Enhancing resident engagement through a community-based approach for *The Green Village*

Appendix

Enhancing resident engagement through a community-based approach for *The Green Village*

Master Thesis
Delft University of Technology
Faculty of Industrial Design Engineering
Strategic Product Design

Graduate Student
Monisha Mohan
Student number: 5897459

Supervisory Team
Chair:
Prof Dr. Stella Boess
Department of Human-Centred Design
Delft University of Technology

Mentor:
Ms. Paula Melo Signerez
Department of Design,Organisation and Strategy
Delft University of Technology

External Mentor:
Ms.Willy Spanjer
Program Manager, Sustainable Building & Renovation
The Green Village, TU Delft

TUDelft

THE GREEN VILLAGE

Contents

Appendix A: Project brief

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IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:
- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME
Complete all fields and indicate which master(s) you are in

Family name	Mohan	IDE master(s)	IPD ☐	DfI ☐	SPD ✔
Initials	M	2nd non-IDE master			
Given name	Monisha	Individual programme (date of approval)			
Student number	5897459	Medisign	☐		
		HPM	☐		

SUPERVISORY TEAM
Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	Stella Boess	dept./section	HCD/HTR
mentor	Paula Melo Signerez	dept./section	DOS
2nd mentor	Willy Spanjer		
client:	The Green Village		
city:	Delft	country:	Netherlands
optional comments			

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

Name Stella Boess   Date 18 June 2024   Signature

TUDelft

Personal Project Brief – IDE Master Graduation Project

Name student	Monisha Mohan	**Student number**	5897459

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT
Complete all fields, keep information clear, specific and concise

Project title   Designing a resident feedback tool to enhance product innovation at TU Delft's Green Village

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The Green Village is a field lab at the TU Delft Campus, exempt from standard rules and regulations, focusing on the built environment where testing takes place at the neighborhood, street, and building levels. It is open to knowledge and educational institutions, entrepreneurs, government bodies, and civilians to research, experiment, validate, and demonstrate their sustainable innovations.

The facilities include a testbed, tours and events, and a data platform.

Living Lab: This testbed allows for research on various innovations related to the living environment. Research themes include applying new materials, testing new services, water innovations, DC grids, and innovative appliances. In collaboration with DUWO, the houses are inhabited by real residents (students), ensuring that innovations are subject to real usage, real consumption, and real feedback.

Tours & Events: The Green Village hosts many thousands of visitors each year, to whom the innovations are demonstrated.

Data Platform: This platform hosts technical data (e.g., energy consumption, air quality, and water consumption) collected to analyze the performance of tested technologies in and around the built environment. This data, measured by sensors and loggers installed in and on the buildings and streets, provides additional information to improve the solutions.

Stakeholders:

Entrepreneurs/ researchers, Residents (12 residents single/couples), Green village, Social housing organisations - De Bewonersraad (500 online respondents) and Visitors

https://www.thegreenvillage.org/

➔ *space available for images / figures on next page*

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

In rapidly evolving industries, nearly two-thirds of new products fail due to insufficient adaptation to customer needs (Lempres, 2003). Studies emphasize that incorporating customer needs and understanding into product innovation significantly enhances product novelty and reduces innovation risks (Brockhoff, 2003). The Green Village, an inhabited field lab, serves as a preparatory and testing ground for products before pilot tests. However, an efficiency challenge arises due to the lack of a structured approach to generate and gather user feedback. While the Green Village's data platform hosts technical data, feedback from users and residents is not yet streamlined. Researchers often use qualitative research methods of their choice to collect feedback from residents, but lack expertise to systematically apply leading methods, resulting in challenges in collecting reliable and rich data. This poses a significant challenge for researchers to take steps towards implementation and scaling up their innovations, which, in turn, affects the success of the Green Village. Additionally, residents test the innovations but feel that their feedback is not being used effectively, leading to a sense of exclusion.

By making resident feedback accessible to researchers, the Green Village can help its stakeholders and demonstrate its impact in several key ways: The data enables researchers to incorporate the human aspects into their studies, enhancing the social relevance and success of their research. Collecting feedback on innovations helps their collaborators (housing organizations) make informed decisions, reducing the risk of rejection by addressing resident concerns and preferences. Listening to and acting on feedback fosters a sense of belonging among residents, actively involving them in the innovation process and enhancing their engagement.

