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The Social Networking Arena:
A Platform for Innovation

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Abstract

Online social networks have evolved from their original purpose of being just virtual meeting places where people can interact with one another to becoming an important platform for innovation. This paper presents an in-depth analysis of the salient features of these social networks and discusses how the social networking arena has become a platform for the development of innovative technological applications and content. With the advent of an increasingly stable mobile platform, the development of Location Based Services and the adoption of mobile devices such as smart phones by a wide variety of users, social networks have evolved from "pureplay" Web-based applications to hybrid (Web-based and mobile-based) applications and those which are based entirely on the mobile platform. Case studies were developed on three representative companies in this burgeoning industry: Dodgeball, a New York City-based mobile social networking company; Tapuz Mobile, an Israeli-based hybrid company which enables its users to participate in online communities as well as to generate content and LinkedIn, a California-based web oriented company which is focused exclusively on business networking. The characteristics of these social networking companies are delineated and the business implications of the development of such companies for managers and champions of organizations and companies are discussed.

1. Introduction

In the mid-1990s, the Internet emerged as a robust technological platform and for the first time, technology was being used by firms in industries as diverse as media, healthcare, and financial services to create new products and reach new customers.[1] These new users of technology soon realized that in order to compete with companies that were basing their business models on digital products, they would have to venture beyond their traditional, circumscribed organizational structures and tap into the resources that existed in a larger more networked business environment.[2] Indeed, it became increasingly clear that along with having a set of core competencies, which defined how firms would be successful

and differentiate themselves in the marketplace[3], firms would also need to acquire a network competence, which would enable them to exploit the set of relationships among customers, suppliers, vendors, and other so-called "nodes" on the network. For managers, developing such relationships became crucial for enabling the continuous transfer of knowledge to their firms thereby providing a richer environment for the creation of innovative products and services.[4]

One important aspect of these newly developed business networks was the ability of customers to provide instantaneous feedback to firms. While traditional firms had always "pushed" their products to customers, the Internet suddenly enabled such customers to communicate directly with businesses and express their likes and dislikes of particular products and services. Along with establishing this new method for communicating with businesses, users themselves became an important source of innovation. The notion of users as sources of innovation is not new. In his landmark book, *The Sources of Innovation*, Eric Von Hippel discusses how the users he studied had a great advantage over manufacture-centered development because they could create exactly what they wanted and could benefit from exchanges of ideas with other users in the community.[5] As the Internet became a more robust technological platform, the ability of users to contribute and form communities of interest became easier, and in addition to business networks of innovation, social networks and communities which had always existed in the physical world, began to emerge on this platform. These early networks, which were not tied to a particular place or even time zone, consisted of a variety of individuals who might be scattered geographically but who used the Internet as a conduit for discussion of common interests and ideas.[6] Howard Rheingold, who pioneered such online communities, defined them as "…cultural aggregations that emerge when enough people bump into each other often enough in cyberspace".[7]

Various types of online communities appeared including special interest groups such as Usenet groups; professional associations and online forums where people could exchange ideas on specific topics of interest to them; portals, which provided a single point of entry for individuals and businesses

to interact with one another; chat rooms, where users sought new communities and contacts; and short term groups where users participated in one time events such as online competitions, quizzes and polls.[8] Some of these communities had moderators and others were more dependent on users to keep them going. For example The Well, which still exists, is essentially an online set of forums which are available to users who pay a monthly fee to participate in discussions on such wide-ranging topics as entertainment and media, computer tools, and politics.[9]

This article will focus on the development of online social networks as they evolved from being virtual meeting places to becoming platforms for innovation. In order to understand this burgeoning platform for innovation, we looked at three companies which are representative of the social networking landscape: Dodgeball, a mobile social networking company based in New York City; Tapuz Mobile, an Israeli-based company which hosts over 1000 online special interest communities; and LinkedIn, a California-based company which focuses primarily on helping its users expand their business networks. Our research was framed by the following questions:

1. What are the salient characteristics of social networks?
2. What are the implications of the development of social networks for digital-based and mobile innovation?
3. What are the business models underlying social networks?
4. What are the implications of social networks for managers whose companies provide products and services to users of the digital or hybrid digital/mobile marketplace?

2. Characteristics of Social Networks

In order to better understand social networks, we looked at some examples of well known user networks and how they differ from the universe of social networks that was emerging online and on the mobile platform.

