
Global Innovations Forum

BECKETT RIDGE INSTITUTE

NETWORKS-IN-USE: YOUNG PEOPLE IN THE WORLD OF ABUNDANT CONNECTIVITY



June 25–27, 2001

SR-738

INTRODUCTION



Tour of the Beckett Ridge Institute store facility...



...and the home facility.

Young people are growing up in the new world of abundant connectivity. This world exposes them to relationships and spheres of influence beyond traditional boundaries of physical community and home. The connectivity innovates the way they live their lives, how they acquire and filter information, how they shop, play, and work. This year the Institute for the Future's Global Innovations Forum (GIF) conducted in-depth research to understand how abundant connectivity is shaping the way young people in different geographic regions—Silicon Valley, Nordic Europe, United Kingdom, and Japan—form and use their social networks. The goal of the research is to discover new ways people create and use such networks in the context of their daily lives and activities.

This research will serve as the basis for developing new consumer segmentation methodologies using a social networks approach. It will also provide insights for developing the next generation of products and services that fit into the new world of abundant connectivity.

What follows is a graphic summary of the GIF June 2001 Workshop—Networks-in-Use: Young People in the World of Abundant Connectivity, held at Procter & Gamble's Beckett Ridge Institute in West Chester, Ohio.

SETTING THE STAGE: BECKETT RIDGE



Well into the workshop, participants are mapping each other's social networks...



The opening session...

Beckett Ridge is a new facility developed by P&G in a warehouse in suburban Cincinnati. This unique facility features a flexible executive meeting room (designed by Herman Miller), and a prototype home, store, and office of the future. It is modeled on the William Gibson insight that “the future is already here, it is just not evenly distributed.” At Beckett Ridge, the future can be “more evenly distributed” so consumers and executives can test a range of possible futures.

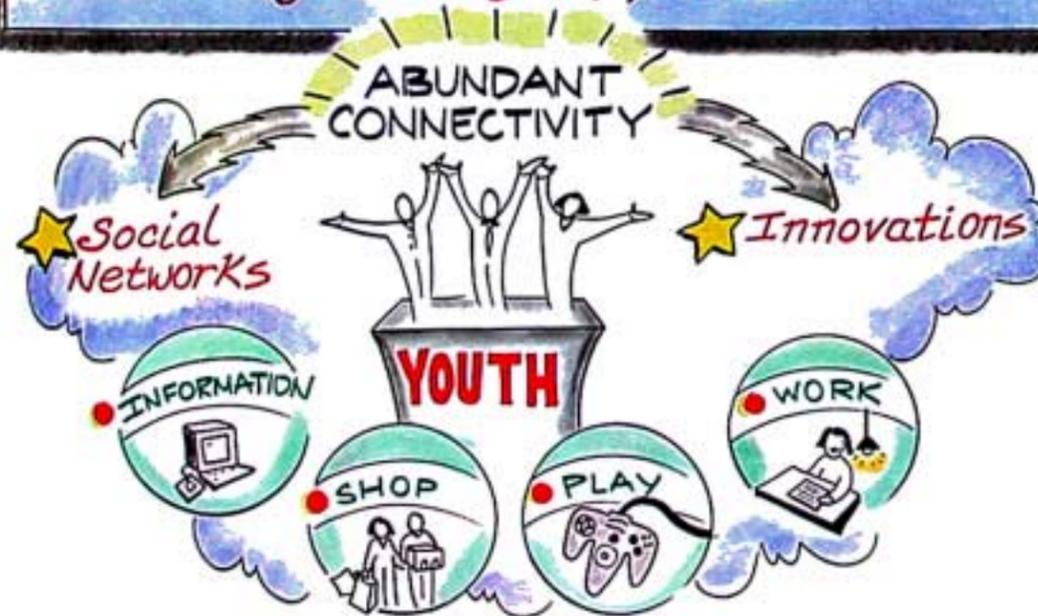
The Beckett Ridge facility provided an ideal environment for the GIF workshop participants who were presented with research results from in-depth ethnographic research with young people in the four different regions. They were then invited to explore the implications of this research to gain strategic insight. This was an ideal setting for translating research results into realistic environments that reflect different domains of people's lives.

AGENDA

GLOBAL INNOVATIONS FORUM

NETWORKS-IN-USE: YOUNG PEOPLE IN THE WORLD OF ABUNDANT CONNECTIVITY

*Procter & Gamble
Beckett Ridge Institute
June 25-27, 2001*



MONDAY - JUNE 25

- 2:30** • SHUTTLE SERVICE TO B.R. INSTITUTE
- 3:00** • SIGN IN and REGISTRATION WELCOME and ORIENTATION
- 3:30** • TOUR OF P&G BECKETT RIDGE INSTITUTE
- 5:00** • SHUTTLE SERVICE TO RESTAURANT
6:00 Dinner at Montgomery Inn

AGENDA, continued

TUESDAY—JUNE 26

8:00 • CONTINENTAL BREAKFAST
Madison Room at Marriott

8:40 • SHUTTLE SERVICE TO
B.R. INSTITUTE

9:00 • NETWORKS-IN-USE:
STORIES FROM THE FIELD
B·R·E·A·K

• STORY TELLING CONTINUES
Lunch

1:00 • CONNECTIVE TECHNOLOGIES
HORIZON MAP

• NETWORKS IN DAILY LIFE
Exercise
B·R·E·A·K

• LEARNINGS & QUESTIONS
FOR FUTURE RESEARCH
400 SHUTTLE TO MARRIOTT

SHUTTLE TO B.R.I. 5:45 • DINNER & CONVERSATIONS WITH
YOUNG PEOPLE — SHUTTLE BACK

WEDNESDAY—JUNE 27

8:00 • CONTINENTAL BREAKFAST
Madison Room at Marriott

8:40 • SHUTTLE SERVICE TO
B.R. INSTITUTE

• REFLECTIONS ON CONVER-
SATIONS WITH YOUTH
B·R·E·A·K

10:15 • APPLYING NETWORK
METHODOLOGIES

• FUTURE
RESEARCH

• MEETING ADJOURNS — BOX
LUNCH
12:15 SHUTTLE SERVICE TO
HOTEL and AIRPORT

Institute for the Future - Jeri Kent Graphics



The IFTF team presenting stories from the field...

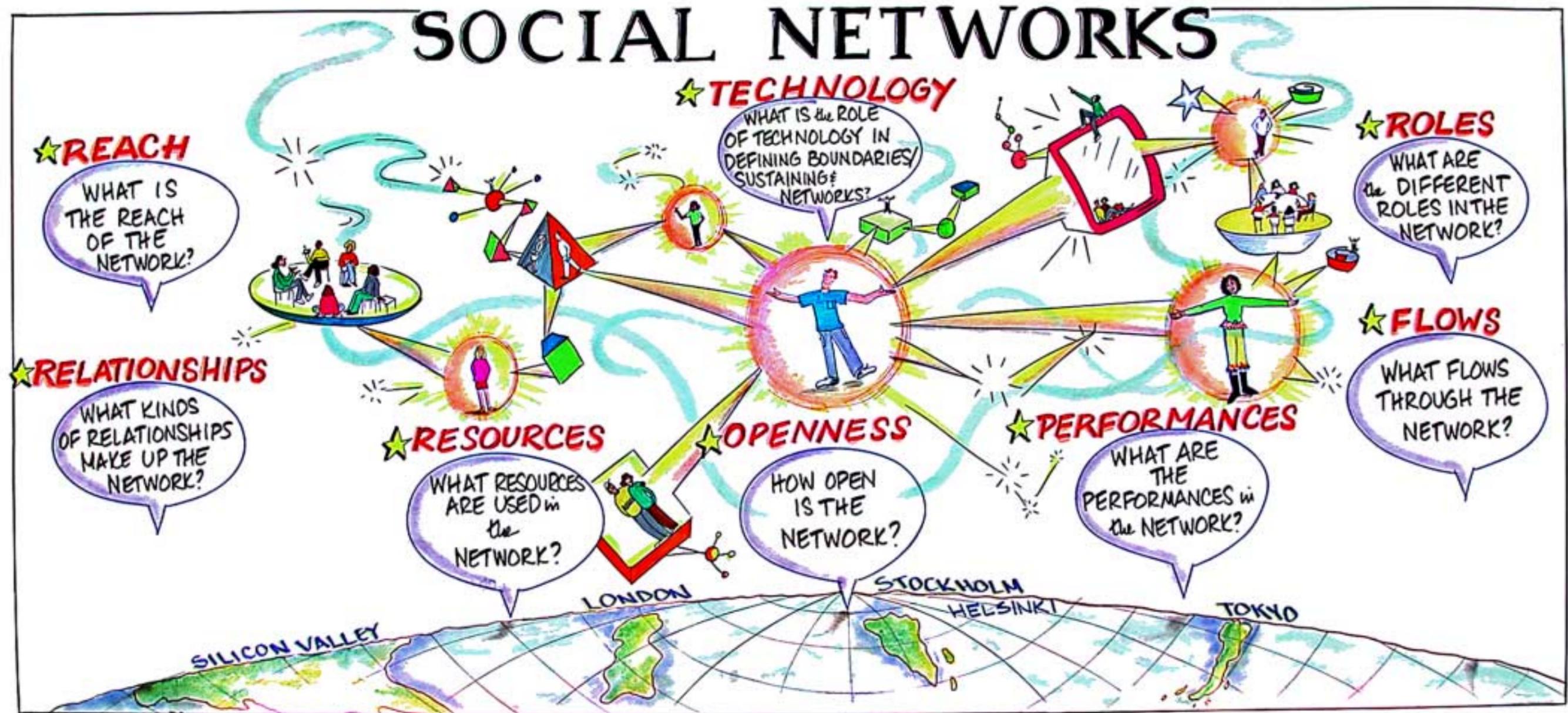


Participants mapping each other's social networks...

