INTRODUCTION

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USING LOCATION-AWARE SERVICES AND QR CODES

One of the first things I do when I walk into my favorite restaurant is check in on Foursquare to share where I am with my network. I open the Foursquare iPhone application, browse or search for the restaurant entry, add a note about what I am doing there, and check in. I directly engage the location and/or business through its virtual representation as well as my network by checking in. I get a reward of social engagement by sharing my location and what I am doing with my contacts similar to how I am socially rewarded when I post a Tweet or Facebook status. I select the level of privacy before I complete the check-in to choose with whom I want to share my location. In this way I control my privacy and maintain the level of sharing that I have decided is appropriate for the audience of my Foursquare “followers.” After checking in I look to see who else has engaged this venue, because I know that I automatically share at least one thing in common with anyone else who has checked in there—interest in this location (see Figure 1.1).

I also connect with people on Foursquare based on previous connections. People I am connected with on Facebook or Twitter are likely people I would want to share with in this other medium. I know that following professional colleagues on Foursquare can yield useful current awareness information, so I make sure to connect with them on Foursquare as well. I also will make sure to search for and follow my new and old friends as a point of staying in touch.

I may elect to check in using the newer Facebook Places location-based service if I want to share this particular activity with my established Facebook community. I open my Facebook mobile application, navigate to the Places feature, and check in, maybe with an additional text annotation (see Figure 1.2).
Figure 1.1: Foursquare Explore View

Figure 1.2: Facebook Places Screen
I may also ask to tag a friend along with me on my check-in or check them in myself if they’ve allowed it in their settings as a way of connecting us as co-sharing this activity. I have already set up my privacy settings for Facebook to share my Places check-ins with certain groups of my contacts, so I know exactly who is seeing the information and can manage my privacy at the audience level. I get the reward of connecting my activities with my contacts in Facebook Places by sharing my location with these existing social connections.

I decide to also check in on Gowalla while at this venue to interact with a partially different audience. I browse by nearby spots in the Gowalla iPhone application until I find my location based on either proximity or category (see Figure 1.3). If I am the first to check in at that location I create the spot, adding the identifying metadata that will allow other users to find and engage it as well as to earn more in game points for myself. I know that my friends on Gowalla may be more interested than my Foursquare followers in my travels, for instance, so I check in to Gowalla first at the airport. Because I have more purely professional contacts in this network, my check-ins with Gowalla tend to be more work oriented, building and strengthening my professional network while adding professional elements to my interaction with the place.

I might also open up Booyah’s MyTown, a favorite location-based social network that is heavy on the gaming elements. If I have the time and check

![Figure 1.3: Gowalla Check-In Screen](image)
in there as well I can increase my game rewards and expand opportunities for real-world benefits. Same for Loopt Star, InCrowd, and SCVNGR.

Location crops up in other social aspects of my everyday life. I use Gowalla to browse for restaurants by category, utilizing it as a practical discovery tool and not just as a game. I want to find a nearby restaurant with lunch discounts, so I check out what nearby places are offering deals to Foursquare users, letting location-based advertising and not just proximity help guide my selection of places to visit. I add my location to my Twitter posts through its optional location feature to tie my ideas to my locale and use Yelp to find and learn about nearby restaurants.

A new professional contact scans the QR code on my business card or presentation slide and adds my contact information directly into his mobile phone, engaging a physical platform at a specific place to access my digital data. While riding the train, I scan a QR code on a poster for a state park that I would like more information about so I can plan my trip on the go. I use this to connect to electronic information through the place-specific platform. I scan a QR code in a magazine advertisement to watch the full preview of an upcoming TV show. I use QR code–scanning mobile applications on my iPhone to access pieces of digital information contained in or linked from these small two-dimensional bar codes that here serve as a mobile bridge between digital information and physical platforms.