Lempres, E. C. (2003). A product is born. The McKinsey Quarterly.

Brockhoff, K. (2003) `Customers' perspectives of involvement in new product development', International Journal of Technology Management

https://www.thegreenvillage.org/over-ons/

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for.
Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)
As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design and validate a tool/method to gather resident feedback on the innovations for the green village to generate data that is useful for its stakeholders to improve the societal fit of the innovations while demonstrating its impact.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

I will perform research to inform the design and employ IDEO's 3I process: Inspiration, Ideation, and Implementation to thoroughly explore the problem and create an user-focused solution.
1. Review existing tools and methods for gathering feedback used in similar contexts and identify factors that contribute to resident satisfaction through literature research. Make simple prototypes of the identified tools/methods. Build a stakeholder map through observation and initial information
2. Conduct generative research: i) semi-structured interviews (5-7) with key stakeholders, including residents, researchers, entrepreneurs and green village representatives, to gather insights on their journey, needs and challenges to give and receive feedback. The interview includes generative elements (sketches, photos or prototypes) to gather thoughts on the identified tools/methods from the literature research.
ii) Perform autoethnography to observe and experience the journey of the residents firsthand - will capture my 1st month social experience and interactions with the innovations at the green village and document it in a research diary. (Steps i and ii happens parallelly)
3. Update the stakeholder map with the insights collected during the interview to understand and demonstrate the stakeholders role and relationship.
4. The data from the interviews and autoethnography will be thematically analysed and categorised into pains, gains, needs, activities, and insights and mapped into a resident experience map to identify points of intervention.
5. Based on the initial insights collected, I would lead an ideation session with the stakeholders (~ 5 participants).
6. These ideas will be reviewed to develop design concept which will be validated by the stakeholders (~ 5 participants) through a feedback session and the design will be refined based on the feedback.
7. Develop the final version of the tool(s)/method and create a detailed Roadmap outlining the necessary steps and phases for implementing the proposed solution.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	10 Jun 2024
Mid-term evaluation	1 Aug 2024
Green light meeting	24 Sep 2024
Graduation ceremony	28 Oct 2024

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

I responded to the assignment posted by Green Village because of its unique experimental setup. It is something new to me, and I am genuinely curious to explore more about the Green Village approach and how stakeholders collaborate. I was also excited to see that Green Village is interested in examining not only the technological impact but also the social impact, which is crucial for building a more sustainable environment. The main focus of this research on the residents provides me with a great opportunity to understand and experience their role in innovation more deeply.

I aim to demonstrate my learning in qualitative research and service design, with the goal of understanding the resident journey and designing appropriate interventions to capture their feedback effectively. Coming from an architecture background, I have a profound interest in user-centric design and a better understanding of the impact of interventions on the built environment. However, this also means I have limited skills in designing and validating tools and methods. Through this project, I'm eager to broaden my knowledge in human-centered design, develop my skills to design and validate tools and methods. I will put extra effort into enhancing my skills to efficiently communicate concepts through sketches, storyboards, or prototypes. Additionally, I will focus on learning effective ways to organize feedback sessions and assimilate feedback.

Appendix B

B1. Interview Questions

Interview with representative from Tenants' Association De Bewonersraad Friesland (P5)

Collaboration with TGV:
1. Could you tell me about your role and responsibilities
2. More about the online panel? Why do you have them, what's in it for them. Incentives? Are they currently involved in any TGV activities?
3. Could you tell me about your collaboration with TGV?

Follow up questions:
4. What is the Motive for working with TGV?
5. What are your expectations from TGV?
6. What is the value exchange between De Bewonersraad and the Green village(TGV) ? (Eg. Finance, brand awareness or research?)
7. what is the common challenge that you see among the users when it comes to innovations

Innovation Process at Dreamhus
8. Can you describe your involvement in the different stages of innovation that happens at the green village, from ideation to implementation?
9. Whom do you primarily interact with – TGV or researcher/entrepreneurs or residents? Can you also explain?

