# Chapter 6
# Engineering Community and Place: Facebook as Megaengineering

**Michael Longan and Darren Purcell**

## 6.1 Introduction

> Hiro is approaching the Street. It is the Broadway, the Champs Elysees of the Metaverse. It is the brilliantly lit boulevard that can be seen, miniaturized and backward, reflected in the lenses of his goggles. It does not really exist. But right now, millions of people are walking up and down it.
>
> (Stephenson, 1992: 24)

Like the Street in Neil Stephenson's novel *Snow Crash*, millions of people from around the world gather on Facebook at any moment in time. Moreover, decisions about Facebook's virtual spaces are made centrally by Facebook's engineers and designers, much like the centrally controlled Street. The juxtaposition of widespread, global use and centralized control suggest that Facebook may be characterized as a mega-engineering project. On the face of it, the argument may seem preposterous. Unlike a highway, dam, or bridge, social network sites (SNSs) like Facebook leave no readily visible imprint on the landscape and are created through software rather than by bulldozers. Indeed, we argue that Facebook and other SNSs, including MySpace, represent a form of *social* mega-engineering, though we also suggest that they play a role in transforming material spaces. While the diffusion of SNSs has been uneven at best and follows the geography of the digital divide (Williams, 2001), few technologies save the Internet itself and perhaps Google (see Paradiso, 2010, this volume) have the potential to unify the masses onto one software platform to share their interests, passions and their consumer tastes. SNSs are infrastructures that bring people together virtually, just as many of the megaengineering projects chronicled in this volume facilitate flows of goods, resources, electricity, and people among material places. Engineers build network infrastructure and write computer code to create virtual spaces that encourage the formation of communities which generate shared social capital. Moreover these communities also constitute an engineered audience for marketers. SNSs are a Janus-faced

M. Longan (✉)
Department of Geography and Meteorology, Valparaiso University, Valparaiso, IN 46383, USA
e-mail: mike.longan@valpo.edu

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marketer's dream and nightmare as the volumes of information generated are only now becoming intelligible. As megaengineering projects, SNSs also deserve to be considered separately from the Internet. While the Internet is engineered to move *data* efficiently, SNSs facilitate flows of *information* among people and create a virtual community of exchange. Because information constitutes the basic building material of SNSs, users play a significant role in crafting their virtual spaces by sharing their own information. Users become engineers.

This chapter first documents changes in Internet infrastructure that allowed SNSs to develop. It then explores the concept of virtual places and how they have been conceived of as tools for the social engineering of community. The remainder of the chapter focuses on Facebook and shows how its virtual spaces help to generate community ties and social capital, and in turn, how these virtual spaces may help transform the material world. Finally we examine the notion of few-to-many engineering as well as how users participate in and challenge the engineering of Facebook.

## 6.2 Facebook's Mega Audience

The fact that SNSs are engineered software platforms attracting millions of users from around the world places them in the same category as the other megaengineering projects discussed in this volume. Growth in the number of Internet users globally has changed the calculus for those seeking to develop SNSs. Internet access and use has diffused from core regions to semiperipheral and peripheral regions of the globe (Fig. 6.1).

The decline in the cost of access coupled with deregulation policies and states working to facilitate an "information society" as a path to economic development led to rapid Internet adoption rates in the semiperipheral and peripheral regions of

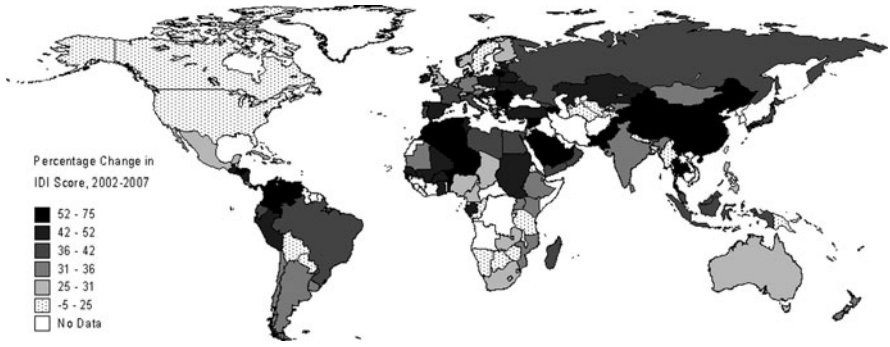


**Fig. 6.1** Change in Internet Development Index (IDI), a measure of the relative infrastructure quality, 2002–2007. (Data source: International Telecommunication Union, 2009). [IDI is not limited to physical infrastructure but also incorporates data linked to levels of education that impact technology usage.]