A prime example of a user network that has thrived on the Internet is the Apache Open Source software system. Started in 1991 by Linus Torvalds, a computer programmer in Finland, as an

alternative to the more proprietary software operating systems that were available in the marketplace, e.g. the Windows operating system by Microsoft, Torvalds developed an operating system kernel and made it available on the World Wide Web for anyone who wanted to view it and/or add to it. Thousands of computer programmers around the world began to contribute to the kernel and the Linux operating system was born. Torvalds became the moderator/facilitator of the Open Source project and the Open Source software movement continues to be an important user network.[10]

What characterizes Open Source is the global nature of the network in which users develop code for the most part in isolation from one another. Another major feature of the Open Source community is that users contribute freely and voluntarily to the code and ultimately to the community because they derive personal satisfaction and enhance their reputations as software developers from making such contributions.[11] A recent manifestation of a user network that is based on the Open Source model is Wikipedia, which is an online encyclopedia consisting of contributions of users who are experts in their fields.[12] Thus, the raison d'etre of Open Source and its offshoots is much more focused on the individual user than on the community per se.

Another important aspect of the Open Source software movement which has possible implications for the evolution of user-generated networks in general and social networks in particular is the commercialization of the software generated by Open Source developers. While Open Source software was initially a non-commercial endeavor, the Linux operating system is now offered to businesses as alternative to other operating systems and several new firms such as Red Hat are exclusively devoted to selling the Linux family of products and services in the marketplace.[13] Thus users have gone beyond sharing ideas and developing a common code to the creation of new business ventures.

Another well known user network is Napster, which was started by Shawn Fanning, a college student, whose original aim was to share his music with other users on the network. His use of the peer-to-peer network platform enabled Napster to become an application on which users could send each

other music files.[14] Later, other companies such as TJNet and Apple Computers developed ancillary services to supplement the original file sharing application.[1516] Though Napster and services such as TJNet are communities of sorts of users who have similar interests, in this case, music, and therefore have some affinity with the community of Open Source developers, the product which defines these companies is existing musical offerings which users share with one another.

From our preliminary analysis of some representative social networking applications, we were able to differentiate networks such as Open Source from the social networks which were emerging and discern some of the characteristics all of these networks shared in common. Initially, we categorized these social networks along two matrices: technological, that is, Web-based, mobile-based or hybrid (incorporating both the Web and the mobile platform) and purpose. For the purpose matrix, we found that such networks ranged from being purely social in nature to those which were more commercially oriented. In this matrix, we included content development/generation, as an important purpose for the networks (Figure 1).
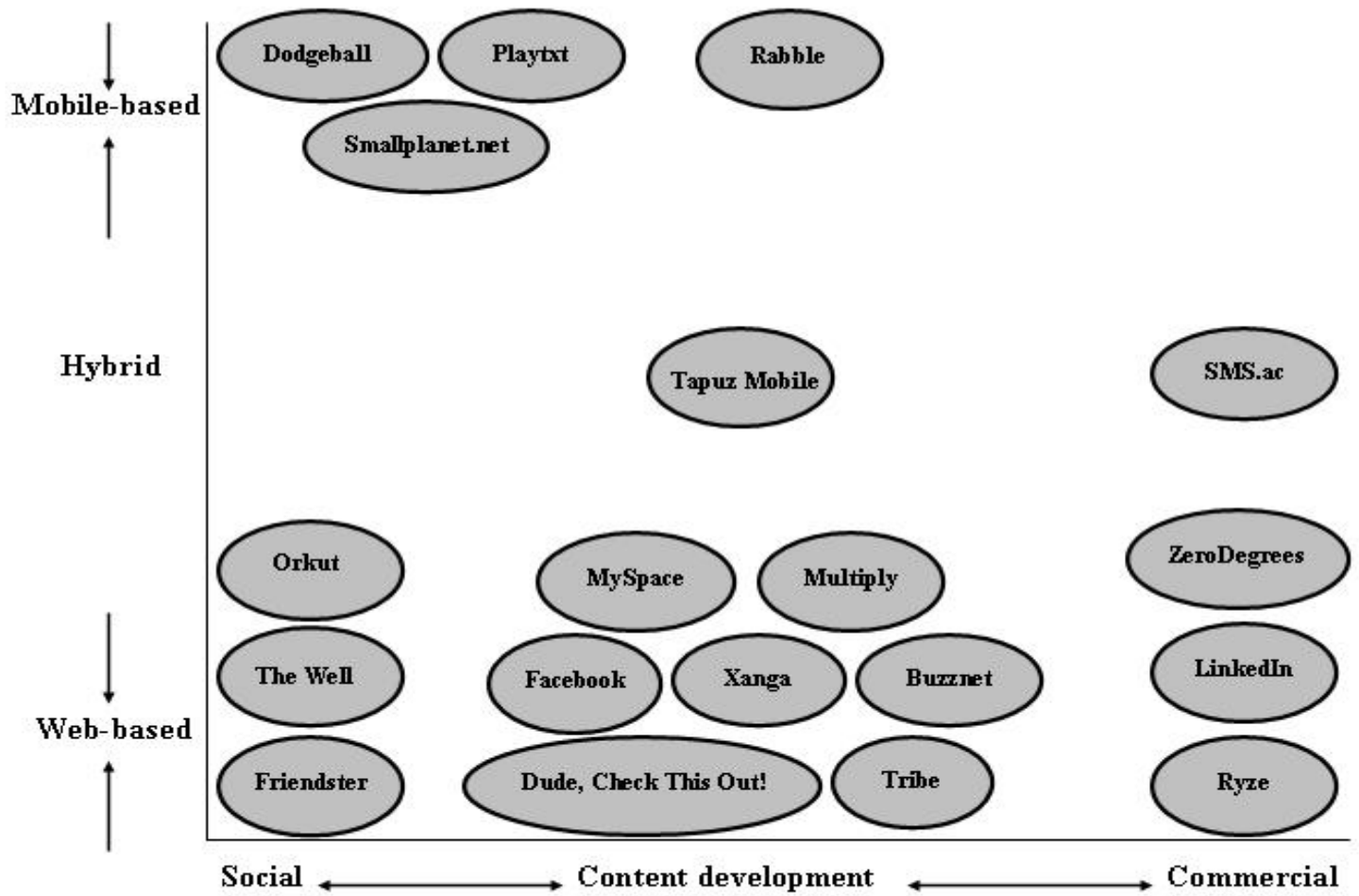
Figure 1. Social Network Matrix (Partial List)

