



Anubhuti Jain  
Molly Nix  
Eva Shon  
Yuan Wang  
Yebin Zhang

# Discovery Report

## Hunt Statement

*Asunto seeks to explore the needs people have within the context of an apartment building. This service would open up and streamline a channel of communication to facilitate management and maintenance, as well as add value and convenience to the experience of being a resident in that building.*

## Product Opportunity Gap

From a **social** perspective, current real estate seller's market smothers the power of the tenants. There is a urgent need to improve interactions between building management and tenants. Tenants need to see that their management is about serving them. We also realized the need to increase tenant voice while respecting their busy lives.

From a **technological** perspective, smart phones and web services are increasingly prevalent and integrated in the daily life of both the consumers and businesses, and it is an opportune time to bring this commonplace technology to the apartment management space. We want to improve the efficiency of management-tenant interactions, and one way to do it is to extend the functionality of existing management software to directly reach tenants. This would make the whole system more transparent and secure, as well as provide "just-in-time" information for emergency and non-emergency situations.

From an **economic** perspective, we realize that building managers already pay for mediocre software



that manages their internal company and organizes rent payments and maintenance requests, so payment for this type of service would not be something new. Also, by positioning Asunto as a subscription service, we provide for an opportunity for monthly revenue.

*Analyzing the above factors, we can see that there is a real opportunity for a real-time communication channel to facilitate transparent and effective communication between building managers and tenants.*

## *Research Process Overview*

To find out more from the stakeholders in this space, we spoke to both tenants and building management. We conducted 5 **interviews** with people who live in 5 different buildings. To get the management side of the story we did 7 **interviews or surveys** (whichever the participant was willing to do) with apartment building managers. We also did 2 **surveys**, which got a total of 44 responses, with tenants to get their perspective on their current apartment building.

To find out more about the space of apartment rentals, apartment management, and tenant-to-tenant relationships, we did some **readings** that included a Doctorate of Philosophy dissertation on community building in apartments and a CHI paper about improving thrift store experiences with a mobile application. We also researched and read many Pittsburgh apartment building websites and **online reviews**. We did our **Competitive Analysis** on companies that exist in the market to assist the building managers such as the two largest players in the space, Yardi and RealPage, as well as secondary competitors like Salesforce's Customer Relationship Management tools.

## *Research Results & Redefining Focus*

The original idea of Asunto focused on the idea of community building and networking between tenants. Through our preliminary user research with tenants through interviews and surveys, we uncovered that people really do not want to know their neighbors, simply because they have enough friends already. In short, they want help when they are in need, but do not want to be buddies. Around one third of the respondents were not even sure what their neighbors looked like, and expressed no desire to find out.

**Based on this feedback, we decided to shift the focus to facilitate the management process, but still focus on the benefit the tenant would get out of such a service. We revised our goal as such: to build an application that will serve the tenants, but the building managers will be our client.**

With a revised goal, we decided to contact building managers and hear their side of story. Our initial conversations with a leasing agent in the Pittsburgh area revealed that many management companies use software to do things for them like keeping track of rent payments, but the system and its use is far from perfect. Additionally, there is no tenant outreach built into the software, so the communication is only internal to the management company. We learned that tenant communication is the hardest thing for a building manager, and most of them struggle to know tenant's needs and being able to provide that service quickly. The managers also felt that their identity was misplaced, and that a lot of their tenants see the management as an "operating background," as opposed to the normal people that they are. But the spirits were still high and as a Leasing Agent stated: "Communication is the key thing to any business."

## *Building Management Survey Questions*

After focus setting building management-tenant issues we wanted to explore, we contacted 20 building management companies in the Pittsburgh area. Although several were conducive to interviews, most did not answer directly or were reluctant to speak to us during busy work hours. So we designed a survey in SurveyMonkey.com and included many open-ended questions to understand what existing technologies and communication channels are used, what common breakdowns and issues they experience, how they manage feedback, and what they currently believe may improve their relationship with tenants.

The list of questions included in our survey:

1. *Do you use a smart phone?*
  - *No*
  - *Yes*
  - *Not for Work*
  - *Other (please specify)*
2. *How do you currently complete day-to-day operations such as collecting rent, receiving maintenance requests from tenants, scheduling maintenance, etc.? Is there any software involved? If so, which one?*
3. *Are reviews (either word-of-mouth, or on public websites) valuable to you?*
  - *No*
  - *Yes*
  - *Other (please specify)*
4. *What is the most difficult part of managing a building? What is cumbersome that you wish was easier?*

