



San José, California

Recommendations



Smarter
Cities
Challenge

IBM

Introduction

The Smarter Cities Challenge

By 2050, 66% of the world's population will live in urban environments, with most of the growth happening in small and medium-sized cities. Urbanization, combined with growing decentralization, has forced local authorities to become more self-reliant and increase their capacity to fund local services and institutions, turning cities into incubators that can test new public policy and local government-led initiatives. Many cities are especially vulnerable to climate change due to their location, including major population centers in river deltas, coastlines and drought-prone regions. As cities around the world experience significant shifts from historic weather patterns and an increase in extreme weather events, effective local resiliency strategies have become increasingly important. Extensive migration across international borders has also had significant implications for urban communities, presenting both opportunities and challenges for cities receiving influxes of migrants. Large migration flows can rapidly increase the need for city services, such as affordable housing, employment opportunities and sanitation. But with the population aging in Europe and other regions, cities stand to benefit from migrants who can ease skill shortages and boost economies.

Inequality has risen to the highest levels in the past three decades, interacting with the other trends in significant ways. Rapid population growth due to urbanization challenges the ability of many cities to provide services for residents in need, such as access to affordable housing, employment, transportation and healthcare. Low-income populations often disproportionately bear the negative impacts of climate change, while migrants often are a vulnerable population whose access to social and financial capital has been significantly disrupted. These urban trends highlight priority areas for cities and regions to invest in and build capacity to support the needs of their current and future residents.

Meanwhile, rapid technological advances in areas such as big data and cognitive computing are empowering city leaders to address complex issues and make better decisions to deliver services more effectively, efficiently and equitably. The explosion of real-time data from almost 13 billion internet connected devices gives decision-makers the ability to monitor things, like energy usage, environmental conditions or traffic congestion, and make changes that reduce energy waste in buildings, ease traffic congestion and warn residents about potential hazardous weather—all in real time.

The IBM Smarter Cities Challenge provides cities around the world with grants of IBM's top talent and technology to address their most pressing strategic challenges. Winning cities receive a team of IBM experts who are deployed full-time in the city for three weeks. IBM teams leverage the company's cognitive computing, cloud platform, mobile and social analytics, and extensive weather data capabilities to provide Smarter Cities Challenge winners with deep, data-driven insights on their urban challenges and enable them to generate and evaluate options that improve policy development and decision-making.

The IBM San José Smarter Cities Challenge (SCC) team spent three weeks in San José for a pro-bono consulting grant project to advise on technology solutions to support the City's overall housing affordability programs. San José is a city of 1.025 million residents, with some of the highest housing prices and rent prices in the United States. With continued growth, primarily driven by the strong technology industry in the Silicon Valley area of California, the community is faced with pressing challenges around housing affordability. As such, the IBM San José SCC team was asked to focus on triplex and above housing apartments, of which there are more than 88,000 in San José, and within this segment of housing, the team had two goals:

1. To advise on the design and implementation of a Rent Registry, with consideration of the needs and challenges for all users and stakeholders.
2. Recommend a framework for a centralized system to search and apply for deed-restricted affordable housing.

It is equally important to clarify what work the IBM San José SCC team was not asked to perform as part of this pro-bono consulting grant. The team was not there to advise or guide the City of San José

on housing policy, and the team was not there to develop or code the actual Rent Registry and associated database. The City separately initiated an effort with an external IT SalesForce.com consultant to leverage the SalesForce.com CRM application as the core Rent Registry database. IBM was not, nor will be, involved in that effort.

Given the broad scope of the SCC mission in San José, the team's approach was to gather deep insight and input from multiple stakeholders. The team completed 43 interviews that spanned large property owners, small property owners, tenants, tenant advocacy groups, property management companies, nonprofit housing organizations, and the Housing Department experts within the City of San José. The interviews were key to gathering insight and data, but they also provided initial personas of the different stakeholders and users of the future technology solutions. These personas were then validated and updated as part of two Design Thinking workshops. The two Design Thinking workshops, one focused on a Rent Registry and one focused on a common search and application solution for deed-restricted affordable housing, were foundational to the design and approach recommendations found throughout this report.



Seven team members



**Two Design Thinking
workshops: over 40
participants**



43 interviews



**88,000 apartments
(triplex and above)**



1.025 million residents



**Multiple, disparate data
sources, including: text,
structural, social, open source**

From this approach, the IBM San José SCC team gathered many findings that shaped the team's recommendations to the City of San José. Eight key findings resonated from all the interviews and Design Thinking workshops:

1. **Communications breakdown and misunderstandings** with housing providers and tenants about new City of San José Apartment Rent Ordinance and Tenant Protection Ordinance policy changes.
2. **Data privacy concerns** about exposing owner and tenant information.
3. Increase in **administrative burden** for owners due to lack of standards and automation.
4. The Rent Registry is a solution that requires ongoing **user-centric improvements** roadmap for adoption.
5. The Rent Registry scope and details are very **contentious** across multiple housing provider groups.
6. Need for centralization, integration and automation to increase **adoption** across the various user groups.
7. Lessons learned from San Francisco's adoption of the "Dahlia" system will be useful for successful **Affordable Housing system** implementation.
8. **Cost of development** could be reduced by collaboration with San José State University, as well as other technology innovators in the area.

From these findings, it was clear that any recommended Rent Registry and Affordable Housing solution needs to address concerns around public vs. private data. It is very possible to have tight controls for view and edit access that meet the needs of different users, and the team's design recommendations will highlight these controls. There is a common myth, across both property owners and tenant advocacy groups, that a Rent Registry will allow everyone to see everyone else's data. Some of this is a pure misunderstanding, but much of this comes from looking at how other cities have implemented Rent Registries. However, it is simply not the case that owner or tenant names needed to be accessible to other parties in the Rent Registry. In addition, these solutions must also reduce friction in Housing Department processes (i.e., complaints, notices,

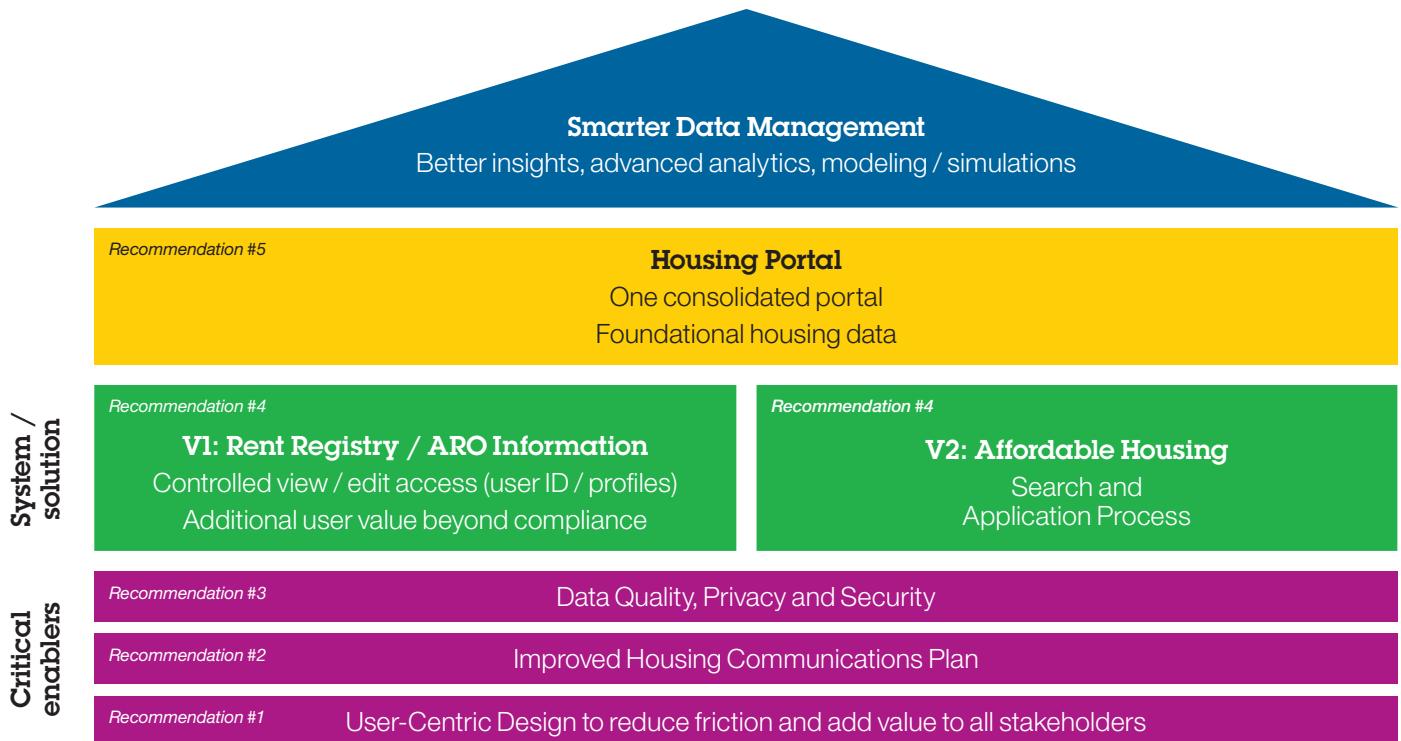
reviews) and need to provide an elegant ease-of-use while reducing the administrative burden on all user groups. Addressing these findings is critical for the recommended system to drive value for all stakeholders, reduce contention and stimulate adoption.

The IBM San José SCC team's recommendations can be summarized as critical enablers that must be addressed for any new technology system to be successful, then the fundamental design and implementation of the system itself, all leading to future smarter housing data management and insights. The three foundational critical enablers, which are further explained in this report, are the following:

1. **User-Centric Design approach** to reduce friction and add value to all stakeholders.
2. **Improved Housing Communication plan.**
3. An approach and plan to address **Data Quality, Privacy and Security.**

After addressing these three critical enablers, the City of San José is ready to embark on its journey to implement and deploy new technology solutions. The IBM San José SCC team recommends that the Rent Registry is a mere starting point on a path to implement an overall Housing Portal. Start with the necessary Rent Registry Apartment Rent Ordinance data requirements, then provide additional user value beyond compliance (i.e., streamlining housing processes for owners / tenants; an opportunity to search/view new available units, etc.), and then add an easy-to-use common search and application system for deed-restricted affordable housing. The team's recommendation will show how a Rent Registry is really a "version 1" of the portal, with the Affordable Housing capabilities coming in a future "version 2." Ultimately, this progression leads to one consolidated Housing Portal, which provides the critical foundational housing data that the City of San José lacks today. This consolidated housing data provides the opportunity for better insights and the ability to apply advanced analytics and unique modeling/simulation tools to explore housing challenges and questions. This is the future of true smarter housing data management. This report will illustrate each of these recommendation areas.

Overview of Recommendations



Recommendation 1

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The Journey

On November 7-8, 2017, two groups of stakeholders from the City of San José, landlords, housing providers, property managers, tenants and tenant advocates came together with the following aims:



To understand each other, as representatives of citizens, and stakeholders in the City of San José



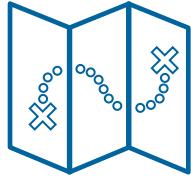
To explore the opportunities that will create a real impact within the Rental and Affordable Housing communities



To develop innovative ideas that can be taken into future roadmaps

Design Thinking Framework

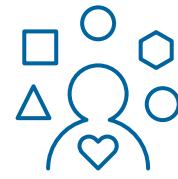
To do this, we utilized Design Thinking to help us bring the user to the forefront of our review and recommendations.



Solving complex problems requires us to work together across differences.



Human-centered outcomes require empathy for the people you serve.

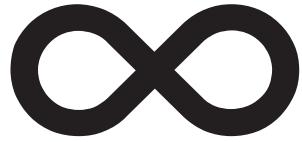
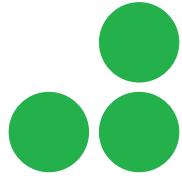


Outcomes that help people require us to understand perspectives of people whose future we are helping to shape.

Design Thinking is a framework that helps us understand people's needs and to form the intent behind an outcome.

Design Thinking Framework

The principles of Design Thinking lead with a focus on user outcomes; to see problems and solutions from a new point of view.



A focus on user outcomes

When you use Design Thinking, put your users' needs first.

Multidisciplinary teams

Collaborate across disciplines to move faster and work smarter.

Restless reinvention

Everything is a prototype. Listen, learn and course-correct.

The Problem Statements

Design Thinking looks at possible solutions to a problem, but we focus our discussions with a Problem Statement as a guide. The Workshop Problem Statements were:



Workshop 1

"How might we design a continuously evolving Rent Registry that benefits tenants, landlords and the City (without breaching privacy)?"

Workshop 2

"How might we solution a single 'search and application' process for affordable housing?"

The Personas

Personas provide us with an example of a user group, so that we can develop ways to personalize interactions and build empathy with those users.

Persona : Landlord (> 15 units)

John
"A full-time property/business owner"

Age: Baby Boomer generation
Title: Landlord
Family: Yes, local. Long time resident
Hobbies: Outdoor activities
Background / Languages?: College educated - English + some Spanish

Characteristics

- Sound business judgment
- Has a clear vision
- Leverages 3rd party Software
- Committed to providing clean, safe environment for residents

Pain Points

- Administrative burden to comply with regulations
- Need for Rent Registry to manage properties
- CDFI made more complex and will require more time to learn

Persona : Tenant

Juan
"tenant with job in service industry"

Age: From Gen X to Senior
Title: Tenant
Family: Yes, some with kids in school, others with adult children or parents
Hobbies: Not a fan of the tree, working long hours, likes to travel when not working
Background / Languages?: First generation immigrant, Spanish / Vietnamese / English

Characteristics

- Income below AMI
- Has trouble finding places to live
- May work two jobs long hours
- May be undocumented

Wants & Needs

- Safe place to live
- Housing in local community to be near work
- Want to meet new local schools
- Stable by to provide opportunity for children
- Access to public transportation
- Safe

Pain Points

- Very interested in properties that are available for "affordable housing" or cannot afford to have to leave process and go elsewhere
- Language barriers
- Don't know what to expect of come as a renter
- Don't have knowledge base of eviction/relocation protection etc.
- Not be able to afford market rates if move!

Devices used: [Icon of smartphone, laptop, tablet]

Persona : City Housing Dept (staff: program manager)

Selena
"wants to help community with affordable housing challenges."

Age: Mid-twenties to Gen X
Title: City Housing Program Manager
City: Folsom, the Bay Area
Family: Married
Hobbies: Music
Background / Languages?: College educated - English

Characteristics

- Civic minded
- Focused on Gentrification
- Needs to work well with both landlords and tenants
- Understand the relationship between systems
- Work well with staff to communicate with tenants and landlords

Pain Points

- Without a rent registry, no way to track and ensure compliance
- Need to work well with both landlords and tenants
- Understand the relationship between systems
- Work well with staff to communicate with tenants and landlords

Devices used: [Icon of smartphone, laptop, tablet]

Design Thinking
focuses on our **users**.



Example Persona – Peter (IT Employee)

This is a detailed persona document for Peter, an IT employee. It includes sections for basic information (Name: Peter, Age: 35, Title: IT Employee), characteristics (Tech-savvy, loves puzzles, enjoys working with data), wants and needs (Desires a stable job with opportunities for growth, wants to work from home occasionally), pain points (Frustrated by slow internet speeds at home, concerned about privacy and security), and devices used (Smartphone, laptop, tablet). There are also sections for background and languages, and a summary of the persona's goals and challenges.

Personas help us to better understand our users.

The updated post-workshop personas are available in Appendix 1.

Brainstorming Output

Participants were split into diverse stakeholder groups to encourage diversity of thought in the brainstorming discussions.

The teams brainstormed across the four topics listed below, then rotated through each topic to build on each other's ideas.



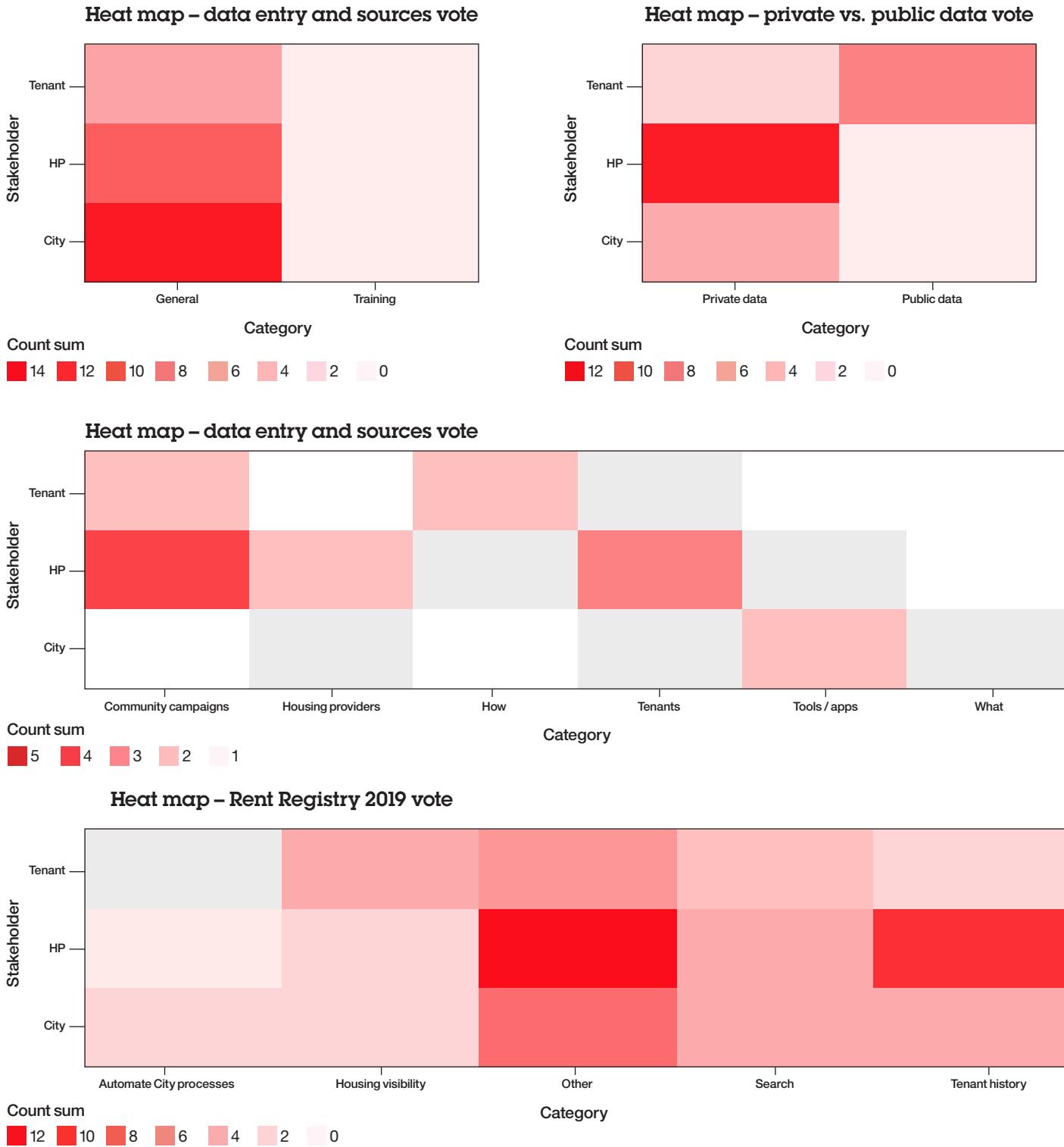
Workshop 1 Brainstorming Topics:

- Communications, Education & Adoption
- Data Entry and Sources – In & Out, including reporting
- Private & Public Data
- Rent Registry 2019 (Consider who the users are, potential phases and other uses for the registry)

Brainstorming results are available in Appendix 2.

Brainstorming Results – Voting

Detailed Voting results are available in Appendix 3.

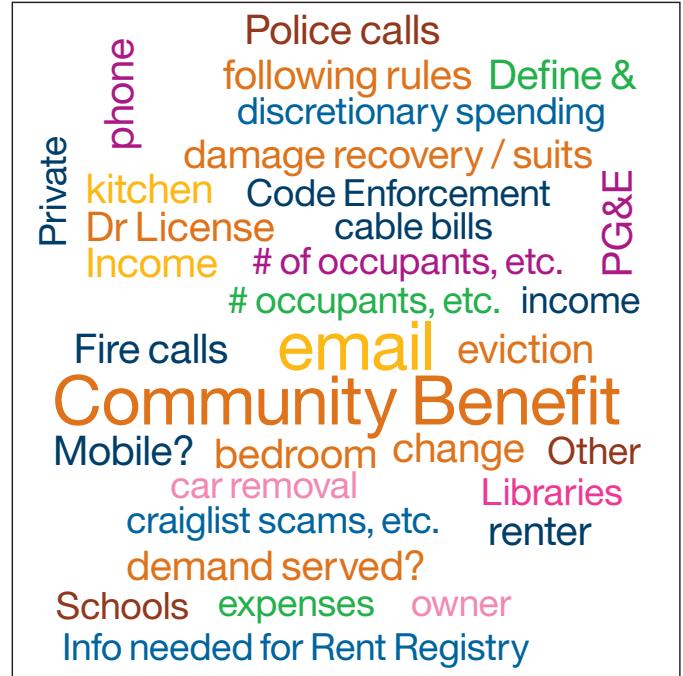


Pre- vs. Post- Design Thinking Concept Clouds

Utilizing the data, we analyzed the pre- and post-Design Thinking concept clouds using interview notes and Design Thinking output.



Pre-Design Thinking Concept Cloud



Post-Design Thinking Concept Cloud

Findings from the Design Thinking Workshops



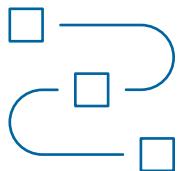
User-Centered Design



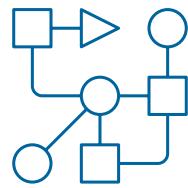
Communication



Education



Simplicity



Data Questions & Transparency



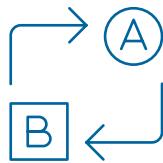
Expansion into Housing Portal

Next Steps

To move forward into a future Housing Portal, a user-centered design approach is recommended.