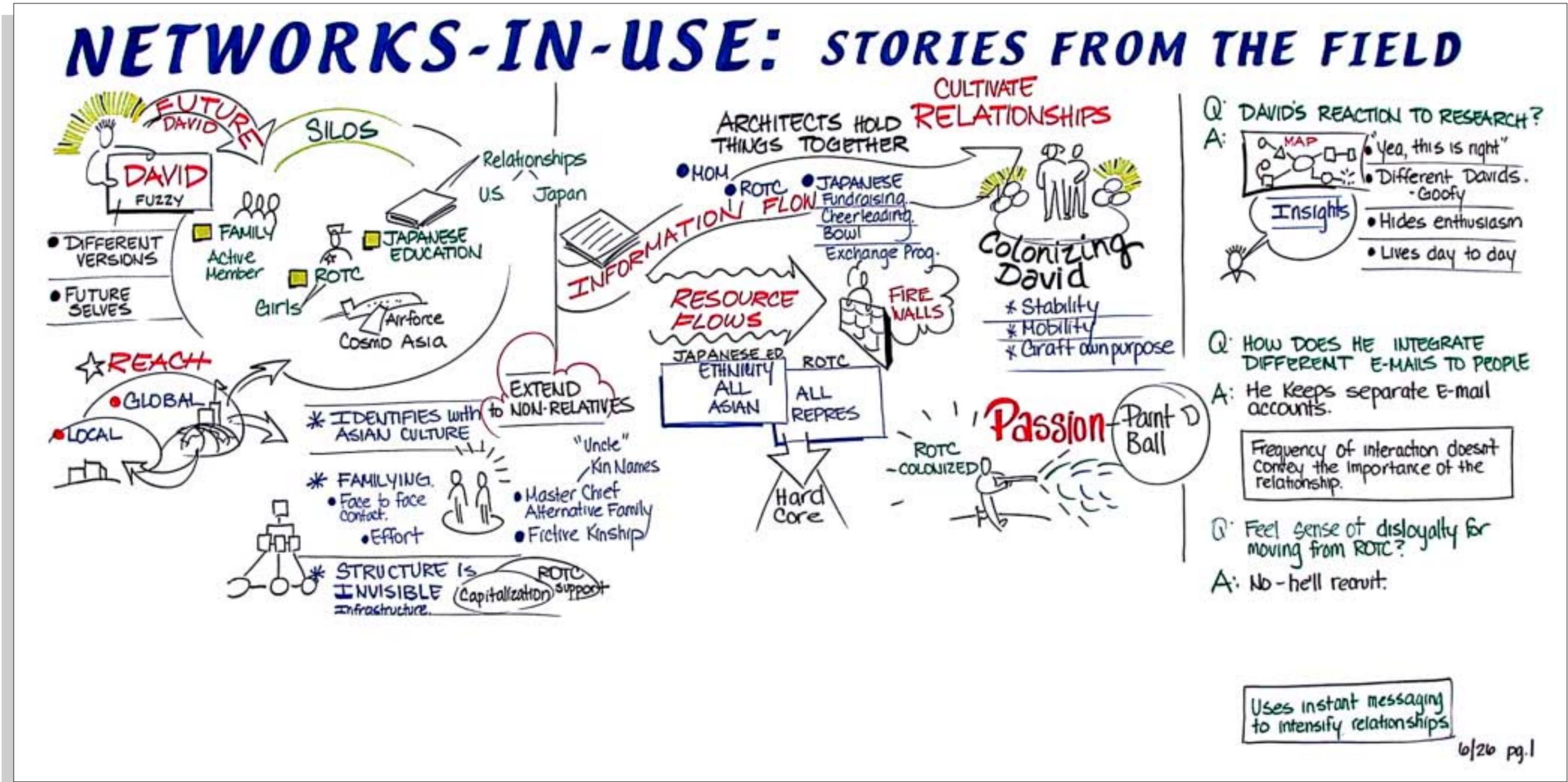


Participants mapping each other's social networks...

TEMPLATE FOR ANALYZING SOCIAL NETWORKS



NETWORKS-IN-USE: STORIES FROM THE FIELD—DAVID



In this session, IFTF researchers and affiliates shared insights from in-depth ethnographic interviews conducted with young people and key members of their social networks. Using the research framework on p. 7, the team presented case studies of five young people, age 15–27, from the four regions—David and Bernard (Silicon Valley), Naomi (Japan), Georgina (Sweden), and Remi (United Kingdom). Jan English-Lueck and Chuck Darrah, IFTF research affiliates and anthropologists at San Jose State University; Andrea Tegstam, research manager at IFTF; and Marina Gorbis and Rod Falcon, IFTF directors, conducted the interviews and presented the case studies.

David is a 15-year-old high-school student, completing his sophomore year. His family is ethnic Chinese Vietnamese and, although a few family members still live in Vietnam, most live within ten miles of his South San Jose, CA home. He lives with his mother, father, little sister, and three Chinese Vietnamese college student boarders. The family calls and meets face-to-face at least twice a month, often once a week. Family members change residence to live with one another on a regular basis. David's father works with his brother. Both his father's and mother's families regularly make an effort to visit one another—planning trips to each others homes, or group trips to Reno, NV.

Siloed Structure

Nodes in David's network can be viewed as silos, in each of which one can see the "future" David. David uses these silos to get ahead, and each connects to his plans for the future. The main nodes include:

- ROTC—David loves all things related to flying and has joined the Naval ROTC program at his high school.
- Extended family is largely limited to the cluster of his parents' family and the immediate generations. These include those linked by blood or marriage.
- The Japanese exchange program at his high school.

Alternative Families

David chooses to belong to enduring, family-type networks. His extended family and ROTC peers are the strongest aspect of his network.

For example in ROTC, the Mas Chief has created an alternative family. This is reinforced by the introduction of family nicknames—a practice that comes from Freshman Kimberly. David does not expend energy cultivating a broad network of connections. Instead, he focuses his energy on cultivating the stable ROTC and family networks.

David remains close to family-type networks. For example, his best childhood friend, John, is the son of friends of his parents; Alice is a friend acquired through the Japanese program and trip; the adults in his life are his parents, aunts and uncles, and the teachers associated with ROTC and the Japanese program. Also, his extended family is an

enduring framework. And although the Japanese program exists due to the efforts of students and teachers, it is a framework as well.

Only a few relationships are mostly independent of these networks, and David invites these people to "hang out" in the ROTC facility. For example, he encourages two of his female friends to come to the ROTC.

Being Global and Yet Deeply Local

The reach of David's network is both local and international. Although most of his family and life is lived in South San Jose, Berryessa, and in the ROTC building at his high school, parts of his family are in Asia. Consequently, he has strong memories of his travels to Hong Kong and Japan. He sees his future as one in which he lives an international life. Although he has been to Vietnam, he imagines his future involves exploring cosmopolitan Asia.

David's Asian identity looms large in his non-ROTC friendships and family relationships. For example, his email identities always begin with some variant of "Asian" (AZN). He speaks Vietnamese and Cantonese, and is learning Japanese. His trip to Japan and email connection to his host family is important to him.

Flows in the Network

Each cluster in the network has a different set of flows. Flowing people, monies and residences move through the family. Roles, information and activity swirl around the ROTC cluster, and the Japanese program is a platform for the movement of people, cultural bits and information.

David uses his Asian identity to link with various pieces of his network. All David's non-ROTC friends are Asian, although he says this is merely due to cultural barriers. Being Asian, being interested in things Asian, and interpreting Asian culture is a feature of David's life, particularly in his life related to the Japanese program and his larger kin and friendship network. Yet, within the ROTC network, ethnicity is not an issue. His friends there are from a variety of ethnic backgrounds—Indo-American, Latino, African-American, Euro-American.

Hidden Supports and Infrastructure Architects

David's mom is the architect for his extended family. The Mas Chief is

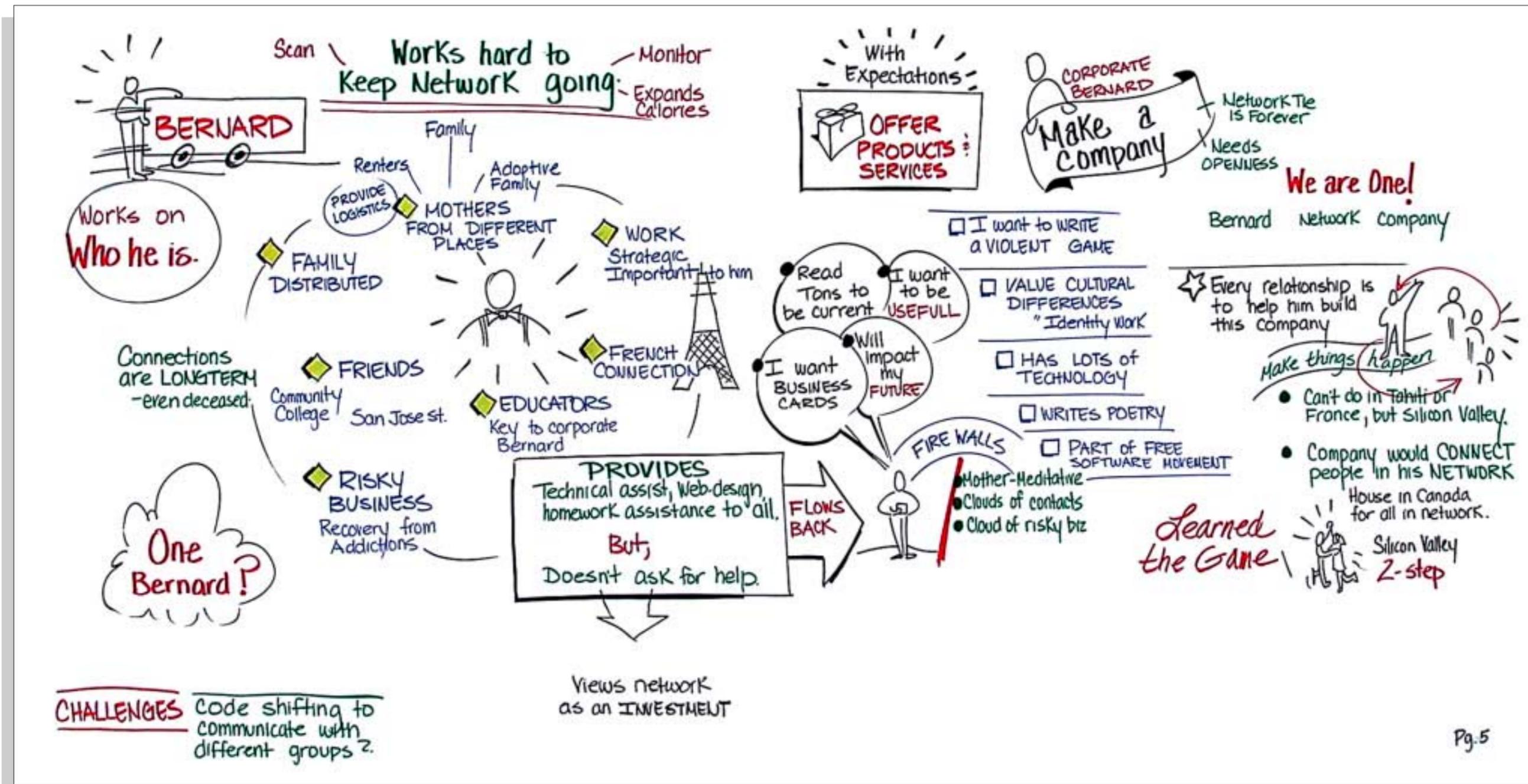
the architect of the local ROTC network. Social supports, such as the U.S. Navy and California's educational system—which host the magnet program structure—are also necessary supports.

