Naticity Inc.

Free Web-based Geospatial Information Systems for Sustainable Municipal Maintenance, Management and Planning

BUSINESS PLAN

Submitted to prospective Investors

By

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(Other possible Company names: CITY KNOWLEDGE, FORMA URBIS, LOCUS GENII, CITYFARM)

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MISSION

The mission of Naticity is to assist local governments in providing well-informed and timely services to all their citizens, by offering municipalities free web-based geospatial applications to support day-to-day operations as well as all town maintenance, management and planning activities.

Or

The mission of Naticity is to transform municipalities from hunter-gatherers of urban data to farmers of City Knowledge.

EXECUTIVE SUMMARY

BUSINESS CONTEXT

competition and market

[bespoke analyses]
[vertical applications]

Nowadays, most urban data management solutions are entrusted to professional consultancies or software vendors who have inevitably produced either bespoke analyses, custom-tailored to the problem at hand – such as level-of-service analyses related to traffic – or vertical applications dedicated to singular municipal tasks, such as Computer Aided Mass Appraisal (CAMA).

[web-based solutions]

[consulting]

Whereas desktop Geographic Information Systems have become ever more widespread in municipal settings[1], the use of web-based, service-oriented, geospatial tools in municipal data management applications is still in its infancy[2]. In most medium- to small-size towns, information still largely consists of paper records dispersed over a myriad of independent and disconnected silos, maintained by a variety of departments for specific regulatory or administrative purposes.

business opportunity

[GIS and RDBMS]

Only recently, with the widespread availability of Geographic Information Systems (GIS) and Relational Database Management Systems (RDBMS), the lower transaction costs of acquiring information have opened up the possibility of capturing urban data with an adequate frequency and at a sufficiently fine-grain to be able to satisfy most foreseeable municipal operations in a sustainable and affordable way. Moreover, the pervasiveness of the internet and the increasing tendency toward web-based applications is opening a window of opportunity for the timely release of powerful geospatial municipal applications based on a web-service architecture. We plan to exploit these opportunities with the creation of Naticity.

BUSINESS CONCEPT

We propose to deliberately transform the piecemeal, vendor-driven approach to municipal information management into a distributed, federated system of interoperable modules that can be "grown" over time by adopting the City Knowledge principles and techniques. We plan to disrupt the existing market by producing top-quality online web-services – exploiting advanced web 2.0 techniques such as mash-ups, widgets, wikis, collaborative filtering, reputation management, and others – to support all the information needs of typical municipal operations at no cost to local governments, by shifting the onus of data management to the "agents of change" who are preponderantly private corporations or individuals.

company products and services

[web 2.0 techniques]

[free geospatial web-services]

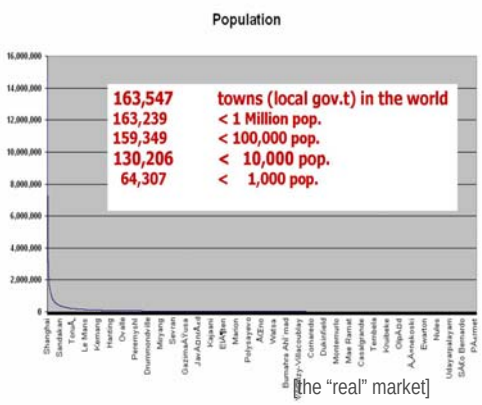
positioning

Whereas many companies in this market try to profit from the sale of software packages to individual municipal departments, our web applications will be free to municipal governments and any updates to our system will immediately be available to all participating cities and towns. Naticity will position itself as the leader in comprehensive municipal information systems, using the web as the vehicle to deliver outstanding web-services to satisfy the needs of all departments within each town.

[1] Innes and Simpson, 1993; Budić, 1994, p. 245; Nedović-Budić and Pinto, 2000; Geertman and Stillwell, 2004, p. 307.

[2] Carrera and Ferreira, 2007.

THE MARKET



[the "real" market]

There are three very substantive reasons for making our software completely free to municipalities: (i) because the local government market is not very large, (ii) because municipalities have limited funds, and (iii) in order to capture as much of the market share as possible. According to the World Gazetteer, there are fewer than 164,000 municipal governments in the world and 80% of them have populations of less than 10,000 citizens (figure at left)[3]. These smaller towns in the "long tail"[4], which number over 130,000, will be the primary targets of our free geospatial solutions since they are unlikely to ever have the resources to hire even part-time IT or GIS staff. All of the existing data management consultants and municipal software vendors are competing in the crowded market comprised of the mere 30,000 municipalities with more than 10,000 inhabitants.