Our categorization of social networks revealed that they were primarily concentrated at the lower end of the matrix, that is, most of them were Web-based and focused on content development. Like the users in the Napster network and the Open Source software development network, the users of these social networks voluntarily contributed to the particular network by posting information and for the most part were relatively isolated from each other. In other words, the idea of a community was not really manifested in sites such as MySpace.com which depended on users to post information about themselves (blogs, pictures, and videos) for other users to look at and view. One exception is Facebook.com which is an online directory of college students in particular schools and so in this case, the users were connected by a geographical location.[17] In addition, except for Ryze, LinkedIn and ZeroDegrees, which were oriented toward the business community, none of these social networks focused on developing commercial products or services which is an important aspect of the Open Source software movement.

The distinguishing feature of the social networks in our matrix was the development of user-generated content which was then downloaded to various portable devices that enabled users to not only look at the information from their desktops but also while on the go. User-generated content has always existed on the Web ever since its inception. For example, individual users created personalized websites on portals as Geocities and Tripod. However, most of these sites did not survive because the tools needed to create information were fairly primitive and the Web was not stable enough as a platform and not widespread enough to sustain large numbers of users.[18] More recently, users have developed content exclusively for the Web in the form of blogs[19] and videos which are posted on mainstream websites such as *The New York Times* and on YouTube, which is a website devoted to user-generated videos.[20] Also, user-generated content is rapidly taking hold in advertising. Cable Networks such as Current TV have created contests for viewer-created ad messages and have attracted advertisers that reflect its youth-oriented audience, including American Express, Sony and L'Oréal. Current TV relies on

user-generated content for roughly one-third of its programming from fashionfeatures to foreign documentaries.[21] On the mobile platform, individual creative talents such as artists and musicians are selling premium content such as ring tones and wallpapers to cell phone users.[22]

At the upper end of the matrix are social networks such as Dodgeball and Playtxt, which are primarily based on the mobile platform. These networks have not only benefited from the development of a reliable Internet infrastructure platform and a strong mobile platform but also from a rich array of technological innovations such as new devices, e.g. smart phones and PDAs and Location Based Services (LBS). Smart phones, which increasingly are a large part of the mobile telephone market, are electronic handheld devices that integrate the functionality of a mobile phone, Personal Digital Assistant (PDA) or other information appliance. This is often achieved by adding telephone functions to an existing PDA (PDA Phone) or putting "smart" capabilities such as PDA functions, into a mobile phone. Most smart phones have at least 64 MB of memory which can be used to store photos, contacts, email, games and music; cameras for snapping photos; and convenient "thumby" keyboards for text input. The combination of these devices and tools which enables the average user to create and distribute content has made it possible for social networking companies to have a constant stream of innovative content available which attracts and sustains large numbers of users who want to see what others have posted on the sites.