5. *What is the relationship between building management and maintenance staff (how are they scheduled, contacted, managed)?*
6. *What sort of introduction communications do you have with your tenants upon move-in? What is the typical process from the day a person signs a new lease to the day they move in?*
7. *What sort of communications do you have with your tenants upon the termination of their lease and their moving out?*
8. *What happens when a tenant files a maintenance request? Who takes the request? Who acts on the request and ultimately completes it?*
9. *What happens when a tenant is late with a rent payment? Do they receive notifications/who sends those notifications?*
10. *Do you have any ideas for what would make management's relationship with tenants easier? Are there any mobile services that might help?*

We received four responses, and were additionally able to speak to three managers on the phone or in person. Despite the limitations of surveys and our small response rate, the open-ended design of many of the questions did enable us to collect some qualitative information:

- *Most companies have a **website** and some use it for maintenance requests and new inquiries, otherwise through phone and e-mail*
- **Software to support rent roll** (managing rent payments)
- **Maintenance record-keeping** (often using software) is an important activity: maintenance requests received by phone and e-mail and dispatched to maintenance are still entered into a software system

Other useful qualitative findings of our building management survey surrounds more subjective and problematic aspects of managing tenant relations, such as reviews and perceptions of management, dealing with difficult tenants and shortcomings of existing communication channels with tenants.

## *Competitive Analysis*

To study the existing market scenario and to see what is on the scene now and how people are solving the problem of management to tenant relations, we looked closely into the property management software space. Players in this market can be divided into two categories based on features they provide.

The **first type** can be collectively call Property Management Software. The features they provide mainly include Purchasing Control, Budgeting Management, Accounting, Document Management, Central Reporting, etc. This kind of software focus on management issues inside property companies.

Tenants have no access to this software. RealPage, Inc. and Yardi Systems, Inc. dominated the market. Their on-demand software are widely used by property companies. As a complement to this market, many lightweight software providing similar features are bought by the manager or landlord who is managing his residential properties and his own personal finances.

The Yardi Financial Dashboard screenshot follows this paragraph. Other functional interfaces are following the same style which is good for managing, analyzing and rendering information.



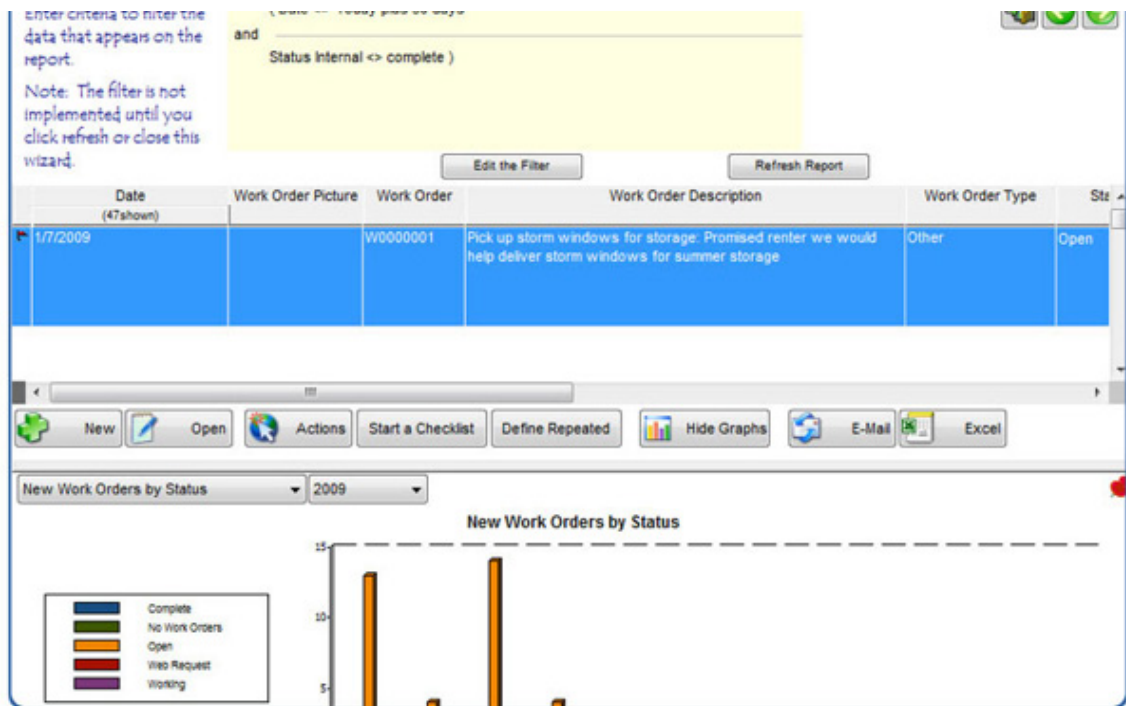
Another example of property accounting and management software is PropertyBoss which also supports managing tenants, leases, units and properties. Key features include:

- *Online lease applications*
- *User-defined data fields*
- *Support for forms*
- *Managing rents, late fees, subsidies, leases, repeating transactions, deposits, utilities, etc.*

- *Managing work orders*
- *Trees and workflows for the above*
- *Data conversion options for easy reporting and compatibility with existing workflows*

Screenshots are below:

Transaction Date ( 39 Shown )	Account Source	Transaction Name Display	Transaction Amount	Open A
2/19/2009	Unit: Oakview Apartments - Unit 4	Transfer=>Rent Due	\$275.00	
2/19/2009	Owner: Kent Wilson	Transfer=>Rent Due	\$825.00	
2/19/2009	Owner: Kent Wilson	Transfer=>Rent Due	\$825.00	
2/19/2009	Unit: Oakview Apartments - Unit 4	Transfer=>Rent Due	\$825.00	
2/19/2009	Owner: Bayberry Investments	Transfer=>Rent Due	\$275.00	
2/19/2009	Owner: Bayberry Investments	Transfer=>Rent Due	\$825.00	
3/1/2009	Lease: Oakview Apartments - Unit 3 - 2006-09-01	Rent Due	\$730.00	
3/1/2009	Lease: Oakview Apartments - Unit 5 - 2002-08-01	Rent Due	\$786.00	\$
3/1/2009	Lease: Avondale Road - - 2005-05-01	Rent Due	\$990.00	
3/1/2009	Lease: Lawrence Road - - 2004-07-01	Rent Due	\$650.00	
3/1/2009	Lease: Buist Avenue 1601 - - 2006-06-01	Rent Due	\$900.00	
3/1/2009	Lease: Oakview Apartments - Unit 1 - 2006-05-01	Rent Due	\$750.00	
3/1/2009	Lease: Oakview Apartments - Unit 4 - 2009-01-21	Rent Due	\$825.00	
3/1/2009	Lease: Buist Avenue 1602 - - 2002-12-15	Rent Due	\$1,200.00	
3/5/2009	Owner: Kent Wilson	Transfer=>Rent Due	\$1,200.00	
3/5/2009	Unit: Buist Avenue 1602 -	Transfer=>Rent Due	\$1,200.00	
3/5/2009	Unit: Oakview Apartments - Unit 4	Transfer=>Rent Due	\$825.00	
3/5/2009	Unit: Avondale Road -	Transfer=>Rent Due	\$990.00	
3/5/2009	Owner: Kent Wilson	Transfer=>Rent Due	\$825.00	



Property Genie is another tool with many tabs that indicate a typical building management workflow:

Property Genie for Property Genie Sales Property Management - [Properties]

Tenant Coordinator Property Manager Owner Coordinator Accounting System Settings Reminders Help

Property Genie™

Tenant Coordinator Property Manager Owner Coordinator Accounting System Settings Reminders EXIT

Select a property 1046 Albug Avenue unit A See All Property ID 15

Street Address: 1046 Albug Avenue unit A Unit/Suite: City: Oviedo State: FL - US Zip: 32765 Managed Since: 10/20/2009 Edit

Property Information Reviews Tenants Owner Documents Lease Work Orders Amenities Warranty Utilities Marketing Security Deposit

Add New Lease Show All Leases Current Lease(s)