The Navy funds and regulates the infrastructure of the NJ ROTC, although extra funds are raised by running a snack store for all students out of the ROTC building.

Mr. Hurley and his fellow teachers build and maintain the infrastructure of the Japanese program. However, the students and teachers, particularly Mr. Hurley, expend extra effort fundraising, going to Japan, going to Japan bowl, forming a Japanese cheer squad for school activities and creating a local, regional and even national identity.

A technological infrastructure underpins his networks—David uses ICQ and email to maintain his ROTC and Japanese (both host family in Japan and classmate) connections.

NETWORKS-IN-USE: STORIES FROM THE FIELD—BERNARD



Bernard is a 20-year-old electrical engineering/anthropology major who currently lives in Silicon Valley. He is French, and his parents live and work in Tahiti, where Bernard spent his adolescence. Bernard attended high school and community college in the United States, prior to transferring to a university. He has lived extensively apart from his parents and has established relationships with several different “host families.” In addition, he has formed friendships in the different places he has lived and attended school. Bernard is interested in combining the technical skills he refines through his electrical engineering major with an understanding of diverse human cultures to support a business that creates distinctive services and products.

Complexity

This is clearly an ego-centric network—Bernard is very much aware of his network with him at the center. The network can be loosely divided into the following branches:

- family members
- fictive “mothers” and their families
- people connected through current or potential work-related activities
- French friends
- friends met in the United States
- past and present teachers
- people with histories of trouble with drugs

Because his network is complex, he must master different “rules” for connecting with different categories of people.

Technology Infrastructure Supports Network Use

Bernard has created a technological infrastructure that supports his use of the network. He owns a digital camera, Mac personal computer, scanner, printer, several CD burners, digital camcorder, television, VCR and DVD player. Some of these devices allow him to communicate with people in his network. Others are used to produce music CDs, videos and games that are offered to some people in the network. The net-

work also endures over time and the network relationships can endure even after death. For example, Bernard considers one person who died to remain as part of his network. He also views the network as an investment in the future.

Technical Assistance Flows Through the Network

Generally, technical assistance flows from Bernard to others in the network. Offering technical assistance is valued by Bernard, and he speaks of making himself “useful” to other people. Bernard’s job involves providing technical assistance, and this also fuels his desire for the latest technology so he can offer state-of-the-art service within the network.

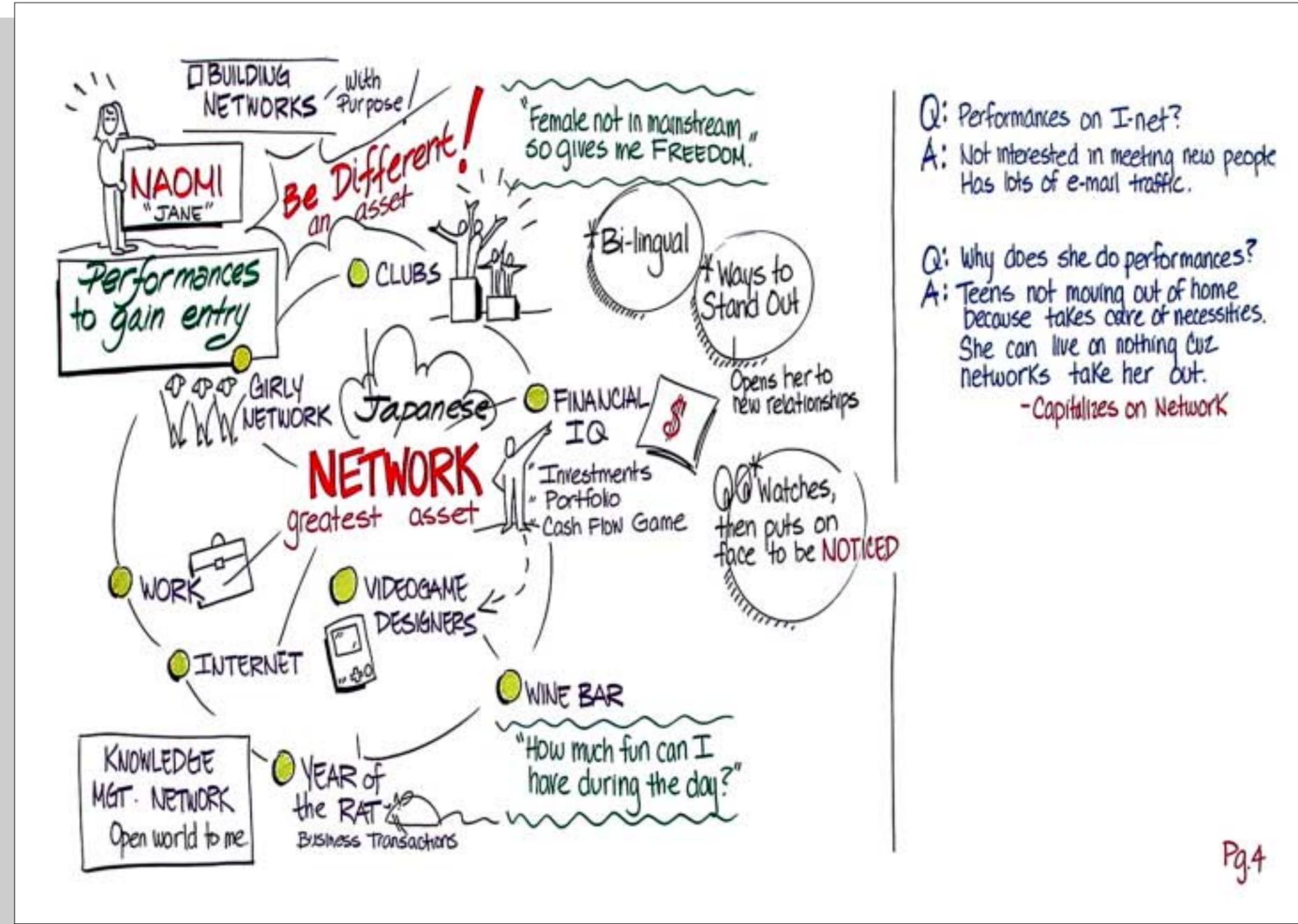
Flow Nodes vs. Firewalls in the Network

At some places within his network, Bernard connects through a person or “node” to *their* networks. At other places, however, there are “firewalls” that seemingly block further connections. For example, Bernard connects to several friends from school, who in turn can provide access to many other schoolmates. Likewise, there is a firewall between one of Bernard’s American friends and, in turn, *his* network of friends from Narcotics Anonymous. Thus, flows and exchanges characterize part of his network, but they are absent in other places. Yet some of those relationships remain important because they help Bernard define who he is and isn’t.

“Corporate Bernard”

Bernard plans to start a company based on the network, although the exact nature of the business is unclear. Everyone within the network is a potential contributor to this company, so Bernard is careful about who he allows “in.” Bernard, his network and his company are fused into an integrated entity that extends globally and far into the future.

NETWORKS-IN-USE: STORIES FROM THE FIELD—NAOMI



Naomi is a 27-year-old Japanese woman living in Tokyo. She was born in Japan, moved to England at the age of three, returned to Japan for primary school, and then moved with her family to New York. She also went to an equivalent of junior college in Wales for two years, before attending Tokyo University where she majored in sociology and graduated with an equivalent master's degree. After college, Naomi joined a major Japanese advertising firm where she is involved in lifestyle and consumer research. She lives with her parents and sister in the center of Tokyo. Naomi's father heads a trading company and is semi-retired. Naomi is completely bilingual (English and Japanese).

Wide-Reaching Network

Naomi's network crosses a number of boundaries: geographic (Japan, England, Wales, U.S.); professional (Internet entrepreneurs, academics, artists, designers); generational (many people in her network are much older, including her father's friends, various older colleagues and acquaintances).

Key network clusters include the following:

- Work (major advertising firm)—work provides Naomi with access to a variety of companies and people. Many of the important people she has met—Internet entrepreneurs, artists, anthropologists, designers—she has met through work, usually in the process of working on a project where she has to interview a person or where they are doing something jointly (building a website).
- United World College in Wales—alumni network in Japan of people who attended the school. There is a Japan national committee for the school, which has a general mailing list and specific work group lists. The college was created to promote the ideals of greater international understanding. Naomi is involved in the new students selection committee and in the fund-raising committee.
- Financial IQ Circle—a group of young people who are interested in leveraging the stock market to develop assets for retirement. Because of Japan's low interest rates and savings through the postal system, the idea of building risky portfolios of individual investments is new. This group is actively working to bring American-style stock investments and risk mentality to Japan.
- Primary school friends—a group of friends who went to prep school together (some also went together to junior high) and regularly get together to talk about all sorts of, in Naomi's words, "girly things"—boyfriends, kids, people they knew in school, etc. "One of the few girly communities I belong to. The others are very macho."
- Internet community—a loose-knit community of people involved in Internet businesses either as entrepreneurs or within large compa-

nies (Dentsu, Sega) and all working to promote development of the Internet in Japan. Includes designers, video games developers, software engineers, artists, and investors.