Given these facts, we believe that the "real" market is not in selling software solutions to satisfy the day-to-day operational needs of town governments, but lies instead in managing the farming of urban data on behalf of the towns and in selling collateral services to private sector entities that interact with local government. Instead of trying to profit from the relatively small number of municipalities in the world, we will tap into the profit potential represented by the activities of all corporations and individuals who deal with cities and towns while conducting their private affairs. Just about every individual and every business in the world will need to interact with official municipal bureaucracy at one point or another and we will position ourselves to be the intermediary of all such private-public transactions. To the best of our knowledge, no other company exists that provides free web-based municipal software solutions.

marketing

By offering municipalities our top-notch software applications for free, we would be making an irresistible value proposition for cities and towns. In the era of Google, YouTube and MySpace, web-savvy consumers are becoming more and more reluctant to spend money on useful services on the web[5]. Conversely, if municipalities were our sole customer base, we would be vying for a share in an already crowded market where very few customers possess adequate human and financial resources to devote to IT services. Instead, by giving away our sophisticated software for free, we expect that it will spread virally by word-of-mouth and we plan to provide incentives to promote and expedite its adoption in cities and towns all around the world.

[assisted viral spreading]

PROFIT POTENTIAL

Although the public-sector software will be made available for free to town governments, the assisted viral dissemination of such software from municipality to municipality will open up several for-profit possibilities for Naticity, mostly by its becoming the intermediary between the public authority and the private sector. For example, in order to sustainably update the municipal records, Naticity will enter into agreements with participating communities to manage all of the fees related to municipal services, such as permits, licenses and local taxes. Naticity would thus profit by adding a

public/private intermediary

[3] At www.world-gazetteer.com.

[4] Anderson, 2006.

[5] Anderson, 2007.

small surcharge for the data management associated with each transaction[6]. In this context, the goal will be for Naticity to become the manager of "birth certificates" for all new physical elements of the city that fall under the jurisdiction of the town, whether they are created by the local government itself (as is the case of street signs installed by the local Public Works or Highway department) or by private corporations (such as real estate developers who create buildings and roads) or by individual property owners (who make additions to their homes)[7]. Birth Certificates are the key to maintaining the comprehensive municipal geospatial infrastructure up-to-date and Naticity should be perfectly positioned to make the case for adopting the Birth Certificate concept once our web services have become commonplace in cities and towns.

[transaction management]

[birth certificate fees]

advanced professional services

Additional profit potential exists in selling fee- or subscription-based services to all professional consultancies, construction companies, maintenance providers, real estate brokers and other trades that interact with local governments on a regular basis, to facilitate their planning, permitting, estimating and overall data management, by offering high-quality mapping services, as well as advanced geospatial analyses, modeling and printing[8] services. Since more and more local governments are requiring electronic submissions of permits and plans, Naticity would also manage and facilitate those operations for its professional customers. Some of the more advanced analytical and modeling services, as well as large-size plotting services will be also provided for a reduced fee to municipalities. Another source of steady income would be a storage/retrieval fee per gigabyte-month, higher for private entities and smaller for public customers who will get an initial free allotment of storage space upon registration[9].

[advanced geospatial analyses]

[printing and plotting services]

[storage and retrieval services]

e-procurement

Further for-profit services will be possible in the areas of bid and tenders brokerage, where Naticity could get a small fee from the municipality (based on the savings achieved via competitive bids), as well as earning yearly subscription fees from participating vendors[10]. By offering free software applications to the municipality, we would be able to gradually extend our reach into this area, where we would add geospatial capabilities to established e-tendering processes.

[bids and tenders management]

A related area of profitability would be in municipal group purchasing. Having several municipalities as customers will allow us to gather "shopping lists" from the various departments and look for the best deals in the market, by combining their purchasing power to buy larger quantities at discount prices, using e-procurement systems to get bids from a variety of vendors. Group purchases could be made for products – from stationery to fire trucks – as well as for services, from health insurance to IT support. Naticity would profit by getting a cut on each transaction – either

[municipal group purchasing]

6 Some companies already use this business model.

7 See Carrera and Ferreira, 2007 for more on the "birth certificate" concept.

8 We plan to start by outsourcing the plotting services to existing companies. We may consider providing these services in-house at a later date.