the globe. A combination of private and public efforts have created more bandwidth in countries as varied in their political economy as South Korea and the Middle Eastern monarchies (Abdulla, 2007; Jin, 2005; Lee, O'Keefe, & Yun, 2003). Many peripheral and semiperipheral countries have seen increases in the provision of high quality Internet broadband services in their eagerness to transform their economies and to a lesser degree, their societies (Boas, 2006). This growth across the globe has yielded approximately 1.6 billion Internet users. The growth in physical access and educational attainment along with cultural changes that allow for integration of Internet technologies into daily life have created a critical mass of users to support the development of specialized Internet services (International Telecommunications Union, 2009).

The increase in internet usage has also made the Internet potentially more useful for reaching consumers through advertising as well as a tool for gathering information on consumers. Though the Internet sounds like a marketer's dream, the sheer amount of data available and the lack of standard formats means that it is both difficult to target advertisements and to collect meaningful consumer data. Just as providing free music via radio helped to create an audience that could be packaged and sold (Adams, 2005), marketers need ways to gather audiences online. SNSs perform both of these functions by encouraging consumers to provide personal information in a standardized format as well as providing applications for targeted advertising based on that data. Moreover, because SNSs are engineered communities, they allow marketers to encourage users to participate as spokespeople for their products. SNSs serve as virtual marketplaces that corral and concentrate user attention for marketers.

## 6.3 Engineering Virtual Spaces

While we invoke the term "engineered" to denote the creation of Internet infrastructure, it may also denote the construction of virtual spaces by engineers and users. Though they lack materiality, virtual spaces may be considered to be a type of space. The existence and importance of virtual space is underscored by Shields (2003) who argues that the concept of the virtual has a long history predating the emergence of computing technology, and that scholars should investigate the reality that online virtual spaces hold for users. Individuals carry the social structures and expectations of their material existence with them to their interactions online, which impacts how they use online spaces (Hargittai, 2007). Scholars have observed that even if online spaces differ in form, they often function similarly to material spaces and exhibit place-like qualities. Adams (1992) convincingly argued that television is a gathering place replete with shared social norms that transcend time and space. Others have described the use of technologies to support the formation of communities (Kuehl, 2007; McArdle, 2008; Rheingold, 1993). As the mobile technologies for accessing the Internet become more sophisticated, the interaction among virtual and material spaces increases. Zook and Graham (2007a, 2007b) coined the term

"digiplace" to describe the real-time interaction of physical and virtual spaces produced through the use of geocoded and mapped data using through mobile phones and online mapping technologies.

What gives communication technologies, and by extension virtual worlds, their power as spaces is the concept of extensibility. This term denotes a person's ability to influence events in space and time (Adams, 1995, 2005; Janelle, 1973). Extensibility varies for all people as a function of their class, race, employment structure, nature of their work, and their own motivations. At the same time, extensibility emphasizes the fact that humanity's epistemology is derived from the body. The concept of extensibility helps one to visualize the multiple linkages forged in the virtual and material realms. Internet technologies enhance extensibility rather than transport a disembodied mind to a virtual realm separate from material space.

## 6.4 Using Virtual Spaces to Engineer Place-Based Community

The mutual construction of virtual and material spaces through extensibility is an important theme in Internet geography research and applies to understanding the interconnection of virtual and material communities (Graham & Marvin, 1996). As with research on the Internet in general, writing about virtual communities in the 1990s focused on their seemingly global and placeless nature as well as the idea of community without propinquity (Webber, 1964). Nevertheless, Rheingold's (1993) account of life in a virtual community explored the way that virtual community helped to support and enhance face-to-face community in the San Francisco area. His writing influenced an important, but unrecognized, predecessor to Facebook's social engineering of community, the Community Networking Movement. Community networks are localized networks designed to provide free or low cost access to the Internet and host local information and community discussion. Community networking activists hoped to use Internet access to engineer place-based community. The Internet was a catalytic tool that community networking activists could use to help reconstruct a sense of community and promote civic participation that had been lost to the pressures of modern city life. As Schuler (1996: 9) put it, Community Networking could help to construct "New Communities" that would be "fundamentally devoted to democratic problem-solving." While many community networks succeeded in providing access to community information, they have had limited success in engineering community because they tended to elide distinctions among community and place. They emphasized providing information about places via the World Wide Web instead of using communication tools to facilitate community conversations (Longan, 2002). Community networking organizations have been more successful at promoting social ties within their own organizations. The construction of the network itself serves as the "res publica" or public thing (Kemmis, 1990) around which community ties are formed (Longan, 2005). As will be shown below, a user's common participation in constructing social ties with Facebook similarly provides a catalyst for community formation.

