactive –hence more enjoyable?
- Does Sharing information become easier and more informative?
- Do they perceive that they are able to Retain more of the information they have received?
- What does the ability to send / receive more information do for each of the end users?

### **Nature and description of the study**

The study in case was mainly a technology trial with the intention of not only observing and evaluating the robustness and the performance of the technology. However, given the nature of the end benefit and value the technology could deliver to its various user groups, the trial also focused on the end user experience with the technology.

The technology prototype that was being tested was a new technology prototype 'TVPrintCast' which enabled broadcasting of printable data along with existing audio-visual data over existing television broadcast networks.

### **What is the technology?**

- TVPrintCast or Print Augmented Broadcasting is a technology, which is simultaneously able to broadcast data – that can be printed at the consumer end, without disrupting the TV viewing experience.
- The service provider can provide non-streamed print ready data through streamed media through an ordinary interface without compromising on the quality of Video telecast.
- Content requires to be designed specifically for print cast – additional or supplementary information
- The consumer will require to have an ordinary printer attached to the TV set through an interface

### **The stage at which the product was evaluated**

The technology was evaluated at various stages:

During technology concept finalization

During lab technology prototyping

During the field trial installation and testing

### **Number of participants recruited**

During the actual in field installation and testing all the concerned user groups experience the technology simultaneously. The diagram below depicts the user groups and their dynamics. What must be noted is also the nature and duration of each of

these user groups' engagements with the actual trial. The Faculty and the Resource persons were user groups that were engaged with the study for the entire tenure of the trial. The Gram Panchayat representative were transient in nature, each of them was exposed to only three days of interaction with the trials as that was the nature of the programme into which the technology was incorporated –each group was called onsite for training for a period of three days each. The general public was only benefited in a resultant way and had no direct contact with the technology.

