Location & Context
Pre Conference Workshop

December 1, 2014
JW Marriott Hotel
San Francisco, CA

SESSION OVERVIEW

On December 1, 2014 CIO Professional Services facilitated an interactive pre-conference session with 15 attendees of the Location & Context World. In roundtable discussions, the participants explored various aspects of Location and Context services. Data from the discussions was captured using electronic collaboration software.

THREE BROAD AREAS EXPLORED

SESSION #1

Table 1: What monetization models are being adopted?

1. Consumer Concierge
   1. *AI comparing in-store behavior to buying history, makes suggestions*
   2. *Rewards programs*
2. Improved internal business process
   1. *Big Data analytics crossing multiple data streams*
   2. *What ROIs have been demonstrated?*
3. Enhanced customer experience
   1. *Product of Big Data from consumer behavior and internal store operations (lighting, display, employee proximity)*
4. Parking location services
   1. *ok*
   2. *e.g., ParkMe, Parkopedia, and the controversial MoneyParking*
   3. *Smart parking locator tied to customer i.d.*
   4. *Google Now, Automatic, and Dash have apps that remind you where you have parked.*

5. we added parking as part of our use case
6. Like any disruptive technology there are regulatory issues.

5. Concept/Follow mapping
   1. Leading a user through an intention route, based on their profile offers endless scenarios for merchandising.

6. Infrastructure services for malls - location based consumer tracking

7. Integrated connected services

8. Resonance

9. Capturing context data from user and marketing based on behavior patterns
   1. How is data captured from user?
   2. Tying user location with POS purchases for the user would be extremely valuable.
      2.1. Rather than each retailer doing it in their own SILOs, industry can speed up adoption by bringing about some standardization in this area
   3. You capture this though the user's app and their device.
   4. Totally agree. Think geographic footprint of a destination

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Table 2: Where is the money? (Enhanced customer experience, targeted marketing, other?)

1. Retail CIOs have more demand for projects than they have resources to deliver.

2. Need demonstrable proven ROI to get a location based project to the top of the list of potential projects
   1. This is one of the most important points, it is highly important for the investing retailer to see the ROI in order to validate the cost

3. Need to be able to impact buying behavior; e.g. targeted ads based on history

4. Need to get footprint at the 'mall' level, not just the individual retailer.

5. How do you connect a certain user to the behavior?
   1. - Privacy?
   2. - follow the user timeline

6. Need to drive some industry standards; e.g. technology, level of accuracy of position, etc.

7. It needs to be relevant or it's 'spam'.
   1. It is critical to establish best practices. Give the consumer the power to filter what kind of notifications.

8. Consumer incentives to give us their shopping list?

9. Using buying traffic behavior to derive store layout, either for efficiency or exposure to the consumer for 'impulse' buys.

10. If people had the ability to get product information searches in the store, e.g., power tools, them Makita or Black and Decker could sponsor the information. (The retailer

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would own the real estate and 'auction' it to Brand.)

11. The money is at the:

  11.1. Consumer

    11.1.1. - larger share of wallet

  11.2. Retailer

    11.2.1. better sales,

    11.2.2. higher margin items moving

    11.2.3. Better floor utilization - planogramming

    11.2.4. Better employee productivity

    11.2.5. Reduced inventory requirements - location of SKU inventory, better demand forecasting

      1. Link ERP back-end inventory forecasting to real-time info on consumer moving through store

  11.3. Manufacturer/Brand

    11.3.1. improved market share

12. Greater loyalty

  1. Loyalty and rewards programs linked via Big Data to real-time tracking of customer in store, pushing recommended purchases

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Table 3: What are some of the use cases in Retail for location and context?

1. Overall experience in a geo community - a person walks through a commercial area such as the union square, with a consistent experience

2. Non-sales displays that enhance CX: "selfie stations" with sharable images, charitable giving displays, etc.

3. Offering enhanced brand experience.

4. Loss prevention considerations: time spent before theft attempt, visible behaviors, posture / gait

5. Analytics of consumer migration through a space.

6. out of state or country shopping aids

7. Design of intentional discovery, leading a participant through a space

  1. Good one. retailer can help unintentional finds/ offer promotions based on user's intentional discovery items

  2. Design of intentional discovery: good one. Retailer can help unintentional finds/ offer promotions based on user's intentional discovery items