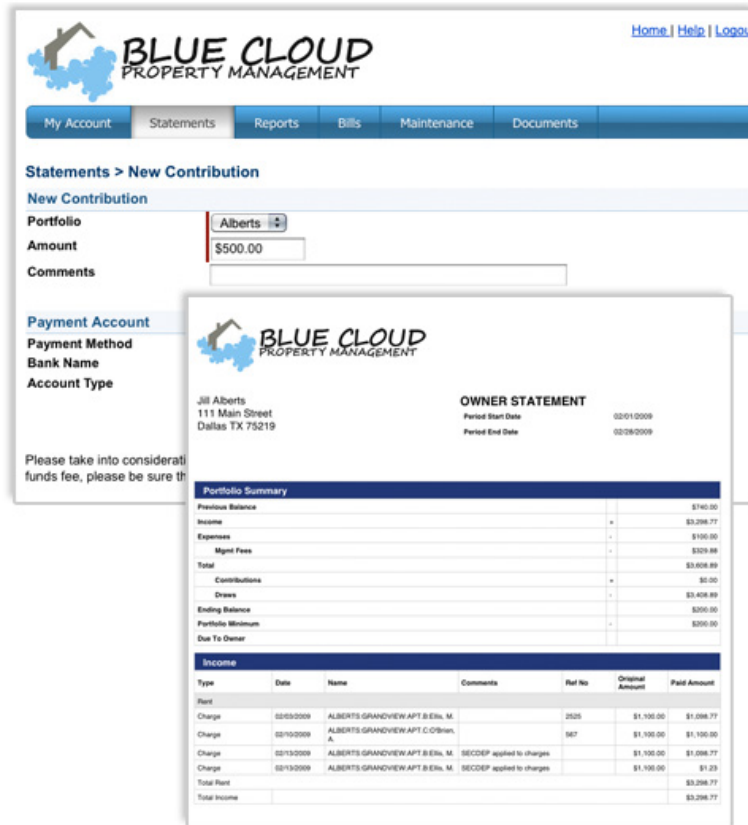
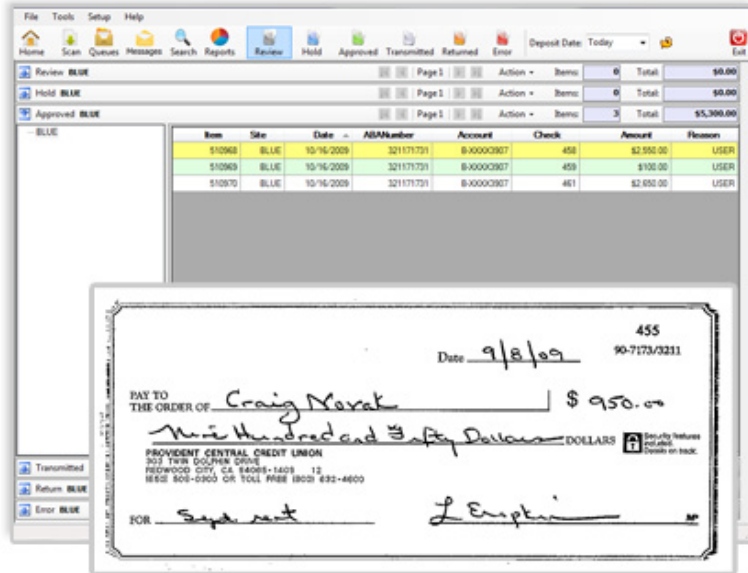
Lease Name	Legal Names	Start Date	End Date	Rent	Status	Auto Renew
Randy Bowman	Randy Bowman	2/4/2010 3...	2/28/2011	\$2,500.00	Current	

Accounting Journal Recurring Charges Deleted Transactions NO PERSONAL CHECKS Preview Statement Preview Journal

Transaction	Posted By	Type	Debit	Credit	Reference
5/19/2010	Tech Support	Check		\$3,000.00	Check 5698
5/20/2010	Tech Support	Cash		\$7,500.00	Cash
5/20/2010	Tech Support	Miscellaneous	\$50.00		common fee
6/1/2010	Tech Support	Rent	\$2,500.00		Rent
6/1/2010	Tech Support	Rent	\$2,500.00		Rent
6/9/2010	Tech Support	Cashiers Check		\$4,500.00	Cashiers Check 12545
6/11/2010	Tech Support	Money Order		\$1,100.00	Money Order 123456
7/1/2010	Tech Support	Rent	\$2,500.00		Rent
7/1/2010	Tech Support	Rent	\$2,500.00		Rent
8/1/2010	Tech Support	Rent	\$2,500.00		Rent

Unpaid Charges \$450.00  
Available Credit \$0.00  
Balance Due \$450.00

Finally, Propertyware is a hosted software as a service solution that focuses on easing online payments and scanning payments for records:





The **second type** of software/service is more diversified. They try to enhance the interaction between property company and tenants. Some important trends are as follows:

### *E-Payment Solutions*

Example: RentPayment.com



This service is very mature, even already available on mobile phone in addition to having a primarily web presence. However, many property companies refuse to use it, citing security issues as the main concern.

## Rating & Review Websites

Example: <http://www.apartmentratings.com>

### Amberson Apartments

5 Bayard Rd, Pittsburgh, PA 15213  
412-682-5886 | [SAVE FAVORITE](#)

**AVERAGE RATING**

**RECOMMENDED BY:**  
**35%**

**OVERALL RATING:**  
2.6

PARKING:	2.3
MAINTENANCE:	2.6
CONSTRUCTION:	2.6
NOISE:	2.3
GROUNDS:	2.6
SAFETY:	3.3
OFFICE STAFF:	2.5



[Write a Review](#)

Use ApartmentSearch.com and collect up to \$200 IN REWARDS with participating properties!