Community networks are just one example of how people have sought to use online communication to reshape both society and the material landscape. SNSs largely achieve what community networking activists sought to achieve; they provide users with powerful tools that significantly alter both online and offline social relations and spaces.

## 6.5 Social Networking and Facebook

SNSs have existed since 1997 and developed with increasing speed in the middle part of the decade (Boyd & Ellison, 2008). SNSs are distinct from other web sites because they "allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2008: 211). Users define an online persona and identify contacts publicly for others to see. SNSs often integrate other communication features including e-mail, chat, and photo and video sharing for example.

Facebook, our case study, is arguably the fastest growing of the SNSs both in number of users and in their global distribution. It was originally created for Harvard University students, gradually expanded to other universities, to high schools, and later to the general public. Despite the initial dominance of teens and college-aged users, more non-students are joining Facebook (Kirkpatrick, 2008), with growth now approaching an estimated 200 million users. This means that there over one million users for each Facebook software developer (Facebook, 2009e). As Table 6.1 and Fig. 6.2 indicate, the United States is the largest Facebook user followed by the United Kingdom and Canada. The diffusion of Facebook is highly uneven. Countries such as Indonesia and India have significant numbers of users, but these barely comprise one percent of the population. In smaller countries, usage rates of over 25% of the population are not uncommon; indicating the adoption of Facebook is not limited to student-aged populations. Norway stands out at 43% of its population as registered users, and Denmark at 39%. Low usage rates in some countries are likely due to the popularity of other SNS services including Orkut, in Brazil and India and Xiaonei in China (Table 6.1 and Fig. 6.2).

## 6.6 Engineering Place and Community with Facebook

W. Mitchell (1995: 5) argued that the most important task for architects of the digital world is "one of imagining and creating digitally mediated environments for the kinds of lives that we will want to lead and the sorts of communities that we will want to have." By comparing different kinds of material spaces with their virtual analogs he demonstrated that architecture matters in the virtual world. In the material realm, bulletin boards, postal mail, living rooms, classrooms, and town halls

**Table 6.1** Facebook's 25 largest user countries

| Country | Number of facebook users | Population estimate 2009 | Percent of population that uses facebook | Percentage of all facebook users |
|---|---|---|---|---|
| United States | 62,614,120 | 307,212,123 | 20 | 31.21 |
| United Kingdom | 18,148,900 | 61,113,205 | 30 | 9.05 |
| Canada | 11,637,740 | 33,213,000 | 35 | 5.80 |
| Turkey | 10,767,060 | 76,805,524 | 14 | 5.37 |
| France | 9,706,260 | 64,420,073 | 15 | 4.84 |
| Italy | 9,301,500 | 58,126,212 | 16 | 4.64 |
| Australia | 5,601,260 | 21,007,000 | 27 | 2.79 |
| Spain | 5,305,660 | 40,525,002 | 13 | 2.64 |
| Colombia | 5,152,600 | 45,644,023 | 11 | 2.57 |
| Chile | 4,704,780 | 16,454,000 | 29 | 2.34 |
| Argentina | 3,765,940 | 40,482,000 | 9 | 1.88 |
| Indonesia | 3,245,640 | 240,271,522 | 1 | 1.62 |
| Venezuela | 3,146,260 | 26,814,843 | 12 | 1.57 |
| Mexico | 2,330,540 | 111,211,789 | 2 | 1.16 |
| Belgium | 2,251,160 | 10,404,000 | 22 | 1.12 |
| Sweden | 2,161,820 | 9,059651 | 24 | 1.08 |
| Denmark | 2,148,840 | 5,500,510 | 39 | 1.07 |
| Germany | 2,083,320 | 82,329,758 | 3 | 1.04 |
| Norway | 1,986,740 | 4,660,539 | 43 | 0.99 |
| Hong Kong | 1,818,660 | 7,055,071 | 26 | 0.91 |
| India | 1,689,740 | 1,166,079,217 | 0 | 0.84 |
| Greece | 1,482,200 | 10,737,428 | 14 | 0.74 |
| South Africa | 1,471,960 | 49,052,489 | 3 | 0.73 |
| Switzerland | 1,429,140 | 7,604,467 | 19 | 0.71 |
| Egypt | 1,319,480 | 83,082,869 | 2 | 0.66 |