Location Based Services (LBS) applications provide users with pertinent information at particular locations. These applications focus on delivering information to users on demand, depending upon the user's current location. LBS technologies capture the location of a particular user and integrate the position information into a wide variety of applications.[23] Such technologies include GPS (Global Positioning Systems) which allow customers to find their way to their destinations and alert friends and colleagues to their whereabouts and Wi-Fi, which can be used as the basis for determining position and acts like an indoor form of GPS. With this approach, the server software keeps track of client device positions and also transmits this information to specific clients.[24] One example of a Location Based

Service might be to allow a subscriber to find the nearest business of a certain type such as a Thai restaurant.

Because Location Based Services enable people to define their physical location, announce their presence at that location, and see who else is at the location or is planning to be there in the future, the online social networking landscape has entered a new phase which includes pure-play mobile social networking applications and companies built around such applications. Most importantly, instead of being a people-to-people phenomenon which exists irrespective of geographical place, social networks which use the mobile platform provide the technological means for individuals to maintain a network of strong social ties within a local geographical context such as a city or a university community.[25]

3. Research Approach

In order to gain further knowledge about the current state of social networking applications, we developed case studies on three companies: Dodgeball, Tapuz Mobile and LinkedIn. We chose these three companies because they represented the different ways that social networks have evolved using the available technological platforms and services. While LinkedIn remains primarily a Web-based service and therefore uni-dimensional from a technological point of view, both Dodgeball and Tapuz Mobile have benefited from the emergence of the mobile platform (Figure 2). In addition, these companies represent key points in the matrix, i.e., pureplay mobile (Dodgeball), hybrid (Tapuz Mobile) and Web based, business-oriented (LinkedIn). We conducted field interviews with the founder of Dodgeball and also the head of the social products division at Tapuz Mobile.
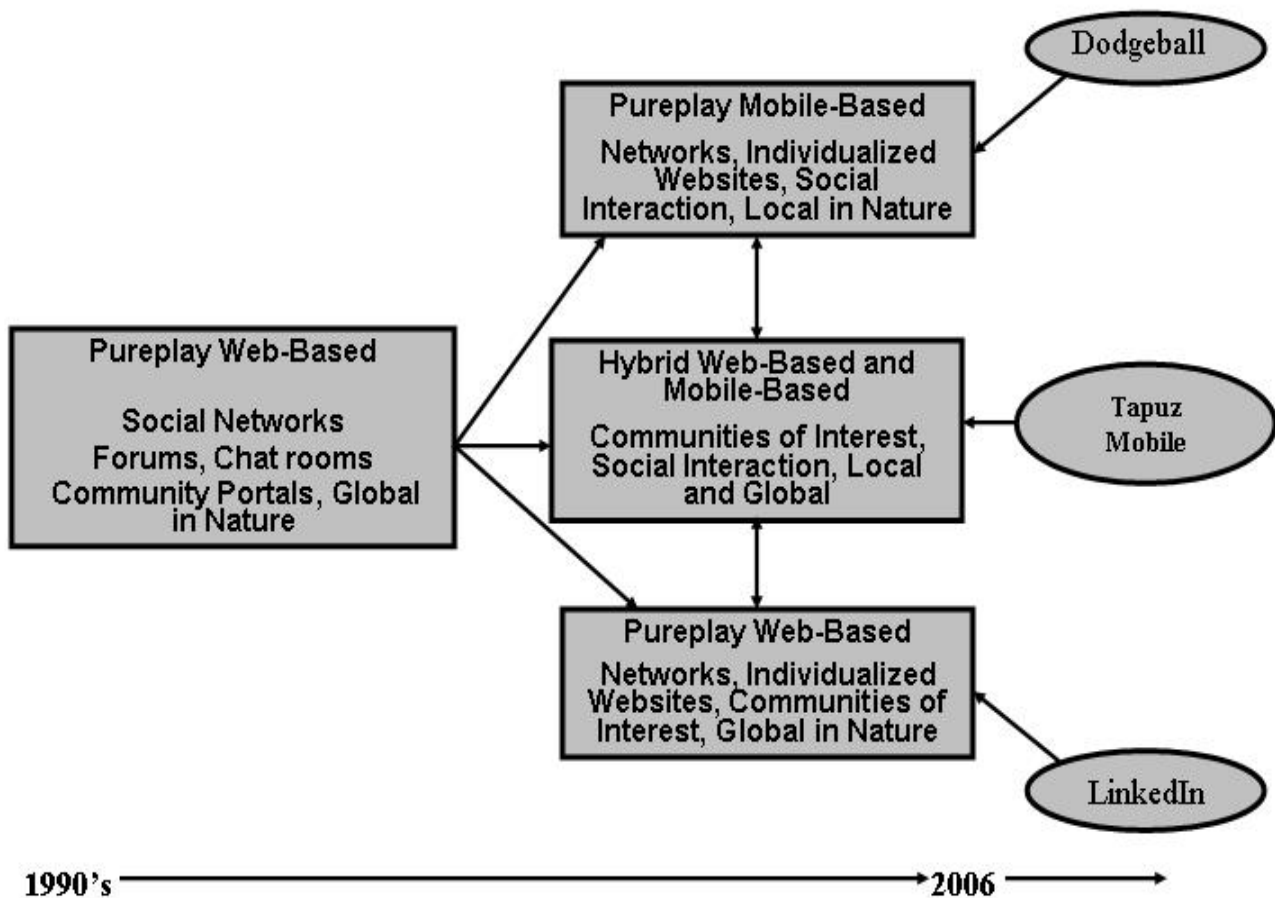
Figure 2. Evolution of Social Networks