9 This will also be outsourced, at least initially, to specialized services such as Amazon's S3.

10 There is a flourishing market in e-tendering with multimillion-dollar companies such as CNW group(Mediagrif, Bidnet, Construction Bidboard) and others.

as a percentage of the amount transacted or as a percentage of the savings attained vis à vis the cost municipalities would have incurred by purchasing the same products or services independently.

Additional Services

While the core municipal applications are being made available for free to municipalities and the aforementioned for-profit services are being developed, secondary lines of business will also become readily accessible to Naticity. One such line, which would also be web-based, hence requiring relatively fewer staff, would entail providing a content management system (CMS)[11] for a municipal web-portal to participating communities, also free of charge. Using "widgets" as a way to allow individually customizable web pages[12], citizens could not only gain access to many of the aforementioned services (such as permits, assessments, etc.), but would also be able to get supplementary town-specific information related to other municipal administrative and governance activities (such as permit hearings, committee meetings, and many others). In addition to being able to subscribe to RSS feeds and alerts connected with municipal activities, citizens will also be able to obtain town-specific information for personal use, such as event listings, items for sale, special sales, job listings, housing information, news, weather and others.

municipal web portal

[content management system]

[RSS feeds]

[web portal profit potential]

Naticity can profit in several ways from the community web portal: (i) it can provide some of the personal services for a fee; (ii) it can enter into associate agreements with Google, Craiglist, eBay, Eventful and other web service providers and pass on local searches to them for a fee; (iii) it can allow limited advertising for local trades and businesses for a fee using AdSense technology to tailor the ads to each citizen and leveraging the wisdom of crowds to gather feedback on the quality of services provided by advertisers, thus affecting their priority ranking based on cumulated ratings á la eBay.

field services

There are still more opportunities for earnings in ancillary activities which would, unlike the ones mentioned thus far, require more field personnel to provide such services as: (i) IT support and training; (ii) field data collection for pre-existing urban elements; (iii) baseline mapping; and (iv) project-specific consulting. Even though these services would have higher costs due to the increased staffing requirements, it is quite likely that participating municipalities will ask for such services once we have established a working relationship with them. It may be appropriate to create a separate company to conduct these activities that are substantially different from the core mission of Naticity.

[internet services]

Offering service (i) may become necessary in order to ensure that the town can have high-speed access to our web-services. Since even some western Massachusetts communities still do not have high-speed internet access, and given that our business is web-based, it may be worthwhile to consider offering free internet access to "offline" communities as part of our package. We could then profit by letting private individuals and businesses

[11] Using a free open-source foundation such as Plone or Mambo.

[12] See Yahoo Widgets or Google "gadgets" for more information.

use our broadband access for a small fee, or we may just apply fees long enough to recoup the initial internet investment. To popularize our services, it would be good to provide free wireless access points throughout the town (schools, public library, town hall etc.) to gain name recognition and accrue "good citizen" points within the community[13].

[backlog services]

Services (ii) and (iii) are also likely to become necessary in order to be able to provide geospatial capabilities to participating municipalities that have little or no pre-existing electronic data or maps. Since this may be an obstacle to the diffusion of our free technology, we should try to provide as many of these "backlog" services[14] for free in order to ingratiate ourselves with the community, but we may also have to charge some one-time fees for these services if considerable field work were needed to get a decent baseline. In most U.S. communities, and in many parts of the developed world, we ought to be able to produce a skeletal municipal geospatial infrastructure by tapping into state-level data and map repositories. We could also develop online translation tools to incorporate pre-existing electronic records into our system. Another option would be to obtain scanned versions of the existing paper records and outsource their digitization for a fee or for better contract terms with the town. Finally, we could develop ingenious mechanisms to farm existing data via other municipal processes or by leveraging crowdsourcing by allowing citizens and associations to volunteer information that they collect in the field in exchange for free services on our municipal information system. In order to completely capture the backlog, it is likely that we may need to invest resources either in automated data collection equipment or in the human personnel needed in order to consult the municipal paper archives or in order to conduct urban inventories across the town. It may be wise for us to pay for these costly services up front in exchange for longer contracts and larger fees for the rest of the IT services that we will be providing to the town.

[crowdsourcing]

[project-specific consulting]

Item (iv) is not entirely within the scope of Naticity, but the fact that we will be managing fine-grained municipal information within our servers would position us to be very efficient (and thus very competitive) in the area of project-specific consulting. However, since this is not an essential service in support of the core business, it would be preferable to spin-off a separate consulting company to address the project-specific needs of our participating towns.

[13] There are a number of citizen nets based on wireless repeaters being installed all around the US, with very little investment..