A user-centered design approach requires a change in mindset from the City and the Community.



A change in how you engage, educate and communicate with your stakeholders and bring them on the journey.



As part of the recommended roadmap, we have suggested a design-thinking-led approach to the Housing Portal—engaging user juries throughout the roadmap.

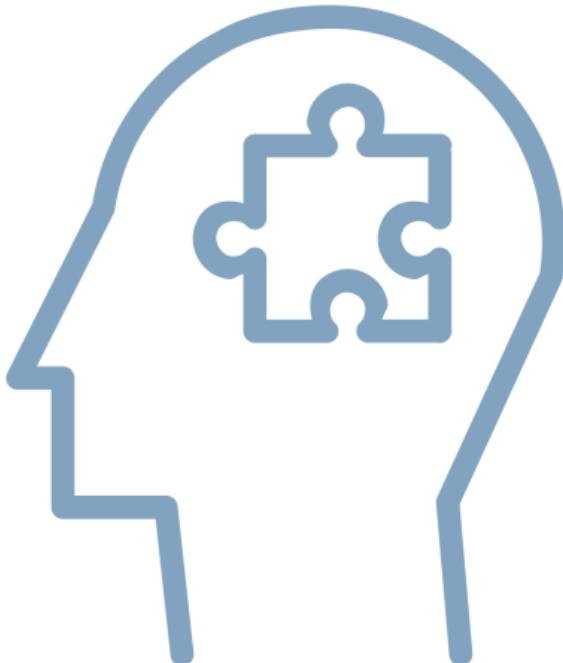
Next Steps – A Change in Mindset

Organizations are typically biased toward analytical thinking. By its very nature, this is backward looking and suppresses creativity.

Design Thinking introduces intuition and is about the exploration of new knowledge. Its goal is to create outcomes to meet desired objectives—focusing on what might be true, not what we know.

Design Thinking is not a thing or a process, rather it is an approach and mindset, which is based on the principles of empathy, creation and collaboration.

Design Thinking adds value because it uses different skills, mindsets and tools.



Next Steps – Training

Design Thinking training is available in many ways and from many companies.

Some examples are available here:

ibm.com/design/thinking

ideou.com/products/hello-design-thinking

generalassemb.ly/education/design-thinking-bootcamp/san-francisco



Next Steps – User Juries

User Juries bring value in providing feedback on the strategy, solution and user interface regularly throughout the lifecycle of the program.

Step 1 – Planning

Step 2 – Starting

Step 3 – Running

Step 4 – Wrapping Up



Next Steps – User Juries (Step 1 – Planning)

The first step is for your team to establish a solid research plan for your feedback program.

A checklist to get you started:

- Identify the research objectives + goals of the program. What needs to be tested and why?
- Determine your participant user groups. Which personas, segments or requirements do people need to match? This will become a screener to direct you to the right participants.
- Identify the specific industries (if any) participants should represent.
- Set a goal for the number of clients you are looking to recruit and how many you need from each user group.
- Draft research questions.
- Choose your methods.
- Identify a rough timeframe of when the program will start and end.
- Decide time expectations for client participants.
- Assign clear roles within the project team. Discuss and answer questions like, “Who will secure clients for the program? Confirm agreements are in place? Run the kick-off meetings? Run the actual design sessions? Conduct the analysis? Report findings?” ... and so on.
- Decide where and how you will track program activities before you start. A central storage location such as a Box folder that all teammates can access and use is a great place to start.

The team recommends a total of five to eight users from multiple stakeholders.

This number will vary, however, and should be tailored to the needs of your project and team.

Next Steps – User Juries (Step 2 – Starting)

Now that your plan is complete, the team is aligned on goals and roles have been determined, it's time to start your program.

A checklist to get you started:

- Recruit user jury members.
- Set expectations with potential user jury members. Common activities may include Design Thinking workshops, sneak peeks into latest offerings, participatory design, surveys, usability testing, contextual inquiries and interviews. The time commitment can vary from one to two hours per quarter up to five hours per week. A good average is 60 to 90 minutes every couple of weeks.
- Have users sign an agreement. An agreement should be secured prior to any kick-off meetings or feedback sessions with users. It's okay to brief them on the program and benefits, but users are required to sign an agreement before confidential information is shared.
- All agreements should be tracked so other teams can see who is actively participating in your program.
- Hold a kick-off meeting with each user to ensure everyone is on the same page about the goals, activities and timeframe.

Pro-tip—How to engage without engaging constantly:

Keep a pipeline of user jury members so you can collect a healthy mix of feedback for your offering.

Next Steps – User Juries (Step 3 – Running)

Now that your program has started, here is a checklist of things to keep in mind:

- Set (and stick to) meeting agendas.
- Track your program's activities + communications with users.
- Remember that central storage location? Time to use it.
- User jury members may agree to a particular time commitment or cadence of meetings, but be flexible if schedules change.
- Encourage users to interact with the product or service during research activities. This helps ground it in reality.
- Hold playbacks for user jury members so they can see how the product has evolved based on their feedback.
This will also help make them feel like part of the team.
- Share findings + recommendations with your team regularly via playbacks.

Pro-tip—How to engage without scaring your user jury:

- Personal information (PI) should only be collected if relevant and necessary for your business purpose(s) and should only be made available to other project team members on a need-to-know basis.
- Communicate frequently with user jury members so they know the program is active.

Next Steps – User Juries (Step 4 – Wrapping Up)

Wrapping up your program:

- Schedule a wrap-up call to thank the user(s).
- Send a follow-up survey to get remaining feedback on the product and the program.
- Gauge their interest in participating in a program in the future.
- Clean up documentation.
- Conduct a final research playback of findings and recommendations with the team.

Stakeholder Mapping

Stakeholders are those people, groups or individuals who either have the power to affect, or are affected by the endeavor you're engaged with.

They range from the head of your organization to the person on the street who may experience the effects of what you set out to do.

Stakeholders are affected and can affect your endeavors to varying degrees, and the degrees should be considered when analyzing and mapping out the stakeholder landscape.

interaction-design.org/literature/article/map-the-stakeholders

Stakeholder Mapping Exercise

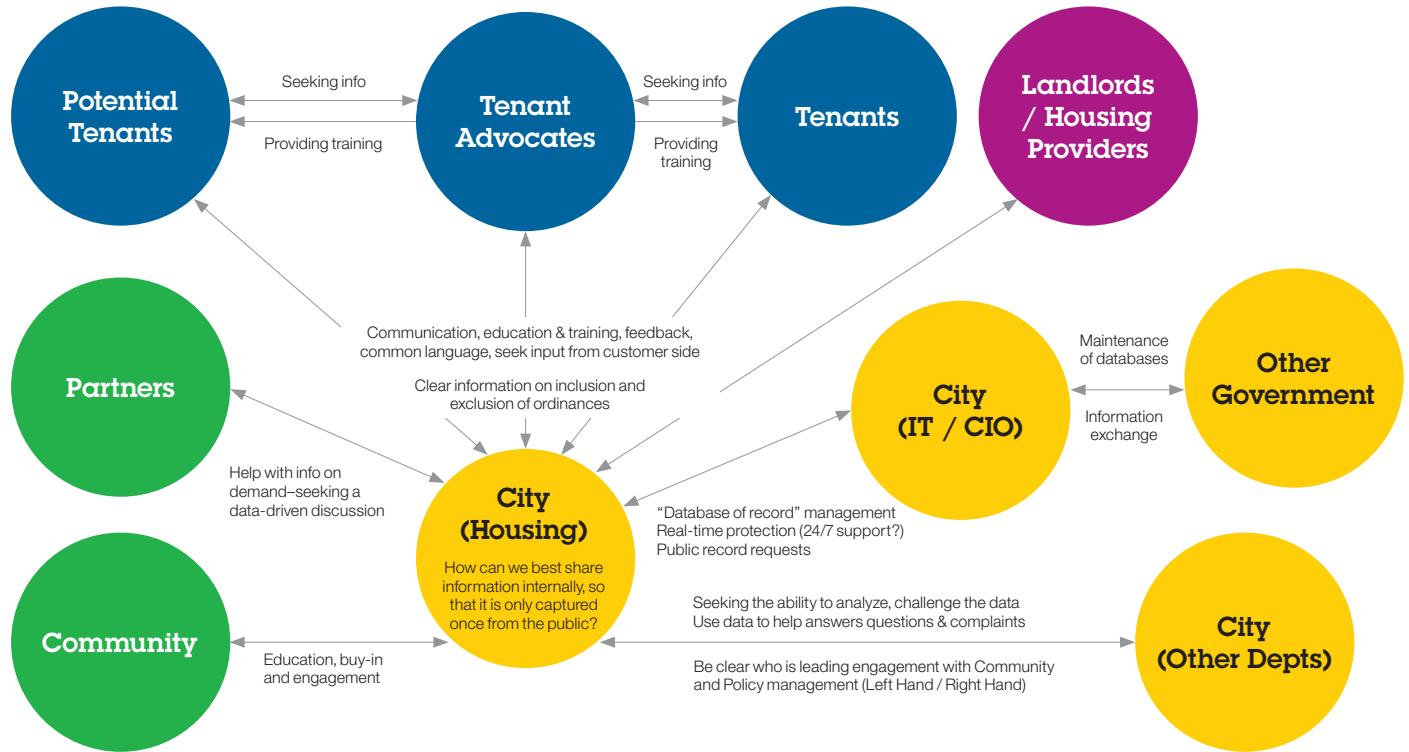
We conducted a stakeholder mapping exercise with the City of San José with the purpose of brainstorming the following problem statement:

"How do we discover and document shared ideas about our stakeholders, their expectations and their relationships?"

We conducted this workshop toward the end of the three (3) week project period, as a result of the two Design Thinking workshops having identified the lack of an understanding of the wider group of stakeholders involved in the project.

The results of this exercise are included in the following pages:

Stakeholder Mapping Exercise



What Next?

Now that you have mapped the stakeholders, you can create communication or stakeholder management plans for them.

There are many ways to approach this, but you can use tools, such as Mindtools, to help with the next steps.

For example—Mindtools on evaluating stakeholder influence and interest:

- Mindtools provides a list of questions or considerations for your stakeholders that can help with developing the stakeholder management plan. For example:
 - What financial or emotional interest do they have in the outcome of your work?
 - What motivates them most of all?
 - What information do they want from you?
 - What is the best way of communicating your message to them?

This map also provides you with a good idea of which people will be most important to empathize with in the coming phases, where you will be exploring the human needs and experiences in your challenge space.

mindtools.com/pages/article/newPPM_07.htm

diytoolkit.org/tools/people-connections-map

Appendix 1 – Personas (Workshop 1)

Personas – Rent Registry

Persona: Landlord (>15 units)

**John**

"Full-time property business owner"

Age

Baby boomer generation

Role

Landlord

Family

Yes, local; long-time resident

Hobbies

Outdoor activities

Background / Languages?

- College educated
- English + some Spanish

Devices Used**Characteristics**

- Sound business judgement
- Analytical
- Leverages third party software
- Has full-time staff
- Committed to providing clean, safe and affordable housing

Wants and Needs

- Sustainable business with fair returns
- Ability to pass-on capital improvement expenses and Ratio Utility Billing System (RUBS)
- Catch up to market rates over time
- Tenant history / information
- Improve the quality of communication/experience for both tenants and landlords
- Automation/easy pass-through processing and automatic fair return processing
- Easy to understand contracts with renters and compliance to ordinances
- Wants City staff to be knowledgeable, fair and to deliver results to complaints or petitions

Pain Points

- Administrative burden to comply with housing regulations
- Need for Rent Registry to integrate with existing systems
- Transparency on property and rents
- Ability to more easily remove disruptive tenants
- No visibility in resident history
- City is not making decisions based on facts (data)

Persona: Landlord (<15 units)



Sarah

"Small business owner with strong dependency on income"

Age

Baby boomer generation

Role

Landlord

Family

Married with children

Hobbies

Outdoor activities

Background / Languages?

- College educated
- Lives in San José
- Second generation immigrant
- English or limited English

Devices Used



Characteristics

- Units are our pride and residents our joy
- No dedicated staff; manual processes
- Serves as administrator to maintenance staff in order to drive a minimal profit
- Limited resources to pay for help (legal or otherwise)
- Provides support/safety for fragile tenants
- Hands-on, friendly approach with their tenants
- Part of the fabric of the community as a small business owner
- Rental property is their livelihood
- Greatly impacted by swings in rents / expenses / tenants

Wants and Needs

- Maintain profitability with tight margins
- Ability to pass-on capital improvement expenses and RUBs
- Catch up to market rates over time
- Tenant history / information
- Close and friendly relationships with tenants
- Ability to protect tenants from disruptive tenants
- Full control of whom tenants can add as roommates to help protect all tenants

Pain Points

- Transparency on property and rent
- Concern over retribution from upset tenants
- Hard to sell property
- Low tenant turnover
- Unable to cover property tax and utility increases with rent control
- Too much bureaucracy/paperwork with petitions and more to come with Rent Registry
- Language and/or technology barriers (communication challenges) in understanding their rights as landlords
- City is not looking for solution that benefits me
- Concern over what information tenants can see (Rent Registry)
- Limited control over number of tenants in a unit (TPO)
- Feels City is encouraging tenants to turn against her (Rent Registry)

Persona: Tenant



Juan

"Tenant with job in service industry"

Age

25-50

Role

Tenant

Family

Yes, many with kids in school

Hobbies

Sports, music, family

Background / Languages?

- First generation immigrant
- Spanish / Vietnamese / English

Devices Used



Characteristics

- Income around 80% of AMI
- Fixed to modest increases in income
- 550 to 650 credit rating
- Smartphones, but no email
- No bank accounts

Wants and Needs

- Clean and safe housing
- Housing in local community
- Housing near local schools
- Stability to provide opportunity for children
- Room for their family

Pain Points

- Limited housing supply
- Uninformed about or unable to qualify for "Affordable Housing"
- Cannot navigate qualification process and long waitlists

Persona: Tenant**Ashley**

"Professional careers in business and high tech"

Age

Millennial to Gen X

Role

Tenant

Family

Single, typically with roommate and/or boyfriend/girlfriend

Hobbies

Sports, gaming, work

Background / Languages?

- Some college to degree
- English / Spanish / Chinese / Indian

Devices used**Characteristics**

- Income at AMI or greater
- 650 to 750 credit rating
- Driving newer and hybrid cars

Wants and Needs

- Clean and safe housing
- Updated modern units
- Close to employment

Pain Points

- Limited housing supply
- Sharing unit with second person to save on rent

Persona: Tenant**Betsy**

"Retired or working close by"

Age

Disabled or senior

Role

Tenant

Family

Lives alone, family lives in Bay Area, but not close by

Hobbies

Watching TV and reading

Background / Languages?

- First generation immigrant
- Spanish / Vietnamese / or born in San José

Devices used

Simple phone to desktop computer

Characteristics

- Income below AMI
- Fixed to modest increases
- Or retired with a limited pension

Wants and Needs

- Limited rent increases
- Housing in local community to be near job
- Access to stores within walking distance
- Safety

Pain Points

- Very limited housing choices
- Either unable to qualify for "Affordable Housing" or cannot navigate qualification process and long waitlists
- Language and or physical barriers
- Little or no knowledge of rights as a renter
- May have isolation issues

Persona: City Housing Dept (Rent Registry Program Manager)



Selena

"Wants to help community with affordable housing challenges"

Age

Millennial to Gen X

Role

City staff

Family

Married

Hobbies

Music

Background / Languages?

- College educated
- English

Devices Used



Characteristics

- Civic minded
- Enjoys the Bay Area

Wants and Needs

- Need regulations to be easy to manage, maintain and comply
- Genuinely wants to help both tenant and landlords through their challenges
- Rental and housing data in order to better analyze future policy / regulations
- Requires high accuracy of data
- Wide adoption of the Rent Registry

Pain Points

- Without a Rent Registry, no visibility to monitor and ensure compliance
- Need better means to communicate with both landlords and tenants
- Lack of data consistency between systems
- Need a better way to communicate with tenants and landlords

Persona: City Housing Dept (Rent Registry Program Manager)



Vikram

"I see the vision and potential that technology can drive"

Age

Gen X

Role

City staff

Family

Yes, school-age kids

Hobbies

Active with youth activities

Background / Languages?

- IT technical and program management background

Devices Used



Characteristics

- Lead the design, development and implementation of IT solutions for the Housing Department

Wants and Needs

- Strict adherence to data privacy rules
- Insistency on cross-department data governance model
- Continuous lifecycle management of Rent Registry solution

Pain Points

- Lack of clarity in the value and needs of different users of the Rent Registry
- Lack of staffing to effectively implement a solution
- Need for ongoing community involvement and input
- Cater for accessibility requirements
- Accuracy of data from each system (AMANDA)

Appendix 2 – Brainstorming Output

Communications & Education

Who - Housing Providers / Landlords (8 Votes)

Housing providers 1st make sure they understand their tenants	Landlord Training / workshop	Also - educate providers on their rights! Educate tenants of their responsibilities in addition!
Landlords must be educated about housing law - pass a basic test	All Housing Providers should be certified - pass a test of basic housing law	RLEI is positioned to distribute information to all parties - Council, Police, Code Enforcement, Tenants, Landlords

What? (3 Votes)

Tenant should log-on and enter their income and copy of tax return - only way to know if it is a fair solution	Registry site can be used as an education location to answer public questions about the ARO & Tenant & LL rights & responsibilities	See ways for county-wide communications , for all cities - Not just SJ	Other city websites (council members) don't have info for their districts - only done by mail	Referral List for tenants rights - including Medical and Dental
Tenant Rights & Housing Provider rights	User-group (tenant / housing provider) to submit online "real-world" issues that need to be educated for everyone	Education directed for Seniors	1st education without regulation - then only if necessary regulate	- Rent (ARO) rules - Info needed for Rent Registry
Education on policy + rights + needs by all	Training offered through California Appointment Association for owner and Property Managers - Available now!	Clearly state goal & limits of ARO, TPO and Rent Registry	The ARO and TPO (& Ellis Act) are actively impossible to understand	

Who - Tenants (3 Votes)

Proactive Tenant Education	Educate tenant how to budget - pay day loans - cable bills - discretionary spending - savings	Education is 99% oriented towards tenant benefits & 1% towards housing provider benefits	Be clear from where info is coming from	Education should be targeted for large complexes - all tenants + owners together
Tenant Certification program	Tenants - look at language, education level	Phase 1 Owner & tenant phone + email needed for sharing important info & education	Neighbours are actually the most numerous & even primary stakeholders	Educate tenant on responsibility - taking care - responsiveness - following rules

Communications & Education

How? - Community Campaigns (13 Votes)

Stakeholders have information on Monthly news / websites / letters for housing education opportunities	Community roundtable with different representatives	Responsible Landlord Engagement Initiatives (RLEI) is a focus for solving landlord, tenant and neighbourhood issues	Post educational tenant / landlord laws at: - Libraries - Schools - Community School - Partner with religious institutions
Neighbourhoods who have addressed crime to help other neighbours with high crime	Neighbourhood leaders hold housing education workshops with city employees as guest speakers	Common Interest groups	Define & raise what you hope for your communities
Communicate changes to neighbours	Stakeholders - community tables with Neighbourhood Leaders	Housing Alert concept (aka Amber Alert)	Workshops
Flyers / Brochures			

How? - Tools / Apps (4 Votes)

I prefer to communicate with my residents 1) In person 2) By phone 3) By written notice - hand delivered I don't think I would want to communicate with the resident through the rental registry	Systematic communication (Target all neighbourhood)	One Stop Shop
Good search tool on the city website (be able to) look for specific topics	Fillable PDF Forms	Use of social media
Develop 'App' that all stakeholders use	(utilise the) 311 Phone Helpline	
Develop "App"	Website redesign - by Constituent group	

How? - Easy / Simple / Few Words / Visual / Languages (9 Votes)

Easy / simple forms of communication so that common person understands	Make info simple to understand	Info needed in multiple languages (all phases)	Fewer Words	English Only (Talk to ACLU first)	Multi-lingual information for all - Housing Providers + Tenants + Staffing for the city
Information should be provided in other languages (Spanish, Vietnamese, Chinese)	Translation for landlords and property managers (many owners are immigrants)	Use visuals / flow charts / pictures / diagrams	Simple - user friendly	Two way communications on issues other than the policy	Do not assume all providers are educated and sophisticated
City to provide materials for outreach	Rental Assistant agencies - point person	Do not fall for stereotypes - many tenants are sophisticated and work the system at the expense of other people	Share data findings regularly. Reports to all parties		Tenant should logon to City website & enter names, occupant, email, phone Then they know how to access city website for education

Wants

The current baseline of City Communication to Housing Providers is biased, close to zero	I don't want prospective applicants to communicate with me through the rental registry I prefer the city to contact me via telephone or email
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Communications & Education

Voting Results

How?:

- Simple – user friendly (4 City votes)
- Easy / simple forms of communication so that common person understands (1 Tenant vote)
- Make info simple to understand (1 City vote)
- Fewer words (1 Tenant vote)
- Information should be provided in other languages, e.g., Spanish, Vietnamese, Chinese (1 City vote)
- Info needed in multiple languages (1 City vote)

Community Campaigns:

- Common Interest groups (1 Tenant vote, 1 City vote)
- Community roundtable with different representatives (1 City vote)
- Stakeholders have information on monthly news / websites / letters for housing education opportunities (1 Tenant vote)
- Workshops (1 Tenant vote, 3 City votes)
- Responsible Landlord Engagement Initiatives (RLEI) is a focus for solving landlord, tenant and neighborhood issues (1 Tenant vote, 4 HP votes)

What?:

- Training offered through California
- Appointment Association for owner and property managers – available now! (1 Tenant vote)
- Clearly state goal & limits of ARO, TPO and Rent Registry (1 HP vote)
- Referral List for tenants rights – including medical and dental (1 Tenant vote)

Housing Providers:

- All Housing Providers should be certified
- Pass a test of basic housing law (2 Tenant votes, 2 HP votes)
- RLEI is positioned to distribute information to all parties
- Council, Police, Code Enforcement, Tenants, Landlords (3 HP votes)