Note: Data derived from figures provided to prospective advertisers on Facebook. They offer only a snapshot and approximation of the geographical distribution of users. The researchers noted minor fluctuations in the data within a 24 h period.]
(Source: Facebook User Data Estimate from Facebook.com, 29 May 2009; Population estimate from U.S. Census Bureau, 2009)

are all spaces for community formation. Their analogs, web pages, chat rooms, and discussion forums may be used in attempts to engineer community online, however, unlike their material analogs they are not integrated into everyday life. A critical mass of participants must intentionally seek them out and few forums not devoted to a specific topic succeed online. The user profile on Facebook performs a similar function as a traditional home page on the Internet (Fig. 6.3). Like a home page the profile provides a space for users to represent themselves on the network by sharing interests, photos, and contact information. Profiles are perhaps the most important spaces on Facebook, but it is not the profile itself that encourages community formation.

The Internet, Mitchell suggested, replaces contiguity with connection and streets with web links. Yet streets, hallways, sidewalks, yards, and the aisles of the grocery store are some of the most important spaces for community formation. As Massey

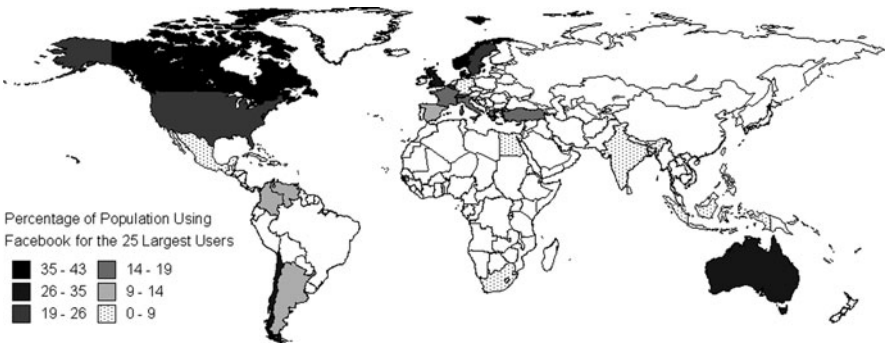


**Fig. 6.2** Percentage of the Population in Selected Countries that Use Facebook. (Facebook data from Facebook.com, accessed 29 May 2009. Population data from the U.S. Census Bureau's International Population Database, accessed 2 June 2009)