4. Case Study: Dodgeball

Dodgeball is a New York City-based service that merges Location Based Services with social networks to help people connect with the people and places around them. The company was founded in 2000 by Dennis Crowley and Alex Rainert, and was acquired by Google in 2005. Crowley and Rainert worked on the concept of Dodgeball for their Master's degree thesis at New York University. Their goal was to develop technology which would help them keep in touch with other friends using technology.[26] Dodgeball was initially a Web-based service based on the City Search website and offered a way for people to familiarize themselves with certain neighborhoods.

The idea of going mobile occurred to Crowley as soon as he got a phone with a web browser. Accordingly, Crowley and his partner Rainert built a software application from off-the-shelf Open Source tools including PHP, MYSQL and Perl in order to make sure that the service worked on the most basic cell phone. Indeed, there is no need to download anything or buy anything in order to use Dodgeball.

Dodgeball is a mix of social networks tools, simple cell phone messaging, and mapping. Joining Dodgeball entails filling out a profile, posting photographs of yourself on the Dodgeball website (www.dodgeball.com), and listing your friends and their cellphone numbers. The target demographic for Dodgeball service are people aged 21-35, who have a lot of friends, go out a lot and are very social. When Dodgeball users "check in" at a given locale by sending out a text message, it goes to all their pre-selected friends, as well as any friends of friends within a ten-block radius. For example when a user named Sylvia who lives in New York City, goes to one of her favorite bars, e.g., Solas, and wants some company, she sends a text message to nyc@dodgeball.com with the text "@ Solas." A photo is sent along with the alert. Dodgeball then sends messages to all of Sylvia's friends who are nearby, letting them know where she is. After this, the friend-of-a-friend function is implemented. Dodgeball finds other users who have checked in within the last 3 hours who are friends of Sylvia's friends and

compares their locations on a virtual map to see if any are within 0.8 kilometers (10 city blocks) of

Sylvia. To keep from bombarding Sylvia with constant messages, it selects the closest one (user Ganesh,

for example)—and both get messages. Hers would state: "Ganesh @ Off the Wagon. You know Ganesh

through Alex," while his would read: "Sylvia @ Solas. You know Sylvia through Alex." The service

also has a "crush" feature which is in effect a low level dating service. Users view profiles of other

members and designate ones they'd like to meet. If the object of a "crush" is nearby, he or she gets a

message. The system maintains privacy by identifying users only by screen names. Once users gather at

a particular location, introductions can be made and then social actions can occur—casually, and in a

low-pressure environment, all under the guise of knowing someone in common.

The applications designed by Crowley and Rainert enable transactions such as Sylvia's to be

completed. When Sylvia checks in from Solas, Dodgeball initially looks at which in-box her message

landed in (nyc@dodgeball.com, sf@dodgeball.com, and so on) to figure out which city she's in.

Dodgeball then looks at the originating e-mail address, ensuring that the message came from a mobile

device, and looks up Sylvia's profile. The next step is to look up the venue's latitude and longitude in a

database. Each bar or coffee shop in Dodgeball's database has been geo-coded, which means its address

has been converted into Global Positioning System (GPS) coordinates. For New York City, the database

includes many of the city's most popular spots such as restaurants, museums, theaters, and sports arenas.

There's a major premise underlying Dodgeball: the denser the urban environment, the more valuable the

service becomes. Thus, the ideal environment for Dodgeball is one where there are dozens of potential

meeting spots within a few blocks of where users are and thousands of potential people to connect with.

The bigger the city, the more likely it is that a user will be able to find just the right group because the

overall supply of social groups and locations for meeting is so vast. It is easy to imagine the model

extended beyond your immediate social network into more narrow needs. One could query for specific

services that require in-person encounters, e.g., find me an available Spanish language tutor, a mattress

for sale or that most pressing of urban needs- an empty taxi.