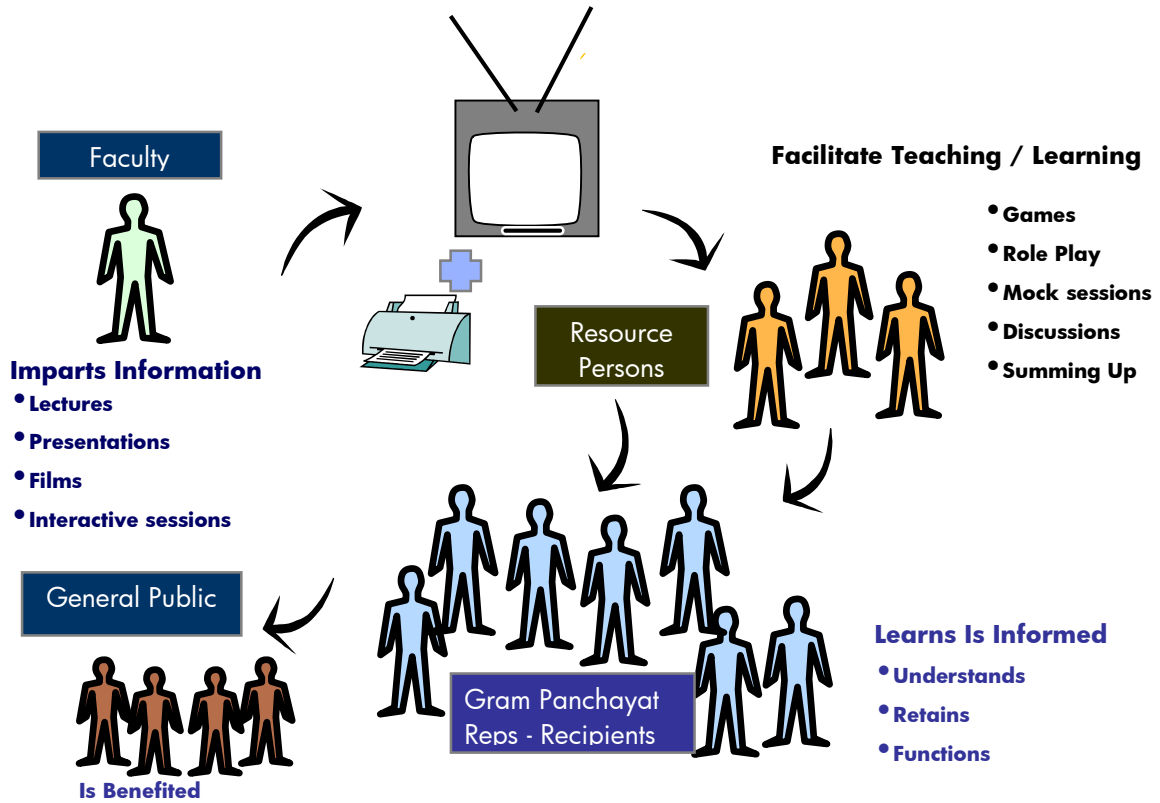


Fig 1 Technology User Group Dynamics

A number of interested stake holders and actual users were exposed to various stages of the technology prototype. While it would be difficult to put an exact number to these the number of respondents at interviewed during the in-situ field trial installations is as follows in the table.

PHASES	NUMBER OF					
	TOTAL PARTICIPANTS	PARTICIPANTS INTERVIEWED	R.P.s INTERVIEWED	FGDs	PARTICIPANTS IN FGDs	OBSERVATION SCHEDULES
<b>EXPERIMENTAL CENTRES</b>						
FIRST	157	75	16	15	75	15
INTERIM	130	60	12	12	60	12
SECOND	115	61	12	12	60	12
THIRD	134	75	15	10	50	10
<b>CONTROL CENTRES</b>						
FIRST	105	60	12	12	60	12
SECOND	094	62	11	12	60	12
<b>TOTAL</b>	<b>735</b>	<b>393</b>	<b>78</b>	<b>73</b>	<b>365</b>	<b>73</b>

Table 1 Sample at Receiving Ends

PHASES	NUMBER OF
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	<b>EXPERTS INTERVIEWED</b>	<b>OBSERVATION SCHEDULES</b>
FIRST	06	03
SECOND	08	03
<b>TOTAL</b>	<b>14</b>	<b>06</b>

*Table 2 Sample at Teaching End*

While these were the numbers covered during the formal interview and observation process, the number of people who actually came to experience the technology is perceived to be closer to around 2000, since the various installations were observed or interacted with on a round-robin basis during the three stages of observation. Below is some data to indicate the duration and the scope of the study

- Transmit End :Mysore
- Receive Ends :7 sites in Tumkur District
- Field Trials Duration : Jan – April 2006
- TVPrintCast broadcast for :33 Days (11\*3 days)
- GP Members who experienced TVPrintCast :2000 (approx) 3 days each
- No of pages TVPrintCast pages broadcast : 880 (100 MB of data)
- No of TVPrintCast pages copied & distributed: 22,000 (approx)

### **Study Design and Methodologies Used**

The study can be broken up into two – three stages, during which various methods were used to assess user reactions to the proposed technology concept and prototype before the technology prototype was installations were put in place for an in-situ study. The study design used was a mix of structured methods and unstructured methods. Co-design, structured questionnaires, focus groups, observations, informal discussion, logs, diaries etc were all used during the various phases of the study. The classic experimental-control groups were used during the in-situ field testing.

Study Duration - While the initial phase lasted for over a year the in-situ study was run for a period of four months.

- Phase 1 – Initial Concept Phase  
During this phase identified user groups were exposed to the new technology prototype and its proposed features and capabilities. This was mainly done to evaluate the usefulness of the technology concept at an early stage of design. The methods used during this phase and interactions included formal presentations, informal discussions and brain storming sessions.
- Phase 2 – Preparatory Phase  
During this phase a very in-lab demo was exposed to the various identified user groups to ascertain a match between the expectations of these various user groups and the proposed technology prototype that would be built and installed in in-situ location for user experience evaluation and testing. The methods used during this phase included the following:
  - A working demo of the technology for a live demo to give various user groups a hands on experience with the technology, identify issues that need to be fixed and evaluation proposed installations.
  - During this phase the installation sites were also surveyed to evaluate them for technical and user readiness

- Various user groups were trained on the technology use and interaction
- Phase 3 In-Situ Field Study  
The technology prototype was installed in 10 user locations and one studio location and run for a period of four months during which focus groups, structured interviews, observation logs, experience logs, helpdesk logs, error logs were maintained. Follow up case studies were also recorded post this (though not exhaustively)

### **In Field Installation:**

The diagram below shows the installation for the study. The participants and operators at the transmit and receive ends were trained to install and run the technology y themselves by running a number of test installation, training sessions and Reece trials. Detailed user manuals and instruction sheets were made available. Logbooks and diaries were provided to log use and trouble data.