[REVIEWS](#) | [MAP](#) | [FLOORPLANS](#) | [SAFETY](#) | [ASK A RENTER](#)

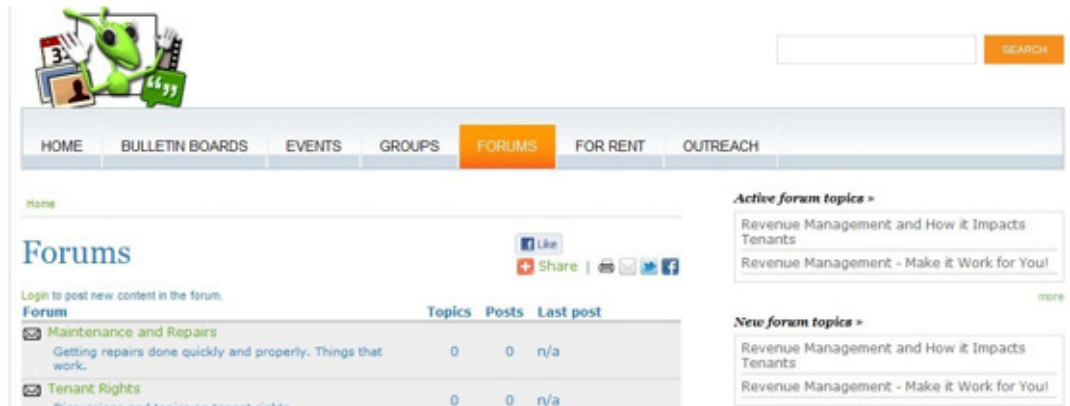
**Opinions** 26 of 26 [Write a review](#) [Manager Reply](#)

DATE & OPINION	RECOMMEND	RATING
12/26/2010 <b>Responsive maintenance, but poor upkeep</b> I've been here 3 years. The management is friendly, and responsive to in-apartment maintenance requests, and the maintenance staff are very good at what they do. However, the upkeep is poor, and the public areas in the building (passage ways, ... <a href="#">more</a>	<b>NO</b>	3.0
10/28/2010 <b>Bed bugs!!!!</b> At first this apartment was fine. It was spacious and quiet. I called management numerous times about fixing a leaking bath tub and they never came up to fix it, but I let that slide because everything else was fine. ... <a href="#">more</a>	<b>NO</b>	1.0

This type of website is a channel for tenants providing advise to future residents and feedback about apartment buildings in the public domain. However, people have the tendency to only provide negative feedback, using this outlet for venting about frustrating experiences around apartments, therefore it is hard to trust the information provided on the website.

## Apartment Community Forum

Example: <http://10ants.com>

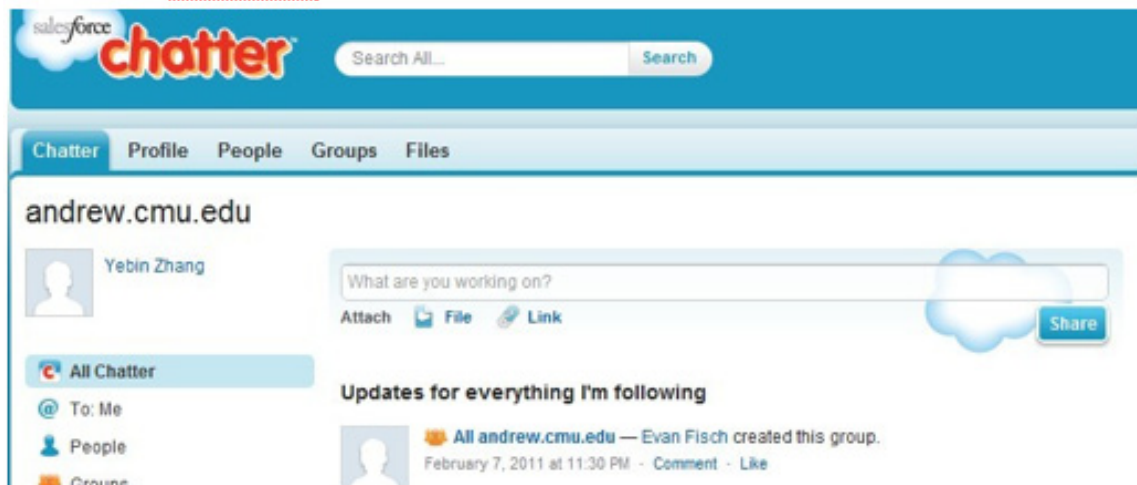


This type of service moves to the interaction between tenants and managers, but the forum is more like a broadcasting platform. There is not enough interaction, and it doesn't utilize mobile technology.

## Customer Relationship Management (CRM) Tools

Traditionally CRM tools are more like user information management system. They keep track of interactions with tenants, including e-mails, documents, jobs, faxes, scheduling, and more.

New trend: Salesforce Chatter enhances the interaction, but it is a general interaction service focusing on collaborative work.



## Lack of Conformity in Ratings Systems

Ratings and reviews of apartments stand to help both potential tenants and building management. A few building managers interviewed or surveyed said that tenant reviews are highly unreliable and that often disgruntled tenants are more likely to be motivated to leave reviews. In general apartment review sites vary widely in their ratings systems and reading through a number of comments are required. One building management office employee commented: “Reviews in almost all cases are a detriment. They clutter the Internet, do not provide REAL information, and tend to be written by people who have issues. Word of mouth, on the other hand is one of the most important ways we attract new customers.”