Tenants:

- Tenant Certification program (1 HP vote)
- Be clear from where info is coming from (1 HP vote)
- Education tenant on responsibility, taking care, responsiveness, following rules (1 HP vote)

Tools / Apps:

- Develop “App” that all stakeholders use (1 City vote)
- Develop “App” (1 City vote)
- Website redesign – by constituent group (1 City vote)
- One-Stop Shop (1 Tenant vote)

Communications & Education

Training (3 Votes)				
City & Neighborhood leaders hold training for Owners & Renters	City offer training to housing providers (Multi-lingual)	RR Input workshop / help / training		
General (27 Votes)				
Tenants should share responsibility to enter their information: - # of occupants - email - change etc	Tenants should logon and enter their data: names # occupants - email - phone AND they can keep it up-to-date	Tenant household register and keep their info up-to-date	Tenants enter their own info - not housing provider	
Option for renter or owner to make changes to information with city approval	County wide entry for all housing property	Should be able to drop off data and have city enter it (i.e. Staff Assisted)	Mail in data + have staff enter it (i.e. Staff Assisted)	Smart with small amount of data
Protection from data theft	Mobile?	Salesforce integration	Nextdoor.com	Yardi Integration
Onsite.com	Yardi Portal ↓ Excel ↑ Form	(Outbound) Open data / downloadable reports	Excel Input	Sources: - PG&E - Trash Collection - Code Enforcement - Police calls - Fire calls
Integrate with AMANDA (city program not public)	MADD (City Program, Not Public)	GIS (Ezri)	Access info by APN # or address	No CAPCHA simple logins - Hierarchical Rights for PM Companies
Fillable platforms	"Resident credit report" - demands served? - late payments?	To prevent marketing industry to utilize the data	County records (in a timely manner)	View rent data by District / Census Tract wrt time
Change data capture only	Rent info by area & size of property (general range)	Make data entry easy for landlords to input	Mom & Pop = NO automation Manual / Simple	Labor intensive for Mom + Pop
Elderly Mom & Pop can't input	Understand your audience: 71% = 4 - 9 units (i.e. no automation)	Easy fields to enter on website		

Voting Results

General:

- Salesforce integration (1 Tenant vote, 2 City votes)
- County records - in a timely manner (1 City vote)
- MADD = City program, not public (2 City votes)
- Integrate with AMANDA – City program not public (1 Tenant vote, 2 City votes)
- Excel (3 City votes)
- Yardi integration (1 Tenant vote, 2 HP votes, 2 City votes)
- No CAPCHA simple logins – Hierarchical Rights for PM Companies (1 HP vote)
- Understand your audience: 71% = 4-9 units; i.e., no automation (1HP vote)
- Tenants enter their own info – not housing provider (4 HP votes)
- To prevent marketing industry to utilize the data (1 Tenant vote)
- Protection of data-theft (1 HP vote)
- Rent info by area & size of property - general range (1 City vote)
- Elderly Mom & Pop can't input (1 Tenant vote)

Training:

- RR input workshop / help / training (1 City vote)
- City & neighborhood leaders hold training for owners & renters (1HP vote)
- City offer training to housing providers – Multi-lingual (1 Tenant vote)

Private & Public Info

Private Info (18 votes)

There should be NO difference between what city & citizen has access to	Assets are private, not publicly traded companies	Data should only reside with Auditor? (or not HD) & queried upon request	Housing provider opt-out	Housing provider to see all private data of a prospective tenant
Possibility for landlord / manager to view info for a prospective tenant	SJ pay to protect Housing Providers who are stalked by tenants	Landlord privacy is essential	Tenant opt-out of any / all info	Safety of vacant homes: - squatters - craigslist scams, etc
Must allow "opt-out" options for tenants and owners	SJ issue heavy fines to tenants who stalk Housing Providers. Criminal penalties. SJ Set bar low so easy to provide	Tenant name is private "City"	Providers should be notified when city or Housing Dept looks up their particular entries	City can use tenant info to track criminals, political opposers. City can abuse the data
Can this data be subpoenaed?	Previous rent if tied to a tenant name	Income is private for non-publicly traded businesses	Submit all 'relevant' info of the tenant to the city but only allow 'limited' info to be public 'limited' info to be defined	Tenants provide income + W2
Why does city want tenants name?	Security? re: Equifax Breach	Family members & co-applicants	City should provide release form for tenants to ok the release of their personal data	Track by unit address, not by renter name. Renter name is private info.

Voting Breakdown



Public Data (8 Votes):

- Penalty to SJ if data lost or stolen (1 HP vote)
- Business License (1 Tenant vote, 1 City vote)
- Name of legal owner and public contact info (2 Tenant votes)
- Owners provide a release form & information to Rent Registry (1 Tenant vote)
- Protect Data (1 Tenant vote)
- Public data should only be available with a log-in by tenant or housing provider (1 Tenant vote)

Private Data (18 Votes):

- Data should only reside with auditor? (or not HD) & queried upon request (1 HP vote)
- Providers should be notified when City or Housing Dept looks up their particular entries (1 HP vote)
- Tenant name is private "City" (1 City vote)
- Why does city want tenant's name? (1 City vote)
- Previous rent if tied to a tenant name (1 Tenant vote)
- Tenant opt-out of any / all info (1 HP vote, 1 City vote)
- Housing provider to see all private data of a prospective tenant (4 HP votes, 1 City vote)
- Track by unit address, not by renter name. Renter name is private info. (1 Tenant vote)
- Security? re: Equifax Breach (1 HP vote)
- Income is private for non-publicly traded business (2 HP votes)
- SJ issue heavy fines to tenants who stalk housing providers. Criminal penalties. SJ set bar low so easy to provide (1 HP vote)

Public Info (8 Votes)

Photos of previous apt: - bedroom - kitchen	Everything - All notices, petitions, complaints, rents, names, numbers, occupants, etc	Protect data	No data should be available for the general public	Tenant input - income - expenses	Any numerical output must have 100% of the calculations provided with that value	Penalty to SJ if data lost or stolen
Business Licence	Name of legal owner and public contact info	Unit-to-Unit Disparity in rent = Animosity between tenants	Photo on file of tenants drivers licence	Equifax breach	Owners provide a release form & information to rent registry	Don't need registry to get this data. Hire a consultant.
Any info regarding property & tenants the city has should be available to the landlord	City and housing department know who is viewing the data	Anyone who has access to data needs to submit drivers licence	3 viewing platforms: - owner - property manager - renter	Public data should only be available with a log-in by tenant or housing provider	Protect data from being used by Marketers	

Rent Registry 2019

Tenant History / Visibility (16 Votes)

Tenant can opt in to allow housing provider to see history	Tenant History / Profile Information	Tenant info needs to be open to other neighbours / tenants so that reporting can be done effectively	Tenant rental history	Housing Providers can see all notices, petitions, oppositions, just-cause notices, tenant complaints for all prospective tenants
Any communications to the Tenant	Tenant just-cause eviction database	All formal and informal notices to tenant	Tenants can file complaints against their neighbours	
Neighbours of disruptive properties need access to tenant info to report to Code Enforcement, Police & Fire	Property Owners need to be protected from Thugs retribution	Tenant occupancy numbers must be available - Tenants suffer when a neighbour overloads a complex	Need to identify "tenant-info", so that the process can be followed: - car removal - eviction - damage recovery/suits - next-of-kin (reparation)	

Housing Visibility (8 Votes)

Community Benefit - track landlord - compliance with reporting of evictions	Community Benefit - Track outcome of tenant / landlord arbitration	Public Access to code enforcement complaints per property	Crime Rate - # & type of police calls to a certain address - tied to a landlord
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Automate City Processes (3 Votes)

State the plan: What are the goals?	Streamlined fair return submission and review process	Tenant Complaint database with landlord response
Automated process for fair value petitions and capex pass-through	City use online database for complaint filing & landlord notification from tenant	

Search & Information (12 Votes)

NO vacancies posted!	Voluntary option to post vacancies	Learn who competitors are vs. new properties	Search for all properties	Interactive Maps	Post vacancies on the rent registry
Tenants should enter their own data. We will not know who is living there anymore	Gather data by geography / neighbourhoods	Schools + Neighbourhood stats	Rental Agreement info on rental unit (Sq. Ft, Parking, Storage)	All units must show proof of rental contract between tenants & landlords - dated	

Other (24 Votes)

Consolidated Application	Online credit report	Future way for tenants to find city housing	Tenant Income + W2	Tenant and Occupant's - Dr Licence - Income - Expense	Report to city rent increase per unit	County Wide Sharing not just for SJ
SCC Housing Authority (Sec 8) Model - Santa Clara County	Simplicity for non-ARO buildings More reporting with bc offered if liability issues are not present	Simplify the registry to be user friendly	ALL Rental property in SJ (non-ARO, SFH, Condo, Duplex)	Having all Housing information for every Property in SJ or County wide, not just ARO	Verification that info inserted in the registry is accurate	Tracking value of in-place rents vs. market rents vs. turnover rates
API for 3rd party Apps	Access via Mobile apps	Online tools to develop charts / graphs about San Jose rental market	No data for general public	Limit data to make it simple	Use to evaluate need for ARO	Use to evaluate need for rent registry
Clarify frequency of updates	Registry needs to be a universal tool, not a single blade	Rent registry 2019 should be eliminated by 2017	Warning - Squatters will be looking for units available	Renters to better understand "who" Housing Provider is before move-in or application process	Providers need city to eliminate barriers in maintaining the physical buildings as well as the safety and law & order of the neighbourhood	

Rent Registry 2019

Voting Breakdown



Tenant History / Visibility (16 Votes):

- Tenant just-cause eviction database (2 Tenant votes, 2 HP votes, 3 City votes)
- Tenant History / Profile Information (2 HP votes, 1 City vote)
- All formal and informal notices to tenant (1 HP vote)
- Need to identify “tenant-info”, so that the process can be followed: – car removal, eviction, damage recovery/suits, next-of-kin / reparation (3 HP votes)
- Housing providers can see all notices, petitions, oppositions, just-cause notices, tenant complaints for all prospective tenants (1 HP vote)
- Tenants can file complaints against their neighbors (1 HP vote)

Housing Visibility (8 Votes):

- Community Benefit – track landlord. Compliance with reporting of evictions (3 Tenant votes, 1 City vote)
- Community Benefit – track outcome of tenant / landlord arbitration (2 HP votes, 1 City vote)
- Public access to code enforcement complaints per property (1 Tenant vote)

Search / Info (12 Votes):

- Search for all properties (1 City vote)
- Post vacancies on the Rent Registry (1 City vote) – Voluntary option to post vacancies (2 City votes / 1 HP vote)
- NO Vacancies Posted (1 HP vote)
- Gather data by geography / neighborhoods (1 City vote / 1 HP vote)
- All units must show proof of rental contract between tenants & landlords – dated (3 Tenant votes / 1 HP vote)

Automate City Processes (3 Votes):

- Automated process for fair value petitions and capex pass-through (1 HP vote, 1 City vote)
- Tenant complaint data base with landlord response (1 City vote)

Other – 24 Votes:

- Rent Registry 2019 should be eliminated by 2017 (7 HP votes)
- Use to evaluate need for ARO (1 City vote)
- Report to City rent increase per unit (1 Tenant vote / 1 City vote)
- Verification that info inserted in the registry is accurate (2 City votes)
- County-wide sharing not just for SJ (1 Tenant vote)
- Simplicity for non-ARO buildings. More reporting will be offered if liability issues are not present (1 HP vote)
- ALL rental property in SJ, incl. non-ARO, SFH, Condo, Duplex (1 HP vote)
- Limit data to make it simple (1 Tenant vote)
- Access via mobile apps (1 Tenant vote, 1 HP vote, 2 City votes)
- Tenant Income + W2 (1 HP vote)
- Consolidated Application (1 Tenant vote, 1 City vote)
- Providers need city to eliminate barriers in maintaining the physical buildings as well as the safety and law & order of the neighborhood (1 HP vote)

Parking Lot – Comments Not Captured in Logical Area

Parking Lot - comments not captured in logical area		
Please be aware that the city TPO made it illegal for landlords / housing providers to do standard application review for all adults	Please be aware that the city TPO made it legal for residents to breach their contract 5 times before possible eviction	Stakeholders needs to include Neighbors (within building & next to building)
Concerned that just cause ordinance does not have a 6 month probationary period - before earning J.C. rights		
The city must operate within budget. The city has underestimated FTE by 2x. The city has not reduced scope by 2x!!		

Additional Data Fields

Landlord has required Insurance for property (owner/County)	Property in Natural Disaster -ex. Flood, Fire (County)	Property owned by overseas investor (County)	Property Overview (timely information): contact info, # of properties owned	Property - on-site Mgr. or Owner Occupied
Yardi	Government Funded	# of Parking Spaces	Tenant Opt Out	

Appendix 3 – Voting Results

Communications & Education

HP = Housing Provider

Voting by Category

Stakeholder	Category	Count
City	Community Campaigns	4
HP	Community Campaigns	4
Tenant	Community Campaigns	2
Tenant	Community Campaigns	2
City	Community Campaigns	1
HP	Housing Providers	3
HP	Housing Providers	2
Tenant	Housing Providers	1
Tenant	Housing Providers	1
City	How	5
Tenant	How	2
City	How	1
HP	Tenants	3
City	Tools / Apps	2
City	Tools / Apps	1
Tenant	Tools / Apps	1
Tenant	What	1
HP	What	1
Tenant	What	1

Voting by Topic

Stakeholder	Topic	Count
HP	All Housing Providers should be certified – pass a test of basic housing law	2
Tenant	All Housing Providers should be certified – pass a test of basic housing law	1
Tenant	All Housing Providers should be certified – pass a test of basic housing law	1
HP	Be clear about where info is coming from	1
HP	Clearly state goal and limits of ARO/TPO and Rent Registry	1
Tenant	Common Interest Groups	1
City	Common Interest Groups	1
City	Community roundtable with different representatives	1
City	Develop App	1
City	Develop App that all stakeholders use	1
Tenant	Develop AppEasy / simple forms of communication so that common person understands	1
HP	Education tenant on responsibility/taking care/responsiveness/following rules	1
Tenant	Fewer words	1
City	Information should be provided in other languages, e.g., Spanish/Vietnamesse/Chinese	1
City	Make info simple to understand	1
Tenant	One-Stop Shop	1
Tenant	Referral list for tenants rights - including medical and dental	1
HP	Responsible Landlord Engagement Initiatives (RLEI) is a focus for solving landlord / tenant and neighborhood issues	4
Tenant	Responsible Landlord Engagement Initiatives (RLEI) is a focus for solving landlord / tenant and neighborhood issues	1
HP	RLEI is positioned to distribute information to all parties Council/Police/Code Enforcement/Tenants/Landlords	2
HP	RLEI is positioned to distribute information to all parties Council/Police/Code Enforcement/Tenants/Landlords	1
City	Simple – user friendly	4
Tenant	Stakeholders have information on monthly news / websites / letters for housing education opportunities	1
HP	Tenant Certification Program	1
Tenant	Training offered through California Appointment Association for owner and property managers – Available now!	1
City	Website redesign – by constituent group	1
City	Workshops	3
Tenant	Workshops	1

Data Sources In & Out

HP = Housing Provider

Voting by Category

Stakeholder	Category	Count
City	Private Data	13
HP	Private Data	9
Tenant	Private Data	5
City	Private Data	1
HP	Private Data	1
Tenant	Private Data	1

Voting by Topic

Stakeholder	Topic	Count
HP	City and neighborhood leaders hold training for Owners and Renters	1
Tenant	City offer training to housing providers – multilingual	1
City	County records – in a timely manner	1
Tenant	Elderly Mom and Pop can't input	1
City	Excel	3
City	Integrate with AMANDA – City program, not public	2
Tenant	Integrate with AMANDA – City program, not public	1
City	MADD = City program	2
HP	No CAPSHA simple logins – Hierarchical Rights for PM Companies	1
HP	Protection of data-theft	1
City	Rent info by area and size of property – general range	1
City	RR input workshop / help / training	1
City	Salesforce integration	2
Tenant	Salesforce integration	1
HP	Tenants enter their own info – not housing provider	4
Tenant	To prevent marketing industry to utilize the data	1
HP	Understand your audience: 71% = 4-9 units, i.e., no automation	1
HP	Yardi integration	2
City	Yardi integration	2
Tenant	Yardi integration	1

Private & Public Info

HP = Housing Provider

Voting by Category

Stakeholder	Category	Count
HP	Community Campaigns	11
City	Community Campaigns	4
Tenant	Community Campaigns	2
HP	Community Campaigns	6
City	Community Campaigns	1
Tenant	Housing Providers	1

Voting by Topic

Stakeholder	Topic	Count
Tenant	Business license	1
City	Business license	1
HP	Data should only reside with auditor? (or not HD) and queried upon request	1
HP	Housing provider to see all private data of prospective tenant	4
City	Housing provider to see all private data of prospective tenant	1
HP	Income is private for non-publicly traded business	2
Tenant	Name of legal owner and public contact info	2
Tenant	Owners provide a release form and information to Rent Registry	1
HP	Penalty to SJ if data lost or stolen	1
Tenant	Previous rent if tied to a tenant name	1
Tenant	Protect data	1
HP	Providers should be notified when city or housing department looks up their particular entries	1
Tenant	Public data should only be available with a log-in by tenant or housing provider	1
HP	Security? re: Equifax Breach 1	1
HP	SJ issue heavy fines to tenants who stalk Housing Providers. Criminal penalties. SJ set bar low so easy to provide	1
City	Tenant name ID private City	1
HP	Tenant opt-out of any / all info	1
City	Tenant opt-out of any / all info	1
Tenant	Track by unit address and not by name	1
City	Why does City want tenant's name?	1

Rent Registry 2019

HP = Housing Provider

Voting by Category

Stakeholder	Category	Count
City	Automate City Processes	2
HP	Automate City Processes	1
Tenant	Housing Visibility	4
City	Housing Visibility	2
HP	Housing Visibility	2
HP	Other	12
City	Other	7
Tenant	Other	5
City	Search	4
HP	Search	4
Tenant	Search	3
HP	Tenant History	10
City	Tenant History	4
Tenant	Tenant History	2

Voting by Topic

Stakeholder	Topic	Count
City	Access via mobile apps	2
HP	Access via mobile apps	1
Tenant	Access via mobile apps	1
HP	All formal and informal notices to tenant	1
HP	All rental property in SJ including non-ARO / SFH / Condo / Duplex	1
Tenant	All units must show proof of rental contract between tenants and landlords – dated	3
HP	All units must show proof of rental contract between tenants and landlords – dated	1
HP	Automated process for fair value petitions and capex pass-through	1
City	Automated process for fair value petitions and capex pass-through	1
Tenant	Community Benefit – track landlord. Compliance with reporting of evictions	3
HP	Community Benefit – track outcome of tenant / landlord arbitration	2
City	Community Benefit – track outcome of tenant / landlord arbitration	1
Tenant	Consolidated application	1
City	Consolidated application	1
Tenant	County-wide sharing not just for SJ	1
HP	Gather data by geography / neighborhoods	1
City	Gather data by geography / neighborhoods	1
HP	Housing providers can see all notices / petitions / oppositions / just-cause notices/tenant complaints for all prospective tenants	1
City	Housing visibility	1
Tenant	Limit data to make it simple	1
HP	Need to identify tenant info so that the process can be followed: - car removal/eviction/damage recovery/suits/next-of-kin	3
HP	NO Vacancies Posted	1
City	Post vacancies on the Rent Registry (1 City vote) – Voluntary option to post vacancies	2
HP	Post vacancies on the Rent Registry (1 City vote) – Voluntary option to post vacancies	1
HP	Providers need city to eliminate barriers in maintaining the physical buildings as well as the safety and law and order of the neighborhood	1
Tenant	Public access to code enforcement complaints per property	1
Tenant	Report to city rent increase per unit	1
City	Report to city rent increase per unit	1
City	Search for all properties	1
HP	Simplicity for non-ARO buildings. More reporting with bc offered if liability issues are not present	1
City	Tenant complaint database with landlord response	1
HP	Tenant History / profile information	1
HP	Tenant Income + W2	1
City	Tenant just-cause eviction database	4
HP	Tenant just-cause eviction database	3
Tenant	Tenant just-cause eviction database	2
HP	Tenants can file complaints against their neighbors	1
City	Use to evaluate need for ARO	1
City	Verification that info inserted in the registry is accurate	2

Appendix 4 – Affordable Housing

Persona: Affordable Housing Property Manager

**Marita**

"Everything is
property-specific"

Age

Early 40s

Role

Property manager

Family

Single mom with two children

Hobbies

Spending time with her children

Background / Languages?

- High-school educated
- Has completed online business courses
- English + some Spanish

Devices Used**Characteristics**

- Lives off-site, because living on-site leads to isolation for her and her children (tenants treat them differently)
- Leverages third party software
- Has part-time support staff
- Committed to providing clean, safe and community-focused housing

Wants and Needs

- Improve the quality of communication/experience between herself and her tenants
- Automated/easy yearly income review with tenants
- Better information about waitlists to be shared between development managers and/or City
- Needs help managing the waitlists and waitlist updates because it is time-consuming
- Some tenants need higher level of servicing than others

Pain Points

- There is a lack of understanding about affordable and low-income housing
- Administrative burden to comply with regulations
- There is a lack of marketing and communications from the developer and City of San José Housing Department
- Tenants try to bribe and convince for family preferences
- Constantly facilitating issues between tenants
- Not all properties have a social worker, so the property manager takes on that burden as well

Persona: Low Income Unit Tenant

**Juanita**

"Searching for housing is hard in this City"

Age

Mid-30s

Role

Low income unit tenant

Family

Single, family lives close-by
in Santa Clara

Hobbies

Walking and reading

Background / Languages?