- Year of the Rat club—includes people who were born in the year of the Rat. Members are divided into children, parent, and grandparent groups. Naomi belongs to the children's group. They have an online presence, and also meet in person.
- University clubs—like most Japanese students, Naomi joined a number of clubs upon entering Tokyo University. Most of her clubs had to do with the third world. Several people from these clubs work with various aid organizations—Asian Development Bank, United Nations, etc. There is a mailing list through which members stay in touch. They also meet a few times a year in person.
- French Wine Bar—patrons of a small wine bar in Tokyo that attracts interesting people.
- Family—although members of the family rarely get together, they share the same living space. Naomi also draws extensively on her family's resources, both financial and personal. She sometimes accompanies her father to various gatherings with his work associates to hear and meet interesting speakers. She recruits her father to take her and her friends out to new expensive restaurants and to pay.

Global Reach Through Local Connections

Although Naomi's networks extend to Wales, England, and New York, these are maintained through her local Japanese connections (Japanese girlfriends who went to school with her in Wales, a brother who lived in New York). There are hardly any non-Japanese in Naomi's network.

Entry into Network Clusters is Work

Although many clusters within Naomi's network appear to be loose and quite open—Internet community or various "artsy" groups—in reality there are unspoken rules for who "belongs." In fact, a major portion of Naomi's energy goes into cultivating herself as an "interesting" person as the price of entry into these various communities.

Frequency of Contact Does Not Mean Closeness

In Naomi's case, frequency of contact with various parts of the network does not correlate with the degree of intimacy or comfort she feels with various parts of the network. Although she frequently sees her artsy and Internet friends, she does not feel particularly close to them. On the contrary, one of her closest friends, Mayu, she sees only occasionally although they stay in touch via email and phone.

Performances Are a Major Part of Naomi's Network Activities

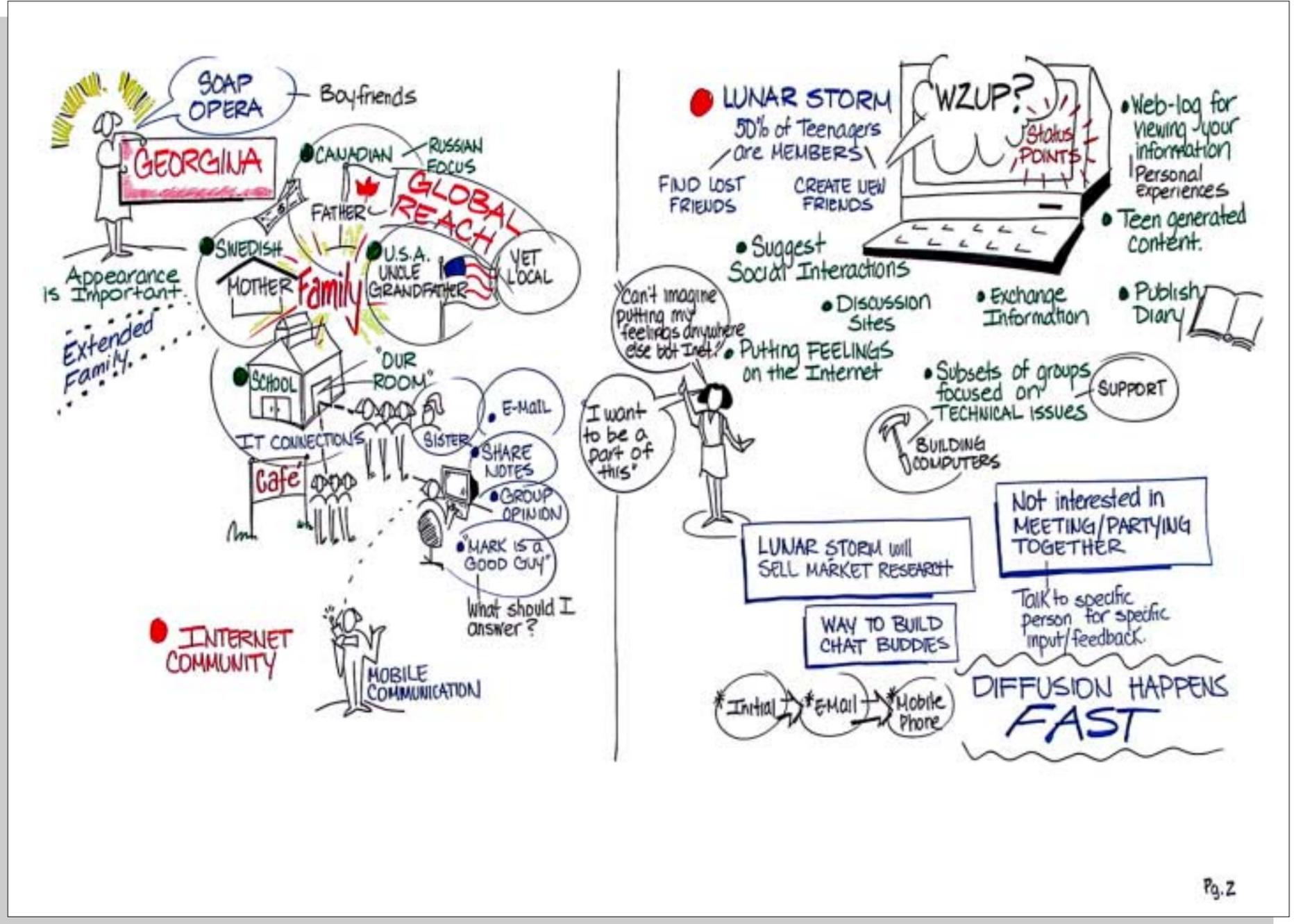
In fact, Naomi's life can be summed up as "life as theatre." Naomi openly talks about how she puts on performances for different situations, including changing costumes, personalities, and sets. She talks about how, at the beginning of an encounter, she may remain quiet while checking out what kind of performance she might need to put on. In most situations, she wants to stand out, be noticed, in the crowd—this may involve wearing a sari, or having a bag in a shape of a little dog, or buying a Guinness stout in a bar. She is self-aware and conscious of using performances in her life. It is interesting to note that people need these performances and are willing to participate. Naomi's performances have clear boundaries, which she is not willing to cross. She is afraid to go too far in her performance, because then she "might fall out completely of the mainstream."

Tangible and Intangible Resources Are Exchanged in the Network

These include:

- Financial—various people in Naomi's network provide financial support to Naomi and others in her network. Her father takes her and her friends out when they want to check out expensive restaurants. The owner of the wine bar often takes Naomi out to expensive restaurants (he spends more money on her than she spends in the wine bar). Her older friends often take her out to restaurants or various shows. For someone like Naomi—a young, attractive, smart, English-speaking woman—life in expensive Tokyo costs virtually nothing.
- Ideas/knowledge—several people serve as sources of new ideas for Naomi and others in the network, regarding such things as the workings of the stock market, how to run your own company, use of the Internet, and workplace practices. Naomi herself trades her knowledge of English with others in the network.
- Relationships—people are trading access and relationships in various parts of the network. One's network is an important asset that people bring with them and on which they are judged. Having an interesting set of relationships is often the price of admission into different parts of the network.

NETWORKS-IN-USE: STORIES FROM THE FIELD—GEORGINA



Georgina is 17 years old and has just completed her first year of Swedish high school located in a suburb of Stockholm. This is a new school that focuses on entrepreneurship. Students have flexible schedules, and the system builds on individual and group assignments that take the students out of the traditional classroom. The high school also provides a good information technology infrastructure.

Georgina was born in the Ukraine and has a Jewish Ukrainian background. Her parents divorced when she was three, and she came to Sweden with her mother when she was four. Her mom settled with a Swedish man, and the three of them live together in Stockholm. Georgina's father moved to Canada, where he married another Ukrainian woman with whom he has a daughter, Georgina's half-sister. Georgina goes to visit her father most summer holidays. She likes to refer to her life as a soap opera, where the main story is her friendships with young guys in Sweden and abroad.

Limited Network Reach

At 17, Georgina's network reach is less developed than that of some of our older informants. Network clusters center around her two sets of family (in Canada and Sweden), relatives in the U.S., and school friends. The network typically evolves in places where she is—around her family or at school. She is not purposefully creating the network.

Global Reach Through Family Ties

Through her family, Georgina's network reaches across continents to the U.S. and Canada. However, the meaning of "global" in Georgina's network is in fact quite local—her Ukrainian Jewish connection ties these geographies together. While in the U.S. or Canada, her experiences are filtered through the Jewish Ukrainian context. In fact, she speaks more Russian and is surrounded by more Russian-speaking friends and relatives when she is in the U.S. or Canada than when she is in Sweden. She even has a Russian-speaking boyfriend in Canada.

Redefining Family

Georgina's own family is far from the traditional nuclear unit. In Sweden it consists of her mom, stepfather, and stepbrothers. In Canada it includes her dad, stepmother, and stepsister. Georgina's grandparents (on mother's side) live in the U.S. and so does her mother's brother.

Georgina's best friend's family arrangements are even more complicated. This girl, although she lives in close physical proximity to her biological father, has only met him a few times in her life, and does not really think of him as a father. Instead, she maintains a "father" relationship with a former stepfather (he and her mother have separated). The stepfather is from Chile, and the girl thinks of him and his relatives as "family." She has visited Chile several times with her stepfather, and is thus "colonizing" this connection. Teenagers, like Georgina and her friends, are actively choosing who they consider to be family, while in the process redefining the whole concept of family or household.

Nodal Composition—the Group as a Node

Georgina has a group of school friends who act as a strong unit, shaping each other's desires, choices, and responses to the outside world. In this sense the group, rather than an individual, should be considered as a node in the network structure. The group, which consists of six girls, even has its own space—a room in the school that they made their own domain. The room is equipped with PCs connected to the Internet. Here the girls keep their personal belongings (everything from school books to mobile phones), and here they meet during breaks to talk, do school work, and chat online. Opinions and experiences about everything are constantly exchanged—be it boyfriends or ways to decorate their mobile phone. In giving feedback and advice, this group tends to act more as one single node than several individual ones. For example, the group decides whether a particular boyfriend is the right one for a member. After much discussion, the group unites in one "group" view. "They all agree that Mike is the right one for me. No matter what happens in the future, he has always been treating me really well. They all agree that Mike is a decent guy and that I should go with him, since he is a good guy." Once the view is solidified, group members act accordingly. Various emails and SMS messages are openly read to the group, and responses are also created by the group.