The lack of conformity in review sites and rating systems can be problematic for management because they have no organized way to respond or improve based on trusted feedback or be judged more objectively in the face of the dissatisfied few. One survey respondent said “it is difficult when residents do not take the resources that are available (ask the management re: problems, questions, concerns). It is also hard to respond to negative comments that are posted on public forums.”

An alternative approach would be standardize rating systems. Although this is generally very difficult to do, a successful example of crowd-sourced ratings is from the ParkScan project based in San Francisco and Portland.

Below is a sample of ParkScan San Francisco’s annual report card of playgrounds in the metropolitan area in which parks are given a grade based on quality and condition of playground equipment and surfaces, signage, gates and fencing, and most importantly, safety condition of the playground for children. The benefits of such a report card motivate park services to improve poorly rated playgrounds and enable parents to help each other protect their children’s safety.

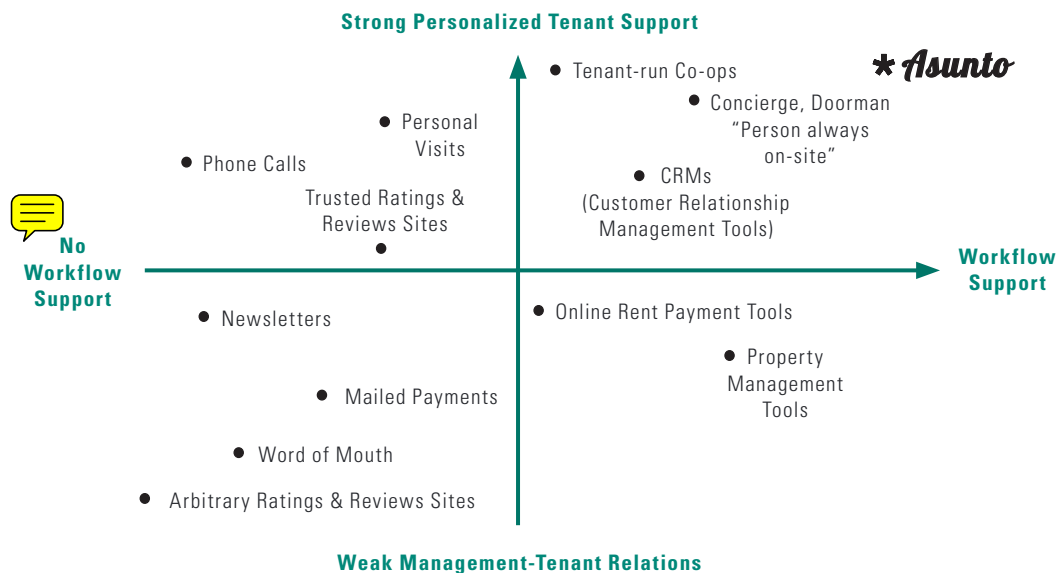
Playground	Grade	Playground	Grade	Playground	Grade
16th & Clement Mini Park	A	Glen Canyon Park	B*	Golden Gate Heights	D
24th & York Mini Park	A	Golden Gate Park (Fulton)	B	Herz Playground	D
Alamo Square	A	Golden Gate Park (Lincoln)	B	India Basin Shoreline Park	D
Alta Plaza Park	A	Huntington Park	B	Juri Commons	D
Aptos Playground	A	Hyde & Turk Mini Park	B	Laurel Hill Playground	D
Bay View Playground	A	James Rolph Playground	B	Miraloma Playground	D
Crocker Amazon (Geneva)	A	Jose Coronado Playground	B	Panhandle Playground	D
Eureka Valley Playground	A	Joseph Lee Rec Center	B	Sunset Playground	D*
Franklin Square	A	Julius Kahn Playground	B	Washington Square	D
Garfield Square	A	Kimbell Playground	B*	West Sunset Playground	D*
Golden Gate Park (Koret)	A	Koshland Park	B	Youngblood Coleman Playground	D
Hamilton Rec Center	A	Louis Sutter Playground	B	Chinese Rec Center	F*
Hayward Playground	A	McKinley Square	B	Crocker Amazon (Italy)	F
Helen Wills Playground	A	Palega Playground	B*	Dolores Park	F*
Holly Park Playground	A	Palou & Phelps Park	B	Selby & Palou Mini-Park	F
J.P. Murphy Playground	A	Parkside Square	B		
Jackson Playground	A	Randolph Bright Mini Park	B		
Junipero Serra Playground	A	Rolph Nicol Park	B	Closed for Renovation In 3/2010	
Kelloch Velasco Park	A	SOMA Rec Center	B	Lincoln Park	-
Kid Power Park	A	States Street Playground	B	Cayuga Playground	-
Lesing-Sears Mini Park	A	Tenderloin Rec Center	B	Hayes Valley Playground	-
Little Hollywood Park	A	Visitacion Valley Playground	B	Presidio Heights Playground	-

For Asunto, motivating the improvement of properties and enabling tenants to have a more proactive role in defining where they live would be a clear benefit of a more standardized rating system or review system that increases transparency and compliance.