Relationship with Researchers/Entrepreneurs
10. How do you support researchers/entrepreneurs or TGV in the innovation process? (Examples: knowledge exchange or setting up Co-creation sessions with tenants)
11. Validation of Innovations
12. How do you validate whether an innovation is suitable for application in the rental houses? Are there specific metrics/factors you use?

Follow up:
13. What is your role in the feedback collection process? Are you directly involved in gathering and analyzing feedback in TGV or the online panel?
14. What methods and tools do you use to collecting feedback?(eg. Survey, interviews)
15. What would you want to know from the user feedback?
16. What are the challenges in collecting feedback?
17. What is the level of participation of the online panel
18. Considering TGV, very few residents test the product. How do you ensure wider applicability?
19. Who are the other parties that decide on the innovations that goes into the rental houses?

Project Considerations for Scaling Up
20. What kind of approach do you take when deciding to implement a new product in rental properties? Do you check for its residents (or other panel) interest on that matter? If yes, how?
21. Why were you interested to get involved in the project

Interview with representative from WoonFriesland, the social rental company (P4)

Collaboration with TGV:
1. Could you tell me about your collaboration with TGV?
(Follow up question for clarity: Motive? What are your expectations from TGV? ownership of Dreamhus?)
2. What is the value exchange between you and TGV? (Do you pay TGV, or do they pay you for the collaboration)
3. Do you decide on which innovations to be tested at dreamhus?
4. Do you sponsor Innovations?

Innovation Process at Dreamhus
5. Can you describe your involvement in the different stages of innovation that happens at Dreamhus (A 1970 replica building in the greenvillage), from ideation to implementation? (Their approach to innovation)
Probes if needed:
6. How do you collaborate with the researchers/entrepreneurs and residents involved with Dreamhus?
7. What do you think is the role of the residents at the green village? What are your expectations?

Validation of Innovations
8. How do you validate whether an innovation is suitable for application in the rental houses of Woonfriesland? Are there specific metrics you use? (I see affordability is one factor in considering a project for scale-up. What other factors do you consider important?)
Follow up:
9. Given that only a few residents test the product in the TGV, how do you ensure that these innovations have wider applicability across your rental properties
10. What is your role in the feedback collection process? Are you directly involved in gathering and analyzing feedback?
11. What is your approach to collecting feedback?(In one article, they mentioned they always use survey at the end of testing) Is it primarily decided by you or the researchers?
12. What kind of data on user feedback is helpful in deciding which innovations work best? What are the challenges?
13. Who are the other stakeholders involved in deciding which innovations are implemented in the rental houses? (does the tenants' association 'De Bewonersraad Friesland play a role?)

Project Considerations for Scaling Up
14. What kind of approach do you take when implementing a new product in rental properties? Do you test it in a few houses first? Test in 10 houses
15. Can you describe the process you use to collect feedback from residents in the rental houses where the product is being tested?
16. Do you have any specific programs or strategies in place to educate residents about energy-saving practices?

Relationship with Researchers/Entrepreneurs
17. Could you describe any support your organization provides to researchers, entrepreneurs, or TGVs in the innovation process? particularly through avenues such as knowledge exchange or other collaborative efforts?
18. Have you explored other feedback methods or tools ? like co-creation, diary, discussion forums
19. What do you consider the two most important factors when choosing a method or tool to collect feedback?
20. Data Relevance and Actionability: The method should allow for the collection of relevant and actionable

Interview with Residents (P1-3)

Background and Motivation
1. Can you tell me a bit about yourself and what motivated you to live in the living lab?
2. What were your initial expectations when you decided to become a resident here?

Early Concerns
3. What were your initial concerns before moving into the living lab, particularly regarding safety and privacy?
4. How were these concerns addressed by the living lab team before you moved in?
5. How informed did you feel about what to expect before you became a resident in the living lab?
6. Did you receive any information or guidelines about safety, privacy measures, your rights in the living lab?