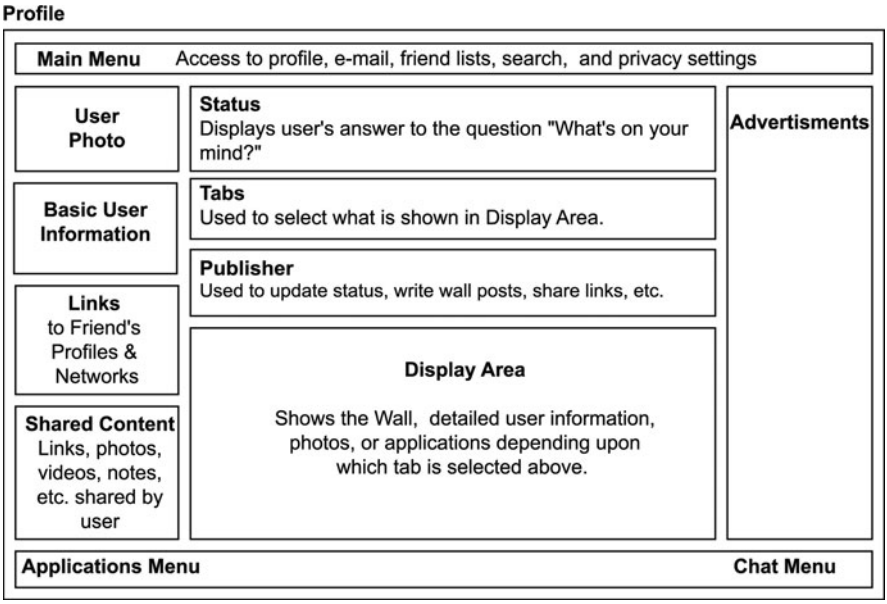


**Fig. 6.3** Map of the Facebook profile page

(1994) reminds us places are not simply bounded spaces, but nodes of interconnection. Links and pathways are as important as destinations for the construction of place and the formation of community. In addition to providing gathering spaces, Facebook engineers community by providing links and pathways between profiles. Unlike traditional Internet home pages, users link their own profile to other's profiles by sending friend requests. Friends may also engage in public discussion by writing on each other's profile "wall." Unlike a traditional home page, profiles are produced collectively as well as individually. "Because social network sites do not provide

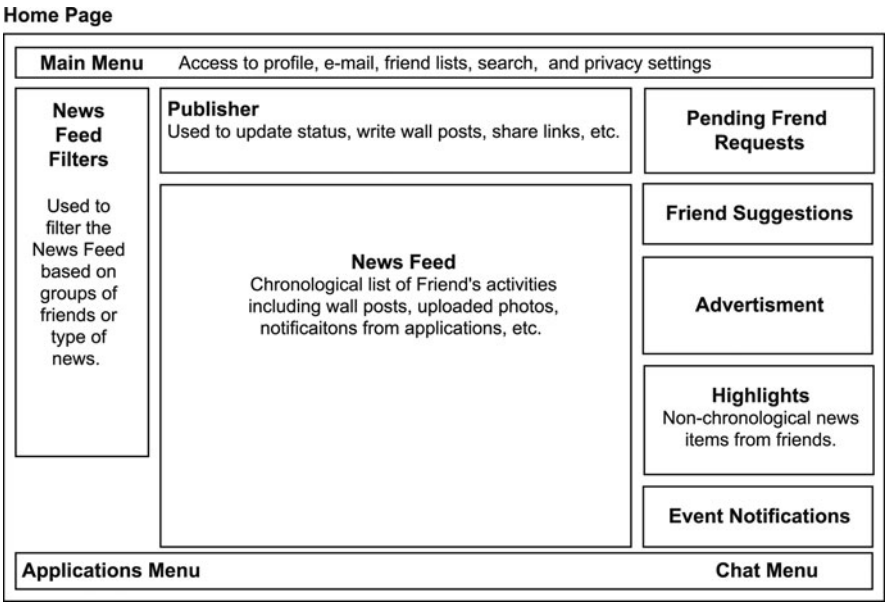


**Fig. 6.4** Map of the Facebook home page where the news feed is located

physical walls for context, the context that users create is through their choice of Friends" (Boyd, 2006). Indeed, one study found that the physical attractiveness and social behaviors of one's friends on their Facebook profile influenced perceptions of the physical and social attractiveness of the profile owner (Walther, Der Heide, Kim, Westerman, & Tom Tong, 2008). Links to friends and writing on friend's walls transforms profiles from simple destinations into nodes of interconnection. Yet in order to interact, one must still visit other people's profiles. Were it not for the News Feed, which enables virtual travel, profiles would be like rooms without windows (Fig. 6.4). The News Feed, controversially introduced in 2006, automatically distributes news about updates to the profiles of one's friends (Sanghvi, 2006). It creates an "ambient awareness" of other people's activities, moods, and lives (Bødker & Christiansen, 2006; Thompson, 2008). Reading the News Feed is like walking down a sidewalk, bumping into a friend, and having a short conversation about how things are going. The only difference is that one knows *most* of the people on the sidewalk. The News Feed therefore acts much as a sidewalk would in a small town where people know each other.

Facebook also helps to engineer community in material spaces. As the small town analogy suggests, people use tend to use Facebook to maintain contact with friends they already know, contrary to popular perceptions that social networking is about interacting with strangers (Manjoo, 2009). SNSs and material spaces are highly interconnected (Boyd, 2006). Online social ties are predominately extensions and intensifications of social ties first forged in material spaces. Users on Facebook join regional and local networks based initially on schools, workplaces, and regions which makes finding existing local friends and acquaintances easy. In concert with

privacy settings these networks help to simulate friction of distance. Though users can change their privacy settings, by default more of one's profile is visible to other people on one's network than to people on more distant networks, thus making it easier to learn more about people close by than distant (Facebook, 2008). The result of this scalar geography is that people tend to use SNSs as a map of one's existing place-based social relationships and to coordinate daily activities with friends who are close by (Stern & Taylor, 2007). Ambient awareness about others' activities means that when friends meet face-to-face, they spend less time catching up and more time deepening their relationship. For instance, teachers who share appropriate information about themselves with their students via SNSs can improve their classroom climate as well as teaching outcomes because students learn more about their teachers than they would from their formal interactions in the classroom (Mazer, Murphy, & Simonds, 2007). Groups and events applications allow Friends to efficiently coordinate activities in material space, though there's no guarantee that that friends will show up (Niedzviecki, 2008).