8. Interactive kiosks that integrate with consumer mobile devices to provide context on the kiosk directory map.

9. Offer a shopper suggestions based on the "hover time" before "info spots"
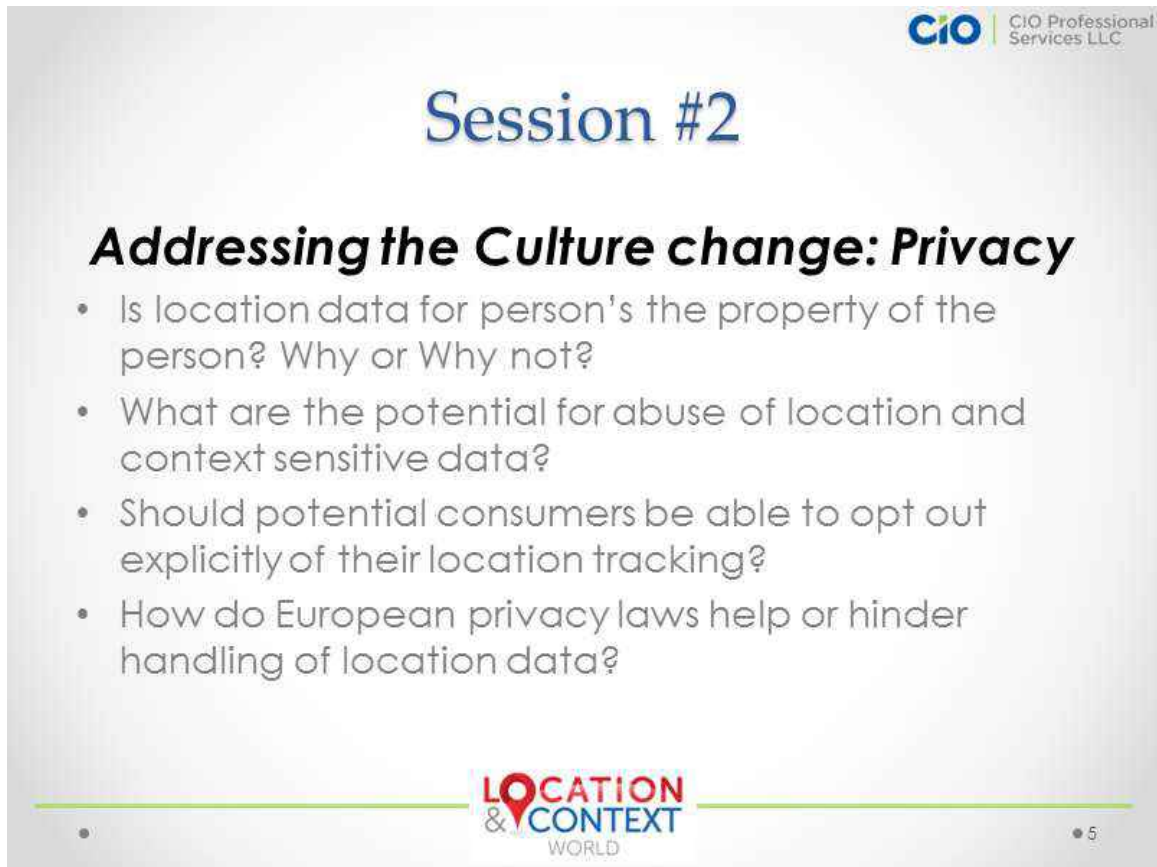
10. Re-invent the public space inside of malls with complementary (seasonal?) information and experiences.

11. Important to make sure that the context is relevant to the consumer and not an edge case.

12. Allow customers to self tag areas with "open" beacons. "Banksy for the masses....

13. Parking

14. General Comments

   1. *The ROI model is not clear, it's still considered an experimental technology with unclear return and consumer privacy concerns*
   2. *Targeted ads based on history is good; how does one promote new things that the consumer doesn't know that they don't know*
   3. *Can the mapping and changing the maps inside shop become self service? Maybe combine a layout modelling application and location/context update into one app?*
   4. *Consider "Cloudonomics" metrics*
   5. *Need to give the customer something compelling to continuously use the application... maybe add in Augmented Reality and real time info display based on what the customer is looking at*

Additional Areas to Explore

1. What are some workflows that can be optimized or hindered?

2. What would be some of the problems and solutions arising out of adapting location based workflows?

3. Can in-store video surveillance of shoppers identify their purchase histories (i.e. link to smartphone they carry)?

4. Does it really need to install an app to know the user behavior or perhaps, the phone's location signal already provided enough to create contextual association?