- Locally college educated
- Works as a nurse (still paying student loans)
- English + Vietnamese

Devices Used**Characteristics**

- Generally looking for low-income housing in the 30% to 40% AMI range
- Often don't have easy access to, or understand technology to apply to the multiple developments
- Income below AMI
- Fixed to modest increases in income
- May work two jobs/long hours
- May be undocumented

Wants and Needs

- Need easier ways to work with the developments on proof of stable source of income
- Want a property manager that speaks their language
- Want family close by
- Limited rent increases
- Housing in local community to be near job
- Housing near local schools
- Access to public transit/freeway
- Safety

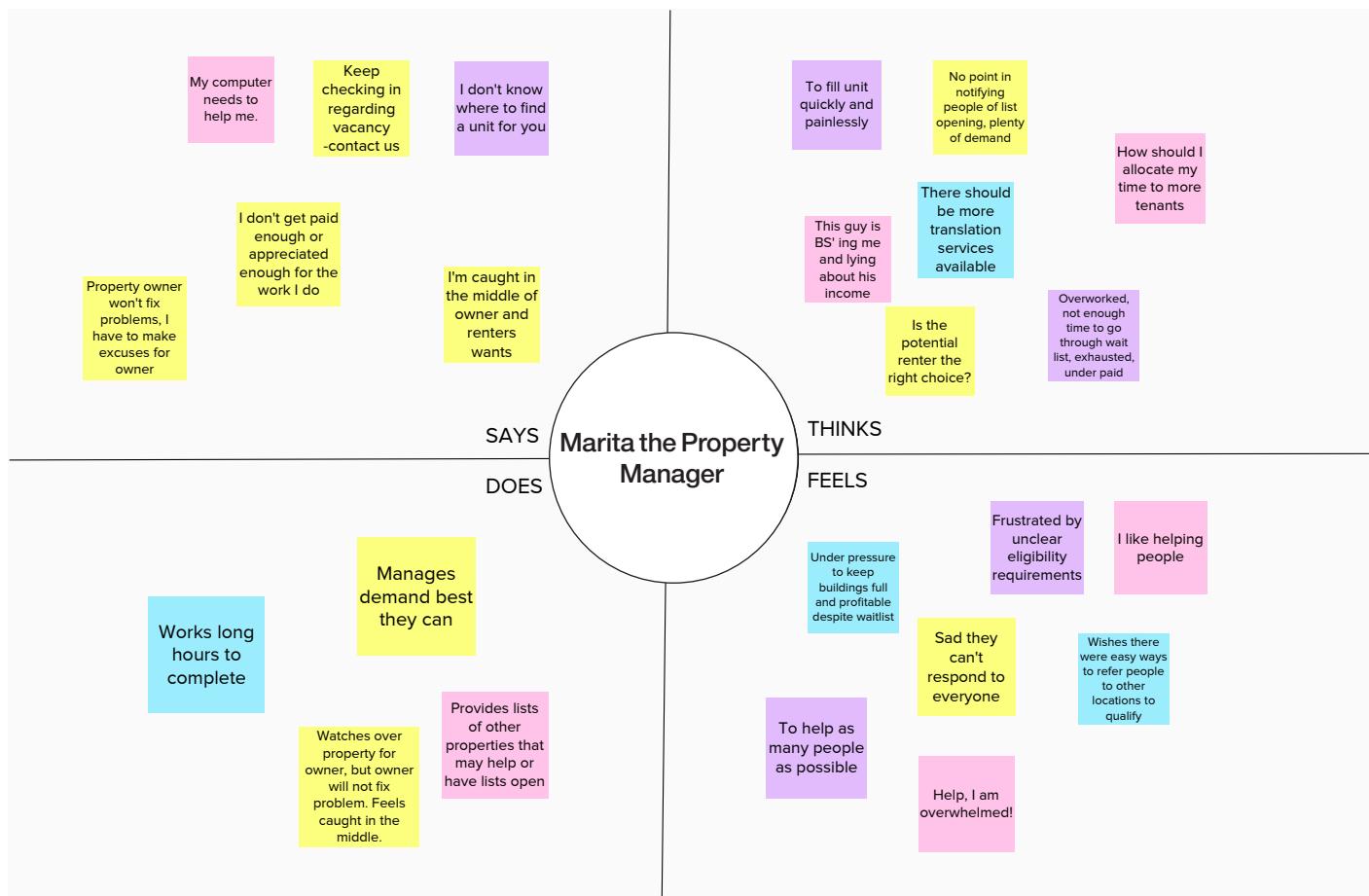
Pain Points

- There is a lack of understanding about affordable and low-income housing
 - how to apply, where are the properties and what is property-specific (e.g., Section 8, Tax Credits, etc.)
- There is a lack of marketing and communications from the developer and City of San José Housing Department

Empathy Map – Juanita



Empathy Map – Marita



"As-Is Scenario"

STAGES	Research	Apply	Wait	Qualify / Eligibility Check
JUANITA DOING	<ul style="list-style-type: none"> Go to Property by Property Seek help from non-profits / community groups Call 211 for resources / help Look at City List 	<ul style="list-style-type: none"> Community Groups / Language Help Submit application to be waitlist 	<ul style="list-style-type: none"> Keep applying to other waitlists Appeal if disagree with waitlist (Property specific) Responsibility to update property manager of contact details 	<ul style="list-style-type: none"> Provide required document Application fee Provides holding deposit (Property Specific) Application is only valid for 120 days Pay deposit \$ Gets back holding deposit if does not take the unit
SARAH DOING	<ul style="list-style-type: none"> Decide when to open / close the waitlist Finds out about other developments by word of mouth 'Here is the list of properties we manage' Maybe promote other properties run by another developer 	<ul style="list-style-type: none"> Property Specific Applications Enter applications into property specific system No verification - mostly Don't take money 	<ul style="list-style-type: none"> Continue to be bombarded with questions Not everyone charges a holding deposit Contact for update requests - but not enough time Random waitlist check-ins Can remove from waitlist 	<ul style="list-style-type: none"> If multiple, qualify offer goes to 1st person to respond Interview shortlisted candidates who provide documentation Take deposit only for accepted applicants Provide apartment walkthrough Process application to qualified - credit history, background, etc
FEELING / THINKING	<ul style="list-style-type: none"> I don't know where to go Should I look elsewhere? Fear of becoming homeless It's so hard to keep up to date with the developments How do the tenants find out without my help? How do I find a place? No way to get a Section 8 voucher Where is the consolidated list? 	<ul style="list-style-type: none"> Takes too long to apply Takes too long to process the applications As a property manager I 'qualify' for Affordable Housing We don't really care who is on the list More housing is needed in the area 	<ul style="list-style-type: none"> Takes too long I'll never find a place No way to tell where I am on the waitlist I don't have time to deal with everything 	
PAIN POINTS / OPPORTUNITIES	<ul style="list-style-type: none"> No common list except city spreadsheet No guidebook on application process 	No standardized application process	Anywhere between 200 and 700 on the waitlist at any one time	

Brainstorming Output – Affordable Housing Big Ideas

Community Outreach & Education

Post info about '21' near computers at public libraries and at all EANs

Post info about application process at all libraries - which also have computers for public

Schools need to educate kids about housing!

Community resource magazine delivered to all Santa Clara County residences

All senior centers should have info posted about housing app process

One stop shop explaining affordable, BMR, low income, rent control, etc

All community liaisons at public schools should have info about housing applications - with forms & flyers

Housing Dept Suggestions

- Fund affordable housing advocate position(s)
- County Help!
- Provide info on advocacy for tenants
- Housing dept need to step it up & get more staff
- Short-term write 'How to apply for affordable housing guide'
- Housing dept should have a community outreach director to set up education opportunities with events or neighbourhood leaders
- Housing dept needs more support from Stakeholders

App / Portals

Online Mobile Application - apply online & receive monthly automated updates

Affordable Housing

- * waitlist full
- * 24 people on waitlist
- * 2 people on waitlist

Social Media - leverage existing platform to make waitlist process transparent

It's kinda like DAHLIA - no lotteries

DAHLIA Plus ++!! 😊

Ability to upload physical info to database - For Property Owner to upload paper applications for system to read.

Multi-lingual

Application form to be in multiple languages

Wait List App - Track status easily

Accessible online (portal) and / or by a phone app

Campaigns and Community

- CSJ Mayoral outreach campaign
 - press conference + commercials
 - social media strategy on launch of app
- Instructional Video
 - How to apply to AH - cartoon / fun video in multiple languages
 - Explaining AH landscape, options & opportunities
- Housing Help Booths
 - portable, used @ all city events
- Rent Info Kiosk - Put in public places
- Guide to Housing 101 (Robot)
 - Hola! Hello!

Community Storyboard



Juanita needs help finding a low-income housing apartment.

When Juanita is visiting the local library with her children, she sees a City of San José Housing Information kiosk.

Amy is the volunteer at the kiosk and helps Juanita understand how to use the City of San José's housing site (in Spanish), to find and apply for low-income housing.

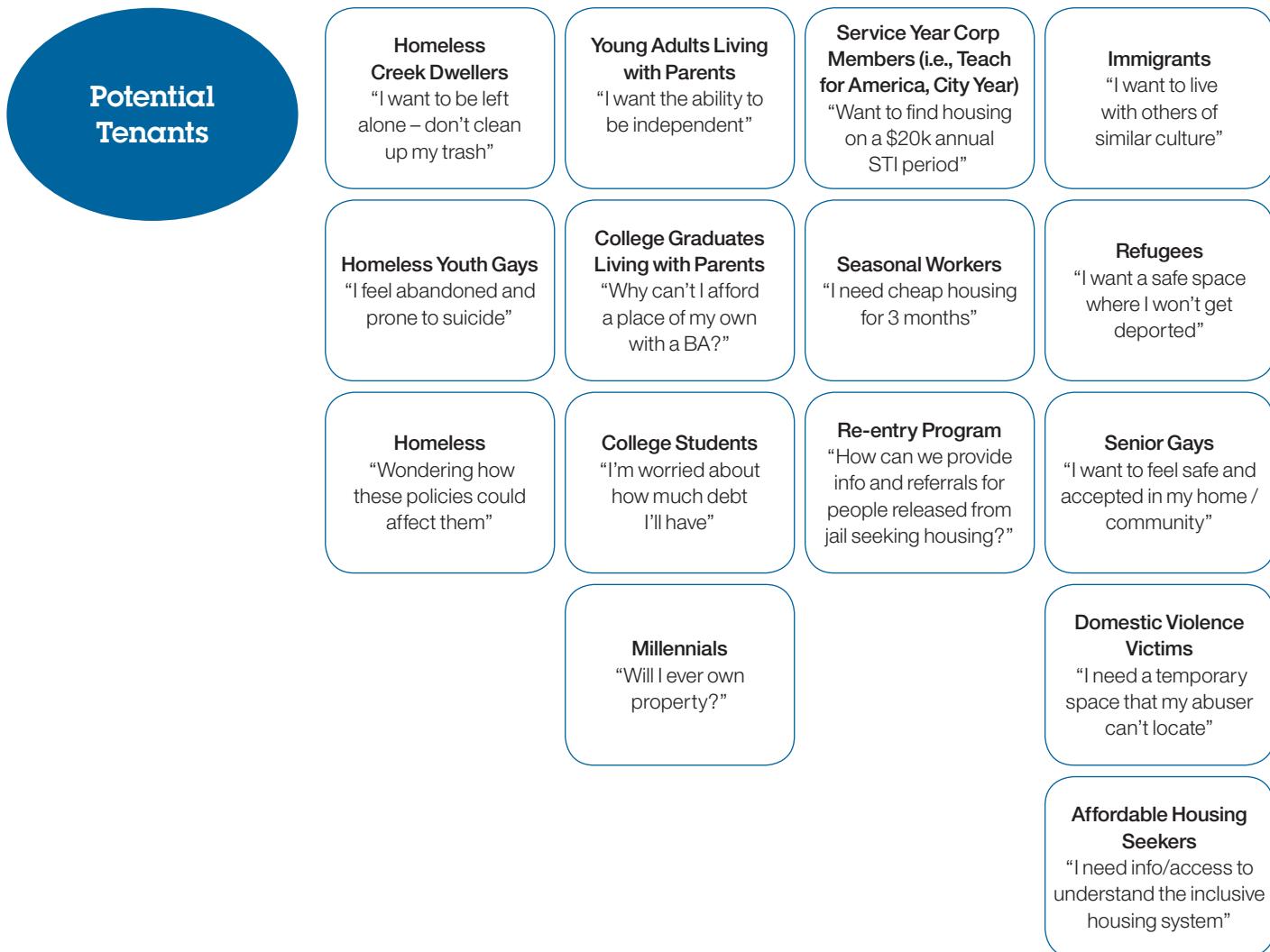


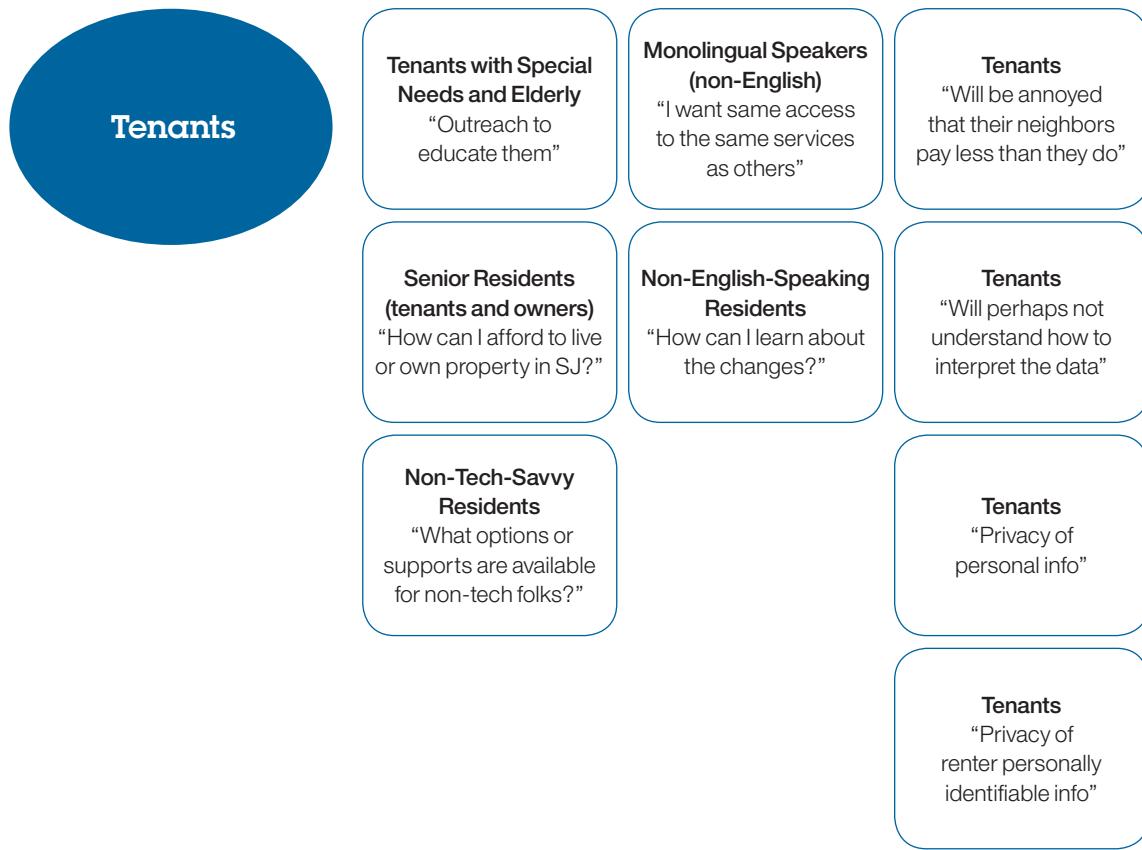
Amy also offers Juanita a time tomorrow to come back to get help with the application, and explains the concept of a waitlist.

The next day Juanita returns to the library to meet with Amy again and they find two apartments for Juanita to apply for, using just one application form.

While she waits to hear about the apartment waitlist, Juanita uses Facebook to track waitlist progress. She will be alerted via Facebook messenger when she has been accepted to the next round.

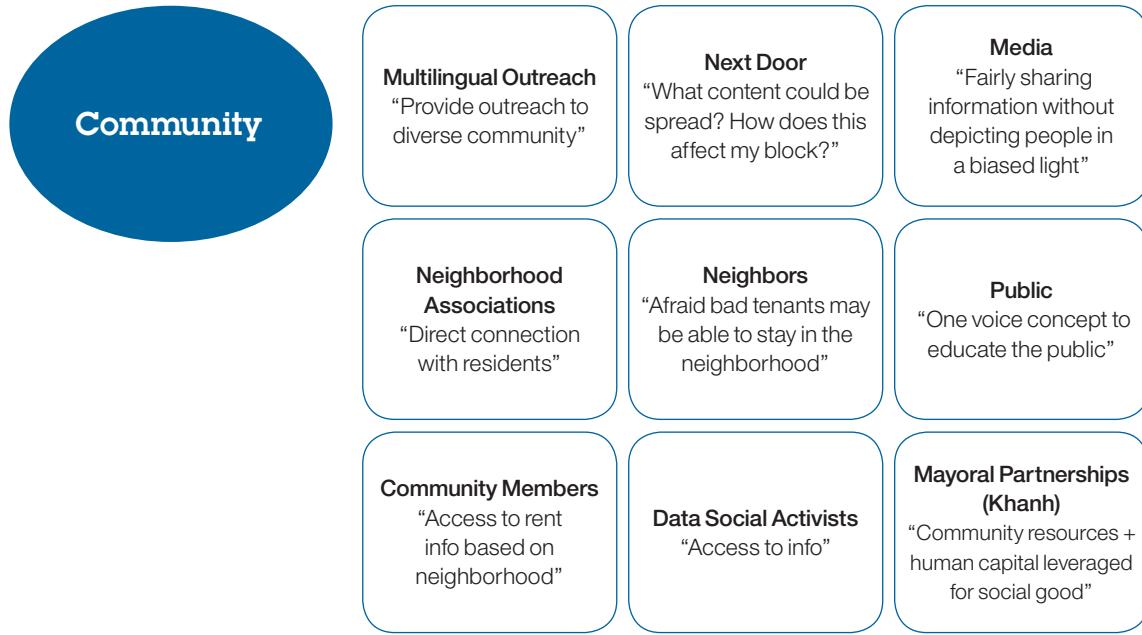
Appendix 5 – Detailed Stakeholders Identified

