Building Bridges Between Social Islands

The last decade has experienced a spectacular boom in mobile phone ownership worldwide. However, the magnificent growth has started to look all the more distant. As a result, the players on the market are looking with increasing interest at mobile applications as the saviour of the next decade. As with its computer counterpart, the mobile application needs to be developed first – then diffused. Unlike applications for computers, however, many users are unfamiliar with the concept of downloading 3rd party applications for their mobile phones. In addition, applications need to be adjusted for every phone manufacturer (and sometimes model), despite having the same operating system. All of the above make it significantly harder to experience fast diffusion on the marketplace. Therefore, new research about how to facilitate the diffusion of mobile applications is highly sought after.

Sony Ericsson – the Swedish-Japanese joint venture manufacturing mobile phones – research centre (SERC) might have a solution to the problem. While all internet content is focusing on “All IP”, SERC utilises this in their new innovation that enables viral spread of applications. With an SMS, users can just simply spread an application to a designated friend. In addition, the users can also set up an IP connection between the two phones with peer-to-peer technology. Applications can make use of this connection to share files or send messages. SERC demonstrates its technology through a Java-based chat application called Hanashi. Not much unlike mobile MSN or a competitor ditto, Hanashi enables instant messaging, file sharing and presence text. However, unlike MSN, Hanashi do not need any login to a server and a user does not have to be online in order to be reachable. With a SMS, targeted to a specific port, the phone starts Hanashi automatically upon receiving and a chat can begin.

The engineers at Sony Ericsson initially had great expectations regarding the diffusion of the new application. Especially considering the fact that Hanashi had positive effects from network externalities, i.e. the value of the network increases when additional users start using the application. However, the engineers were greatly disappointed; there was no exponential spread of Hanashi. With no wide user base, neither the application, nor the technology behind it, could be tested. Therefore, there was a great need for understanding what factors affect the diffusion of mobile applications in general, but Hanashi in particular.
As a result, we conducted a study to analyse the factors that was hindering the exponential diffusion of the application. The results ended up questioning the incumbent communication network theories with a new perspective on viral spreading intent.

While studying the network theory of applications like Hanashi, we came across Metcalfe’s law. Metcalfe stated that the value of a network is the number of users, $n$, squared, i.e. $n^2$. This means that the value of the network increases exponentially for each new user that is connected to the network. At the same time, the expression “critical mass” is used. A critical mass is reached in a network when the diffusion and spreading is self-sustainable, meaning that the number of users increases “by itself”. However, the study indicates that this is not valid for applications like Hanashi. As all users have a social context, the network resembles islands in a large archipelago rather than a multi-connection network. Each island represents a small social context where users use Hanashi, e.g. family or closest friends. With this metaphorical interpretation of the network, Metcalfe’s law is only valid within each island, but not for the archipelago as a whole. As one Hanashi-user put it “When all my friends have Hanashi, I have nobody to spread to”.

In practice, this means that for a Swedish user, the value of the network does not increase when a Chinese user downloads the application. Hence, because of the newly found network islands, the concept of critical mass needs to be modified. Just as a regular network, each island has a critical mass, when reached; Hanashi will become a favourable means of communication within that island. Additionally, the archipelago also has a critical mass, when it is reached; Hanashi would become a favourable means of communication between different islands. However, the archipelago’s critical mass is undoubtedly much harder to reach, puzzling the developers at Sony Ericsson, as the islands are isolated with strong social bonds.
So what do you do to target this problem? Trying to make people break the strong social rules that controls how we communicate is hard. However, most people are active in several different social contexts. By encouraging users to communicate with Hanashi in many different social groups, the network can expand easier. Bridge users are defined as users that are eminent in communicating with many islands within their social environment, e.g. friends, colleagues and family members. Our study indicated that most users have a tendency to only use Hanashi with some parts of their social environment. For example, one user used Hanashi joyfully with his friends, but did not consider it while communicating with his girlfriend, resulting in hindered diffusion. As a consequence, encouraging the entire user base to become bridge users are imperative in order to reach a high diffusion rate within an archipelago-network. The question that arises is, of course, how this should be done.

As this is connected to word-of-mouth and viral marketing, one way is to look towards referral programmes for a solution. Referral programmes are incentive programmes that encourage users to spread a message (or application) to others. A wide range of incentives can be used, e.g. discounts or privileged access to features in the application.

For Hanashi, another suggestion was made. Much like FaceBook, a feature that enables the users to see which of his/her friends that user Hanashi was suggested. By matching the contacts in one’s phone with an updated registry of Hanashi users, the application suddenly enabled users to easily become bridge users. In addition, this sorted out another of the application’s problems. After downloading and installing, the user would have a chat-application without anyone to chat with, leaving the user with the work of finding - or persuading friends to become - Hanashi users. With the before-mentioned suggestion, the user was able to find the friends who were
already active users. This for the first time would enable the Hanashi users to feel the power of the Hanashi network. Bridges between different social islands could be setup without users having to make large social investments for every new Hanashi contact.

To date, Sony Ericsson is implementing the proposals for Hanashi. The diffusion of the application is studied with great interest. One of the most important conclusions from this work is that, sometimes, the borders people definitely do not want to cross are the ones they cannot see.