While Facebook is primarily used to maintain existing friendships, it can also be used to forge new relationships in material space. The News Feed often reports on a friend's interactions with their other friends, meaning that it is possible to encounter people one does not know. In addition, Facebook suggests possible friends who are friends of friends. A search on Facebook can also be used to find out more about people one has met briefly in a face-to-face context or someone seen regularly around town, but with whom one has never had a conversation. A subsequent conversation, "Hello, I recognize you from Facebook!" in material space or a Friend request leads to future online and offline contact and even perhaps real friendship. Here, Facebook functions as a catalyst for contact, converting spatial proximity into social proximity by bridging social distance.

Though Facebook friends are not necessarily the same as "real" friends, a study of college students (Ellison, Steinfield, & Lampe, 2007), suggests that even informal contacts may help to enhance one's social capital. Drawing from Putnam's *Bowling Alone* (2000), the study concluded that Facebook helped students to generate and maintain both bridging social capital, generated through weak tie relationships, and bonding social capital, generated through strong tie relationships. The social network helped students create relationships that they could draw upon to combat loneliness, ask for favors, or mobilize to accomplish common tasks. Moreover, the researchers also found that Facebook helped students to maintain social capital after moving to a new place. That Facebook helped students to maintain relationships after they have left a place suggests one final way that social network spaces and material space interpenetrate. Facebook allows place-based relationships to continue even after they have been disembedded from place.

## 6.7 Facebook's Role in Transforming the Earth

The social capital that Facebook helps to generate may in turn have a role in transforming the face of the Earth, as well as in transforming Facebook itself. Identifying and measuring the ways that Facebook alters both societies

and material landscape is difficult. Nevertheless, we suggest some ways that Facebook may transform the Earth in the realms of the environment and geopolitics. First, Facebook's size means that it has a major environmental impact, similar to other server-intensive computing operations such as Google (Da Silva, 2008). In addition to power consumption by servers, the energy used to cool the computers is a major component of overall energy use. While estimates vary, one study suggests that data centers may contribute 0.3% of carbon dioxide emissions. This figure is half of the carbon dioxide emissions of the airlines industry. Put another way, data centers generate more carbon dioxide than industrialized economies such as Netherlands, Argentina and Malaysia. (Forest & Brill, 2008). Recent figures provided by Facebook put the number of servers in use by the company at 10.000 (Miller, 2008). Facebook's contribution to this total will only grow as it continues to expand globally.

Beyond its direct environmental impact Facebook may also have other positive and negative effects on the environment, most of which are difficult to measure or confirm. People may substitute communication via Facebook for physical travel or use Facebook to coordinate their travel and improve its efficiency. Alternatively, because Facebook helps people to expand the scale of their contacts to regional, national, and international scales, it may encourage people to travel more than they would otherwise for face-to-face meetings (see Mokhtarian, 2002 for an overview of this issue). Finally, and perhaps most importantly, individuals and environmental organizations use Facebook to raise awareness about environmental issues as well as for fundraising.

The political ramifications of Facebook and other SNSs are now becoming apparent. The 2008 United States Presidential campaign saw extensive use of SNS platforms to reach the "Facebook generation" (Fraser & Dutta, 2008) and they are given some credit for successful fundraising efforts, in particular by the Democratic party. Presidential candidates had Facebook pages (a specific type of profile that businesses, politicians, and celebrities may create for publicity) that were heavily visited, and communities formed around each, fostering the drive to donate. The use of social networking in political campaigns is expected to diffuse to other countries, though the effectiveness in other political contexts remains to be seen. Conversely, governments often fear the impact of Facebook. Iran's government blocked access to Facebook through denial of service for specific URL addresses in the months before the June 2009 Presidential election, only to restore access weeks before the election. After the election the government increased monitoring of Internet use in Iran through the use of deep-packet inspection equipment (installed by Nokia Siemens Networks) that allowed the government to sift through data (e-mails and digital voice communication) via a single chokepoint on the network (Zetter, 2009). Earlier observers noted that the change may have been used by the government to attempt to appear open and democratic, and may have also allowed it to monitor activities of dissidents sharing their opinions on Facebook (Rahmi & Gheytanchi, 2009), and given post-election actions, these views were borne out.