With augmented reality I access information about my location through my smartphone camera, using the phone’s built-in GPS feature and directional tool to determine my location and pull up digital information about what I point the phone at. I scan a picture in a book with an augmented reality program to view a dynamic perspective with animation and interactive information. I scan a street scene with augmented reality mobile applications and see additional layers of information about the store fronts based on my location, including user reviews, architectural progress, and more. I can see and experience the digital information about a location that is not visible to the naked eye but that can add to my information experience with it. I scan a landscape and pull up geological information about recent earthquakes. I can see the value of a building and other real estate information just by scanning it through my smartphone augmented reality application. With augmented reality applications I am able to access visual representations of supplemental digital information that appears to fill three-dimensional space. All this with my mobile device capable of detecting my location as the portal.

In each of my described activities, I leveraged location as an aspect of social interaction through mobile technology to enhance my engagement with places, people, and data. These behaviors, these means of interaction through location-aware technologies, can be applied to library services and
future directions as influencers on trends for information engagement and tools and through direct service applications.

**USING THESE SERVICES IN THE LIBRARY**

Location-based social networks, QR codes, and augmented reality all leverage the power of place as a connecting point to information engagement through social or digital interaction. Location itself and the emphasis on hyperrelevance of proximity-sensitive data is a trend of concern for librarians. Location as a point to engage, a way to interact, or a platform for interaction is expanding as a technology trend across mobile and digital technologies and beginning to impact cultural expectations. Its social spread and real-world practical applications are making it a transformative technology concept. And it’s spreading to libraries, with opportunities for applying location-aware technology to libraries and leveraging its influence on people’s behavior and the evolution of information systems.

The stories I began with represent my real-life personal use of location-aware technologies. I try to apply the lessons learned as a user to my experiences as an information professional. I step back and look at my takeaways from these activities as a librarian, with my service provider hat on, and consider how this behavior may impact expectations for libraries as service centers. Each step and aspect of engaging these technologies has implications for demands on usage of the library as a destination and as an information portal, and we will explore exactly how to apply and how to plan for these implications.

Facebook’s launch of its location engagement features represents a major breakthrough for location-based services because its status as the largest existing social network, with 800 million users, forces libraries to pay heed to this trend. My first thoughts as a user of Facebook Places for possible library applications are teaching patrons skills for controlling their privacy settings and harnessing the rich potential for connections within Facebook by applying the options for Places venues and enriching the connected venue Facebook page. We will cover exactly how to claim and manage these spaces.

When entering a library I am going to check in on Foursquare as I do at any location. However, I will not be able to fully engage the library and all it has to offer through this medium unless the library itself is taking steps to engage and support the patron experience through it. The library may not offer a promotion to those who check in the most, so my motivation to return tied to my engagement through this technology may not be as high as possible. If the library has not posted “Tips” about its location, then it misses this opportunity to increase interaction with tailored information pushed to
me when checking in. The library cannot gain from the tool and its potential to reach patrons unless it actively engages it. Yes, I will still leverage the Foursquare experience as a user regardless of what the library does simply by personally using the check-in as a platform for social sharing. However, the library can literally enhance that experience for me by supporting community through it, offering incentives to engage, and using it as a platform for service. The implication for libraries as places of the widespread adoption of these tools is that our engagement with the tools can be harnessed to foster a connection with patrons and enter their daily mobile life flow. We will learn how to leverage Foursquare for these means.

These tools and their rapid expansion throughout technology also have implications for information engagement. The major ways this might be expressed are in shifting expectations for information portals, information-seeking behavior, and roles for location as connecting points to data and checking in for manipulation of information. As a heavy user of Foursquare I get used to its browsing and searching functions in my everyday life, causing me to begin expecting similar discovery features in library tools and other information resources. In this way, my usage of Foursquare is influencing my expectations for using library resources. I also begin to wish that my ability to use location to find related venues and people can be translated into information discovery methods based on local relevance. Foursquare is becoming a habitual technology whose usage is shaping expectations. Other technologies, most notably QR codes and augmented reality, are not important to libraries yet as critical mass tools but rather as tools with immense potential for libraries acting to meet a changing data sphere.

**HOW THIS BOOK WILL HELP**

I introduce the tools of location-based services, QR codes, and augmented reality, providing a basic survey of the landscape of each technology type and its real-world human and practical uses. I explore the implications of the location-sensitive tools for information engagement and thus for libraries.