Experience as a Resident
7. How has your experience been living in the living lab so far?
8. Were there any surprises or unexpected aspects after you moved in that you wish you had known about earlier?
9. What are your main needs as a resident in the living lab?
10. What aspects of living in the lab do you find most rewarding?
11. Are there any aspects you find particularly challenging living as a resident?

Participation in Innovation Testing
12. How do you perceive your role as a resident in the green village?
13. Can you describe your involvement in innovation process within the living lab?
14. What types of innovations or products have you tested?
15. How do you typically provide feedback on the innovations you test?
16. Do you feel that the current feedback mechanisms are effective and easy to use?
17. Have you experienced any challenges in providing feedback, and if so, what were they?
18. Do you feel that your feedback and participation are valued by the project teams?
19. Can you share an example where your feedback led to a noticeable change or improvement in a product or service?
20. How do you think the living lab could improve its approach to collecting feedback from residents like yourself?
21. How do you feel about getting involved more in the innovation process, may be through ideation sessions, more detailed and frequent feedback requests, discussion forums? would that be beneficial or burdensome?

Willingness to Participate
22. What motivates you to participate in the innovation activities and feedback processes?
23. Are there any barriers or concerns that might prevent you from participating more actively?

Social Aspects
24. How would you describe the social environment in the living lab? Have you formed connections or relationships with other residents or participants?
25. Do you feel a sense of community here, and how does that impact your experience?

Satisfaction
26. Overall, how satisfied are you with your living experience in the lab?
27. What aspects contribute most to your satisfaction here?
28. Are there any areas where you feel your expectations have not been met?
29. What improvements or changes would you like to see in how the living lab operates or engages with residents?
30. Is there anything else you would like to share about your experience and insights from living and participating in the living lab?

Interview with researcher at the Green village (P6)

Collaboration with TGV:
1. Could you tell me about yourself and your research project
2. Could you tell me about your collaboration with TGV? (why TGV?)

Research Process
3. Can you describe the overall research process you follow in the living lab?
4. What methodologies do you use to gather data from living lab residents?
5. How do you ensure that the feedback collected from residents is accurate and reliable?
6. What tools or technologies do you use to facilitate the research process in the living lab?
7. How do you incorporate the feedback from living lab residents into your research and innovation process?

Expectations
8. What were your initial expectations when you started working on this project with the living lab?
9. How have your expectations evolved over the course of the project?
10. What outcomes do you hope to achieve by the end of this project?
11. How do you measure the success of your research within the living lab?
12. What are the key indicators of a successful innovation process in the context of a living lab?

Challenges
13. What are the biggest challenges you have faced in your research within the living lab? Can you share an example of how you overcame the challenge?
14. What are the limitations of working within a living lab environment compared to traditional research settings?

Involvement of Other Stakeholders
15. Who are the primary stakeholders involved in your research process within the living lab?
16. How do you engage and collaborate with these stakeholders?
17. What role do living lab residents play in the decision-making process of the innovation project?
18. How do you address the challenge of maintaining engagement with living lab residents?
19. How do you manage conflicting feedback or opinions from different stakeholders?
20. Can you provide an example of how stakeholder involvement has positively impacted your research?

Additional Insights
21. What have been the most surprising insights or findings from your research so far?
22. How do you stay updated on the latest trends and best practices in living lab research?
23. What advice would you give to someone starting a research project in a living lab environment?
24. How do you envision the future of living lab research and its impact on innovation?
25. Is there anything else you would like to share about your experience and insights from working in the living lab?

Interview with an entrepreneur at the Green village (P7)

Collaboration with TGV:
1.   Could you tell me a bit about yourself and how you started working with TGV?
2.   What were your initial expectations when you decided to join the Green Village?
3.   Have your expectations changed since you started working here? If so, how?

Research Process
4.   Can you tell me about your innovation process, how you find the challenge, and what are the subsequent stages.
5.   At which stage you start working with TGV?
6.   As a company, how important is user feedback for you? And in which stages of your innovation do you seek feedback?
7.   What is the project you are working on now and what outcomes do you hope to achieve by the end of this project?
8.   Has the environment of the Green Village influenced your innovation approach?
9.   Are there specific facilities or infrastructure that you find particularly beneficial?
10.   What resources or support do you need to achieve your goals within the Green Village?