Today, Dodgeball is available in 22 cities within the Unites States including New York, San Francisco, Los Angeles, Chicago, Washington, Boston and Seattle, and has ambitions of offering the service worldwide once the location tracking technology improves and the rates for international text messaging drops. Dodgeball's management has also recognized that content development and access to content is a crucial aspect of social networking. The company recently announced a partnership with Flavorpill, a New York City-based publisher of cultural information that is distributed through email magazines. Dodgeball users can subscribe to these email magazines and receive them in the form of SMS message updates. Users can select channels, e.g., Music, Film, Fashion and Art in which they are interested and receive notices on their cell phones when there are event happenings on any of the selected channels. Dodgeball has also launched a service in partnership with Google in which Dodgeball users can record where they have been over a specific time period and then use Google to conduct searches against this data. With its partnerships with Flavorpill and its parent company Google, Dodgeball is able to deliver quality information about social events and thus help users better navigate an ever-expanding list of cultural options available in New York as well as generate their own content.

Clearly, Dodgeball is at the intersection of social and mobile based sectors of the social networking matrices. Its users overwhelmingly access the service to enhance their social capabilities in an urban environment. The technology which serves as the infrastructure for the application is not complex but takes full advantage of the mobile platform, the devices users have at their disposal and Location Based Services technology which provides users with a built-in "map" of desirable meeting locations.

Dodgeball does not have a business model at the present time. When Crowley and Rainert initially sought funding to launch their company, it was difficult to convince investors to underwrite their effort. However, Google did offer to buy Dodgeball, hire the two entrepreneurs and take care of the day-to-day operations, marketing, personnel and finances. Google acquired the company not to generate revenue but rather viewed it as a strategic investment in a new evolving industry. Google continues to

provide the infrastructure for Dodgeball and encourage its founders to experiment and develop the applications offered to users.

5. Case Study: Tapuz Mobile

Tapuz Mobile is an Internet portal based in Ramat Gan, Israel.[27] Rather than just hosting a social networking environment which is Dodgeball's strategy, Tapuz Mobile is an excellent example of a company which has moved toward the middle of the social networking spectrum and provides a robust infrastructure and set of tools which enables its users to participate in online communities as well as to generate content.

Tapuz hosts approximately 1000 special interest communities and has over 1.6 million unique users per month who access these communities. Tapuz provides moderators who monitor the content and keep the dialogue going. While they are worldwide in scope, with users logging in from China and the United States, the subject matter of these communities is Israel-centric with most users discussing topics relating to Israeli politics, culture, and society. Tapuz's communities are technically hybrid in nature, that is, users participate both through the Tapuz website as well as by using their mobile devices, e.g., PDAs and cell phones.

In addition to hosting electronic communities, Tapuz also provides its users with a variety of mobile and Web-based applications such as BLOGTV, which enables users to create live TV shows on their cell phones or on the Web and broadcast them on the Web or to other mobile phone users, and Tapuz Chat! which offers full synergy between the Web and mobile devices. Thus, users who are on the Web-based chat platform can talk with users who are surfing from their mobile phones. Users can also download BrainPop, an animation content application and MyBand, a simulation game which enables users to develop a virtual band and deal with the issues of sustaining this band in a volatile music industry environment.

Tapuz, which by far is the largest online set of communities in Israel, attributes its success to not only offering superior technology but also being very attentive to the requests and needs of its users. The majority of Tapuz users are young people (the average age is 22) who are early adopters of technology and provide continual feedback to the company about Tapuz's applications and services. The Tapuz management team considers these users a prime source of innovation and often implements suggestions from users into the suite of applications on the website. In addition, Tapuz's community members are a source of ideas and feedback to firms in the mobile product development arena who participate in some of these communities. Thus, one community which is a group devoted to a discussion of cell phones, has among its users members of the cell phone manufacturing industry who listen to the dialogue and incorporate the suggestions and ideas they hear from the community in their designs of mobile devices for the marketplace.

Like Dodgeball, Tapuz does not charge its users for many of its services. Its business model is based on revenue generated from advertising on its website and partnership agreements with mobile operators in Israel who publicize new services on the Tapuz Mobile website. Tapuz has been profitable for the last four years and has grown from a 30 person company to a company which has approximately 70 employees.

Tapuz represents another aspect of the social networking matrix, that is, one that is hybrid both technologically, i.e., in its use of the Web and the mobile platform, and has a dual purpose of being a vibrant set of online communities as well as a place where users can create content. Though Tapuz's business model is not very innovative, the company's true value lies in the fact that its users are in a working partnership with management and are seen as an intrinsic part of the company's DNA.

