

SYNERGIES

A Vision of Information Products Working Together

Steve Anderson, Shiz Kobara, Barry Mathis, Dustin Rosing, Eviatar Shafir

User Interaction Design Group
Hewlett-Packard Company,
1266 Kifer Road, MS-101G,
Sunnyvale, California 94086 USA
mathis@hpuid.ptp.hp.com 1-408-746-5028

ABSTRACT

SYNERGIES is a vision of how information products designed for everyday use will serve people in extraordinary situations. The year is 2001. Los Angeles is rocked by a major earthquake. Buildings collapse. Poisons fill the air. But a new kind of emergency response is underway. Equipped with various communications and information appliances which can be rapidly tailored to meet situation needs, a Neighborhood Emergency Team volunteer, a HAZMAT (Hazardous Materials) team, and an Urban Search and Rescue squad come to the aid of the victims. At the Emergency Operations Center, the nerve center for emergency planning and response, incidents are assigned priorities, resources are dispatched and logistics are managed. The underlying premise of SYNERGIES is that the most valuable information assets are informed people. Technology's role is to give people the facts they need to make decisions, and link them together to coordinate action. The interface concepts shown allow users to share information and communicate in the most direct and task-specific way possible.

KEYWORDS: future, vision, video, interface, earthquake, information appliance.

INTRODUCTION

SYNERGIES focuses on the interplay of Measurement, Computing and Communication technologies, and what we might achieve with them in the years ahead. It portrays how a range of information tools intended for day-to-day use could benefit a community in a time of crisis. The community is Los Angeles, and the crisis is an earthquake. The year is 2001. The technologies shown give people the facts they need, when and how they need them, so they can make correct and timely decisions. This is necessary in any critical situation, including business, but here the need is heightened: lives are at stake, and a community's well-being is on the line.

To create such a story, we compiled news footage from the 1994 Northridge earthquake in Los Angeles, and combined it with original video shot on location and in the studio. Digital matting techniques enabled us to place actors and technology

Permission to copy without fee all or part of this material is granted provided that the copies are not made or distributed for direct commercial advantage, the ACM copyright notice and the title of the publication and its date appear, and notice is given that copying is by permission of ACM. To copy otherwise, or to republish, requires a fee and/or specific permission.

CHI' Companion 95, Denver, Colorado, USA
© 1995 ACM 0-89791-755-3/95/0005...\$3.50

on the scene and create a compelling "What if?" - what if people and agencies could use advanced information tools, not designed for emergency response use per se, to quickly determine priorities, establish communications and devise solutions that would help save lives in a disaster? We expect the video to work for us in three ways. First, it will raise awareness about the potential of future technologies to serve a range of user needs. Second, it can be a catalyst for discussion within our company and in public forums like SIGCHI. Finally, it can inspire us to think about our business in new ways.

SCENARIO OVERVIEWS

The drama of SYNERGIES revolves around four parallel scenarios. The video-frames show conceptual information products used in these scenarios.



Screen 1: Emergency Operations Center staff monitor relief crews using multimedia workstations, hand-held appliances and smart pervasive networks

Disaster Response Coordination The "Southern California Emergency Operations Center" is activated moments after the quake, and becomes the focal point for emergency planning and response. It's here that incidents are assigned priorities, resources are dispatched, and logistics are managed. This scenario portrays how huge amounts of information can be integrated, filtered and presented to help emergency professionals quickly view the status of events and make correct decisions. Screen 1 shows an EOC workstation console.

Emergency Rescue An apartment building has been severely damaged. Although a seismic early warning system has given many residents time to escape, several people have become trapped inside. The vignette focuses on how future portable information collection, communications and measurement technologies help a Neighborhood Emergency team volunteer and an Urban Search and Rescue squad detect and rescue those trapped. Screen 2 shows an Information Collection device.



Screen 2: Multimedia Information Collection Appliance being used to create and transmit an emergency incident report

Hazardous Materials Analysis The earthquake has caused a freight train to derail, and a tanker containing a hazardous chemical has ruptured. The resulting vapor plume threatens a large, multilingual population. This story shows how expert systems, video conferencing and analytical technologies help people in distributed locations decide on a course of action. Screen 3 shows a Communication Slate.



Screen 3: Personal Communication Slate being used to deliver a toxic spill report over real time video phone with OCR and pen-based annotations

Neighborhood Evacuation A hazardous chemical spill has resulted in a need for an immediate evacuation of a multilingual neighborhood. Portable bidirectional translators are used by law enforcement personnel to communicate with residents using real-time speech recognition. Screen 4 shows a Portable Language Translator.



Screen 4: Handheld Language Translator demonstrating two-way natural language speech recognition and speech synthesis in an evacuation scenario

TECHNOLOGIES SHOWN

- Earthquake Early Warning System
- Interactive TV & News-on-Demand
- Personal Information Management
- Network-enabled Information Integration & Management
- Voice Command/ Continuous Speech Recognition
- Voice to Text, Photo OCR
- Digital Image Capture
- Expert Systems, Knowledge-based Decision Support
- G.I.S. Mapping, Global Positioning system
- Wireless Communication
- Video Conferencing
- Network Monitoring & Self-Healing
- Language Translation

REFERENCES

1. Anderson, Kobara, Mathis, '1995' A Vision Video, Hewlett-Packard Company 1989, SIGCHI Video Review, CHI'91.
2. Anderson, Chaffee, Kobara, Mathis, '1992', Hewlett-Packard Company 1990, SIGCHI Video Review, CHI'92.
3. Anderson, Kobara, Mathis, Shafir, 'Imagine...' A Vision of Health Care in 1997, Hewlett-Packard Company 1992, Formal Video Program, INTERCHI'93.