Collaboration and feedback
11.   Do you involve residents and other stakeholders in the innovation process? How?
12.   How important is their feedback to your project? What do you hope to learn from the feedback?
13.   What methods and tools do you use to gather data from living lab residents?
14.   How do you ensure that the feedback collected from residents is accurate and reliable?
15.   What do you do with the feedback?
16.   What are the challenges you face when testing the product or collecting feedback?
17.   If you can do it differently, how would you do it?
18.   Are there any new tools or technologies you believe could enhance feedback collection and analysis

Challenges
19.   What are the biggest challenges you encounter in your work at the Green Village?

Additional Insights

20.   If there is something TGV can do to make your work easier ? what would that be?
21.   What advice would you give to someone starting a research project in a living lab environment?
22.   Is there anything else you would like to share about your experience and insights from working in the living lab?

Interview with Project manager at the Green village (P8)

Background
1. Can you tell me about your role and responsibilities within the Green Village projects?
Role and Values of the Green Village
2. How would you define the core values and mission of the Green Village?
3. In your experience, how do these values influence the projects and innovations developed here?
4. How do you ensure that the projects align with the overarching goals of the Green Village? (ans may be to have a research process)
Stakeholder Needs and Challenges
5. Who are the primary stakeholders in the projects you work on, and what are their main needs and expectations?
7. Can you list down some challenges experienced by the stakeholders?
8. Can you describe some of the key challenges that you face when collaborating with different stakeholders?

Role of Living Lab Residents/users
9.   What does TGV expect from residents?and what value do they bring?
10.   What is the value exchange between TGV offers to the residents?
11.   What is the main purpose of having residents in the Green Village? (Is it only for testing or to include them in innovation?)
12.   How do residents (users) contribute to the innovation process, and can you share an example where their feedback influenced outcomes?

Feedback Collection and Utilization
13. Can you describe the types of projects that involve user feedback versus those that do not, and explain the reasons for these differences?
14. What methods are currently being used by researchers/entrepreneurs to collect feedback from users (residents/staff)?
15. How is the data validated for reliability and bias (considering the small sample, different conditions, they are part of a contractual agreement. interest, willingness to use a product)? If they are aware, then what are the common topics in which the feedback is collected?
Is there any measure that is being considered to overcome this bias?
16. Does the Green Village offer any assistance in data collection related to user feedback? (Recruiting participants, data collection tool, platform to host data)
17. Are there guidelines to ensure balanced participation of users? (to ensure that users are neither underused nor overused) what is the problem in having one?
18. How does the Green Village evaluate the satisfaction of its stakeholders? (do you collect feedback)
19. what methods are employed for collecting feedback from residents and stakeholders?

Future Growth and Improvement
21. What do you see as the future growth opportunities for the Green Village?
23. What measures are being considered to enhance involvement and satisfaction of residents and stakeholders in the innovation process?
25. What additional resources or support are needed for the Green Village to achieve its goals?

Reflective and Open-Ended Questions
22. What is you take on co-creation in innovation? And what is the level of co-creation that happens in the Green Village?
26. If you could change one thing about how projects are managed or developed within the Green Village, what would it be?
27. In your opinion, what is the most critical factor for the success of a living lab like the Green Village?
28. Is there anything else you would like to share about your experience and insights from work-ing in the living lab?

Appendix C

C1. Session booklet

CHOOSE YOUR ALIAS FOR TODAY'S SESSION

I am ....

"I solemnly swear to unleash my inner brainstorming ninja, wield wild creativity, and toss ideas into the mix with an open mind!"

WHAT MAKES YOU TICK?

Brain dump everything that drives you to tackle tasks, big or small. Think about what gets you going and jot down everything that comes to mind. Let's uncover what makes you tick!

IMPACT SAFARI

What do you think is your current level of contribution to the innovation process?

Circle the level that you think describes your contribution in the innovation process

`0 1 2 3 4 5 6 7 8 9`

Describe your involvement and activities corresponding to the level you marked

IMPACT SAFARI

Now, let's think about the future! Based on where you are now, what would your desired level of contribution be in the innovation process? Write down your ideal level of involvement and the activities you'd like to be part of.