Librarians must understand the tools and the worldview they function in as well as the trends they are guiding in order to understand the implications for their libraries. To accomplish this, I will walk through the specifics of the technologies and each major resource within them, their functions and features, and their uses and benefits, everything that we need to know in order to understand the culture and expectations they thrive in and that they create as well as the opportunities for libraries. We will also explore the unique details of each technology so that we can make informed decisions as librarians looking to implement these tools to enhance library services.
and as service providers hoping to understand their impacts on changing expectations for information engagement.

The hardest part of implementing new technology is often overcoming the fear of that new technology. Tips for advocacy, tricks for gaining buy-in, and advice for tweaking the internal marketing steps for each of our own unique library environments will be a key first step.

We will build upon the knowledge that we gain about each of these technologies to cover possible uses of them in library settings. We will start with the direct implementations of tools that are easily applicable for most libraries, including how to use Foursquare for marketing the library and driving foot traffic, what type of presence to have on Gowalla, how to create QR codes for improving access, how to design and evaluate the impact of augmented reality pilots, and how to connect with patrons within and with the help of each. We will go through every step and stage so that together we are fully fluent in exactly how to implement these technologies in our libraries.

Then we will talk about applications that take a bit of creativity and flexibility for enhancing existing library services and operations with these technologies. We will explore going beyond the basics and into advanced applications that twist the technologies and the concepts to not just the current needs of our libraries but also the future directions of this trend.

Although marketing is tricky, it is key to the success of location-aware technology programs. Advertising library usage of these emerging tools must tackle both staff and user education while balancing added value to library services. Our understanding of these tools can inform marketing strategies that leverage their benefits and their intrigue. Some of these technologies are alien to end users, and marketing their value may begin with exposing their existence, introducing their uses, and then inserting their benefits to patrons.

After the practical how-to details of implementation comes the realistic side of what challenges we will encounter and how to overcome them. We ask what new approaches to staffing and management these tools require. We will connect library staff work flows with procedures that are part and parcel with using these tools. There is only so far that new technologies will bend toward working in our existing models. So, reshaping how we do things—how we staff, monitor, and evaluate services with these tools—requires new ways of doing the work of libraries, including structures for creating and responding in these new venues, reallocating staff time to virtual platforms, and dedicating time to creating and revising QR code images and augmented reality data resources.

There are real-world management considerations and new staff skills that these technologies force libraries to address. A library connecting with
patrons on Foursquare, for instance, must deal with the private and sensitive data of patrons that it will have access to. By using Foursquare to measure library traffic statistics, libraries have access to patron information that has an expectation of privacy, so we have to assign policies for staff engaging the technology that safeguards that data. We will also need to provide the staff time for implementing and measuring services using QR codes that complement, not ignore or swamp, the traditional work and services that already fill their time and realign resources so that we can investigate augmented reality applications.

Location-aware technologies, including location-based services, QR codes, and augmented reality, are moving beyond being a trend to becoming a focus of technology advancement that is changing how we engage with information, places, and each other. The ways that librarians and patrons conceive and use physical library spaces are changing along with the advancements in location-aware technology. Traditional venues for library services, including information discovery, collections, reference, and more, will continue to change under these pressures. The possible and likely changing roles of the public, academic, and school libraries in this evolving future will be directly impacted by these technological and cultural changes, and libraries considering these changes now can adapt to the further pressures to come. The new face of library services in a location-aware world is a rich arena with opportunities for librarians learning about the tools now. There certainly is a place for the library in the emerging location-focused technological world, but we librarians have to work to insert the library into this shifting paradigm.

The future directions and developing trends with these technologies are as important for librarians to consider as is the current state. We can expect the developing trends to include the further permeation of location as a relevancy point and its role as a platform for interaction to continue its expansion. We can expect the role of location in discovery and social collaboration based on proximity to grow. Awareness and spread of informational applications of QR codes will swell as they enter the realm of cultural literacy, and augmented reality will transition smoothly into a common information resource as smartphones proliferate. These trends and directions will impact libraries whether or not we meet them head-on. But, as informed professionals aware of their impact and fluent in their applications, we librarians can guide the development of our libraries to best move in tandem with these trends, benefit from them, and assist our end users in using them effectively.