

# Tapping the Mobile Digital Tapestry: Can mobile 2.0 companies make money without being greedy for personal data?

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Networked portable devices enable their users to easily create and share digital content (e.g., photos, videos). Hitherto, this serendipitous form of sharing has not happened. Is that because, for sharing content on the spot, mobile users currently have no choice but to go through the Internet? If so, what if users could browse location-based content without going through any server? We expand on this controversial question and touch on how web 2.0 companies may make profits without retaining personal data.

## 1 The Digital Tapestry Created by Mobiles

In recent years, two separate trends have been observed: first, the rapid evolution of mobile technology, with current portable devices having increased computing capabilities (e.g., processing power and memory availability) and richer sets of functionalities (e.g., digital cameras, MP3 players, GPS receivers); second, the transformation of the Internet user from consumer to producer of content. It will not be long before these two trends will converge, thus leading to people generating and sharing location-based content using their portable devices. They will, for example, attach texts or audio clips to a point of interest, to be played back by others who come along later.

By browsing the digital tapestry, mobile users can find several things of personal interest:

- *Songs of emerging musicians.* To get some free publicity, emerging artists upload their latest tracks into publicly-available WiFi hotspots and add the date of their next gig as a note to the track.
- *Prices of outlets.* Instead of showing generic icons for restaurants and petrol stations, mobile maps can be fed with specific information - for example, outlets can embed their latest offerings or discounts or seasonal menus within their clickable logos displayed on the map. By simply looking up their maps, drivers can plan fill-ups or find cheap places to have lunch.
- *Street performances.* Whenever musicians put on impromptu street performances, they can inform people in their proximity by disseminating electronic flyers. By receiving flyers, people can make the most out of the

leisure zones of their chaotic cities - what Foucault calls “sites of temporary relaxation”<sup>1</sup>.

- *Local protests.* To galvanize their neighborhood in opposition to a nearby logging project, mobile users could attach notes (e.g., texts, audio clips) to local buildings, to be read by others who come along later. Mobile phones have been already used to summoning people to demonstrations. In China, the biggest middle-class protests of recent years (against the use of abducted boys to perform dangerous work) has been organized by exchanging text messages. Empowering more people to become involved in their communities can improve public sector governance and enrich democracy.
- *Neighbors’ likes and dislikes.* Using their Bluetooth-enabled phones, people can share information about their personal interests with others (friends or strangers) in their proximity. Sharing metadata (not content) is old hat - it is what people do in Web 2.0 applications: they mostly share information about themselves and their personal interests.

## 2 Don’t be Greedy - Unlock the Tapestry

Most of the above location-based services are already offered on the Internet. Websites collect content generated by registered users and add “geotags” to that content (i.e., encode spatial co-ordinates).

Ironically, *location-based* content that is collected in such a *distributed* way finds itself “enclosed” on the Internet - a centralized and location-independent infrastructure. One may well ask why. Here is a possible explanation: by channeling user-generated content into their web sites, companies attempt to make money. Take Google: it “is often compared to Microsoft; but its evolution is actually closer to that of the banking industry”<sup>2</sup>. According to this widely shared view, Google is similar to a bank that capitalizes not on our money but on our personal data. Consequently, giving up data for Google would be tantamount to giving up profits - money coming from advertisers who exploit personal information to promote their wares in a targeted way.

However, most Web 2.0 companies are struggling to find viable business models, and they are not making any profit because they are pursuing Starbucks’ business model. Starbucks offers comfy chairs and does not charge people for sitting on them; people will buy overpriced coffee instead. “By offering a setting for free interaction, such sites provide the online equivalent of comfy chairs. The trouble is that, so far, there is no equivalent of the overpriced coffee that brings in the money and pays the bills”<sup>3</sup>. In theory, advertisements may generate profits. In practice, they have been found to annoy and drive people away.

Since Web 2.0 companies do not know how to make money, they are trying to get ideas from (the crowd of) external programmers. They let programmers access part of their user-generated data through APIs. Unfortunately, most of those companies may be doomed to failure because they:

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<sup>1</sup>Foucault, M. (1998). Of other space. *The visual culture reader*.

<sup>2</sup>Who’s afraid of Google? *The Economist*, August 30<sup>th</sup>, 2007.

<sup>3</sup>The trouble with YouTube. *The Economist*, August 31<sup>st</sup>, 2006.

- *Offer unscalable services.* The urban tapestry will be measured in petabytes of data, and Internet services will not scale simply because processing and exchanging data at this scale requires an infrastructure well beyond the means of the Internet.
- *Need to keep switching costs high.* As users are free to switch from one service to another, companies have little financial incentive to reduce switching costs. So data is often stored in proprietary file formats (protected by patents) and protected by service vendors. Giving access to their data via APIs is a first good step towards more open and innovative solutions. However, with company-defined APIs, the amount of accessible data is typically only a tiny part of the company's knowledge base, so that the "wisdom of the (programming) crowds" is only partially exploited: unplanned innovation is serendipitous in nature and APIs are not open enough to accommodate it.

To sort out this current impasse, one may turn to managing location-based content using highly decentralised and open solutions which are more likely to:

- *Eliminate switching costs* - Users may be empowered to retain control of their data by simply storing it on their devices. To make that happen, MIT have recently put forward "A World Wide Web Without Walls" (W5) proposal: a project "that imagines a very different Web ecosystem, in which users retain control of their data and developers can justify their existence without hoarding that data". In so doing, one eliminates switching costs - users do not need to share their data with each service provider. Plus, this approach comes with a pleasant by-product for privacy-conscious users: they would have control over what data they are willing to disclose.
- *Scale* - While existing companies fight over their "one size fits all" search engines, new companies may offer customized search solutions for communities in particular locations. That is made possible by two recent communication technologies: the first is Bluetooth, which connects only people who are in proximity; the second is WiFi, which connects mobile users to the Internet and enables the storage of location-relevant content on hotspots. These two technologies can assure dissemination and availability of location-dependent information. Assuring the availability of electronic data is a problem of scientific importance, and Ross Anderson has masterfully explored it in "The Eternity Service".

### 3 Proximity Marketing to the Rescue

We do not need to decide whether to either lock the digital tapestry on the Internet or fully distribute it across portable devices. The future may well reside somewhere in the middle, and that "somewhere" will change depending on what technologies will be available. The introduction of new technologies largely depends on research, and past research has largely focused on Internet solutions. That is why, in the past few years, we have been studying alternative solutions that are distributed and mobile.

This brings us to a final, crucial point: if companies were to give up control over user data, how they would make money? One promising way seems to be

proximity marketing campaigns: distributing electronic ads among co-located mobile users. Companies like HyperTag and BlueMedia are currently working out how to best do so<sup>4</sup>.

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<sup>4</sup>Proximity Marketing. MobBlog. UCL.