5. How to ensure adoption of the necessary application by consumer?

6. What retail will look like with all these info? Do we still need malls?

7. What are roles for artificial intelligence (AI)?

8. Who is the target market? What level of expectation should we design for?

9. How else can retail location and context data be utilized?

10. retailers will need to have an roi that justifies the investment

11. Why we start with retail application in this location and context discussion? Is that the main sector for application?

12. In retail scenario, which perspective is getting more traction - mobile user leveraging their location OR venue getting user location to add value to user experience and for themselves

13. There are more opportunities than just large retailers. How can destinations, such as retail districts provide a uniform experience?

14. How can location services solve public safety challenges

15. Once we have the data (behavior patterns, etc.) what do we do about it?

16. How will retailers ensure a consistent high quality in-store experience?

17. what level of investment do retailers and public venues are willing to spend to enable location

18. What are the best practices as to scope and frequency of a notification experience?

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SESSION #2

Table 1: What standards should be adopted for privacy?

1. Requirements for standards
    1. *FTC / Privacy Act, HIPPA*
2. Standards exist for voice marketing that could be an existing paradigm for express permission.
    1. *I like this extension of policy.*
    2. *This is a great idea. If model could be followed like telemarketer opt-out registry*
    3. *Create a location opt-out registry. Any location system must crosscheck against the universal location opt-out registry and forego tracking the device. The E911 type of services can still use it for emergency calls initiated by the device. This enables an enforceable location opt-out policy at multiple levels (app, OS, carriers, etc...)*
    4. *Registry is fine as long as it is optional.*
3. Permission is not in perpetuity. Some periodic renewal could be considered.
    1. *interesting option*
4. How do you apply/enforce standards without hindering innovation and creation of new services?

5. Most retailers have loyalty programs that ask for permissions to use client data but keep it private.

6. Look to preexisting, widely understood privacy standards to harmonize with.

7. The bleeding of location data into unforeseen big data conclusions is a gray area

8. Afford the end user granular control as to the degrees of privacy they wish to reveal and compensate accordingly.

9. permissions should not be in perpetuity

10. Standards should be divided into categories such as required, encouraged, and optional.

    1. *Something more than eTrust is probably needed at this point.*

11. the more info a customer gives up the more they should be compensated for it, data is a currency

    1. *If discounts are available for giving up your information, what is the cost of privacy?*

12. Create an industry watchdog or standards body that could provide the levels of privacy certification.

13. Is there a generational difference in perception of privacy?

Table 2: How do you make it worth the customers while to provide private info and context?

1. Communicating the benefits to consumer
    1.1. provide incentives for allowing sharing
        1. *Coupons, offers, alternatives*
    1.2. link to rewards/customer loyalty program
        1. *works with extended loyalty programs*
2. by limiting the downside of sharing
    1. *agree 100%*
    2.1. How would the downside limit be enforced/communicated operationally?
        1. *Also need policy to avoid Uber "Godview" situations.*
        2.1.1. by conveying the protection/encryption used for storing the data
        2.1.2. by communicating the scope of use of the data
3. communicate limits of sharing
    1. *It's also important to make sure the communication is clear and understandable. More than legal boilerplate.*
4. can it be made time-bound (not stored beyond a certain time)
    1. *Yes*
5. by limiting access/exposure to data

6. providing an opt-out function for 3rd party sharing

Table 3: What would a best practices for transparency look like?