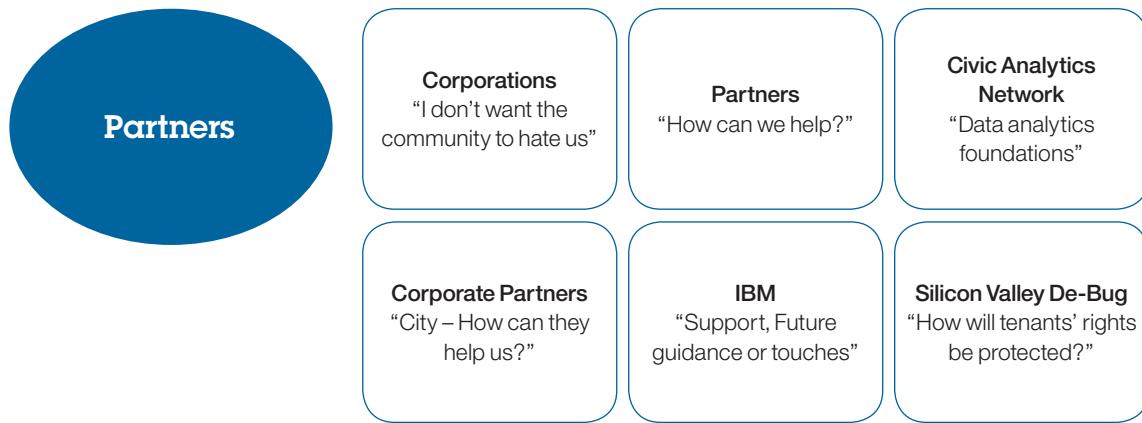


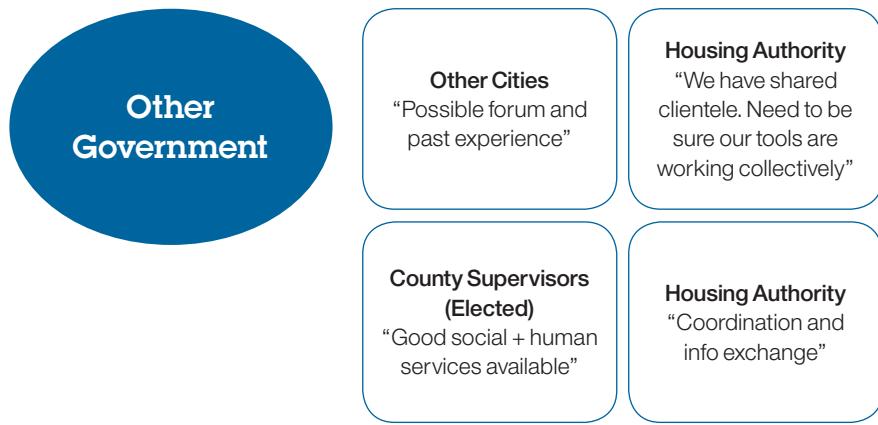


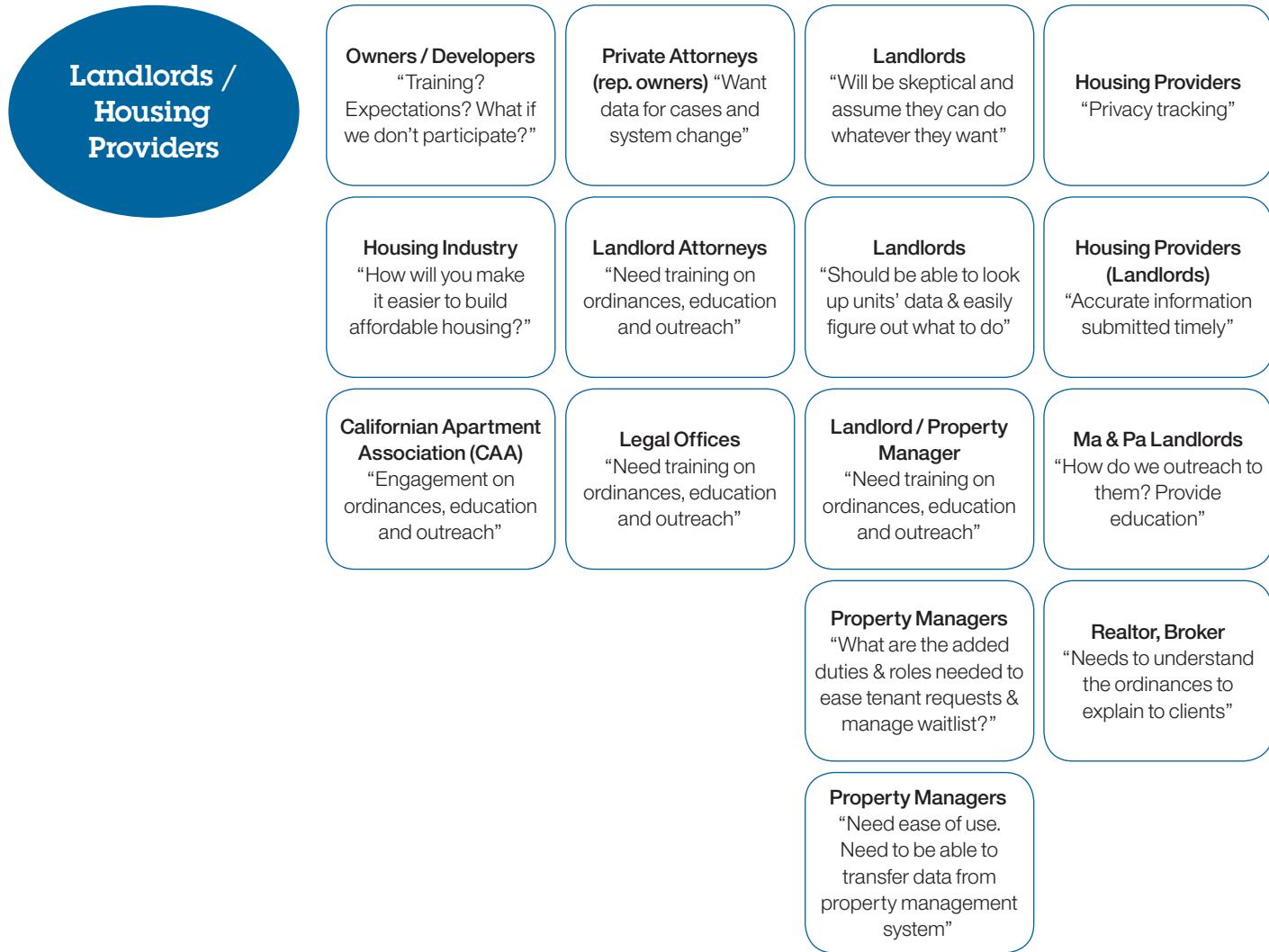
Tenants Advocates

Law Foundation “How will tenants, rights and landlord responsibilities be communicated?”	Law Foundation “Our clients need to know their privacy rights. And how to use the tool”	Eviction Attorneys “Making \$ off the new ordinance changes”	Renters Advocates “Outreach”	Project Sentinel “Want information and education”	Government Alliance for Racial Equity Office of Immigrant Affairs “How could collaboration address CBO concerns?”
SURJ at Sacred Heart “Housing & racial justice”	Tenant Advocacy Groups “I want to protect and empower our residents”	Silicon Valley Independent Living Center (SVILC) “Disabled residents rights”	Catholic Charities “Want information and education”	Law Foundation “Want information and education”	Franklin McKinley Children's Initiative (NGO) “Want information and education”
Pastors of Ethnic Churches “Many of their congregates live in low-income neighborhood”	Advocates for Anti-Poverty “They will want access to data to make policy arguments”	SCC Behavioral Health “Housing for people in recovery”	Legal Aid Groups “Possibly more calls but happy about more protections”	Soma's Mayfair (NGO) “Want information and education”	Renters Advocates “Identify themes in data”

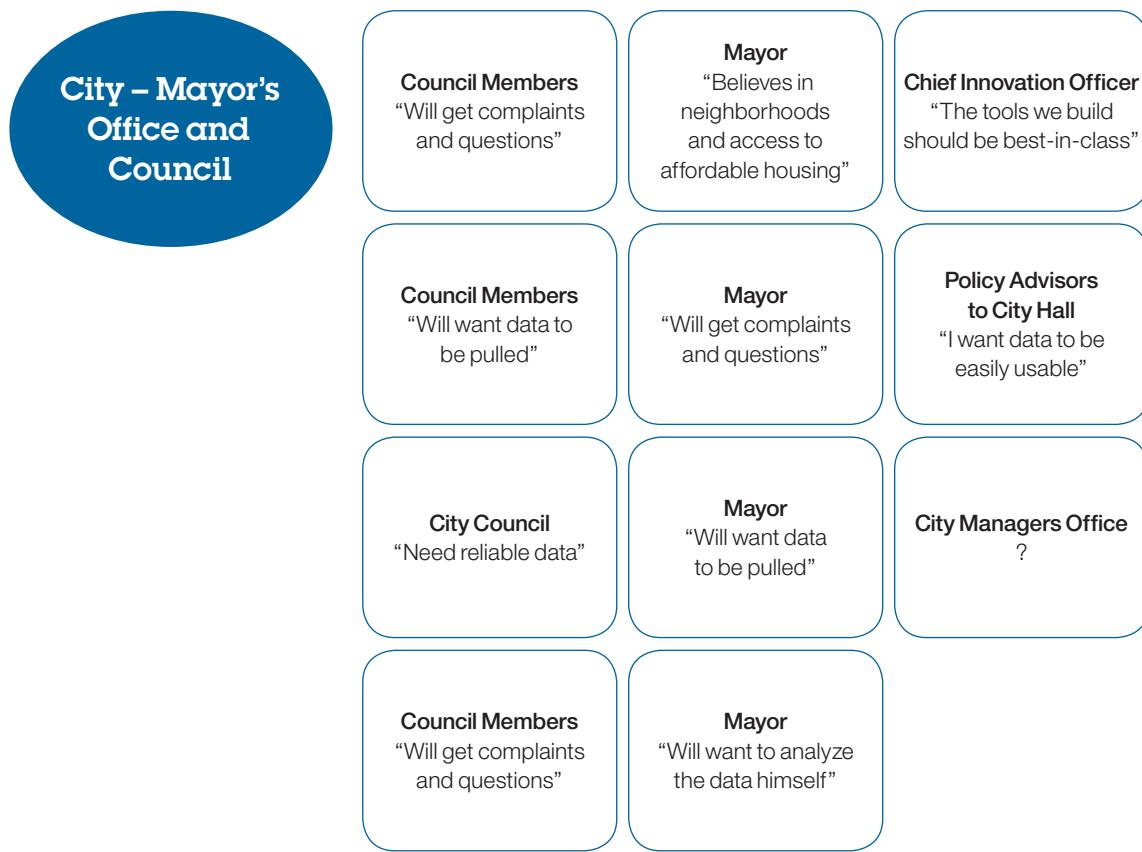


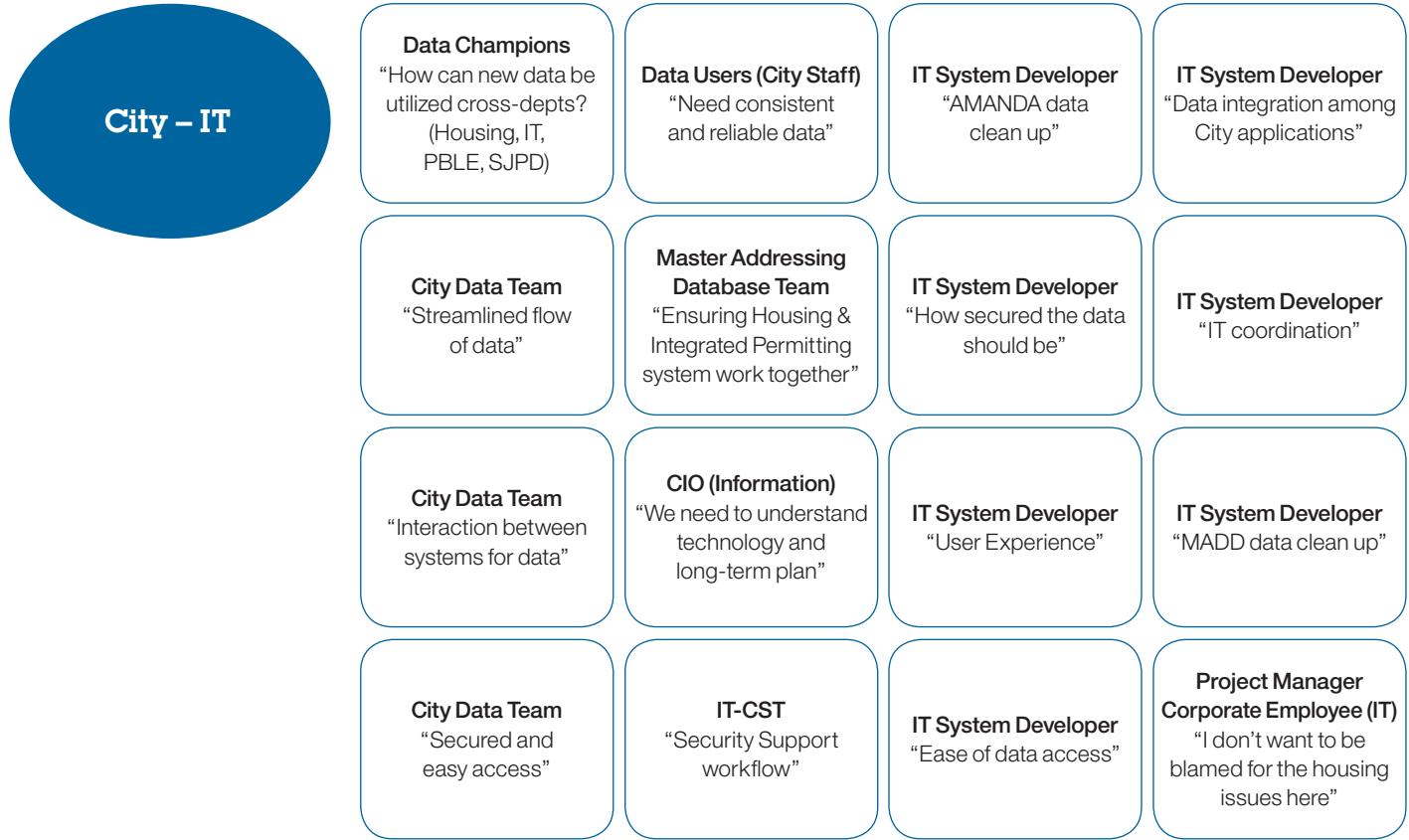


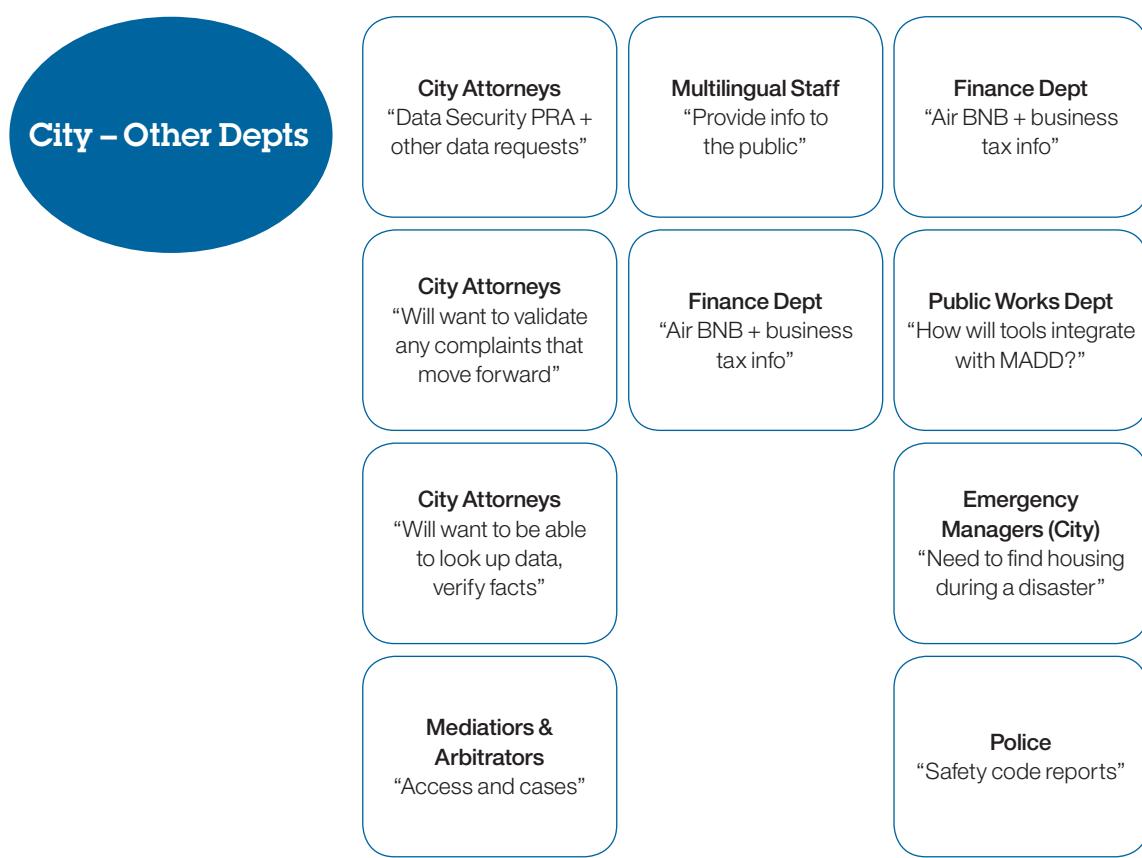












Recommendation 2

Communications Plan for City
Flowchart Toolkit

67
75

Communications Plan for the City of San José Housing Department

Context

There are multiple stakeholders that the City of San José Housing Department has to interact and work with. Each stakeholder has a different and often conflicting interest from the others. While the goal should not be to appease all sides, it is the responsibility of the Housing Department to know these conflicting interests and to listen sincerely to them.

Multiple Stakeholders: Drives Many Different Needs for Housing Communication



The Design Thinking workshops highlighted a fundamental problem—the perceived lack of information flowing from the Housing Department to its stakeholders and vice-versa. This perceived breakdown in communication has led to mistrust, resistance and lack of cooperation from the stakeholders, which in turn, has prevented the Housing Department from implementing much needed reforms to improve housing conditions for the residents of San José. While the Housing Department appears to already have all the information at hand, most stakeholders complained that the information either cannot be accessed easily or cannot be understood.

Recommendation: Strategic Communications Plan

Scope and Benefits

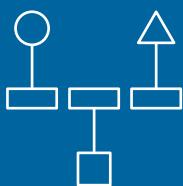
Our first recommendation is for the Housing Department to create a strategic communications plan in partnership with communities to

create stakeholder engagement. Having a robust communications plan will eventually result in benefits to the Housing Department, including:

1. An increase in all stakeholders' awareness of the Housing Department's roles and responsibilities,
2. Transparency around complex legal and administrative regulations and processes,
3. Information sharing between the Housing Department and all stakeholders to develop a better understanding of needs and wants,
4. Trust by all stakeholders in the Housing Department as a partner for improving housing conditions, and
5. Stakeholder support for and adoption of Housing Department initiatives.

Critical Goals

The critical goal of this strategic communications plan should be to encourage stakeholder engagement to create a continuous feedback mechanism to ensure that communications are:



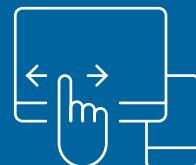
Simple and Concise

- Easily understood
- Graphics/Flowcharts
- Different languages



Consistent and Updated

- Keep information consistent with other City departments
- Do regular updating for new policies

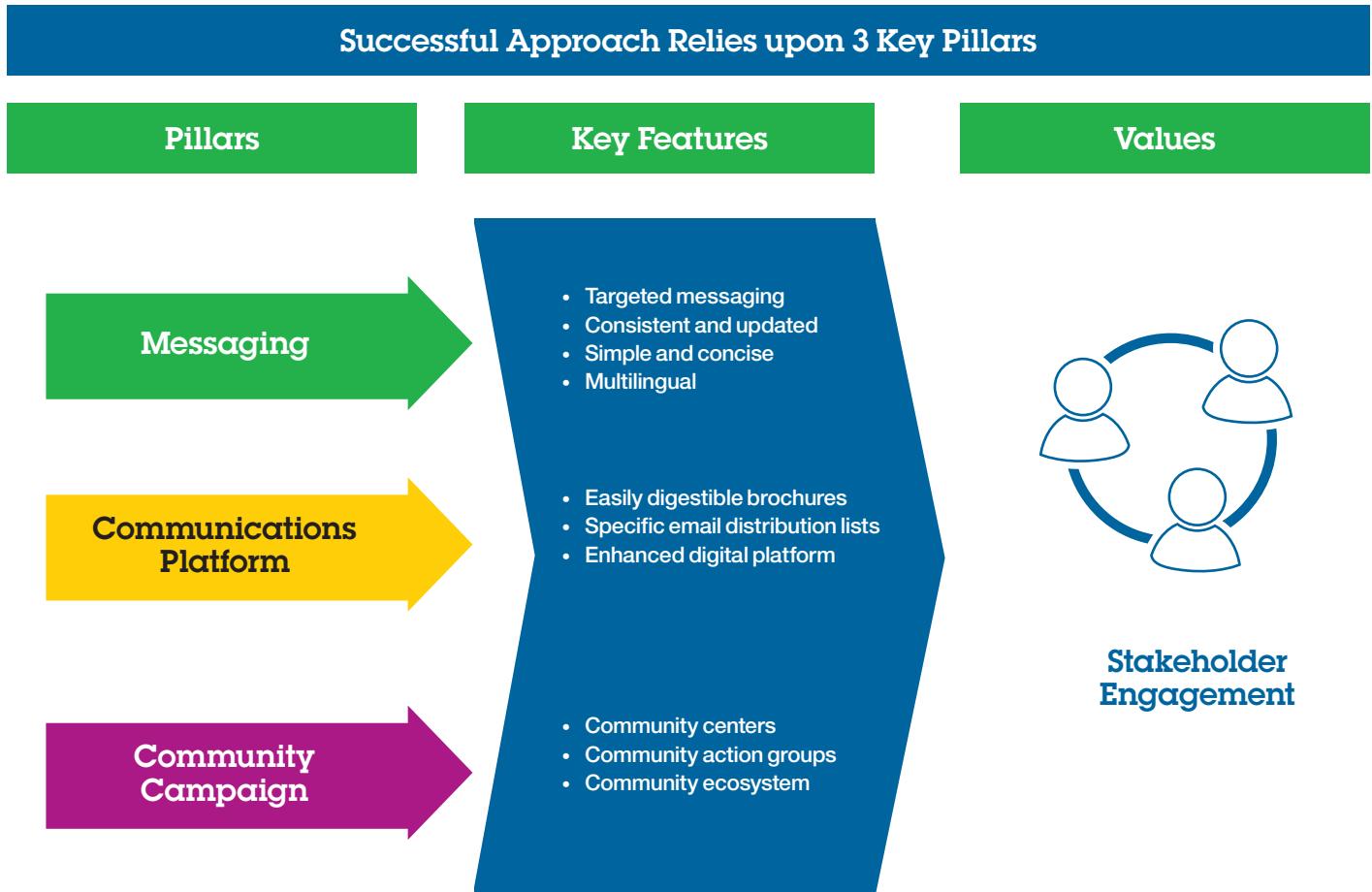


Accessible and Widely Available

- Enhanced digital platform
- Social media
- Flyers/Brochures
- Community meetings
- Community campaigns

Strategy and Approach

This strategic communications plan revolves around three (3) key pillars, all of which are equally important to derive the value of stakeholder engagement.



Pillar 1: Messaging

Targeted Messaging

Messaging of key issues should be targeted to specific audiences as may be relevant to them. Tenants and property owners are interested in different types of information. For instance, tenants want to know more about tenant rights, just-cause evictions and the process for filing complaints for rent ordinance violations, or unjust rent increases. Property owners, on the other hand, need information on the process for filing petitions for rent increases and fair returns. All this information should, therefore, not be lumped together in one message and sent to all stakeholders. Key messages will be better received and understood if the intended recipients do not have to sift through a ton of information which may not be relevant to them. Furthermore, less sophisticated readers may not know which information is relevant to them. Thus, a conscious, deliberate effort to segregate information relevant to a group of stakeholders is key.

Consistent and Regular Updates

Information should also be kept consistent regardless of the communications platform it appears in. It should be kept consistent with information which may be found in other City departments' communications platforms. Stakeholders have complained that they are often confused by the volume of information available on different platforms of different City departments. While this information may be intrinsically consistent and valid, they may often be presented in differing formats that may affect the way it is understood by the readers. Consistency, both in the intrinsic message and the format by which it is delivered, also goes a long way to building trust in the information coming from the City.

All information relevant to a group of stakeholders, whether they relate to the Apartment Rent Ordinance, Tenant Protection Act or Code Enforcement, should be made available in one united platform—whether in the form of a document, website or application. Stakeholders should have “one-stop shop” access to information relevant to them. Stakeholders have complained that they are often redirected multiple times to various resources—even on a single issue. This roundabout manner of accessing information has led to frustration and an erosion of trust in the City’s ability to respond to its residents’ needs.