6. Case Study: LinkedIn

LinkedIn Corporation is a Palo Alto, California-based company that is one of the world's largest business networks and a pioneer in social networking applications that are business-related. The founders of LinkedIn wanted to build a business around premium services.[28] As such, they focused

entirely on business users from day one and aimed for an older demographic unlike other popular social networking sites such as Dodgeball and MySpace.com which target younger users and are primarily social in nature

LinkedIn's basic service allows members to invite their own personal contacts to become part of their network. On receiving an invitation to join LinkedIn, a user fills out a profile on the LinkedIn website (www.linkedIn.com) and lists his or her professional experience, education and specialties. The user can then search through their "linked" networks for people of interest who meet specific criteria, such as location and skill set. LinkedIn does not charge for this basic service.

The networking site operates on the principle of "six degrees of separation" meaning that everyone in the world is no more than six people away from anyone else. The typical network of a LinkedIn user contains about 30,000 people and it is interesting to note that about 97 percent of LinkedIn's 6 million users joined because they got an invitation from someone they knew. In addition, virtually all of LinkedIn's 6 million users can be traced back to its five founders. On LinkedIn, more than 6 million experienced professionals, who range in age from 25-to-65 and represent 130 industries, find jobs, people, and service providers through their existing network of business relationships.[29]

LinkedIn currently offers four premium services: LinkedIn Jobs, LinkedIn Services, LinkedIn Groups and LinkedIn Business Accounts. LinkedIn Jobs which was launched in March 2005, has a job board and provides an application for hiring managers who wish to post job openings. These managers can potentially receive candidates recommended by fellow employees or other trusted contacts. One of the distinct benefits for subscribers of LinkedIn is having access to a wide network of professionals who may not be actively searching for a job but still make good candidates. This is an advantage LinkedIn has over traditional classified listings or job-finder websites like Monster.com, which might not have access to the same pool of people. Today, LinkedIn hosts a community with over 60,000 recruiting and staffing professionals.

LinkedIn Services is designed to connect professionals and business owners with local service providers, such as lawyers, accountants and technology services. The more than 200,000 service providers who list on LinkedIn Services' business-to-business directory, have an opportunity to be at the top of the search results when potential clients search for recommended service providers.

LinkedIn for Groups is a service aimed at alumni, professional groups and other organizations which helps members stay in contact with one another. LinkedIn Business Accounts enables recruiters and researchers to find people beyond their immediate network and also get in touch with job candidates and experts more quickly and efficiently. LinkedIn Business Accounts also provides a service known as InMail, which is a new way to communicate with LinkedIn members. This new service is primarily used to contact people who are not in a user's personal sphere of contacts.

LinkedIn is built on a standard three-tiered architecture which includes Oracle databases, middleware and a Web-based front end. Incorporated into LinkedIn's design are privacy features which enable users to determine when and by whom other members will contact them, and also how they'll be contacted. This can be done either through a message sent by LinkedIn or by an introduction from one of the user's approved connections. No contact information provided to LinkedIn shows up in profiles and can only be released by the owner of that contact. It is up to the members to determine whether they want to follow up with the individual who sent them a proposal through LinkedIn.[30]

In this past year, the LinkedIn network grew two to three times in size. The company expects to have 10 million registered users by the end of 2006. Indeed, business and professional networking sites such as LinkedIn have become very attractive as users have begun to see the possible financial incentive for logging in. The LinkedIn business model is based on offering two types of services. One is the free advertiser-supported basic service to its members which enables users to set up personal networks. In addition, the company also offers premium services on a monthly or yearly subscription basis. The user has the option of selecting one of three levels of subscription services: Business, Business Plus and Pro. The monthly rates of these three levels are $19.95, $50 and $200 respectively. Depending on the level of

subscription service, the user has access to a fixed number of premium transactions. The average LinkedIn user pays $200 to $300 a year. Job listings on LinkedIn Jobs cost $95 and are an additional source of revenue.

7. Implications for Managers

Our investigation of three representative companies in the social networking arena indicates that this is an evolving platform for innovation. Because of new developments in Location Based Services, devices and content development tools, social networking offers users a wide spectrum of opportunities from companies such as Dodgeball which are "pureplay" social environments in which users enjoy the benefits of being able to connect to their friends and associates to companies such as LinkedIn which provide business networking services which go beyond purely social interaction and are aimed at developing professional contacts and career enhancement.