1. Definition of transparency - The consumer understands that their information is mined, analyzed and stored.
   1. *Privacy policy complies with FTC guidelines*
2. What needs to be 'transparent'?
   2.1. Who has access to your information (e.g. Facebook posts).
      1. *This runs the gamut from app from vendors, OS, device OEM, carriers, etc...*
   2.2. What type of data is collected?
   2.3. How long will it be stored?
      1. *Would it help if the data is anonymized after X days?*
   2.4. Can we delete it?
3. 'Location data' need not be personally identifiable; e.g. how many people spent how many minutes at a museum exhibit.
   1. *this is already being done using the devices and mac ids only, without being linked to an individual*
4. Could there be an option for 'anonymous sharing'?
   1. *Yes but be realistic and expect NSA scrutiny.*
   2. *Anonymous sharing too opaque to be transparent*
   3. *Can you be anonymous and transparent at the same time?*
5. Need a tag on my device to know how many applications are sharing my application and with whom at the moment.
6. Application's need to have simple, accessible and easy to understand disclosure statements. This may require guidelines to be implemented by law.
7. To implement this will require an educated user base.
   1. *But users don't even read existing privacy agreements before clicking OK*
8. Need a 'Yelp for Apps'.
   1. *Apple store, Google store, AppAnnie et alia allow reviews*
   2. *There are also App discovery applications that are similar to Yelp*
   3. *Discovery and review on privacy friendliness to consumers or company?*

Additional Areas to Explore

1. How can we manage the issue of determining the "owner" of location data?
2. Should potential consumers be able to opt out explicitly of their location tracking? What are some ways of managing this opt-out process?
3. When does a targeted ad become intrusive?

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4. What is Chief Privacy Officer's role in drawing the line between convenience and invasiveness?

5. How can an individual constrain the degree to which something is 'shared'?

6. Consumers should be able to opt out at a blanket level, as opposed to having to do it per-store basis

7. What are the potential for abuse of location and context sensitive data? What are some ways of managing this abuse?

8. Who owns the data - the venue, the carrier, the mobile device OS provider, device OEM, the city?

9. How can we make it an 'opt in'?

10. Should the policy be applied based on location? For example an employee accessing information on their personal device while on the clock.

11. What kind of controls should reside in the hands of the end user?

12. What balance of privacy controls will make a consumer comfortable with location services? History removal? "Airplane mode"?

13. What are the differences between privacy on personal, business, and personal-business devices?

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SESSION #3

Table 1: What other device and/or platform integration need to happen to make use of location and context data?

1. Need it connected to the NOC.
    1. *Depends on technology being user, BLE or Magnetic resonance? generally it a locator device(s) and beacon*
    1.1. Need to know when beacons go offline.
        1. *Should there be an offline tracking mode too - back-up via RFID etc.*
          1.1. *For most applications it would make the price point too high to have an Active RFID chip that would call in when the primary beacon goes down.*
        2. *BT is Wi-Fi are forms of RFID*
2. Need to be able to source from multiple vendors and the equipment works together.
    1. *Kind of like android open source? Many beacons and can be paired with devices and each merchant who would like to use your beacon data requests it through a central (privacy curated app) on your phone interacting with the beacon?*
3. It will help to have a big provider to do a big push, e.g. Apple or Google

1. *Push for what?*
   1.1. *Standardization leading to plug and play.*
2. *Beaconing and tracking*
3. *They already doing it*
4. *Apple is focusing a lot on uses their iBeacons*

4. Support team needs to know how to install, configure and troubleshoot equipment.
   1. *Or create a cloud based management model with infrastructure support from local vendors (geek squad style)*

5. Beacons need to be plug and play.
   1. *How do beacons know their coordinates to become completely plug-n-ply ?*
   2. *What are the accepted industry standards for plug-and-play?*
   3. *Is there another way to do location tracking rather than another device? The device itself it not profitable part, it's an overhead for consumers and merchants...*
   4. *beacons are dumb*

6. A standardized BLE certification that offers a common platform, fueling a plug and play ecosystem

7. Need a plug-n-play solution, plug it in and forget it.
   1. *This will be possible in a few weeks with the new generation beacons*

   7.1. Over the air updates.

8. Is there an opportunity for crowd sources BLE tagging?
   1. *Why not? What will hinder the crowd sources?*
   2. *Interesting concept, would people play fair and add correct data or game it?*

9. Experience designers need a spectrum of dashboard options to tailor optimum end user experience
   1. *Explain the idea please*
   2. *We already do this, you can create liquid, contextual and customized dashboards that are relevant to the different users - Jhon*

10. Deploy beacons via a third party vendor for retailers, etc. (Like "rewards" apps but for beacons).

11. NewAer, registry and an API to capture signals.
    1. *What is NewAer ?*
    2. *NewAer is a company that provides a "proximity platform." Scans for signals in the area without the need for pairing, basically anything can become a beacon on the NewAer platform. newaer.com*

12. Is there a possibility for a UUID that developers can build against, so that apps become a generalized browser/utility, and now a siloed content gate keeper?
    1. *Interesting, would this impact privacy?*
    2. *UUID is a randomized 128-bit ID. Can you elaborate what "building against a UUID" mean?*
    3. *Each beacon has a unique universal ID. Instead of having to have a specific app programmed to recognize that beacon, why should there be the opportunity to build multiple apps to see the same beacon.*

13. How do you "deploy" to consumers? A multitude of siloed apps won't work.

Table 2: What other device and/or platform integration need to happen to make use of location and context data?