Hidden Infrastructure

Georgina clearly relies on her family for financial and other resources—they are the source of her airline tickets; they make it possible for Georgina to buy clothes and accessories to express her personality and to continue to play a central role in the "soap opera" that she is staging. The physical infrastructure of a large metropolitan center like Stockholm

also plays an important role in Georgina's life—downtown cafés and public spaces where she hangs out with her friends and meets new people.

Virtual Communities Are Important for Self-Expression

Like 50 percent of Swedish teenagers, Georgina, through her friends, participates in "LunarStorm," an online community specifically targeted to young Swedish people, typically 16–25. There are now 950,000 registered members, which represents half of the target group. Around 500,000 are active members. As the founders put it, "LunarStorm grows thanks to the members' need: to see, be seen and communicate while at the same time expanding their network." Many members keep active "weblogs"—diaries of their daily activities, thoughts, creative expressions—on the site. Some have become online celebrities by creating interesting and frequently visited sites. Each member has a guest book, which anyone who checks out the site is welcome to sign. The site also helps find lost friends either from previous schools or other locations. In a homogeneous society like Sweden, and with extremely high penetration rates among young people, a site like LunarStorm accelerates fast diffusion of news, ideas, and opinions.

NETWORKS-IN-USE: STORIES FROM THE FIELD—REMI



Remi is a 17-year-old high school student finishing his last year of (as he puts it) compulsory education. He wants to go to Cambridge University and is already being wooed by recruiters. Remi is multiracial (white and black British), but is not preoccupied by his ethnic/racial background nor does he feel it is relevant to his identity. His parents are divorced, and he lives a week on and a week off with each parent. His father is a teacher at a middle school in London where he teaches vocational skills for students entering the workforce. His mother is a Professor of Media and Cultural Studies at a University in London. Both of his parents' careers take them abroad frequently. There are no other siblings in the household, although Remi does have several "surrogate" brothers and sisters in his social network. As he put it, "They know my middle name. That's the test."

Deeply Local with Diverse Global Ties

Remi's social network is deeply local with diverse global ties. It focuses on music and the social interactions (both local and international) it facilitates—both in the real world throughout the London urban landscape and online in music chat rooms. His network can be divided into those relationships rooted in family (his father's and mother's relationships) that have been grafted onto his own social network, and those relationships he has cultivated himself—most of which revolve around hardcore music and Straightedge, a global youth social movement that evolved out of the punk music scene. Remi's everyday life appears quite local, but his identity, lifestyle preferences, politics, and passions are global. Remi has traveled quite a bit for a 17-year-old and has a cosmopolitan outlook on life and strong preferences about where he likes to live. When asked about life in London versus life in other parts of the UK, he said he only likes London because elsewhere there is little to do and people tend to fall into frequenting pubs as a way of life—something he prefers not to do. London is his playground. In Remi's words: "I can go to three new places in London every day for years and never exhaust the possibilities it has to offer."

Pools of Latent Relationships and Social Resources

Remi's parents have rich social networks themselves, and each has grafted certain relationships and resources onto Remi's own social network. They include ties to diverse strata in society as well as to

intellectual, educational, social and music resources. Remi has not put these relationships to use yet, but they are available to him in the future.

Reflections of Similarity and Difference

Remi relies on several people to serve as reflections of similarities and differences. He relies on one friend, a surrogate brother, to anchor him in reality, share stories, and help him make sense of his experiences with his other friends. He also has an older friend, who is important because she is foreshadowing the experiences he will have (moving out, applying and going to university) a few years down the road. Interactions with these people in the network are leveraged to probe, test experiences, create meaning, and develop identity.

Location-Based Social Interactions

Many of Remi's social interactions are also tied to physical places throughout the London urban landscape. In these places (i.e., Camden, Oxford Street, the other venues for music gigs) he can tap into pools of relationships through multiple chance encounters with people he knows and people he does not know. These places are critical to building and managing his social network. Remi discussed how he moves some of these social interactions with random people into relationships by shifting out of the randomness and actually interacting with them in a more "proper" manner.

Diffusing Ideas and Creating Community Through Music

From chat rooms to websites to activities in daily life, music is dominant in Remi's life, and he puts it to use in an innovative way. The "social" rituals (including those with his family) he practices are often focused around or related to music (i.e., going to concerts with Dad, going to gigs with his surrogate siblings, surfing the Hardcore websites with friends, practicing with the band, going to gigs in Camden Town). Music and social interactions or rituals help Remi construct and reconstruct family and the household (through conversations) as well as his identity (listening to hardcore, being straightedge) on a daily basis. Music is the means by which he interacts with others close to him and frames content of the interactions he may have with new acquaintances. Remi also uses music as a social filter. To him and others in his network, it

communicates aspects of one's lifestyle, politics, principles, and ideas one ponders.

Straightedge: Social Movement as a Network

Remi identifies with a sub-culture/music scene known as Straightedge. Straightedge is an international social movement that originated on the East Coast of the United States. It is essentially an ethic by which to live one's life and evolved in reaction to the "toxic" lifestyle of the punk scene in the mid 80s—when many among the scene were overdosing on drugs or dying from AIDS. Straightedgers abstain from drugs, tobacco, promiscuous sex, alcohol and meat. They have the same enthusiasm for the music as other people in the hardcore scene and "rage" all night long as well. They simply do not participate in behaviors that are toxic to the body. Perhaps the most central aspect of this ethic in Remi's life is "veganism." Veganism is not a required aspect of Straightedge but a natural progression—particularly in requiring that everything you put in your body should be nontoxic. Straightedge movement is a social network itself, and the communications channel to diffuse ideas about what is desirable and what is not. It represents a large youth segment globally—youths from London, New York, rural Utah, to Germany and Sweden all identify with the same lifestyle principles, yet come from different parts of the world. Some may be motivated through religious observation and still others, like Remi, who claim no religious affiliation, found the same principles through Straightedge.

COMMON THEMES

Themes

- ★ **FAMILYING**
 - Concept of what household is varies.
 - Create families
 - Assign names.
 - Multiple households and different contexts

What is the HOUSEHOLD?
- ★ **CONTEXT SWITCHING**
 - Multiple contexts
 - Skill to switch
- ★ **EVOLUTION IN NETWORKS**
 - PURPOSEFULNESS IN NETWORKS
 - TIME HORIZON OF NETWORKS 9

- ★ **SOCIAL NETWORKS ARE DYNAMIC**
 - Competing claims on networks
 - Indicative of WHO these PEOPLE ARE
 - Beliefs
 - Desires
- ★ **SOCIAL NETWORK DEFINES WHO YOU ARE**
 - Participate in different lifestyles
- ★ **USING COLONIES DIFFERENTLY**
 - (traditional networks used differently)
- ★ **NETWORKS HAVE DIFFERENT MANIFESTATIONS**
 - Interplay of different networks

10

- ★ **IMPORTANCE of HIDDEN INFRASTRUCTURE**
 - supplies resources
 - Many need to target product to hidden infrastructure.
 - Where are goodies coming from?
- ★ **TEMPTATION to LOOK at SWEETNESS of NETWORK**
- ★ **VERY GLOBAL, yet meaning of global has been local**

Next Meeting: How do REGIONAL DIFFERENCES Impact Networks : their use?

11

Preliminary research results point to some common themes in young people's social networks. These include:

- **“Familying”**—Young people create multiple familial-type clusters of relationships in their networks, which may include surrogate parents, siblings, aunts, and uncles. Interviewees consistently referred to people in their networks who are “like family,” often assigning familial titles to people they know. This points to the need to reexamine the whole notion of what a “household” is, who is and who is not a part of it, what resources are provided and exchanged in pseudo-familiar relationships, and what needs they satisfy.
- **Context Switching**—Several key informants described elaborate performances they engage in as part of their participation in different networks (Naomi as “Jane” who went to a prep school in New York; Naomi as an “interesting” person who stands out of the crowd; Naomi as an English-speaking translator of trends). There are clearly different identities and roles associated with each set of performances. People we interviewed engaged in elaborate processes of switching contexts and identities as part of their network activities.
- **Evolution in Networks**—There is a noticeable progression in people's networks, with younger informants' networks evolving around them in places where they live or where adults put them (schools, neighborhoods, families). With age, some young people become quite purposeful in developing their networks so that network activities acquire direction and meaning. For example, Bernard sees a role everyone in his network will play in his future company; Naomi purposefully creates relationships that allow her quick access to new knowledge and ideas.

- **Social Networks Are Dynamic**—Some clusters within networks are constantly changing and evolving. In Remi's example, the Straightedge movement, in which he and several of his friends are involved, started out as an alternative to the toxic lifestyle of the punk rock scene. But the movement is quickly evolving with different groups—religious, political, social—laying competing claims on it, while in the process trying to redefine what the movement is all about. As a result, new, counter, and splinter movements are quickly evolving.
- **Social Networks Define Who You Are**—This is equivalent to the old saying “tell me who your friends are and I will tell you who you are.” Networks clearly shape people's beliefs and desires. Whether it is Remi's Straightedge network or Georgina's tight group of girlfriends, these clusters set rules of engagement and provide a context for what is desirable or not. This brings into question traditional segmentation methodologies, which target individuals and assume that an individual has one unified identity. Not only do we see networks playing an increasing role in defining the individual, but it is also apparent that individuals participate in multiple networks and have multiple roles and identities. Our research points to the new need for social network segmentation, that is, segmentation based not on the individual but on networks or network clusters.
- **Different Network Manifestations and Strategies**—The structure of clusters in the network varies, with some clusters having an enduring stable quality (family, government supported training programs, and religious organizations) and others having a more fleeting, changing quality (Straightedge movement, Financial IQcircle in Japan). The strategy of some of the respondents is to concentrate

on colonizing existing, established, and enduring networks (David colonizing ROTC), while others try to create or connect with new more dynamic and evolving clusters.