Beyond elections, nationalist political movements use SNSs to articulate geopolitical visions and aspirations for sovereignty, which becomes a site of contestation

over the meaning of space (Purcell, 2009). As the Kurdistan and Somaliland Facebook groups illustrate, non-existent and unrecognized countries are represented in the virtual world. Those opposed to such political movements fight back virtually, making offensive posts in opponent's groups or creating oppositional Facebook groups of their own. While clearly not "real" in a legal sense, the creators of Facebook sites for the Kurdistans and Somalilands of the world see these "countries" as quite real and inevitable, and use Facebook to educate the globe about their reality.

A multitude of other political activism groups and pages also populate Facebook, taking advantage of SNS tools for organization as well as the large potential audience for their message. Facebook allows for regular communication across a community of people who choose to participate. This results in messages communicated to a niche public that are then shared virally. Upon reaching hard-core committed group members, messages may be posted to personal Facebook sites and forwarded in emails within minutes of viewing. Users are updated regularly with short messages, web links, video, and other media that are intended to reinforce a message, and be shared with others. The speed at which group members can be notified with detailed information and suggestions for action is superior to most other communications platforms, thus the ability to act quickly meshes well with the media environment groups work within.

## 6.8 Few-to-Many Engineering

Although Facebook users have significant power to shape their own profiles and contribute content, they do so within constraints determined by the network's engineers. Here there are parallels with city planning. Just as urban planners determine the infrastructure needs of a city, create zoning codes that regulate land use, and set design guidelines for districts, Facebook's engineers and designers design it's online spaces, determine how its core applications work, and how the interface will look. Moreover, different SNSs have different "zoning codes." MySpace, for example, resembles Houston, which does not have a formal land use zoning code, because it allows users to do most anything they want with their profile regardless of clarity or usability. Users may alter the default profile's layout, include their own background images, insert videos and songs, and customize font colors and sizes. Facebook on the other hand, resembles Santa Fe where uniformity of design is enforced across all profiles and "unsightly" applications are relegated to "boxes" that operate like fenced off back yards full of junk. Decisions about zoning and design are enforced through computer code rather than through laws (Dodge & Kitchin, 2005). Where code is inadequate to shape behavior, customer service representatives enforce terms of service rules by limiting access or exiling transgressors (Facebook, 2009c).

Unlike a planning agency or a government, Facebook is a business and therefore may engage in few-to-many engineering. Changes can be made to the service without warning or input from users. This top-down hierarchical method of engineering

resembles massive engineering efforts more than contemporary planning practice which emphasizes citizen input and participation in decision making. Moreover, while promoting health, safety, and welfare are central goals for planning, a central goal for Facebook is delivering the attention of users to advertisers.

Nevertheless, users are not powerless to shape Facebook and may participate directly in engineering Facebook itself. Facebook's international expansion required that the site be translated into hundreds of different languages. Rather than hiring translators, Facebook's engineers created an application that invited users to translate Facebook's pages into different languages. A voting system helped the engineers to find the best translation. Within 24 hours, 90% of the French version of Facebook had been completed (Facebook, 2009d). "Crowdsourcing" (the sharing of projects and problems online for others to contribute solutions, often without compensation) of problems allows a small group of engineers to have a worldwide impact in very little time.