Moreover it highlights the fact that service providers are required to respond to customers who become not only more proactive in maintaining and reporting on the quality of their services but also more organized. A key aspect of the co-creation of value in the online sphere is that for customer and consumer feedback to be powerful it must be organized and consolidated well to be trusted, referenced and a motivator of change.

For Asunto, this current lack of organization in reviews and ratings systems of leased living spaces is a **prime opportunity gap that can be effectively filled with good design and strategic marketing.**

*Asunto is a new service belongs to the second type. It builds efficient and transparent communication channel between managers and tenants, taking full advantage of mobile technology.*



## Shaping the Idea

From these services and existing literature on participatory and service design we have surmised the

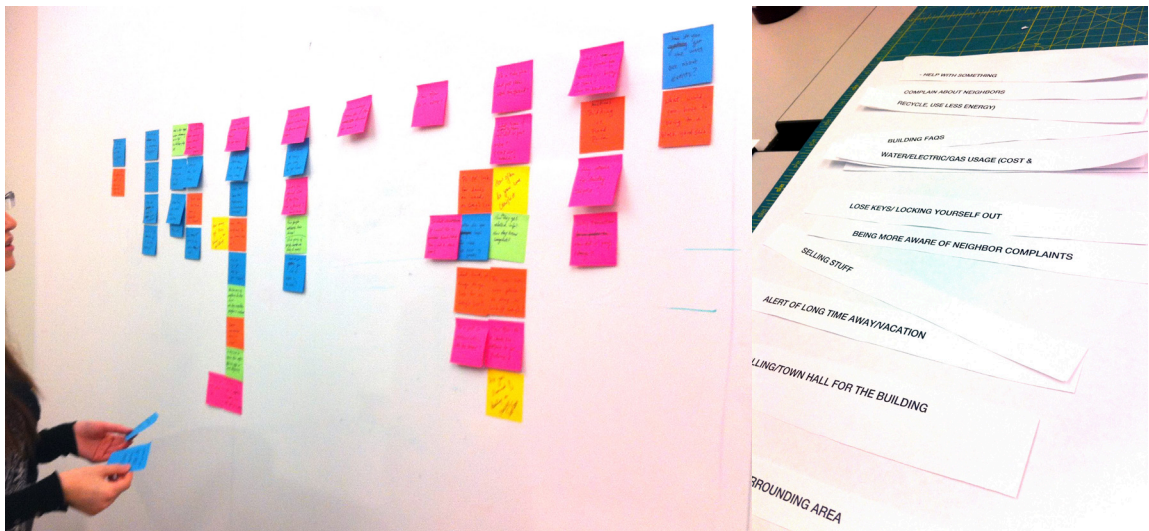
following design guidelines that we hope to follow in our upcoming design phase:

Incorporate the projection of being cared for, and give tenants control over where they live. Types of control involve ability to react or fix something, access to information, avoidance, confrontation, and coping strategies, and degree and timing of participation. Additionally:

- Enable tenants to act and contribute
- Invite them to contribute at the right times
- Let them decide when to act, how to act, how to contribute
- If they cannot act (bad neighbors), help them avoid or cope with a situation
- Provide greater access to information
- Invite them to participate, thank them for it, help them feel civic engagement and a sense of purpose and ownership
- Help them design and be sensors for where they live
- Frame better support from management and the sense of being cared for as a participatory project between tenants and management
- Help them feel more in control by increasing transparency and organizing communication well

*By opening a channel of communication, Asunto will co-create value with tenants and building managers. We are **rebundling** the experience of living in an apartment and interacting with management.*

*The tenants are our users, the building managers are our clients.*



## *Synthesis/Focus Setting*

We tried to understand the different phases of a tenants lifespan and flesh out our ideas to help us design for the user. We saw the tenant as going through three phases: moving in, living, and moving out.