- **Importance of Hidden Infrastructure**—In all of the interviews, it was apparent that there exists a vast amount of “hidden infrastructure” that supplies necessary resources to young people. This infrastructure provides money, goods (airline tickets, vacations, everyday products, room and board, technology products) and services (cleaning, taxi services, connections to people). Although much of this infrastructure is invisible and young people often forget to mention it in interviews, without it they would not be able to carry out their network activities. When marketing products and services for young people, it is important to think who the target is—is the product/service a part of the hidden infrastructure or should it be targeted directly to young people?
- **Meaning of Global is Often Local**—Although most of the interviewees are quite “global,” the meaning of global is very different in each individual case. For Bernard, being global means being in Silicon Valley where a lot of his friends and “pseudo-family” members come from different countries. For Naomi, global means having lived outside of Japan, but her connection to these places is mostly through other Japanese. For Georgina, it is her Jewish Ukrainian extended family with branches in the U.S. and Canada. For David, it's his ethnic Chinese Vietnamese extended family and the Japanese program in his local Silicon Valley high school. So, although all these people have multiple global connections, these connections are often local and have very different meanings for each one of them.



Pete Blackshaw of Planetfeedback in discussion with Marina Gorbis...



Marina Gorbis and Franz Dill of P&G listen to Pete Blackshaw's presentation

LEARNINGS & QUESTIONS

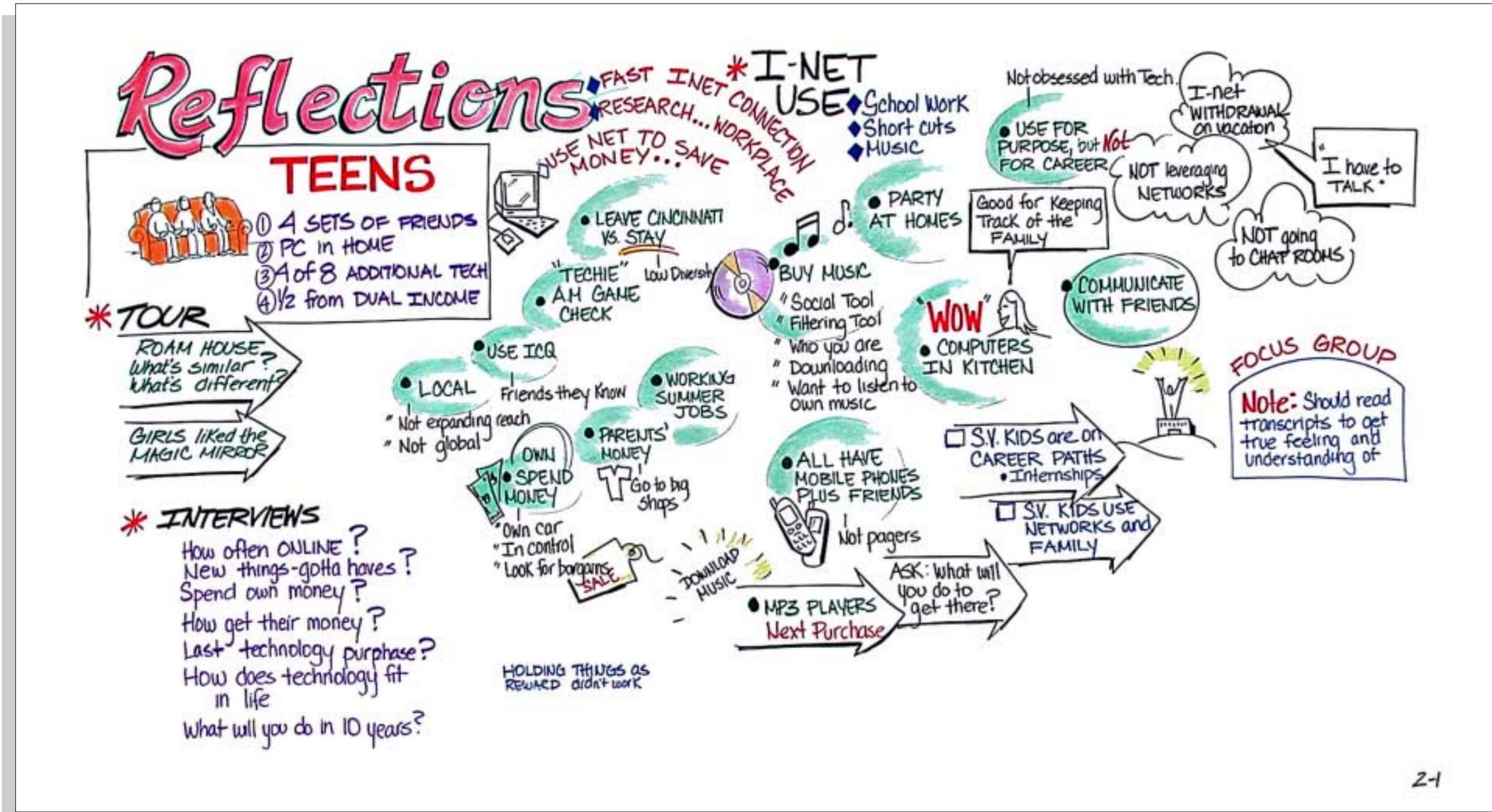
LEARNINGS & QUESTIONS

- Networks represented DIFFERENTLY**
 - Diagram: A person with a laptop and a network diagram.
- The OLDER you are, the BIGGER the NETWORK -- broader**
- WORK to keep NETWORK TOGETHER**
- Network is FAMILY CENTERED**
 - "Choicefull"
 - "Stable"
 - "Value"
- DIVERSITY**
 - OLD NETWORKS
 - NEW NETWORKS
 - DISCOVERY
 - Life Stage
- TIME PRESSURES**
 - CONSTRAINTS (i.e. cars) SHAPES networks**
 - To find BALANCE, do CONTEXT SWITCHING.**
 - Sorting out what is IMPORTANT
 - But I'm still WHO I AM
 - Takes ENERGY to provide the HIDDEN INFRASTRUCTURE**
 - PLAY DATES on PALM PILOT
 - YOUTH are MORE GLOBAL**
 - Schools are more representative of global cultures
 - Variety of NEW WAYS to go GLOBAL
- SEMI-STABLE GROUPS BEYOND THE FAMILY (i.e. straight-edge)**
 - Identify easily with members of group
- TECHNOLOGY makes STAYING CONNECTED EASIER**
 - Friend that's MOVED can keep in touch
 - Can REACH MORE PEOPLE
 - Volume creates a pattern and shapes interaction
 - REAL-TIME MONITORING of LIVES. **Location**
- SMS**
 - Cursing Friends Not offending
- CREATE DEEP RELATIONSHIPS**
 - E-mail
 - Conferencing
 - Instant Messaging
 - I love you!
 - Teens will use to COMMUNICATE
 - Can be used for intimate/Sincere messages

Fig. 14

After presenting our stories from the field, we turned workshop participants into rapid ethnographers, mapping out their own social networks for comparison with those of the five young people we interviewed. The session provoked a variety of insights about the nature of social networks, how people use them, and technology's role in driving and maintaining them. One important takeaway is the changing meaning of "global." Today, "being global" increasingly means being "local, with a global reach," enabled by online and wireless technology and exposure to cultural diversity.

REFLECTIONS FROM THE CINCINNATI TEEN FOCUS GROUP



With the help of Beckett Ridge Institute, we invited eight young people living in and around Cincinnati to join us for a discussion of their daily lives and use of technology. The participants were between 15 and 20 years old and recruited in pairs in order to make conversation easier. All participants had Internet access at home and were personally using at least four technology devices, (such as PC, laptop, PDA, mobile phone, pager or messaging device, digital camera, DVD player, MP3 player, video game player).

Throughout the discussion, teenagers were asked to:

- reflect on the Beckett Ridge “home facility”—what they liked/didn’t like;
- describe their typical day—what do they do, whom they meet, where they go;
- talk about how they make purchasing decisions—where/when it is important to have new things, how they spend their own money, how they find information about new items;
- describe how they use information and communication devices in their daily activities;
- and finally share their view of themselves 10 years into the future (i.e., what they will be doing and where they will be living).

In reflecting on the conversation, participants noted that Cincinnati area teenagers participating in the discussion differed from young people in GIF’s study on several levels:

Local Reach

The teens in this group had a local perspective on their lives, compared to the youths in the GIF research. The reach of their social networks rarely went outside Ohio, and except for occasional vacations to other states or abroad there was very little evidence of international experience and cultural diversity in this group.

Limited Role of Public Spaces

In contrast to young people in large metropolitan centers, such as London, Tokyo, Stockholm, where public spaces are also important social spaces, local teenagers mostly hang out at each other’s homes, and rarely meet in places other than schools or homes.

Internet Connects Locally Rather Than Globally

When it comes to using the Internet, these young people also differed from the young people in the GIF research. Internet use for local teenagers is mainly confined to staying in touch with local friends and undertaking virtual shopping excursions. Although everybody was using the Internet daily, there was no sense of the Internet extending to international/global reach, and there was no evidence of the use of the Internet to extend one’s social networks. Only one participant was using a chat site, and only one participant had done online shopping outside the U.S.

Music is a Social Filter

As with young people in GIF research, music plays a very important role in Cincinnati teenagers’ lives. It is not only an important component of social interactions, it is also a filtering and segmentation mechanism—music is used by the teens as a shortcut to categorizing friends and evaluating potential friends.