Circle the level that best describes your ideal level of involvement in the innovation process

`0 1 2 3 4 5 6 7 8 9`

Describe your desired level of involvement and the activities you envision contributing to

WHY DO YOU WISH WHAT YOU WISH?

Take a moment to think about your preferred level of involvement in the innovation process. Now, ask yourself "why" five times to dig into what's driving your preferences.
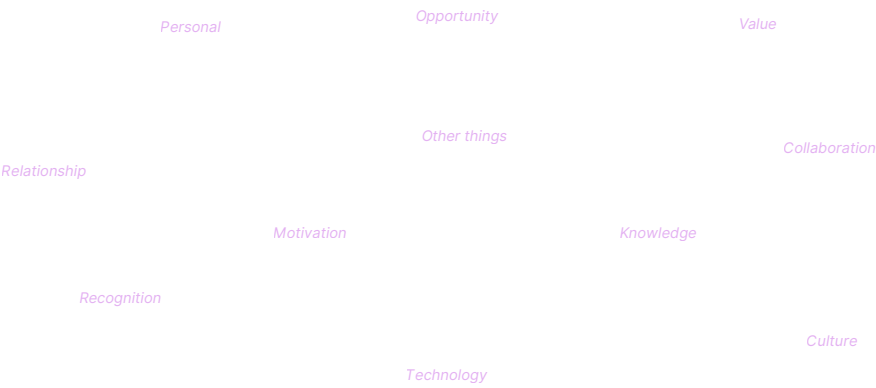
Why?

Why?

Why?

Why?

Why?

BARRIER BUSTER

What's Blocking Your Involvement in Innovation? Write down the barriers that are stopping you, or could stop you, from getting as involved as you'd like in the innovation process. Use the prompts to guide your thoughts and unload your brain. Use post-its.

> What are the barriers?

Personal   *Opportunity*   *Value*

Other things   *Collaboration*

Relationship

Motivation   *Knowledge*

Recognition

Culture

Technology

CLUSTER

Time to group up those barriers! Find the ones that are similar or related, cluster them together, and come up with a name for each cluster!

HOW MIGHT ME (HMW)

As a group, write 'How might we' questions for each cluster

Tips to write good HMWs

1: Start with the Problems (or Insights) You've Uncovered

2: Avoid Suggesting a Solution in Your HMW Question

3: Keep Your HMWs Broad

4: Focus Your HMWs on the Desired Outcome

5: Phrase Your HMW Questions Positively

Examples:

Problem	Users often call us because they're unsure about the application process.
HMW (poor)	How might we stop users from calling us?
HMW (good)	How might we make users feel confident they have all the information they need?

Insight	Users are often unsure about which form to complete when they file their taxes.
HMW (poor)	How might we tell users which form to complete to file their taxes?
HMW (good)	How might we make users feel confident they are filing their taxes correctly?

BRAINWRITING

Let's get creative! Each person writes 3 ideas for the HMWs in each round. After each round, swap your worksheets and keep the ideas flowing. You can build on previous ideas or come up with new ones. Remember, there are no bad ideas! Grab the A3 sheets and let's dive in!

Ground rules:
1. Write legibly
2. Avoid jargon and acronyms
3. No judgements no criticism
4. Wild ideas are welcome
5. Focus on quantity
6. Feel free to add, modify and combine ideas to make better ideas

LIGHTBULB MOMENTS

What's sticking with you from today's session? What's the most important idea or insight you're taking away?