We used affinity diagramming to brain storm our ideas and compiled them as follows:

### *Moving in:*

While moving in, a tenant may want to take and save pictures of apartment for future use, in the interest of having documented proof of the state of the apartment went moving in. The tenant might want to perform some legalities related to apartment remotely such as negotiating the lease l

### *Living there:*

This phase forms the major part of tenant life-cycle where in a tenant might need to interact with manager and vice-versa for numerous reasons. An opportunity there is to make the communication channel seamless. There is also a potential need for tenant-to-tenant communication channel. We have established other task-related possibilities for Asunto to explore during our Generative Stage:

- Pay rent/utilities/laundry
- Rent payment confirmation
- **File maintenance request**
- Track field maintenance request
- Logging the state of the appliances
- Complain about neighbors
- Online lease & abridged version
- Condition of the apartment
- Security, no doorman/concierge

Apart from all these features we realized the need of reminders which could make life easier for tenants. Reminders to pay for rent, utilities, when and how to trash and recycle could be an interesting feature for the service.

### *Moving out:*

A tenant needs to do a lot of stuff when they are moving out which include selling stuff, terminate lease (in the case the tenant needs to leave before lease expires), and get back their security deposit after getting their apartment evaluated by the building manager. **Asunto will be able to streamline the whole process and make moving out convenient and hassle free.**

## Personas

Though Asunto ultimately serves the tenants and enhances the experience of being a resident in an apartment building, the service is actually intended to be provided by and used by the building management, therefore our Personas cover the key stakeholders of **tenants, building managers, and maintenance staff.**

**Maya Shelling** — 21 years old, Psychology Major at University of Pittsburgh



Maya is an undergraduate Senior at University of Pittsburgh majoring in Psychology. She just moved out of the dorm into her own studio apartment in Oakland, a mile away from campus. She knows some friends who live in the surrounding area, but is excited to finally have her own space after living with roommates for the last three years. Maya is tech-savvy, and has an iPhone. She uses online and mobile services to do tasks like scheduling, social networking, navigation, and she loves texting. She is not generally at her apartment during the day, and instead spends all her time on campus in class, working or hanging out with friends.

Maya's Life Goals:

- *Graduate next year, find a job*
- *Have fun during her last year in college*

Maya's Experience Goals:



- *Feel independent, grown up and good living on her own*
- *Get any questions or concerns she has about her new apartment quickly addressed*

Maya's End Goals:

- *Manage her living situation quickly and without hassle*

**Matt and Tiffany** — Young married couple, looking to buy a house



Matt just moved to Pittsburgh from Atlanta for a new job as a mechanical engineer. They are saving up for a house but are leasing a place in Squirrel Hill this year. Tiffany worked in Atlanta in human resources for an Internet service provider. She has transferred to the Pittsburgh office to be with Matt. They miss Atlanta but are finding Pittsburgh to be a friendly town.

Matt and Tiffany's Life Goals:

- *Find a nice house to buy in Pittsburgh*
- *Move up in their careers*

Matt and Tiffany's Experience Goals:

- *Pay rent, get maintenance issues taken care of promptly*
- *Feel safe in their neighborhood*
- *Maintain a good relationship with management so they can have good references for when they buy a house*

Matt and Tiffany's End Goals:

- *Live comfortably in their apartment but not for the long-term,*
- *Get to know Pittsburgh better*
- *Learn how to abide Pittsburgh winters*
- *Make new friends in the area*

**Angela Mills** — 41 years old, Building Manager



Divorcée, Pittsburgh native. Angela has been a building manager for 6 years, after raising 2 kids who are now teenagers. She receives complaints and maintenance requests from tenants and dispatches to maintenance. Angela is not so tech savvy; she recently got a Blackberry for work, but hardly uses it for anything but calls, checking e-mails and solitaire.

Angela's Life Goals:

- *Get a raise*
- *Pay off her mortgage*
- *Send her kids to good colleges*

Angela's Experience Goals:

- *Do her job well, stay on top of all of her tasks*
- *Improve her relationship with tenants.*

Angela's End Goals:

- *Make tenants and her boss happy, and get promoted*
- *Go somewhere relaxing and exotic for vacation*

**Steve and Jason** — Maintenance team at Angela's management company



Steve and Jason are the maintenance workers for Angela's management company. Jason has been working at the company for 4 years, while Steve started last year. They always work as a team, and Jason drives the company's van. They often go out for beers after work, and get to together to watch the Steeler's game. Their weekends are often filled with getting calls coming from Angela that are dispatched from tenants, so they have problems scheduling their weekend activities with their family and friends. Jason has a new baby girl named Cheri, and because his wife is a busy nurse and works weekends, it's hard to find someone to babysit during those times he gets called in.

Steve and Jason's Life Goals:

- *Become experts of maintenance in the company*

Steve and Jason's End Goals:

- *Be able to respond to maintenance requests on time, and find the right solutions to solve problems.*

- *Know the needs of the job before going to the apartment*

Steve and Jason's Experience Goals:

- *Feel in control of their work and their life*
- *Be kindly treated by tenants*