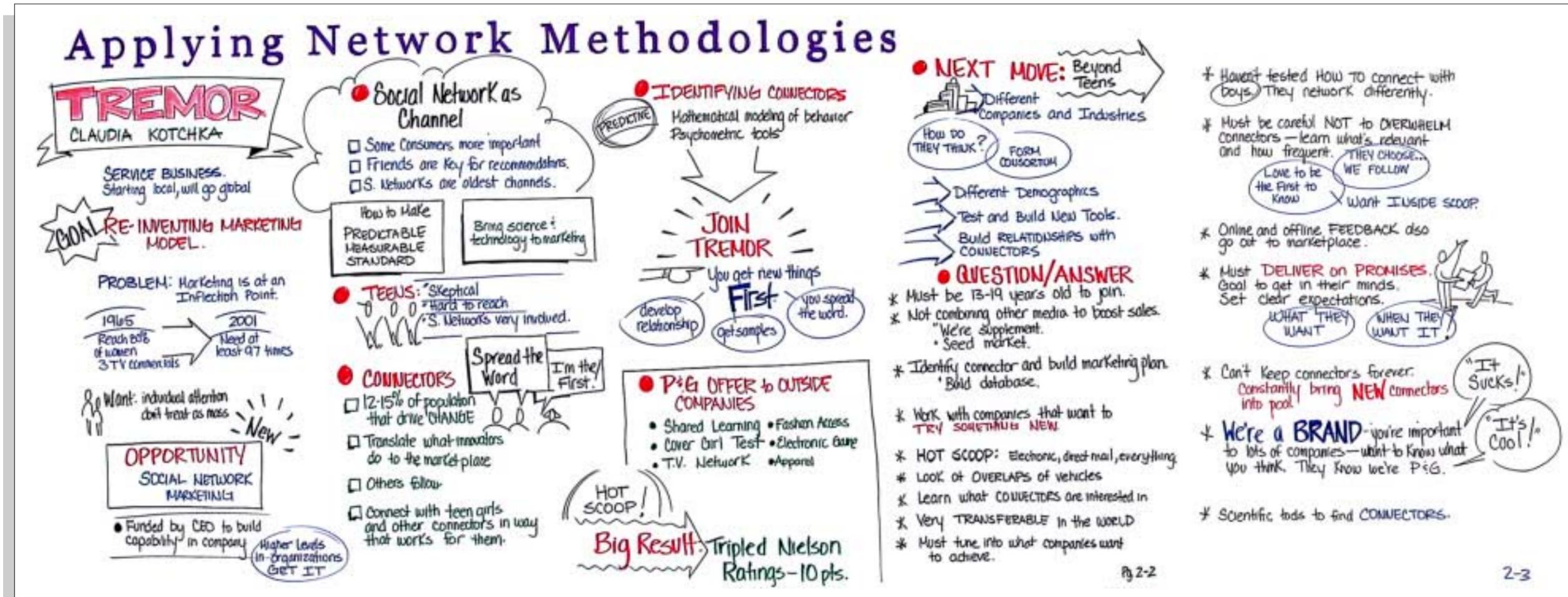
Local Desires and Aspirations

Another evident difference from young people in GIF’s research was Cincinnati teens’ views of their careers and future. Again, the aspirations were very much confined to the local environment. Although moving on to college to get a degree was seen as something necessary by the entire group, nobody mentioned moving out of state for this purpose. All but one participant clearly saw themselves living in Cincinnati in the future. The girl who considered moving was thinking of applying for job in Chicago to pursue her career in interior design.

Personal Money Buys Independence

On the topic of use of and importance of one’s own money, the group was clearly unanimous. Making purchases with your own money signifies buying independence and freedom. Be it mobile phones or cars, having used your own money for the purchase means nobody can interfere with how you use the product. The entire group saw this as clearly important. One girl shared how she preferred driving around in her old, beat-up car rather than receiving a newer car from her parents. The latter would mean increased, and unwanted, control.

APPLYING SOCIAL NETWORK METHODOLOGIES: TREMOR INC.



In this session, Claudia Kotchka, a vice-president at Procter & Gamble and CEO of Tremor, a new P&G brand, discussed the company's innovative use of social network methodologies for marketing and consumer segmentation.

Why invent a new marketing model? In this age of media overload, the average consumer is bombarded with 3,000 messages per day. Most have learned to tune these out. Back in 1965, a brand manager could reach 80 percent of women 18–49 with three prime-time commercials. Today, it takes 97 prime-time commercials to achieve the same result. Consumers don't want to be part of a mass audience. They want to be treated as individuals.

So, traditional marketing and consumer segmentation methods no longer work well. But where is the next opportunity? Tremor believes it is in social network marketing. Why? Two reasons: first, we know some consumers are more important than others; second, because recommendations from friends represent a marketing gold standard for trial and advocacy.

Social networks are the oldest of marketing channels. There are case studies of brands successfully using this channel—Beanie Babies, Harley-Davidson, the Hard Candy line of make-up, and the *Blair Witch Project* movie. But these tend to be one-time events. Tremor's plan is to bring science (predictability and measurability) and scale to this seemingly free-form channel.

Tremor started its work by looking at teen social networks, with the knowledge that the drivers of change are "connectors"—about 12–15 percent of the population. Connectors perform two important roles:

they translate what's "in" from the innovators (body-pierced, blue-haired, edgy teens) to the rest of the population; then they spread the word among their social networks—and these connectors have several or many networks of which they're a part. Because of the role they play, connectors are disproportionately important to the success or failure of a brand.

Tremor has developed proprietary tools to identify connectors. One tool uses mathematical modeling to identify connectors based on their online behavior. Another tool uses psychometrics to do the same.

After finding connectors, Tremor invites them to join their program. The benefit to them is "get it first"—first to know, first to try new things—before they hit the market. Tremor wants to develop lasting relationships with connectors and ignite their natural inclination to spread the word about products and services.

Tremor quickly discovered that it would need to open up its marketing services outside of P&G. News on P&G brands isn't enough to keep the connectors interested. And connectors don't have time for, nor do they want relationships with, a vast multitude of brands. So, aggregating brands makes a lot of sense. Consequently, it is now working on joint learning projects with Cover Girl, a TV network, a fashion accessory, an electronic game, and apparel companies.

The goal is to develop a list of charter clients for whom Tremor will design programs—both on- and offline—that leverage social networks. Although the project started with teens, the plan is to move to other demographics fairly quickly.

The company is continually testing and building new tools that allow it to identify connectors in a variety of ways such as using cell phones and pagers. There is a great potential for this new marketing tool to significantly increase efficiency and effectiveness in marketing.

APPLYING SOCIAL NETWORK METHODOLOGIES: PLANETFEEBACK.COM

PLANETFEEBACK.COM

PETE BLACKSHAW

The VOICE OF ONE the POWER OF MANY

WHAT LED US TO P.F.COM

- HUGE FEEDBACK MARKET
- FEEL IMPULSES ALL THE TIME
- CONSUMERS didn't feel EMPOWERED
- NO STDRD FEEDBACK MODEL
- RISE of the INFO MEDIARY
Open empowerment space carefully
- ONE STOP SHOP for FEEDBACK
- I-NET gives ACCESS to POWER
- ALLOW MARKETER to understand, manage and leverage INPUT

Make it EASY to GIVE FEEDBACK

• CAPTURE & ANALYZE

Positive Negative

• UNDERSTAND, EXPLOIT & MARKET

• Consumers are Different.

• Those who talk alot can spread the word quickly on I-net.

• LOVE IT!

* Ave consumers will fan out to 15 friends.

* Conversion rates to those who get samples.

* How do you identify key influencers? are those already using or complaining?

* Must sandbag BAD news on I-NET

• DONT LIKE IT

MOOD METER

* Give consumers opportunity to write letters

* Share letters Tell others

CHOICE POWER

to consumers, plus

Give marketers valuable information.

* Regulated vs Chat-rooms

PARTNERS

- Portals
- Site
- Consumer markets.

VIRAL MARKETING

Buzz
Influencers + Connectors Matter
Referrals are Important

CHARACTERISTICS

- Viral
- Demographic
- Passionate/emotional
- Try things first
- Early adopters

RECOMMENDATIONS

- ✓ Make it easy for consumers to give input.
- ✓ Respond quickly.
- ✓ Negative feedback is opportunity for involvement.
- ✓ Strengthen relationships.
- ✓ Solidify loyalty.

ISSUES

- Billing
- Safety
- Hygiene
- Customer Service

INDUSTRY

- Wireless - 80% complaint
- HMO's health insurance

QUESTIONS COMMENTS

OPEN FEEDBACK PIPELINE

DETAIL

- If you subscribe to service, you get much more slice and size of information ~~not~~ provided on public site.
Free vs fee.
- VISION: get cost of responding down from \$20.00 to \$2.00. That's Value. -Lowers your cost structure
- Some geographies MORE VIRAL than others?
-Yes it would be good to identify

TEENS (15-18%)

- Tell 8 people
- Clothing
- Fast food
- web-sites
- Mass merchandisers

METRICS

- Satisfaction
- Loyalty
- Viral Power
- Reported and Actual Virality

• How do you truly measure influence?

Value in REAL TIME information.

Capture aggregated feedback
Benchmarking is important!

• Consumers want others to know their experience. Through shared letters gets to heart of being heard.

• Products that give personal satisfaction (i.e. beauty) get positive feedback

• Could this be used for employees to use with company. Trial with doctors to HMO and will try to build vehicle for employees to do with organization.

• KEY Informant Jan is observing has this as home page.

Can we validate this as critical to marketing space. 2-5



Pete Blackshaw

Pete Blackshaw, CEO of Planetfeedback.com, a leading online consumer feedback site, talked about using quantitative metrics for identifying “viral” industries and consumers and providing a link between businesses and their most important customers.

Planetfeedback’s business model is based on the idea that consumers are more willing to provide both negative and positive feedback online about a product. Further, consumers who provide such feedback are more “viral,” that is, willing to talk with others about products. Those satisfied with a product are more likely to pass on samples of the

product they liked when given a chance. At the same time, 85 percent of consumers offering negative product feedback are ready to switch brand allegiance after making a complaint, suggesting that the act of complaining in itself is a significant “change point” in consumers’ behavior that companies should be aware of.