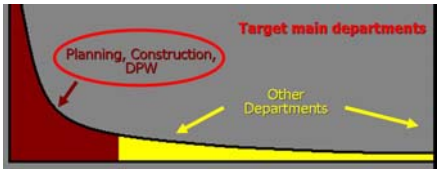
[14] See Carrera, 2005 and Carrera and Hewitt, 2006 for more about the "backlog".

Product Development

"head" applications

[planning]

[permitting]



[assessing]

[public works]

Aside from the field services just discussed – which ought to be delegated to a separate subsidiary company – the primary profit possibilities associated with our core business are all based on a web-services model, which offers realistic and enticing revenue prospects without the need for a cadre of field technicians nor a geographically dispersed sales force. We plan to bootstrap the product development by focusing first on those departments that manage most of the physical change in a town (see figure left), namely (i) the Planning Department, which typically deals with large real estate development projects; (ii) the Buildings Department (a.k.a. Inspectional Services, or Construction Permitting Dept.), which manages the piecemeal changes due to individual construction projects, additions and renovations; (iii) the Assessing Department (or Building Appraisal or Tax Collection Department), which keeps track of the value of all real property in a town for the purpose of assessing and collecting real estate taxes from property owners; and (iv) the Department of Public Works (sometime called the Highway or Town Maintenance Dept.), which maintains roads and utilities, as well as public buildings and other municipal properties, such as schools. By targeting first the "head" instead of the tail, we will provide instantly tangible benefits to participating municipalities, by helping them manage the bulk of their location-based operations. By going after these applications at first, we will also maximize our opportunities for collateral profits early in the life of Naticity.

"tail" applications

We will gradually work our way down the tail to other departments and operations until we cover the majority, if not all, of the typical municipal administrative sectors.

short term development

In the short term (one year), we plan to follow up on existing leads that were developed as a consequence of academic projects conducted in Massachusetts cities and towns such as Cambridge, Grafton, Boylston and West Boylston. By selling these initial applications for a fee, we should be able to generate some of the cash flow needed to support a team of at least two or three programmers and at the same time we will begin to accumulate the key applications that we will then be able to offer to other towns for free. Specific initial applications may include: Road and Address birth certificates (Cambridge and Grafton), Water Infrastructure management (Boylston and West Boylston), Electrical Infrastructure Management (Boylston and West Boylston), and Sewer Infrastructure Management (Grafton).

[roads and addresses] [water]

[electrical]

[sewers]

[contracts and agreements]

Part of the negotiation for these initial deals will entail agreements – for the management of birth certificates as well as to gain permission to manage the advanced services aimed at private professional firms – plus contracts, to manage the (group) procurement processes for the towns involved. By the end of year one, Naticity will have a solid web presence and will begin to exploit he viral spreading potential of the free services in the areas where applications have already been produced and field-tested. The e-procurement ad professional services departments will also begin to function as real profit centers as soon as the agreements and contracts are penned.

medium term development

[full suite of web services]

Within three years, Naticity should have completed development of all other major web services, including: Property Assessment, Plan Submissions, Building Permits, Public Works and Park Services. Advanced web services will also be developed for: Level of Service determination (for traffic), Community Impact Assessment, Sewer Capacity Monitoring, Electrical System Balancing and others. The plotting service will be up and running and web-portals will be brought on line as well. The spin-off companies would also come into being to conduct field- or project-specific work in participating locales.

[initial focus on UK and US]

All initial services will be in English and targeted primarily to U.S. and UK communities of less than 10,000 population, starting with Massachusetts and New England communities. Our general-purpose web-services will apply to all participating municipalities, but some customization may be necessary to conform to differing rules and regulations across state or national borders, and possibly some minor town-by-town tweaking might also be necessary to account for idiosyncrasies in municipal bylaws. After having established ourselves as market leaders in municipal services in the US and UK, we will expand to other nations in the world, starting with English-speaking ones and focusing at first on the so-called "developed" world. While the local legislation and modus operandi will vary from country to country, towns will still typically require the same type of data management since the services a municipality provides are generally the same no matter where it is located. In these more prosperous countries, the issue of access to web services will be similar to the situation we will encounter in the US and we should be able to solve these issues in more or less the same manner.

[English-speaking countries next]

long term development

By year five, Naticity will begin providing multi-lingual support for the rest of the "western" world and will start to adapt its web-services to the laws and regulations of countries in the so-called "developing" world, starting from the more populous and relatively wealthier ones, but eventually reaching all small communities on the planet where our services have a chance of being successful.

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