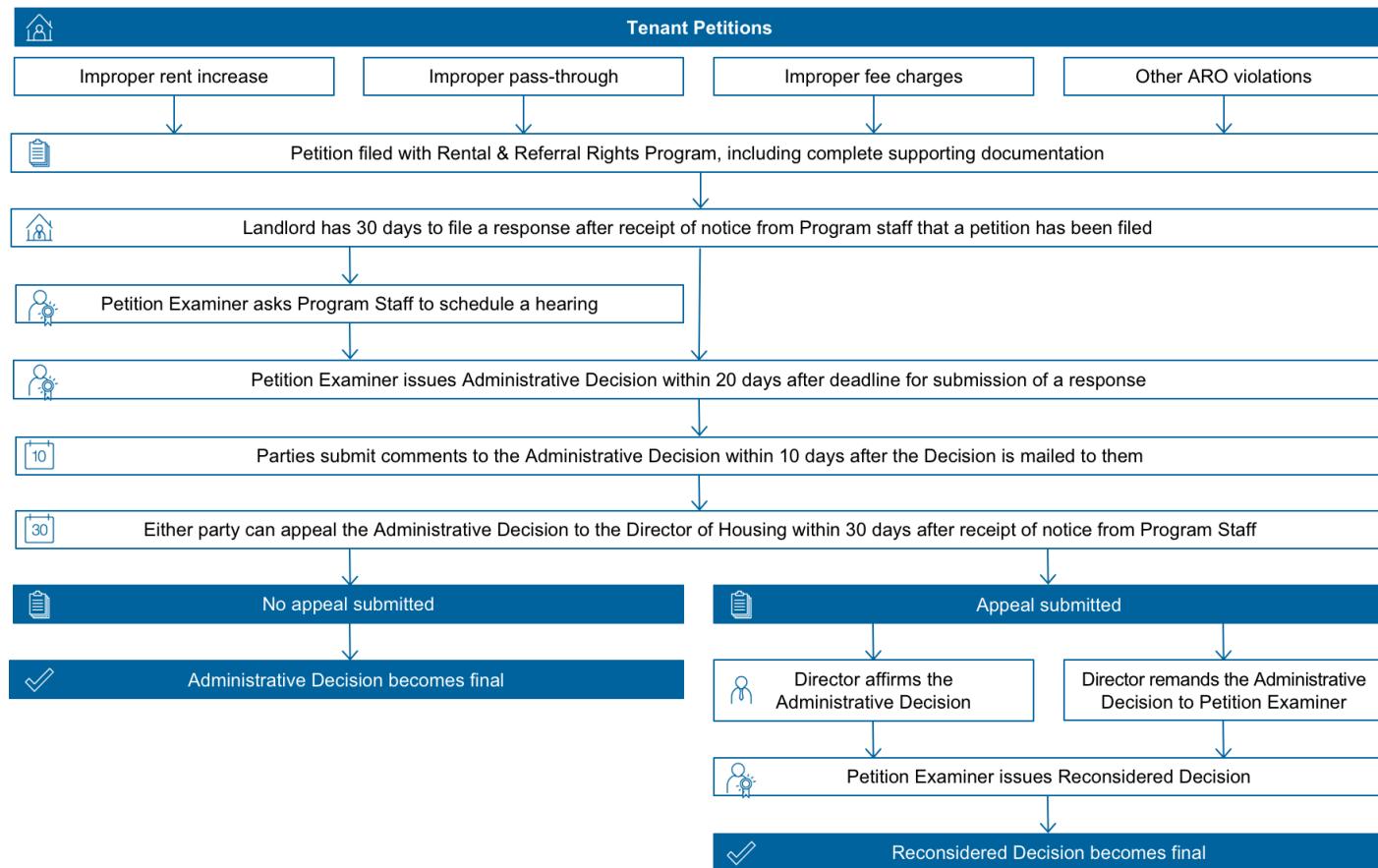
Information should be regularly updated and new information immediately communicated to the public. Regular updating equates to transparency, and a consistent flow of information keeps stakeholders engaged.

Simple, Accessible and Easy to Understand

Information should be simple, concise and easy to understand, keeping in mind the audience. For example, knowing that 78% of tenants are immigrants, information should be made available in different languages including English, Spanish, Chinese and Vietnamese.

Since 49% of tenants have a high school diploma or less, information should be communicated straightforwardly, avoiding big words and legalese. It should be kept short and easy to digest, using a friendly, less informal tone. Information could also be communicated more visually with flowcharts or other graphics. For example, the process for filing petitions for ARO violations can be shown in a simple, easy-to-follow flowchart, which could be included in a brochure, a website or an application, with links to online or printable forms or links for submitting documents online.

Example of a Process: Tenant Petition 1



Pillar 2: Communications Platform

Next, your communications platform need not be limited to the traditional website or information sheet that is being used today.

Brochures or Flyers

Information sheets can be transformed into brochures or flyers with more visuals and graphics for easier understanding. As much as possible, these should be short and concise but still include all relevant information in one document. These should use less words and more color, pictures and graphics. This format is friendlier, easier to digest and more portable. It can be perceived as more accessible, less daunting and non-threatening compared to formal memorandum-style information sheets.

An example graphic and toolkit are on pages 72 and 73.

Email

Email can still be a useful tool for communication. However, as mentioned earlier, only information relevant to a particular group of stakeholders should be sent to them via email. Currently, the Housing Department sends bulk emails via its general email list. The Housing Department should consider creating email distribution lists for each group of stakeholders, i.e., tenants and property owners, so that only information relevant to that particular group is sent to them.

Website

The Housing Department's current website is perceived as hard to navigate and confusing. While the website covers a broad and comprehensive range of information, it can be daunting and time-consuming to find the relevant information. The website can be enhanced and designed to be interactive and promote easy access to information. For instance:

- The landing page of the website could show news, updates and an event calendar focused on housing initiatives. This will draw attention to the most current and important information. An illustration of this is included in (an illustration of this is included in the housing portal mockups in a separate document).
- Relevant information highlights, similar to those designed for the brochures or flyers, can be sorted and grouped together under common interest topics or by stakeholder interest. There can be click buttons for both tenants and property owners to find information relevant to them. Laws and ordinances, as well as other reference sites such as other City departments or non-government organizations, can be made available via links as reference materials.
- Message boards and chatrooms can be added as another means of direct communication not just between the Housing Department and the stakeholders, but also as a means of facilitating information sharing.

Housing Portal and Mobile Applications

The website could be further enhanced to include a Housing Portal which can function as a communications tool between the Housing Department and its stakeholders, and between tenants and property owners as well. See Recommendation 5 for where these communications messages can be included in the Housing Portal use cases.

The communications applications developed for the Housing Portal can then easily be transferred to mobile for more accessibility.

Social Media

Lastly, communications can be expanded through social media to ensure a wider reach, given that social media is increasingly becoming the preferred means of communication and source of information. The Housing Department has a wide array of social media platforms to choose from such as Facebook and Twitter. News and updates can even be disseminated through blogs and traditional news sources.

Pillar 3: Community Campaign

Perhaps the most important and powerful element of the communications plan is a community campaign that engages the whole community and makes them the Housing Department's partner in educating and informing the various stakeholders. The more the stakeholders are involved, the more engaged they will be to work with the Housing Department.

Advisory Board

The Housing Department can start by creating an Advisory Board comprising different stakeholders from tenants, property owners, property managers and community action groups.

This Advisory Board can serve as the Housing Department's liaison to the community at large and the groups that each representative stakeholder represents. The Advisory Board can be a reliable source of information and ideas direct from the stakeholders who are impacted by housing policies and initiatives. The Advisory Board can eliminate much of the guesswork and assumption-making that goes into policy-making. Further, any policy rolled out will be made with more than adequate consultation, and stakeholders cannot say they were left out of the loop.

Community Action Groups, Community Centers, Community Roundtables, Schools and Churches

Community action groups, non-government organizations or charities can be leveraged and tapped as an extended network for communicating information to stakeholders. They can be empowered as a communications partner by convening them regularly to provide policy updates.

They, along with community centers, schools and churches, can be tapped to distribute brochures and flyers, or hold regular education sessions for the community. Information brochures or infographics can be posted in bulletin boards in community centers, schools and churches.

Community action groups can also help organize regular community roundtables or forums as a mechanism for receiving continuous feedback from stakeholders to ensure a user-centric design for policy-making and implementation. This feedback can then be taken back to the Housing Department through the Advisory Board.

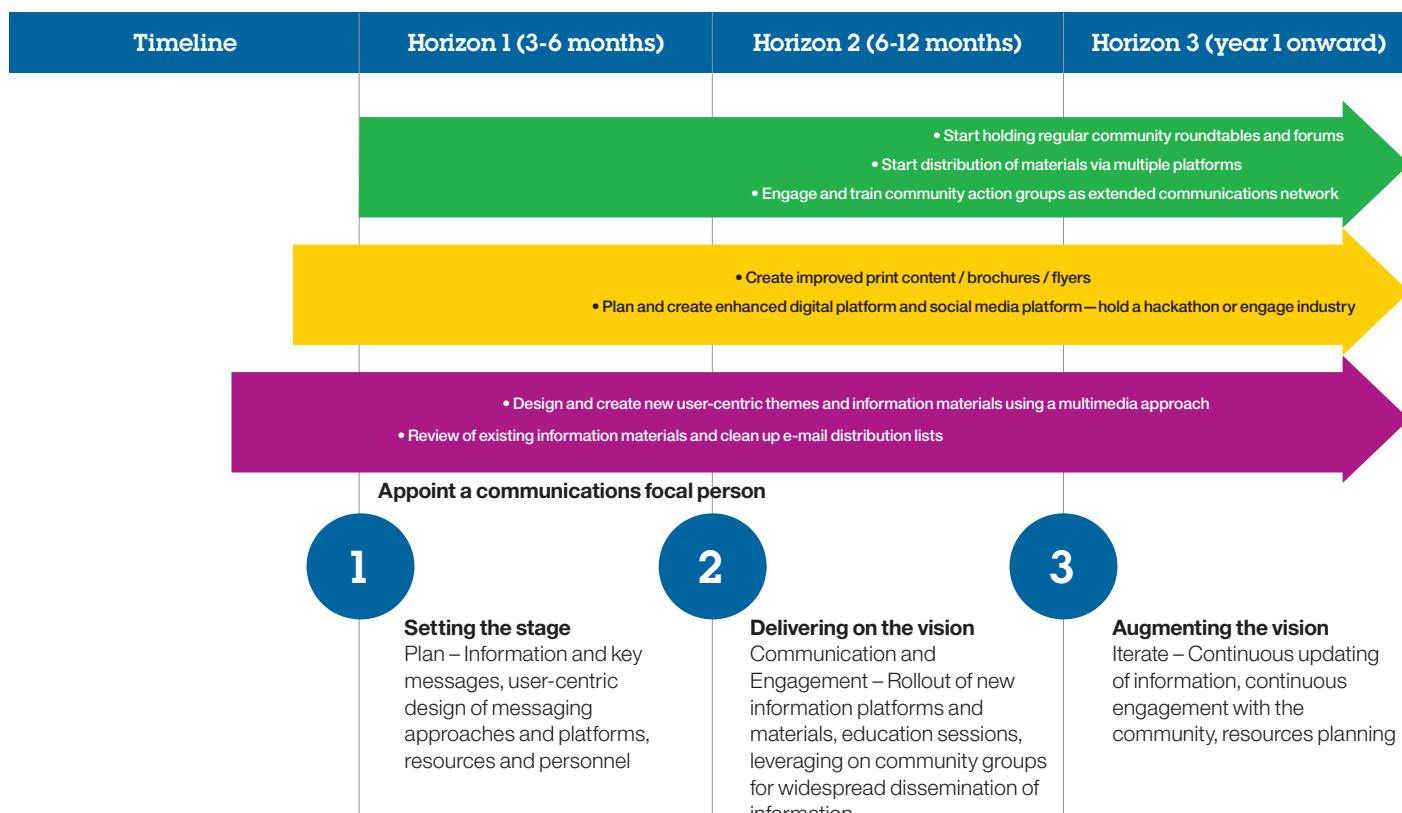
With the limited resources of the Housing Department, these community partners are essential in optimizing the implementation of a communications strategy.

Communications Roadmap

The Housing Department will need a strategic plan to implement all the elements in the three (3) pillars to derive stakeholder engagement.

The first and foremost action point is appointment of a communications focal person. The Information Specialist already included in the approved staffing plan of the Housing Department can readily act in this capacity. The communications focal person will be primarily responsible in carrying out the proposed Communications Roadmap.

Communications Roadmap



Horizon 1: Setting the Stage

For the first three (3) to six (6) months, the Housing Department should begin by:

- Reviewing the existing information and materials on hand,
- Cleaning up email distribution lists to create specific lists for each group of stakeholders,
- Forming the Advisory Board and selecting the representatives from each group of stakeholders,
- Designing and creating new user-centric themes and materials considering a multimedia and multiplatform approach,
- Deciding on the communications platform(s) to be used, including choosing the community centers, schools, churches or community action groups to be tapped as communications partners,
- Consulting with the Advisory Board and other end-users to test the usability and value of new information materials and platform, including any beta version of the Rent Registry, and
- Planning for the resources needed moving forward for a successful implementation of the communications plan.

Horizon 2: Delivering on the Vision

For the next six (6) to twelve (12) months, the Housing Department should be:

- Distributing its new materials starting with brochures or flyers through identified community partners,
- Creating an enhanced digital platform which may involve an enhanced website, Housing Portal, social media page or blog, or mobile applications,
- Holding a hackathon or engaging industry in helping design and create this enhanced digital platform, and
- Consulting the Advisory Board and other end-users on beta versions of this enhanced digital platform, including any iterations of the Rent Registry.

Horizon 3: Augmenting the Vision

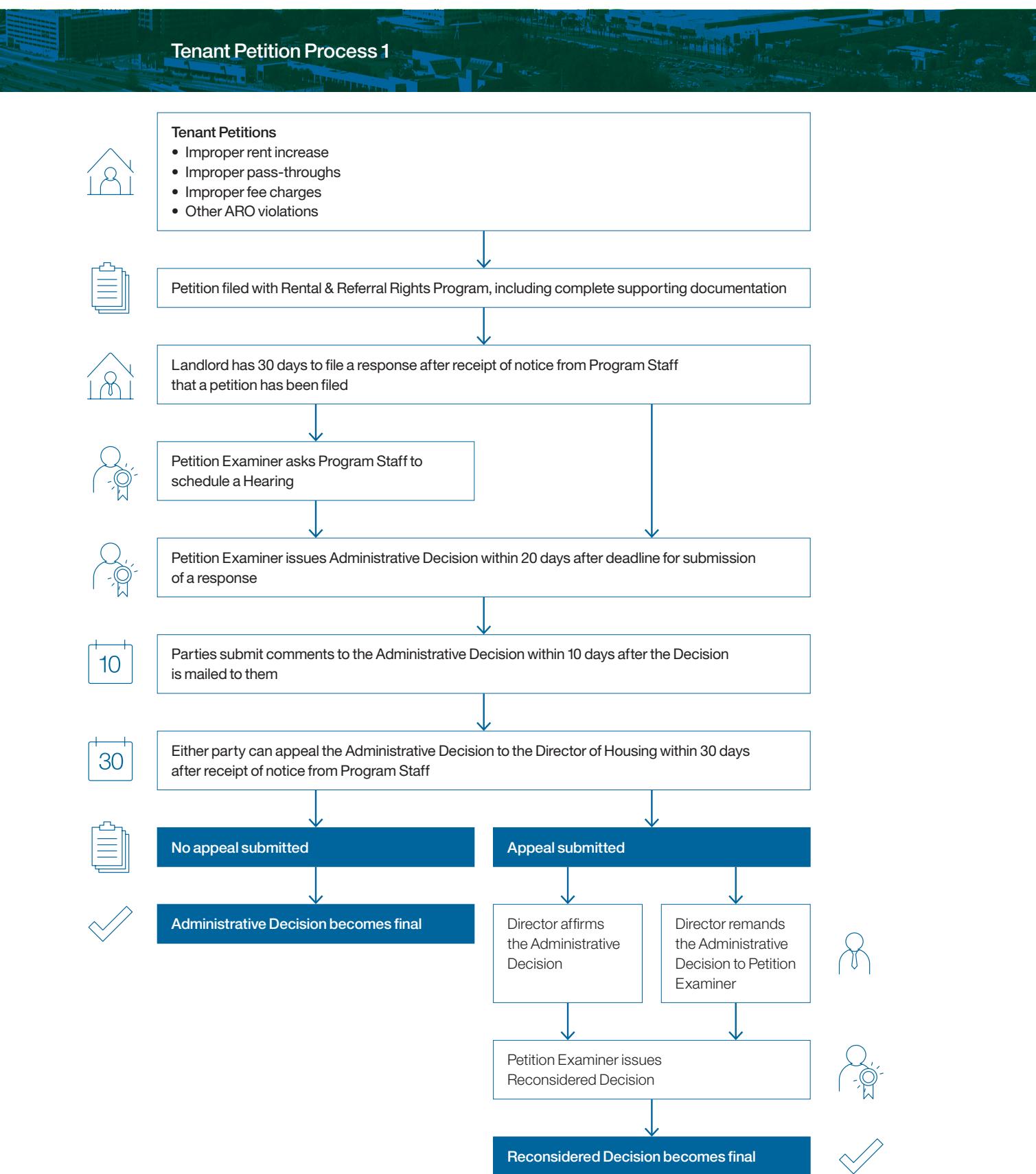
For the next year onward, the Housing Department should:

- Have identified community partners and established a system for regularly educating them on information that they need to share with stakeholders and empowering them to organize regular community events to drive understanding of the Housing Department's message and adoption of housing initiatives,
- Hold regular meetings with the Advisory Board to get their input on any proposed new policies or testing beta versions or iterations of the Rent Registry or Housing Portal, and regularly review and improve upon information materials and communications platform to adapt to the changing needs of stakeholders.

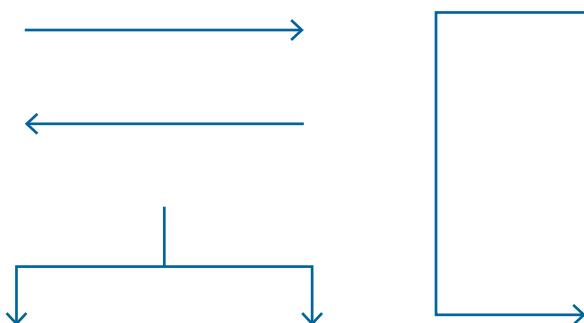
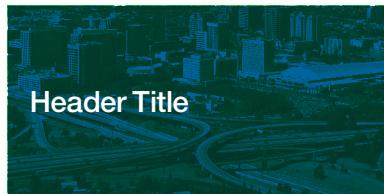
This stage is the most important one and is not a last stage but a continuing one where the stakeholders are involved and the whole community is engaged to give continuous feedback for improvement.

Example of a Process Using Graphics from the Toolkit

Flowchart toolkit elements on page 73.



Flowchart Elements/Examples



Descriptive steps

Answers or pivotal points

Icons



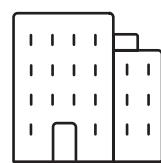
Tenant



Landlord



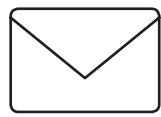
Dwelling



Apartment



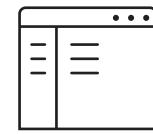
Form



Post



Hand-Deliver



Email

Recommendation 3

Data Quality, Privacy and Protection	78
An Example Using Machine Learning	81

Data Quality, Privacy and Protection

Critical enablers that must be addressed for any new technology system to be successful is to have a comprehensive plan addressing Data Quality, Privacy and Security. This falls into two categories: Data Quality and then Data Protection, to include both data privacy and security.

Data Quality is fundamentally about having reliable, accurate and up-to-date data. Data Protection is not only keeping the data secure, but also is determining privacy and which data elements are accessible by certain users. For each of these categories, this report summarizes the key issues found by the IBM SCC San José team and the associated recommendations to address those key issues.

I) Data Quality

Key Issues and Findings: Data Quality

The following issues must be addressed, otherwise the impact of the housing department portal is massively reduced at all levels.

- The primary concern found by the IBM SCC San José team is the lack of reliable data on ARO apartments and units. Currently, the City of San José has reliable data on the street address of the buildings, but it is not sufficiently granular and reliable at a unit/apartment level.
- The Housing Portal will require user login, which will bring about new requirements of identity management and identity resolution. When user applies for a new login, the new personally identifiable details need to be cross-checked for potential duplications, which may be non-intentional or intentional.
- Different departments within the City of San José have their systems with their versions of address data, with different levels of granularity, accuracy and timeliness.
- The problem worsens when data is replicated between these different systems, but subsequently out of sync when some systems but not all are updated, thus creating multiple versions of truth. This problem is exaggerated over time.
- Existing categorical data on resident and owner complaints are either mostly missing, or when they are available, do not appear to be consistent. Consequently, there is abundance of anecdotal information but lack of defendable and objective evidence.

Recommendations: Data Quality

a) Improved approach for managing Housing stock information

1. Integrate address data at the most granular level; that is, unit and apartment.
2. Quality check the data by purpose built algorithms and methodology and NOT manually, through:
 - Standardization
 - Deduplication
 - Selection of the best address
 - Continuous enforcement of this process
3. Create a master address database as a single source of truth for the Housing Department:
 - Automate the continuous maintenance of this master address so it is up to date, by using a regular and scheduled ETL process
 - Provision of and enforcement of the Use API calls at runtime to look up the unit address, so that every unit address is validated in real time, before being entered into the system

The advantages of this algorithmic and automated approach are more accurate, timely and low maintenance of a single version of truth of address information that would provide benefits beyond the Housing department.

b) Identify approach for identity resolution and access management

1. Create a master repository of resolved entities.
 - Through name standardization and the use of other attributes such as contact number or date of birth
 - Select the most complete and accurate entity
 - Store the entity
 - API call at runtime to look for duplicate entities before creating new ones
2. Use identity and access management software to add new verified users and manage access privilege, ensuring that user identity is validated, and the user can only view or update the data that their access privilege allows.

The benefits of this approach are that each user is verified as who they say they are; subsequently, data integrity of users, landlord, tenants and staff in Housing Department are protected, verified identities are managed and access privilege granted and revoked accordingly.

c) Identify approach to capture accurate interactions in rental referral program

1. Remove pre-defined and hardcoded categories
2. Allow all users to enter free text into the system
3. Use cognitive approach to tag and define categories; the tagging and categorization of the free text would be via API calls

The benefits of this approach are that the categories would improve accuracy as well as seeing emerging trends of new issues which the existing approach would not provide, and with minimal human intervention.