1. Indoor mapping
   1. *important*
2. signal infrastructure
   1. *It is a challenging topic, you need a site survey and, many time, calibrations*
3. database to capture usage and permissions
   1. *D/B should also keep track of categories of LBS information and experiences*
4. Wi-Fi spectrum management
5. Transparency and usage policy for users
   1. *it is a key*
6. assurance that the data can be made anonymous if users wish so
7. Lifecycle management of systems from different vendors
   1. *Compatibility of management, signal, and API*
   2. *The hardware side of this needs to be so simple that is all plug and play or the ROI won't stand up. Support costs would be too high.*
8. Ops integration
   1. *GPS may not work well for indoors, need other signals to nail down a location.*
   2. *nice to have*
   3. *It is true that GPS does not work indoors, but is useful to integrate outdoor. Indoor positioning*
   4. *That was the intent of the idea.*
9. systems integration providers to help implement all this
   1. *If the support model is so expensive that it breeds a strata of S.I.s then the ROI is probably not there because of the required investment.*
10. data feeds to other consumers of the data
    1. *Again need data standards for easy portability.*
    2. *3rd party applications*

Table 3: What will cause landlords to invest in an IPS technology when standards don't exist?

1. Ability to get patterns in utilization of various services and invest in the most popular ones; make decisions on where to build or what to remove and replace
2. locate critical assets belonging to building - loss prevention
   1. *Loss or theft prevention could be critical.*
3. inventory management and parts/equipment movement tracking

      1. Does RFID already solve this?
      2. Inventory system should also allow for the management of notification content
      3. Isn't inventory already managed by vendor's Inv. Management System?
      4. RFID does not track movement (RFID is near-field so is registered only when near a tag reader)
      5. RFID only gives very limited info

4. for high security and government functions, tracking of classified or high value items

      1. US government already has tracking systems and trusted vendors for such applications.
      2. Are these GPS based tracking systems for outdoor tracking/movement? Or does the government already have indoor tracking systems too?
      3. Both GPS and Indoor ... Indoor tracking is not wide spread but the government may already have it.

5. To create a large use case for industry to use as a standard -> come up with its own revenue generating model

      1. interesting concept

6. Landlords can have better assessment of various spots in the venue so they can charge premiums

      1. This means landlords must have access to tenants' Big Data streams. This runs afoul of consumer demands for opt-out privacy protection.
      2. Does the comment above refers to the aggregated data or individual data?
      3. Individual data and aggregated data. for venues such as malls recoding foot-traffic at various spots and storefronts in a mall
      4. Landlord investment should be minimal, like Wi-Fi antenna on roof. Tenant will be responsible for installing in-store infrastructure.

7. Resort & theme park temporary family tracking services for vacationers (internal)

8. Improved service to customers for public venues (such as airports)

      1. What are the specific applications?
      2. Navigation, connection, alerts

9. gaming player and played object tracking (internal arena games)

      1. Sensors in American Football balls.

10. Better networking among attendees at ad-hoc events (conferences and such)

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4. Additional Areas to Explore

1. Is low cost Bluetooth the best answer?

2. What is the next 'big thing'?

3. What type of direct and indirect revenue models can location and context tracking provide?

4. Is WIFI the standard?

5. Is just software alone enough?

6. Will WI-Fi spectrum management be a problem with too many systems deployed?

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7. What if there is no 'signal'.

8. What is the lowest cost support model? How do I avoid hiring expensive IT support folks?

9. Need a 'trusted' vendor relationship to be able to implement a solution.

10. How to ensure the adoption of a app to drive use of a BLE?

11. Can Open Garden peer-to-Peer model be utilized for this?

12. If it is a mesh network is there no deployment cost?

13. Who owns the data?

14. What location accuracy is needed?

15. Are there harmonized standards regarding frequency, rates, etc.?