Users also help engineer the site through both sanctioned and unsanctioned feedback that can be either private or public (Table 6.2). Facebook solicits sanctioned Feedback in at least two ways. First, Facebook conducts user experience studies with users and non-users away from public view (Facebook, 2009a). Second, Facebook inconsistently solicits user input for proposed changes to the service both through private feedback and by providing spaces for users to publicly comment on changes. After experiencing bad publicity from the introduction of the News Feed in 2006, Facebook launched a page for users to provide both public and private feedback on proposed changes to the design of user profile pages in 2008 (Zuckerberg, 2008). Later, in early 2009, users and the media interpreted an unadvertised change in Facebook's terms of service to mean that the company could use data that users uploaded to the service in any way that it wanted (Walters, 2009). Based on the uproar that followed the discovery of the changes, Facebook subsequently reverted to its old terms of service and invited users to participate in a vote on newly revised governance documents (Facebook, 2009b). Initial unsanctioned and public user feedback forced Facebook to create a sanctioned and public process for determining its governance documents. Just months later, Facebook significantly revised the design and function of the user Home page and provided users with a link to provide private feedback to the company but did not provide space for public feedback on the changes (Cox, 2009). While many Facebook users complained privately to their friends via wall posts and status updates, there was no central place for them to publicly express their displeasure or support for the changes to Facebook. As a

**Table 6.2** User feedback to facebook

| | Sanctioned | Unsanctioned |
|---|---|---|
| Public | 2008 Profile Changes Comment process | Anti-Change groups and commentary in unrelated Facebook Forums |
| Private | Solicited feedback on 2009 Home Page Changes | Private discussions among users about changes |

result, users posted complaints in Facebook-oriented forums unrelated to Facebook governance, informing friends of their disenchantment, and directing them "where" to go on Facebook to find others in agreement.

Users' sanctioned and unsanctioned responses to top-down design changes as well as Facebook's attempts to social engineer user responses mirror attempts to socially engineer material public spaces. As D. Mitchell (2003: 33) writes "representation, whether of oneself or of a group, demands space." Furthermore while public spaces for debate can be designated, what makes them public is not the designation. "Rather, it is when, to fulfill a pressing need, some group or another takes space and through its actions makes it public. Representation both demands space and creates space" (Mitchell, 2003: 35). Absent a sanctioned, public space for users to register their discontent, the users took over spaces on Facebook intended for other purposes by flooding them with comments, much like protesters taking over the streets of a contemporary city.

While Facebook resembles traditional megaengineering projects, a significant difference is related to spatial inertia and the malleability of virtual space. Whereas the landscape is irrevocably changed when a dam is built to make way for a reservoir, changes online have less spatial inertia. Facebook's response to the terms of service controversy was simply to turn back the clock and revert to the old terms of service. While Facebook did not simply revert to its older home page in response to user rebellion, it has modified the initial design significantly to address concerns expressed by users (Schoenfelder, 2009). The lack of spatial inertia online means that changes to the virtual space of the network can be made suddenly, but also that the response by users can be just as swift.

## 6.9 Conclusion

Though it may have started out as a small operation, Facebook has become a megaengineering project because of its large and growing user population. Engineers employed by Facebook make decisions everyday that affect the lives of people around the world. Facebook engineers four things. First it engineers the physical infrastructure that allows the service to be offered via the Internet. Second it engineers software that creates virtual spaces and places for users to "inhabit." Third, those virtual spaces and places are tools that Facebook uses to socially engineer online and offline communities. Finally these communities produce information that can be used to engineer audiences that are then sold to advertisers. Each product of engineering relies upon the output of the previous one. What differentiates Facebook as megaengineering is the degree to which users both participate in and resist the engineering and design of the service and its virtual spaces.

In the future, the Internet itself will look more and more like Facebook and other SNSs (Kirkpatrick, 2009). Moreover, SNSs will cease to be contained within the boundaries of the web browser, moving onto mobile platforms, game consoles, and other devices. They will be an integral part of the development of "digiplaces"

(Zook & Graham, 2007a, 2007b). Diffusion of SNSs will continue to mirror the diffusion of Internet access. Conflict over privacy issues and governance will continue, however they may be mitigated as social norms and laws develop to regulate the use of private information from SNSs. We envision three possible scenarios for the future of technological social networking. In the first scenario, the need to deliver and identify an audience may encourage the maintenance of centralized control and few-to-many engineering with competition among different social networking applications vying for hegemony in the marketplace. In the second scenario, the reluctance of users to recreate their profiles on multiple networks, the continual development of platforms that lower barriers to non-English speakers, and the integration of technologies and protocols that support social networking may enable mergers that lead to a dominant centrally controlled social network system. Finally, increasing integration of SNSs may result in the creation of open source social networking platforms. SNSs will interconnect and one will travel among networks using the same central profile which they own and control. Many-to-many engineering will ultimately trump the few-to-many engineering of today. The central questions for the future will be: Who does the engineering? Where? And for what purposes?

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