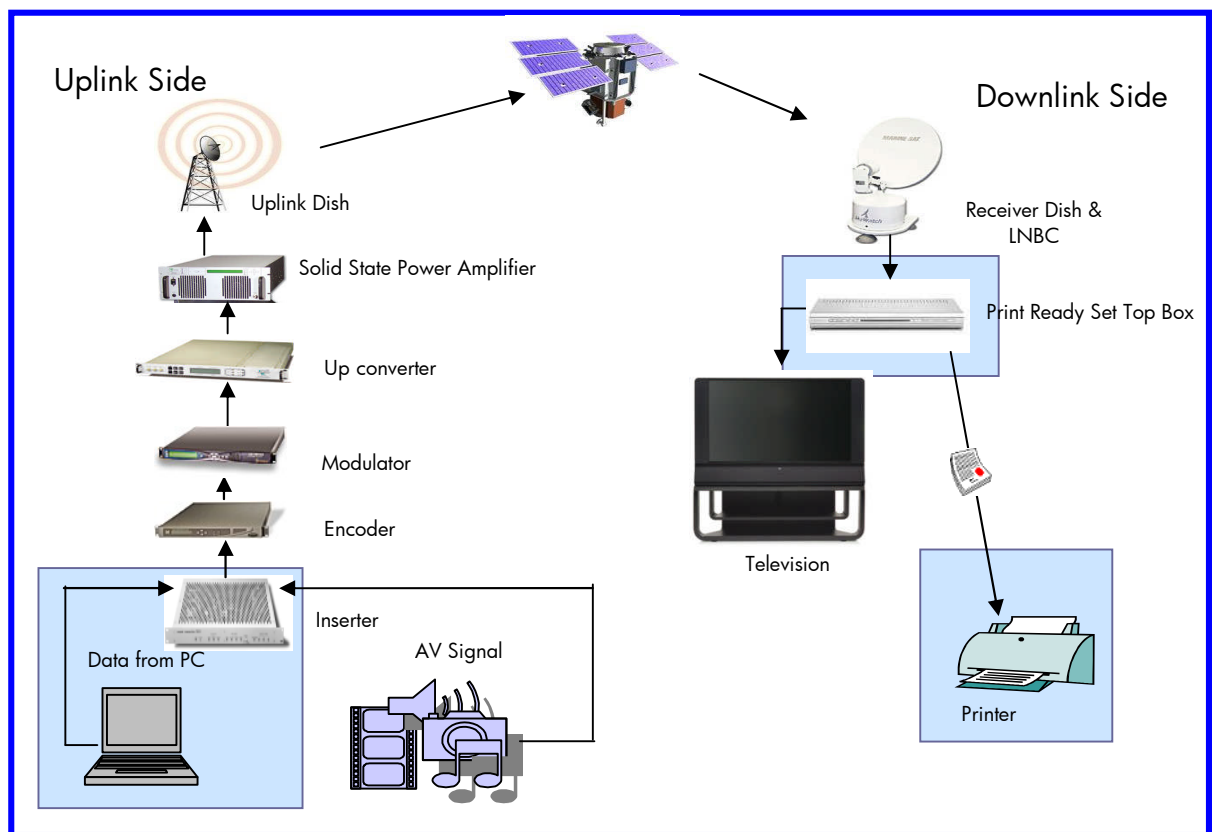


Fig 2 – In-field technology Installation Diagram

### **Logistical Issues:**

The installations were spread over the a wide area covering 10 installations and 5 control group sites in Tumkur and Mandya districts of Karnataka state in India. The broadcast studio was in Mysore also in Karnataka. The distance separated nature of installations posed their own set of problems, but was not a major constraint. However one major issue was the program contents it. Since the technology was integrated into a broadcast program which covered 175 receive ends out of which only 10 were

provided with the technology concept, the programming could not be changed to fully incorporate and exploit the affordances of the technology.

### **Lessons learned**

while the research questions regarding the technology and the use experience were easily and well documented, the long reaching impact and behavior change that would have been a logical outcome of such a study were not well documented. However the longitudinal engagement with the various user groups was of great help as it served a number of purposes:

- a. A technology relevance and acceptance check
- b. A technology robustness check
- c. Limited program customization to meet the technology trials
- d. A wide acceptance to the trial and a buy in for the trial
- e. Early identification of problems