Potential open source stack to assist with Data Quality:

- Open Source Data Quality & Profiling project at Source Forge
- Stanford Entity Resolution Framework
- Talend open source master data management and ETL tool
- RapidMiner for free text analytics and categorization

2) Data Protection

Key Issues and Findings: Data Protection

From the output of the interviews with stakeholders, it is apparent that data privacy and security is a major concern and a frequently used argument against the Rent Registry. Therefore, it is important that the Rent Registry/Portal will be highly secure with all checks and balances put in place to protect the data from theft and misuse against all actors inside or outside of the firewall. While SalesForce is a database that is PCI-DSS compliant, we recommend more be done in this space.

A comprehensive data protection approach is required to ensure:

1. Discovery and classification of all sensitive data including personable identifiable data and data with monetary value
2. Monitor and audits of all data activity using advanced threat analytics
3. Enforce securities in real time for data access, change control and user activities
4. Centralize audit data in a normalized repository—for enterprise compliance, reporting and forensics; safeguard sensitive data across heterogeneous environments

Recommendations: Data Protection

a) Conduct a Data Security and Protection workshop

- Establish solution management, oversight and other organizational constructs, reporting requirements, escalation, services, etc.
- Establish cost goals, trade-offs, schedule and begin framing implementation, operations, security, configuration, data management and related key plans
- Establish Requirements, Architecture and Security technical leads under the PM
- Identify team participants for secure data audit (approximately one week), set goals for audit
- Identify third-party user types (3,000 landlords, 44,000 tenants, government agencies, department of housing users, etc.) prior to security audit
- Identify applicable security standards requirements (PII, PCI, HIPAA, etc.)
- Gather requirements

b) Release RFP to evaluate improved security technology

- Secure data audit (one-week minimum, two weeks may be needed, with monthly reviews throughout the engagement); determine stakeholders, roles, user types, access types and public vs. private data that will be allowed
- Determine security boundaries
- Define rough architecture to NIST, PCI, HIPAA or other criteria
- Identify all business flows, the nature of the data involved, the boundaries between systems/components, the type of protection needed at each boundary (and within each boundary)
- Identify security policies, tools, frequency of audits/reviews/patching, etc.
- This includes third-party access controls, policy exchanges, monitoring and review rights, data rights, etc.
- Identify encryption and tokenization policies and boundaries, key store operations and top-level security
- Define personnel certification, background check and other hiring criteria, regular reviews criteria and exit policies such as changing all locks, control codes, passwords, etc.
- Set up “Secure by Design” policies and standards for all equipment and systems involved in the solution
- Size the solution (44,000 + 3,000, with projected growth and margins applied); create load-balanced, failover mechanisms, storage/backup/recover, etc., for both “low” and “high” security stores (e.g., working tokenized stores for analytics, secure stores for PII)
- Instantiate solution with each component to minimum size, verify design, operations, security, monitoring, metering and business flows alignment
- Instantiate full solution

c) Conduct an Operations Stand-up

- Set up the Requirements board, schedule regular meetings
- Set up the Engineering board, identify the level of formality for each aspect of the system, set documentation standards, review types and schedules, tools selection (first pass)
- Set up the Architecture board, schedule regular reviews
- Set up the Security board under the CSO; determine security controls that apply, set up ATO plan and schedule, identify specialized third parties needed (e.g., Ethical Hackers, etc.); define security tools to be included in solution

d) Complete a detailed Data Protection architecture design

- Architectural framework
- Security framework
- Enterprise Architecture approach (logical/physical, across all architectural domains)
- Capture models and perform testing, access control reviews, etc., using the models first
- Instantiate crypto store, keystore, dual-key or other extended crypto protection mechanisms
- Instantiate non-crypto stores/data warehouse, data services and endpoints, security monitoring points
- Select components based on security, functionality and performance criteria set by Security and SE leads, and finalize their placement in the architecture with the EA/Lead Architect
- Code/test/code cycles (repeated, but to waterfall not Agile); this will require more careful planning
- Perform regular code scans, code reviews (in addition to the scans) and testing; verify that all monitoring and logging functions work and are processed appropriately

- Verify all code is submitted every day, and that an automated daily build will always succeed to at least compile
- Create/update models, update documentation, capture related artifacts for each subsystem, component, interface and/or API
- Manage the services catalog, API catalog and other technical artifacts
- Maintain and update the version control system with code, artifacts, documentation, models
- Perform certification testing and reviews
- Use sample data and real users for beta testing
- Final user juries for interfaces, final formal reviews for all non-UI components and systems
- Prep for Go Live, stress-test the solution, including simultaneous ethical hacking attempts
- Perform final solution, architecture, security and operational reviews before Go Live
- Go Live (Production)

e) Provide ongoing (post Go Live) operations monitoring

- Monthly and annual regular reviews, and by-incident specific reviews, if needed
- Monitor and review all flows and identify patterns, then verify patterns match expected usage scenarios, volumes, accesses, roles/types of users
- Perform regular component patching and security updates
- Create operational reports
- Perform regular personnel reviews

An Example of Using a Machine Learning to Answer a Simple Business Question

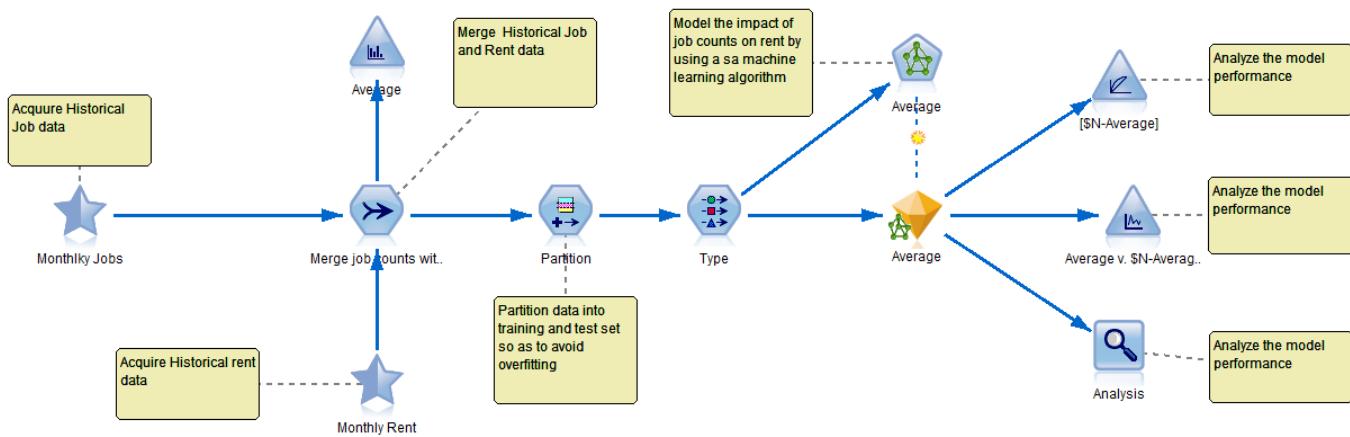
Business Question:

What is the impact on the average rent if the City attracts an additional 1,000 jobs in the professional and business services sector?

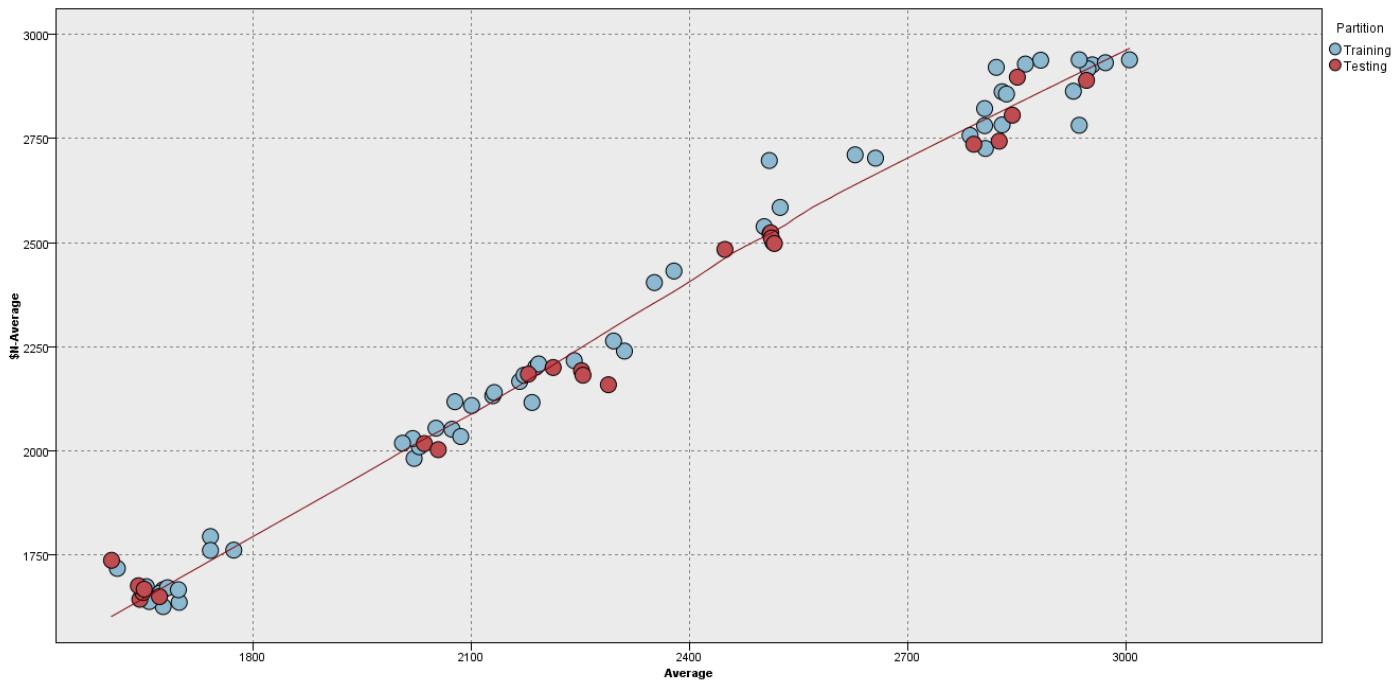
Approach

Acquire historical data on jobs by sector, average rent, and use machine learning to model the effect of the number of jobs on rent. Historical data on jobs by sectors as well as rent information in San José are readily available in data.sanjoseca.gov/dataviews/229053/san-jose-economic-indicators.

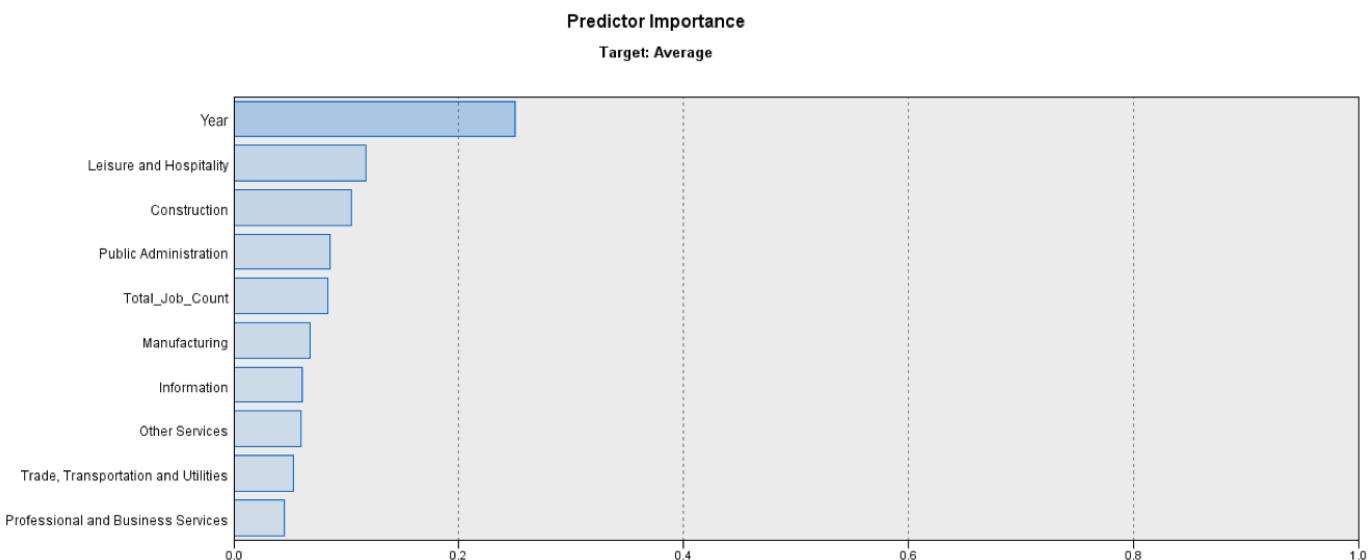
The following diagram illustrates the process of machine learning:



The following chart plots the actual rent vs. predicted rent. A theoretically perfect model would produce a straight line at 45 degrees, where the predicted rent matches the actual rent perfectly. The fact that the plot follows the 45-degree line but does not match it perfectly suggests this is a realistic model.

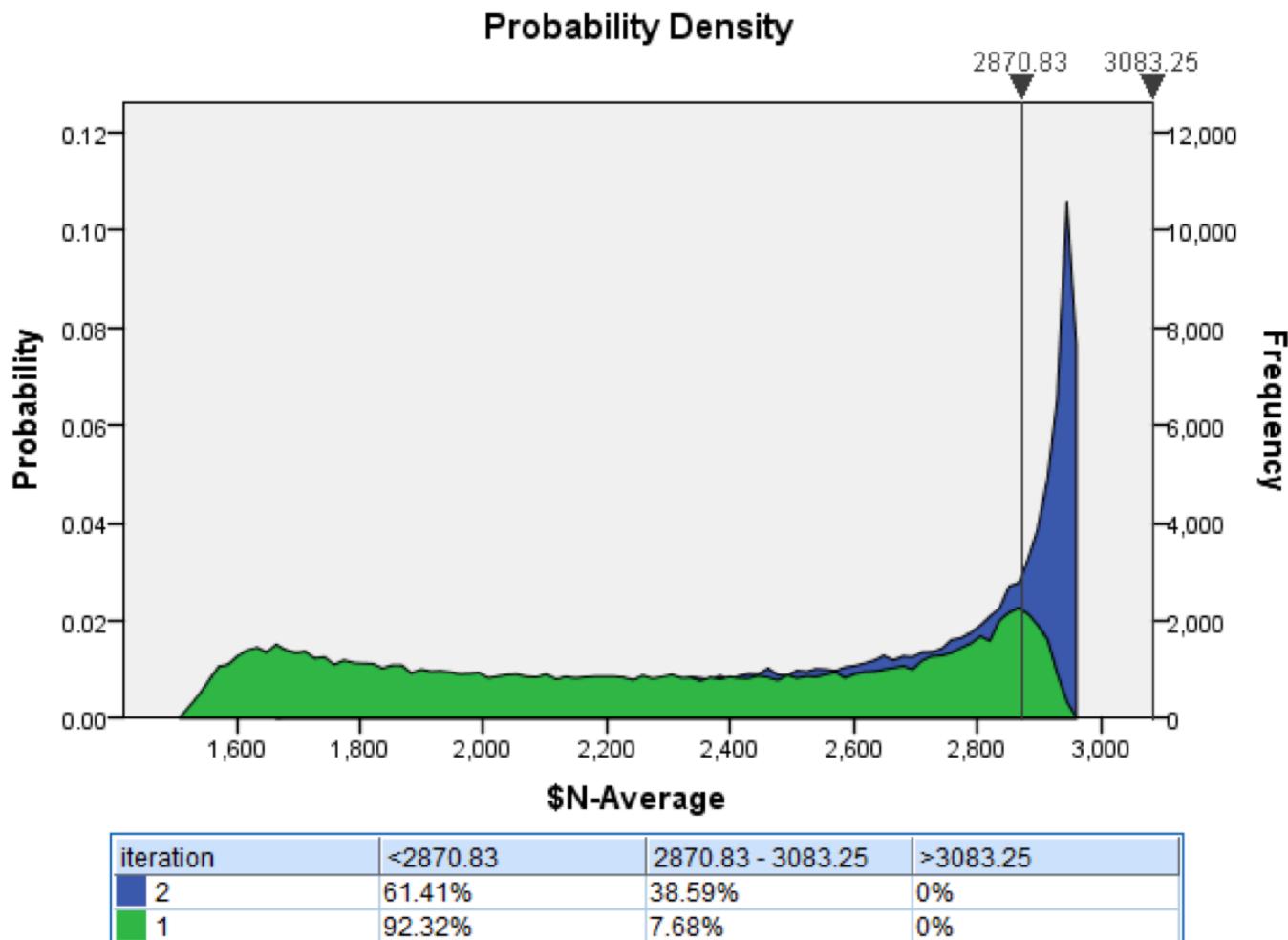


The following chart shows what makes up the model, and it conforms to our understanding of the economic indicators:



Now that we are satisfied the model makes sense and is reasonably accurate, we would artificially ingest an additional 1,000 jobs in the professional business sector, then simulate this 100,000 times and plot the probability distribution of rent. This would be the impact on rent due to the additional jobs ingested.

By looking up this distribution chart between Scenario 1 (as is, green) and Scenario 2 (with additional 1,000 jobs in professional services sector), we can say the most likely increase is from \$2,870 to \$2,947. This is an increase of \$77 per month in the average rent of an apartment in San José.



Recommendation 4

Build a Housing Portal
Roadmap Approach

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Build a Housing Portal

The IBM San José SCC team has recommended the building of a Housing Portal instead of a Rent Registry database. The Housing Portal would be used by tenants, owners and city personnel.

- Tenants would be able to search for housing, view advertised rents, request applications for an open unit, update rent information of units they live in, as well as communicate with the owner and the City.
- Owners would be able to advertise housing, accept applications from tenants, send notices to tenants, update rent information of occupied units, as well as communicate with the tenants and the City.
- City personnel would be able to view rent data statistics, validate and verify rent data submitted by tenants and owners, monitor City compliance with respect to timeliness SLAs, as well as communicate with all the tenants and owners.

Mockups of the Housing Portal are available as a separate document.

Roadmap Approach

Execute a Design Thinking-led Engagement in Early 2018

- Establish goals to capture the Personas and Use Cases of a Housing Portal
- Use the data captured to capture your requirements for the transition to the Housing Portal

City Releases Beta Version of the Initial Rent Registry in Spring/Summer 2018

- City leads usability assessments and captures requirements for the next delivery

City Engages Industry for Ideas on Transition to a Housing Portal to Capture

- Solution management, oversight and other organizational constructs, reporting requirements, escalation, services, etc.
- Tradeoffs, schedule, and begin framing implementation, operations, security, configuration, data management and related key plans
- Establish Requirements, Architecture and Security technical leads under the PM
- Identify team participants for secure data audit (approximately one week), set goals for audit
- Identify third-party user types (3,000 landlords, 44,000 tenants, possibly some banks, government agencies, etc.) prior to security audit
- Identify applicable security standards requirements (PII, PCI, HIPAA, etc.)
- Gather requirements (WFRs)

City Engages Industry to Begin the Beta Version Delivery of the Housing Portal

City Conducts a Secure Data Audit (One-Week Minimum, Two Weeks May Be Needed, With Monthly Reviews Throughout the PO)

- Determine stakeholders, roles, user types and access types that will be allowed
- Determine security boundaries
- Define rough architecture to NIST, PCI, HIPAA or other criteria
- Identify all business flows, the nature of the data involved, the boundaries between systems/components, the type of protection needed at each boundary (and within each boundary)
- Identify security policies, tools, frequency of audits / reviews / patching, etc. This includes third-party access controls, policy exchanges, monitoring and review rights, data rights, etc.