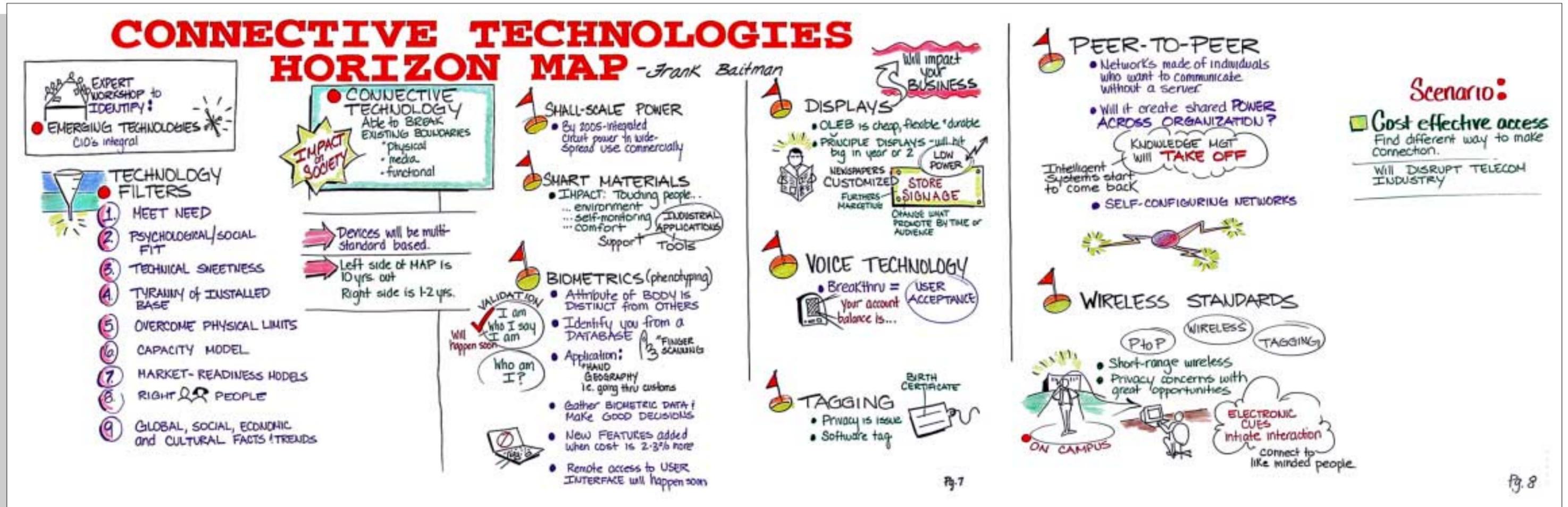
Although many consumers are interested in offering feedback, many don’t. Reasons for not providing feedback include lack of time, lack of contact information, cynicism about results, inconvenience, not feeling empowered to obtain the results, and lack of standard feedback methods. Planetfeedback.com is an “infomediary” that aims to fix this “corroded pipe” between business and its customers. The aim of the company is to provide a single source for all feedback, both positive and negative, from the most important customers—those likely to be more interactive and able to influence other consumers.

Planetfeedback.com developed software that assists consumers in quickly composing, addressing, and sending their feedback letters to various companies and other organizations through the Internet. While assisting the customer in generating the letter, Planetfeedback.com also gathers vital information about the customer—his/her level of product or service usage, loyalty to a particular brand, and tendency to tell others of his/her experiences (the customer’s “virality”). Companies are able to access information that was previously unavailable to them and can thus identify the very small proportion of their total customers who exert a disproportionate amount of influence on the market for their products or services. Access to Planetfeedback.com data allows companies to initiate rapid response based on real-time consumer data and alerts them to problems in various product and geographic areas. At the same

time, the service allows satisfied customers to quickly spread the positive word about the product or service to others in their social network, thus significantly increasing the positive impact of the “word-of-mouth.”

Marketers, through Planetfeedback’s BrandPulse report, have online access to real-time consumer data, including feedback, preferences, loyalty, and virality, across a wide range of parameters, allowing them to better understand how to manage, exploit, and leverage consumer insights. For consumers, Planetfeedback.com is a one-stop site to give feedback about products and services and, at the same time, a source for valuable consumer product information. Surprisingly, Planetfeedback.com is also emerging as an online community of sorts, with robust, ongoing discussions about a variety of consumer and product-related topics.

CONNECTIVE TECHNOLOGIES HORIZON MAP



What is a Connective Technology?

We are focusing on eight technologies that we have termed "connective technologies" because of these particular features:

- They play a role in enabling crossing traditional boundaries. These boundaries might be social, organizational, business, family, or even technological—what they have in common is that they are ingrained in our thoughts and actions because they have existed over time.
- Independently, connective technologies are interesting. However, in combination with other connective technologies (and information technology), they are transformative.

Eight Connective Technologies

We do not believe that these are the only connective technologies that will influence our societies; rather, we think that they are particularly important for their broad appeal. In some domains (for example, a particular industry), other connective technologies will have a more significant impact in terms of crossing traditional boundaries or being a catalyst for transformation. Our forecasts for the eight connective technologies look at innovations in the basic components, at the ways these components will be integrated into systems and applications in the next ten years, and the broader social impacts of these trends.

The eight connective technologies are:

1. Small-Scale Power

Small-scale power supplies have been the missing link in the information revolution—the obstacle to the ubiquitous computing, aware environments, and smart materials that are forecast as the next big wave of silicon intelligence. Within the decade, though, all this will change. Microbatteries—integrated into the objects they power—will mirror other integrated circuits on the miniaturization curve. Costs will be dirt-cheap. The result? We'll be able to put power wherever we want it, in whatever form factor we can imagine.

2. Smart Materials

The world of materials is on the edge of an evolutionary leap. “Stuff” is getting smarter. Over the past century, we have learned how to create specialized materials that meet our specific needs for strength, durability, weight, flexibility, and cost. Now materials may be able to modify themselves in each of these dimensions on their own—that is to adapt intelligently to their environments. In the short term, this adaptation will play out primarily as simple sensor-actuator responses to environmental stimuli. In the longer term, however, smart materials will involve more complex adaptations at the molecular level, directed by tiny silicon or biointeractive processors.

3. Biometrics

Biometrics—while often thought of in terms of security and control—will win over the hearts of consumers through convenience and customization. When one's entire world is encoded in a malleable, distributed, and information-rich environment, biometrics offers the simplicity of a customized user interface that provides context-appropriate, private information access, even in public spaces. Verification becomes more important than identification, and multiple biometrics will increase reliability dramatically. As more and more information that we need and use is stored on databases run by different companies, government agencies, and even by ourselves, we'll need access to it without remembering dozens—or even hundreds—of user IDs and passwords; the physical attributes that our bodies have uniquely created will emerge as the best verification of our authority to gain access to this information.

4. Displays

Set your sights on this: anything can be a display! Displays will be cheap and printable with low-cost technology. As a result, they will become materials like any other in the palette of industrial and graphic designers—and usher in a creative wave comparable to desktop publishing and the World Wide Web. There are two significant trends in display technologies: one will result in printable displays that require no power to retain their state, and can be printed anywhere including on paper and flexible polymers and fabrics; the second trend takes today's TFT/LCD displays to an entirely new level of resolution that exceeds the human eye's ability to resolve images.

5. Voice Technology

Although visions of “voice surfing” dance in the heads of speech recognition experts, a general-purpose voice interface to the Internet probably won't make it out of Santa's North Pole workshop in the coming decade. Voice interfaces to well-defined domains of information will, however, proliferate over the next decade, creating an increasingly talkative information universe, if not an integrated “voice ecosystem.”

6. Tagging

Tagging forges the link between information and the physical world. It binds data to time, place, and objects. As such, it's the ultimate broker—across media, across tasks, across locations, across accounts, or across a crowded room. Whether it will be a trusted broker will depend on how individual privacy is protected.

7. Peer-to-Peer Computing

Peer-to-peer architectures will not only break the mold of traditional computing—eliminating the concepts of central servers and remote clients—but they will also break the boundaries of what can be a processor and or a data storage device. The network becomes the computer and anything can be a node—particularly given the anticipated developments in smart materials and display technologies. Social and organizational boundaries will also be challenged by peer-to-peer architectures; individuals will be able to communicate with one another directly, despite security systems and firewalls. Network clusters might also begin to emerge in which individuals with shared interests communicate directly with one another in privacy, and without leaving any electronic trail.

8. Wireless Standards

The wireless world is not convergent, and standards are likely to continue to proliferate. Companies will form coalitions to champion particular standards and will rush to establish themselves as “owners” of the wireless gateway to the home or office—borrowing from utility models for phone, power, and cable television. However, at the end of the decade, the gateway is likely to be personal and mobile rather than “residential and fixed”—borrowing from peer-to-peer architectures to ensure connectivity anywhere. In the long run, competing standards will

give way to multiple standards, where individuals will need less technology savvy knowing that they are seamlessly connected to a “network of networks” through the most efficiently possible mechanism.

Connective Technologies and Social Networks

Connective technologies will play a role in the development of social networks of all sorts. Globally, there are connective technologies that enable unconstrained access, without the interferences that might have come from culture, geography, and language. In effect, these technologies allow these and other traditional boundaries to be crossed by the global citizen. Much as the GIF research on teens demonstrates how current technologies are being employed to stay connected across continents, we expect the emerging connective technologies to further break down remaining barriers for those who *choose to do so*.

But “connective technologies” are not only expected to keep global citizens connected, they will also be used to change the way that we manage our everyday social networks. They will become integrated into our lives in the much the same way that the telephone and television have been incorporated into social behavior. These older technologies are not only tools that we employ to stay connected, they are also an accepted outcome: a phone call maintains a relationship, and television viewing has become a shared experience. In uncertain ways, the connective technologies will facilitate new behaviors within our social networks.

We can imagine, for example, that micro-batteries will allow technology to be used in new places; battery cost and portability have been limiting factors on where we choose to deploy and use technology. If micro-batteries enable us to enhance our physical experience with portable technology, then it will be integrated into a new aspect of our social life. Similarly, advances in display technologies will enable us to interact with new types of information, and to respond to it in new settings. Inexpensive displays that can be printed on fabrics and other flexible surfaces will find their way into new environments and present information that is relevant to this new context. Instead of static, printed labels on consumer products, we will see the emergence of labels that answer questions about the product or promote those attributes that matter to each individual consumer.

The real benefit of connective technologies, however, will come from their combination with one another. When the innovations of small-scale power are combined with inexpensive, wearable displays, we will see more significant behavioral changes that cross boundaries. Over the past few decades, advertising has become a fashion statement with everything from the Nike swoosh to designer brands adorning our clothing; small-scale power and displays will take this to a new level with clothing that can be updated based upon time of day, environment, or even the friends with which you're associating. Traditional boundaries will be crossed when trendsetters are compensated for being billboards, and workers in hazardous environments continuously monitor conditions by observing their own clothing.

FUTURE RESEARCH