Aside from the obvious value of these networks to their users, it is clear that they are an important set of nodes on the larger networked environment in which most companies operate today and managers who want to maintain a competitive edge for their organizations, must be aware of these networks and what they represent. Indeed, user-centric companies such as Dodgeball, Tapuz and LinkedIn are fertile breeding grounds for the development of innovative products and services. Such companies have users who not only use the technology platform to communicate with one another but also develop many of the products which define these companies. In Tapuz's case, users are in fact driving some key aspects of the innovation occurring in the company.

Moreover, the rise of this set of companies which are user-centric in nature suggests that in exploiting the resources available on a business network, it may be more important to look at the periphery of such networks where innovation is occurring rather than at the core businesses which serve as anchors for these networks. This is especially true for content providers in the media industry and other content-rich sectors who are already looking at user-generated content such as blogs and

YouTube-like videos as sources of content innovation and recognize that in order to be successful in the future, they may need to partner with user-centric firms that produce such content.

A key finding from our research is that mobile social networking applications such as those provided by Dodgeball and Tapuz Mobile are location-based and can only work in dense urban environments or in specific locations, e.g., the Israel-centric nature of most of Tapuz's communities. Both companies are localized in terms of content generation and interaction among their members. In some ways, this negates the widely held belief that mobile technologies encourage people to be dispersed and nomadic. The notion of anytime, anyplace computing which removed time and space constraints has become popular for businesses who look upon this use of technology as a way to achieve greater efficiencies and many believe that such technologies will lead to the demise of businesses are they are presently constituted.[31][32] Instead, mobile social networks promote the positive aspects of interaction and add credence to the Porterian notion of clustering of individuals and businesses in geographical proximity in order to achieve economic success.[33]

Managers who are designing organizations and using various technological tools to ensure communication amongst employees, may need to rethink how mobile technologies and applications are used within the enterprise and to commit resources to these applications. Just as Instant Messaging has become an integral part of the business environment today,[34] social networking services such as LinkedIn may become increasingly important in helping business managers find potential clients, service providers, subject experts, and partners who come recommended. Moreover, as companies rethink their organizational strategies and become even more global in nature, some attention should be paid to balancing the tension between a widely dispersed organizational entity and the need for employees to interact regularly with one another in the workplace as well as the importance of locating companies near others in similar industrial sector in order to encourage the exchange of ideas and therefore foster a richer innovative climate.

In addition to the organizational implications of social networking, such networks represent an opportunity for businesses to directly tap into the valuable youth market and better understand what products will be successful for this market segment. Companies such as MySpace.com and Facebook.com are operating in both the Web-based and mobile domains. The recent partnership forged by Microsoft to provide advertising services for Facebook.com and Google's deal to be the exclusive provider of search capabilities for MySpace.com indicates that major players in the software arena have recognized the importance and potentially lucrative nature of these social networking communities.[35]

Finally, mobile social networks can have a transformative effect on urban centers. Services such as Dodgeball show that digital networks actually make cities more attractive that ever before. Social networks have in essence become virtual community centers, a place for Generation @ (16 – 24 year olds) to socialize, tap into information, exchange ideas, buy products and generate personalized content. For institutions which are more formalized such as city governments, it is important for the future development of urban environments that city planners who are developing e-government and broadband services for their citizenry understand the needs of this generation which "lives online". Indeed such user groups are continually finding new ways of organizing, interacting and developing creative endeavors[36] and thus represent a population which is essential to the life and growth of cities.[37]

As the social networking arena continues to develop and new companies appear, challenges remain. It is clear that some companies in the social networking arena will remain '"pureplays" and just provide services which are social in nature, e.g., Dodgeball while others will evolve into hybrids which provide social services along with commercial services. However, if these companies are to continue to grow and sustain themselves, they need viable business models. While Dodgeball is a strategic investment by Google and therefore does not need to generate revenue in order to survive and Tapuz has a stable business model, the primary focus of both companies is to support the activities of their users rather than being driven by the need to make large profits. In part, this may be because these companies

are privately held and do not need to answer to their shareholders. Also, as more users become linked through these networks, the issue of privacy will need to be vigorously addressed.

During the past fifty years, the locus of technological innovation has shifted from the great industrial laboratories such as Bell Labs, to the corporation where technology has become strategic to the firm. It has now moved on to the networked environment, where in many cases, innovation is occurring outside of the mainstream "nodes" with increasing frequency. Social networks represent a new platform for innovation. The user-centric companies which constitute the core of this new platform foster a unique kind of innovation not seen before and are an important new phenomenon that bears further examination. For managers who wish to lead their companies into positions where they can sustain a competitive advantage over their rivals, it is essential to be aware of the evolution of these networks and the value they are creating.

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