- Identify encryption and tokenization policies and boundaries, key store operations and top-level security
- Define personnel certification, background check and other hiring criteria, regular reviews criteria and exit policies such as changing all locks, control codes, passwords, etc.
- Set up “Secure by Design” policies and standards for all equipment and systems involved in the solution
- Size the solution (44,000 + 3,000, with projected growth and margins applied); create load-balanced, failover mechanisms, storage/backup/recover, etc., for both “low” and “high” security stores (e.g., working tokenized stores for analytics, secure stores for PII)
- Instantiate solution with each component to minimum size, verify design, operations, security, monitoring, metering, business flows alignment
- Instantiate full solution

City Releases Beta Version of the Initial Rent Registry in Spring/Summer 2018

- City leads usability assessments and captures requirements for the next delivery

City Assigns the Team to Manage the Execution and Implementation of the Housing Portal

- Set up the Requirements board, schedule regular meetings
- Set up the Engineering board, identify the level of formality for each aspect of the system (see next), set documentation standards, review types and schedules, tools selection (first pass)
- Set up the Architecture board, schedule regular reviews
- Set up the Security board under the CSO. Determine security controls that apply, set up ATO plan and schedule, identify specialized third parties needed (e.g., Ethical Hackers, etc.). Define security tools to be included in solution
- Architectural framework
- Security framework
- Enterprise Architecture approach (logical / physical, across all architectural domains)
- Capture models, and perform testing, access control reviews, etc., using the models first
- Instantiate crypto store, keystore, dual-key or other extended crypto protection mechanisms
- Instantiate non-crypto stores / data warehouse, data services and endpoints, security monitoring points

- Select components based on security, functionality and performance criteria set by Security and SE leads, and finalize their placement in the architecture with the EA/Lead Architect
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- Prep for Go Live, stress-test the solution, including simultaneous ethical hacking attempts
- Perform final solution, architecture, security and operational reviews before Go Live
- Go Live (Production)

Industry Delivers Beta Version of the Housing Portal

- Ongoing operations (post Go Live)
 - Monthly and annual regular reviews, and by-incident specific reviews if needed
 - Monitor and review all flows and identify patterns, then verify patterns match expected usage scenarios, volumes, accesses, roles/types of users
 - Perform regular component patching and security updates
 - Create operational reports
 - Perform regular personnel reviews

Recommendation 5

Housing Portal Requirements

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Use Case Scenarios and Technology Stack

Search for Properties

- By partial/full address, zone
- By map zoom in/out

View List of all Properties that Satisfy Search Results

- List view—image, address, available units, advertised rent for each available unit, total units, property rating
- Map view

View Details of Selected Property

- Image, address, available units, advertised rent for each available unit, total units, property rating, amenities
- Request application for available unit from Owner (login)

Submit Data Change Request on a Selected Unit – Rent, Starting Month, Ending Month (Login)

Submit Complaint to Owner Regarding a Selected Unit (Login)

Submit Complaint to City Regarding a Selected Unit (Login)

- View notifications (login)
- General notification from Owner or City
- Complaint review/resolution or escalation to City
- Rating review/resolution from City
- Owner compliance validation
- New blog article notification

Send Message to City (Login)

View Profile (Login)

Tenant Data

Login ID

Address – By Date

Messages

- Requests for application – by property address, unit, date
- Messages to City – by tag, date
- Messages from Owner – by tag, date
- Messages from City – by tag, date

Complaints

- Notices from Owner – by tag, date
- Complaints to Owner – by tag, date
- Complaints to City – by tag, date

Tasks

- Complaint review/resolution/escalation
- Owner compliance validation
- Rating review/resolution

Owner Use Cases

View Rent Statistics

- Min, max, median, percentiles—by census tract, district, City

View / Edit List of All Owner Properties (Login)

- View—address, total units, property rating
- View / edit—image, available units, advertised rent for each available unit at each property
- Manual online / Excel import / sync with Yardi
- Submit add/remove property request for City validation

View / Edit Details of Selected Property (Login)

- Image, address, available units, advertised rent for each available unit, rented units, current rent for each rented unit, total units, property rating, amenities
- Submit data change request—rented units, current rent for each rented unit, starting month, ending month
 - Manual online / Excel import / sync with Yardi
- Submit add/remove units within the property for City validation

Submit Notice to Tenant Regarding a Selected Unit (Login)

View Notifications (Login)

- General notification from Tenant or City
- Application request from Tenant for a specific unit with Tenant rating; respond with link
- Confirm Tenant data update
- Complaint review/resolution or escalation to City
- Rating review/resolution from City
- New blog article notification

Send Message to City (Login)

Send Message to All Owner Tenants (Login)

Owner Data

Login ID

Mailing Address

Properties

- Property details

Messages

- Messages to City – by tag, date
- Messages to Tenants – by tag, date
- Messages from City – by tag, date

Notices

- Notices to Tenants – by tag, date

Tasks

- Tenant application request response
- Tenant data update confirmation
- Tenant complaint review/resolution/escalation
- Rating review/resolution

City Use Cases

View Rent Statistics

- Min, max, median, percentiles—by census tract, district, City
- History over time

View / Edit List of Owner's Properties (Login)

- % compliance
- List of properties sorted in decreasing order of % compliance
- Send notification to all selected Owners

View Complaints and Notices (Login + Auth)

- % open complaints – by tag; drilldown to Owner ID, Tenant ID
- Complaint resolution aging chart; drilldown to Owner ID, Tenant ID
- % open notices – by tag; drilldown to Owner ID, Tenant ID
- Notice processing aging chart; drilldown to Owner ID, Tenant ID

View Tenant Dashboard (Login + Auth)

- % score by # Tenants; drilldown to Tenant ID; breakdown Tenant Score by # notices from Owners, # complaints to Owners, # complaints to City
- Send notification to all selected Tenants

View Owner Dashboard (Login + Auth)

- % score by # owners; drilldown to Owner ID; breakdown Owner Score by # complaints from Tenants
- Send notification to all selected Owners

View / Edit / Post Blog (Login + Auth)

- Include Tenant takeaways, Owner takeaways, useful links; translate to Spanish/Vietnamese/Chinese; disable comments; enable RSS feed

View / Edit / Add Events (Login + Auth)

- Include routine training sessions for Owners and Tenants; have special events for seniors and by language; expose calendar feed URL

View Notifications (Login + Auth)

- General notification from Tenant or Owner
- Complaint review/resolution or escalation to City
- Owner compliance validation
- Rating review/resolution from City

Send Message to All Owners (Login)

Send Message to All Tenants (Login)

City Data

Login ID

Group

- Tag assignment

Permissions

- Dashboard visibility

Messages

- Messages to Owners – by tag, date
- Messages to Tenants – by tag, date
- Messages from Owners – by tag, date
- Messages from Tenants – by tag, date

Tasks

- Tenant complaint review/resolution/escalation
- Owner compliance validation
- Rating review/resolution

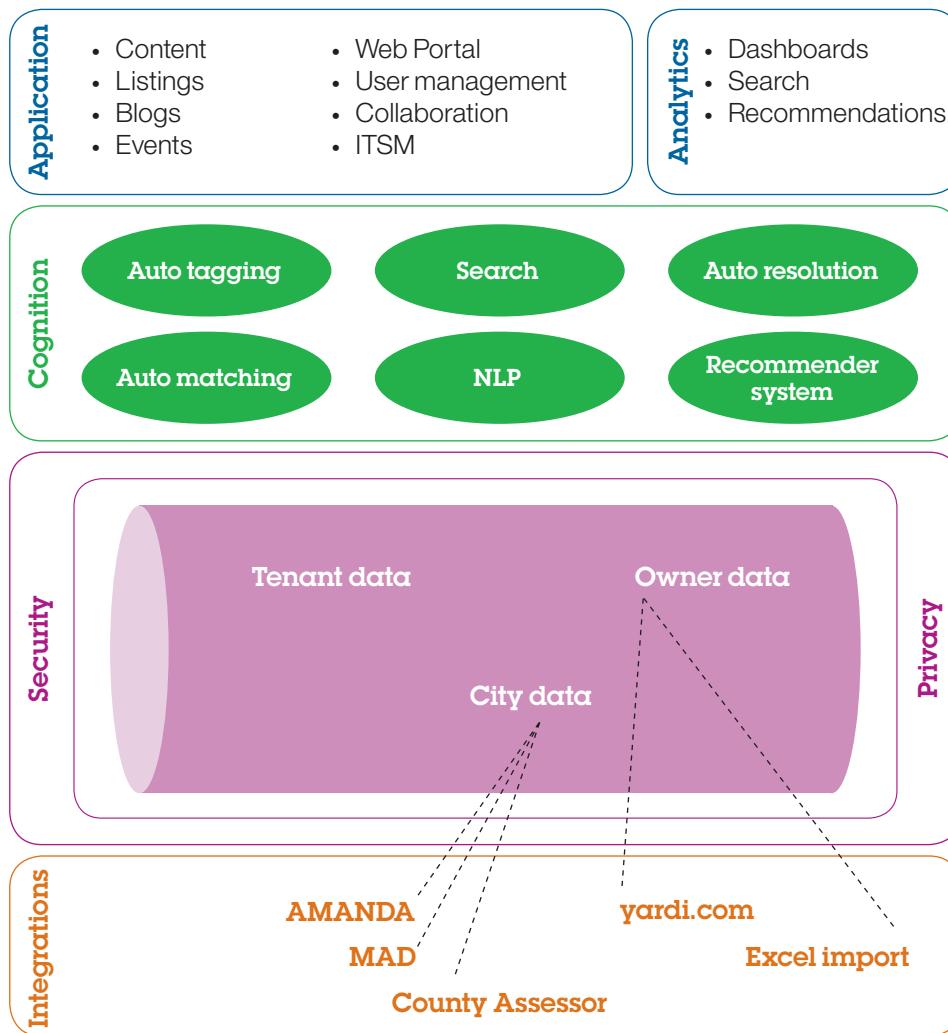
Blogs

- Blogs posted

Events

- Events added

Technology Stack



Skills Required

- Product Manager (1)
- Sr. Business Analyst (1)
- Policy SME (1)
- Content Developer (2)
- Communications Specialist (1)
- Web Developer (2)
- ITSM Analyst (2)
- Data Architect (1)
- Data Scientist (2)
- Data Security Analyst (1)
- Data Engineer (1)
- Integrations Developer (2)

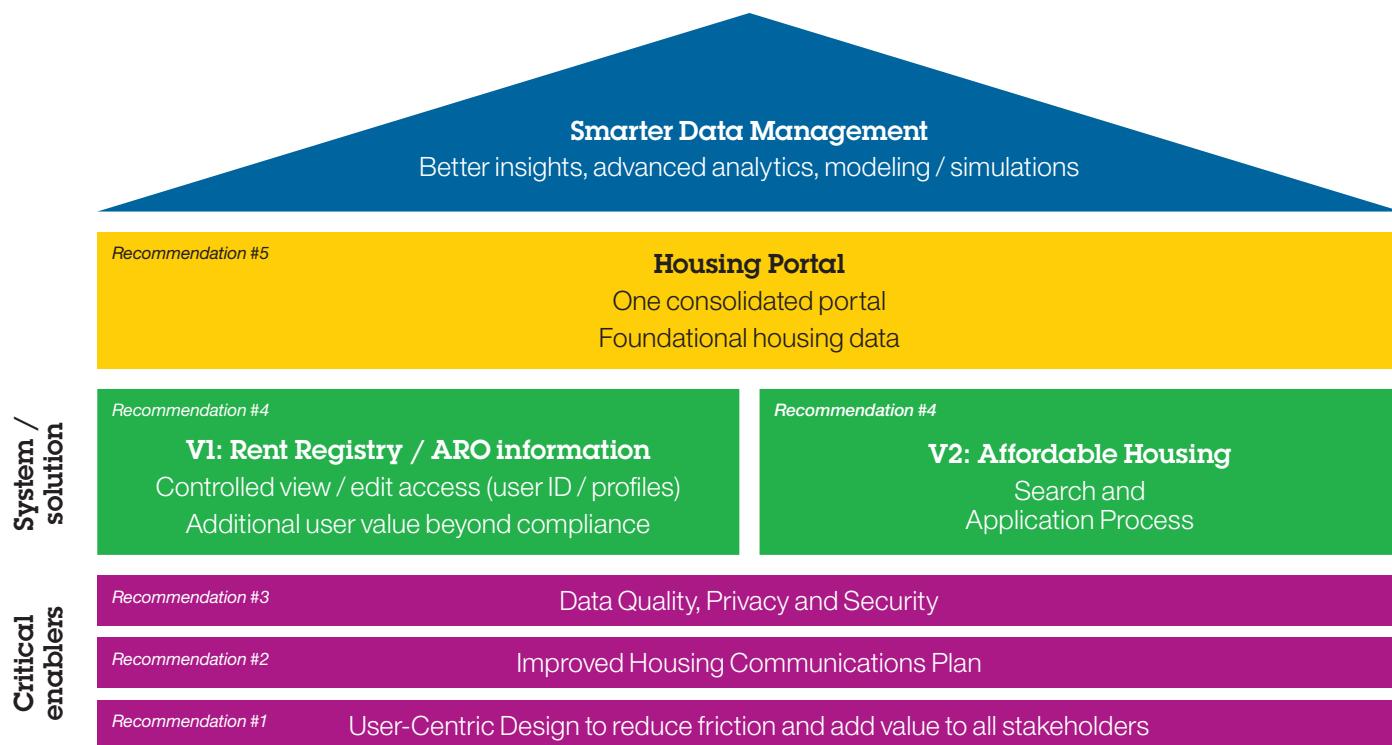
This report explains a recommended path forward for the City of San José. A journey that starts with addressing the three critical enablers to success: User-Centric Design, Improved Housing Communication Plan and a sound approach to Data Quality, Privacy and Security. From here, the City of San José should embark on implementing and launching their Housing Portal. A portal that starts with solely Rent Registry Apartment Rent Ordinance compliance data, but expands to provide additional user value and ultimately into a common search and application solution for deed-restricted Affordable Housing. This one consolidated Housing Portal provides the City of San José with foundational data to drive truly smarter data housing management.

As part of the IBM San José SCC's team recommendations, we conclude with four critical takeaways for the City of San José. First, addressing improved housing communications is a critical initial step. Dedicate a Housing Department resource to this now. This starting point can be done in parallel with the Rent Registry and Housing Portal system implementations. Second, data governance will require strong private and public collaboration, and collaboration that extends beyond the physical boundaries of the City of San José. Integration of data sources will require this type of collaboration. As such, the City of San

José should initially collaborate with Santa Clara County and other bay area entities. Third, a Housing Portal is NOT simply a public sharing of a Rent Registry database. Instead, the City of San José must consider a solution that provides value to all users. The Housing Portal solution roadmap needs to embrace true user-centric design approaches. Finally, the future Housing Portal foundational data can drive unique insights and data modeling simulations. In a simple example of this, the IBM San José SCC team looked at available city housing apartment data (all triplex and above units), as well as publicly available employment, jobs and rent information to simulate the impact of additional job growth. In this model, the IBM San José SCC team analyzed the future apartment rent impact of an additional 1,000 professional services jobs created within the City of San José. This would impact apartment rent prices by an average of \$77 per month, with a confidence level of 95% on this model. Again, this is a simple example but one that highlights the future potential for leveraging advanced analytics and data modeling simulations to housing policy questions.

The IBM San José SCC team thanks the City of San José for the time and openness during this study.

Overview of Recommendations



Thank you to all of the stakeholders who took the time to meet with us!

Sam Liccardo
Maria Jimenez
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Shelsy Bass
Rob Lloyd
Danielle Pirslin
Irene Smith
Zach Berke
Cheryl Lubow
Emily Prado
Arti Tangri
Dave Bopf
Tascha Mattos
Susan Price-Jang
Fred Tran
Lindsay Caldwell
Mollie McLeod
Theresa Ramos
Henry Tsai
Rosa Cano
Peter Miron-Conk
Warren Reed
Rachel VanderVeen

Ron Duba
Jacky Morales-Ferrand
Kathy Robinson
Sara Wright
Michael Fitzgerald
Melissa Morris
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Lester Fontecha
Evelina Nava
Khanh Russo
Rick Wu
Ragan Henniger
Charla Neta
Michael Santero
Alexa Youssefian
Dean Hotop
Vu-Bang Nguyen
Shireen Santosham
Fereshteh Zakeri
Bill Hult
Christian Ollano
Ken Schneebeli
Jeff Zell

Additional thanks to the wonderful people of San José who we informally talked to about their housing situations. From wait-staff at restaurants, to clerks in stores, to cab drivers—we appreciated all of their candor and friendliness.

To find out more about the Smarter Cities Challenge program, visit: smartercitieschallenge.org.

Team San José, USA 2017



Ms. Princess Ascalon

Ms. Princess Ascalon has been with IBM for six years and brings with her a vast international experience in negotiating and policy making. She is currently the Government & Regulatory Affairs executive for IBM in the Philippines, acting as IBM's ambassador to the Philippine government advocating on policy issues relating mainly to information technology, industry investment and development, innovation, workforce flexibility and services trade liberalization. She is also concurrently the regional government market support coordinator for Asia Pacific, leading the team in supporting commercial engagements with governments around the region.

Prior to this role, she was the country counsel for IBM Philippines leading the legal team in handling transactional and contractual matters as well as regulatory and compliance matters. She earned her Bachelor of Laws degree from the University of the Philippines and has a degree in Psychology from the same university. Princess resides in Manilla, Philippines. She is married with two children and loves traveling around the world with her family.

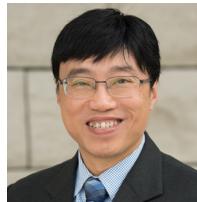


Mr. Kevin Aven

Mr. Kevin Aven is the co-lead for a top account within IBM Global Services-Public Sector providing secure ERP, Cost Take Out, Cloud Computing, Business Analytics, Consulting and Advanced Technology solutions, along with IT infrastructure operations support. The Account plays a central role in lowering operating costs and applies technology in support of the missions of a Governmental Agency. By leveraging the considerable IBM investments in technology and processes, the Account provides a broad portfolio of government and commercial industry capabilities.

Kevin joined the IBM Corporation in August of 2005 after serving as a U.S. Army Lieutenant Colonel who specialized in Operational Logistics for over 23 years. Prior to retiring from active duty in October 2004, he served as the Special Troops Battalion Commander, 13th COSCOM. He also served as the 3rd ID(M) Division G-4 during SFOR 8 & 9 in Bosnia from 2000–2001. During his military career, Mr. Aven served in a variety of Command and Staff positions. Key positions include Corps Logistics Planner for 3 Corps at Fort Hood, and Support Operations Officer, 3rd ID(M) DISCOM Fort Stewart, Georgia.

Kevin was awarded a bachelor of science degree in health care administration from Western Michigan University and holds a master's degree in Political Science from Ball State University. Kevin is married and has three sons and lives in Indianapolis, Indiana. His two oldest sons attend Purdue University and his youngest son attends Ball State University.



Mr. Ronnie Chan

Mr. Ronnie Chan is a predictive analytics solution architect in the IBM Analytics group. Prior to Analytics, he was a senior IT specialist in Data & Information Management, specializing with Relational Database Technologies. Ronnie has more than 20 years of experience as a technical specialist in IBM. He has applied machine learning algorithms and solved a diverse range of real-world business problems across industries, such as root cause of production down-time analysis in oil and gas, peak load demand forecast in utilities, budget forecast in governments, and social housing insights. His areas of specialty are business intelligence, data preparation, advanced analytics using machine learning and cognitive computing.

Ronnie holds a bachelor of science degree with honors from the University of Salford in the UK. He lives in Melbourne, Australia, and is married with two daughters. He is a parent helper in a local scout group, enjoys adventure weekends and hiking with the scouts. He also crews in hot air ballooning in the cooler months during the southern winter.



Dr. Ilyas Iyob

Dr. Ilyas Iyob has pioneered the application of Operations Research to Cloud Computing. He is in the forefront of developing Cloud Analytics, which includes the algorithms for IT Supply Chain Optimization, Virtual Data Center Capacity Planning, and Automatic Scaling and Provisioning of Virtual Machines. He has spent over ten years providing strategic and tactical decision support to the office of the CIO.

Iyob holds multiple patents in Cloud Analytics, which has become the rosetta stone of Cloud Brokerage. In 2001, he was awarded the "World Mechanics Prize" by the University of London, and he routinely speaks at international conferences worldwide. Dr. Iyob currently works as the chief scientist and distinguished engineer at Gravitant, an IBM company. He also serves on the faculty of the Department of Operations Research and Industrial Engineering at the University of Texas at Austin.

Dr. Iyob is originally from Sri Lanka but currently resides in Austin, Texas with his wife and two daughters. In his free time, he tunes and races cars in the hill country.



Mr. Michael O'Leary

Mr. Michael O'Leary leads the IBM Procurement Solutions business, helping companies with their Procurement transformation journey. In addition, Michael leads a new offering team launching a groundbreaking solution "IBM Supply Chain Insights (SCI)." SCI will provide our clients comprehensive visibility across their supply chain, easily integrating both disparate data sources, to illuminate areas of potential disruption and allow the supply chain professional to quickly work through mitigations alternative and resolutions with the augmented help of Watson. Prior this role, Michael held numerous Procurement and Supply Chain leadership roles, including enterprise IT transformation, strategic sourcing, supply/demand planning, inventory operations, cost operations, category management and supplier B2B integration.

Before joining IBM, Michael served eight years as a U.S. Navy Officer in the Nuclear Power Engineering program. He holds an MBA from the University of North Carolina and a Bachelor of Science in Engineering from Duke University. Michael resides in Cary, North Carolina. His is an active runner and youth soccer coach.



Ms. Amanda Young

Ms. Amanda Young is a digital consultant and leader within the IBM iX Studio in Melbourne, Australia. Starting out her career as a CPA, Amanda now has more than fifteen years' experience in a wide array of roles and across a variety of industries, including Retail, Financial Services, Telecommunications and Utilities. Since joining IBM, Amanda has been leading Digital Strategy and Delivery teams working with clients on Digital Transformation, Agile ways of working and leading them to create customer-centered experiences.

Amanda is a high-performing and passionate leader of teams who creates a culture of engagement, efficiency and community. This is exemplified by the fact she has recently won an IBM "Champion Manager's" award. As a leader in the Digital Studio, Amanda mentors graduates, interns and is also a proud role model for female talent in technology. Amanda resides in Melbourne, Australia. In her spare time she enjoys reading, gardening and going wine tasting.



Ms. Anne McNeill

Ms. Anne McNeill is the senior program manager for the Smarter Cities Challenge (SCC) program. She has been a part of the SCC since its inception participating in some capacity with all 133 projects to date. She joined IBM in 2000 as a corporate community relations manager for North Carolina, South Carolina and West Virginia. In that role, she managed IBM grants to local organizations, provided communications and government relations support to IBM sites in the three states and managed volunteer activities for employees.

Prior to joining IBM, Anne worked in communications for the United Way of Central Carolinas, the Public Library of Charlotte, The TCI Companies, WTV—a PBS affiliate in Charlotte, North Carolina, and Louisiana Public Broadcasting. Anne resides in Charlotte, North Carolina. She is an avid walker, averaging 6 to 10 miles per day. She is married with one adult son, a Great Dane and a Yorkie.

The Smarter Cities Challenge deploys top talent IBM executives to help cities around the world address their most pressing challenges. We do this by putting teams on the ground for three weeks to work closely with city leaders to deliver recommendations on how to make the city more effective in supporting its citizens. Since 2010, IBM has deployed more than 700 IBMers to 133 cities.

The City of San José has been experiencing a severe housing affordability crisis. San José is one of the most expensive cities in the country in which to live, and it has one of the highest rates of rent increases in the country. In March 2016, the median rental price for a one-bedroom apartment in San José was \$2,244 per month (\$26,928 per year), a 9 percent increase in costs over March 2015. The median rental price for a two-bedroom apartment was \$2,792 per month (\$33,504 per year), a 7.3 percent increase over March 2015. Over the past two years, the San José community has been engaged in a discussion regarding the Apartment Rent Ordinance and its role within our community. Based on input from the community and information from staff, the City Council passed the Ellis Act Ordinance and Tenant Protection Ordinance.

The IBM team will be participating in San José's efforts to develop new web applications and data analytic tools that will support the Ordinance and allow the City better ways to monitor inventory, make informed decisions about housing and assist residents in finding available affordable housing units.

To learn more about the program, visit: smartercitieschallenge.org.



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