Insights

Challenges informed by the participants (digitised)

unclear feedback process
no structured feedback 'plan' in place - easy to fall of the agenda or to do list as no on is really accountable for this past years i feel
no rules about the feedback process (example : someone came by unannounced and we had to think of feedback on the spot)
accessible feedback opportunities / loops

lack of involvement
Its a one time thing

Time management
its conflicting my work schedule its mostly overlapping
Limitation in time possibility to contribute outside of working hours
prioritising time
Time - to interact with the innovation, to think about what i think about it, to do something with my feedback, to put my interaction into actions
Being busy with other things/ not being able to provide qualitative feedback
I have to actively check and fill in the questionnaire on a moment that suits me
time
as its not my priority, it disappears on my to do list

Resistance because of your own opinions/assumptions
The hassle of giving my feedback when i dont know whether it will end up to someone who can put it into action
uncertainty about own personal knowledge on the topic
personal opinion on whether a certain innovation is a good/sustainable idea or not
it can be scary to try something new (giving feedback)
splitting time between innovations (how to know in advance which can benefit the most from your involvement)

Lack of proactive communication
collaboration between stakeholders. Feedback - response session. no clear feedback response.
dont know when its coming or how many times and level of innovator
Request of innovators is not always clear why, how, time, deadline etc.
the lack of not actively being asked on what i think about a certain innovation
communication - no updates/enquetes (surveys?)/detailed info besides telling Innovation readiness level
no need?! or initiative from the innovators
motivation (both sides) - the innovator didnt respond anymore and missed meetings

Requests for activities or setup are not attractive
boring to do, very one sided, no interaction
need for more user friendly tests (user focused)
need for more creative ways of asking for feedback

lack of basic clarity about innovations
lack of knowledge about what kind of tests/experiments
no place to gather info about all innovations - so we forget what they do exactly
knowledge on what innovations there are to interact with (if i dont know its there, i dont know if i am a user)
easily accessible updates on the innovations I have contributed to

knowledge barrier
limited knowledge of technology rules and how to use the technology (innovation)
breadth of technological solutions available (innovations) to use in the sense of needing to re learn how to be a user for each
Time it takes to build up knowledge for one innovation
catering to many different types of entrepreneurs (hard to provide input for a broad scope)

lack of appreciation of any type of feedback
not having direct contact or not feeling influenced by the innovation because - it is not in my home - the scale is too small
not having a similar setting or experience as real end users (i cannot test the green paving spots as a car user as i do not own one) - feeling uncapable of providing useful feedback
feeling uncomfortable to give feedback in the process of learning how to do this
the bias that i am interacting with knowledge from a 'colleague' perspective
importance of why i should do it and why should i do it now
not feeling as though my input or feeling is appreciated
feeling as giving unwanted feedback to a very driven/focused entrepreneur

C2. Insights

Participants' Responses from the Booklet: Transferred and Coded

	Participant alias	Current contribution on a scale of 0-9	Desired contribution on a scale of 0-9	Insights from 5 Why activity	Code	Insight from Impact safari activity	Quotes
Resident"	Biscuit	4-6 around 50%	7-8 (upto 70-80%)	to learn more regarding the innovation and how it works to fullfill curiosity - to save money and reduce CO2 emissions or other things	Own benefit - knowledge and save money	wants to move from try person to feedback person. Learning about innovations fill their curiosity, adds knowledge	"(their current contribution makes them feel like)"try person or alarm person""
Researcher	Marlee	2	8 or 9	It's part of my phD project - There needs to be a shift in our way of innovating, we have the solutions that are developed interdisciplinarily, TGV is doing that Well. But what we don't know, is how to scale. It's not enough to have these	To improve innovation for greater good.	Underutilised. The drive is from a professional motivation. Feels they have the expertise that could help	
employee	Super funky	2	4	Because I think that feedback from users can contribute a lot to the inovation in a place like TGV - Because to invent an innovation needs different skills then marketing and selling it	To improve innovation as innovators may lack user perspective	don't interact much or their interaction don't do much to innovation. Expects innovations to have a continous feedback loop. Wants to feel like their interaction with the innovation matters. Thinks that people thoughts and preferences at work is different from private life so user perspective could really help	"As a user i dont interact with the innovations that much or dont do too much with my interactions with the innovations." "Sometimes uncomfortable as if you were critisizing someones "baby"".
employee	Wilzor	2 or 3	7	I think my feedback can be helpful and valuable for further development and I love to make the	To improve innovation for greater good.	Would like to contribute only when its is really important for the innovators. Feels they	
employee	Lil' Hannie	4	5	I want to be involved in the innovation process - I care about the climate, Our well being and nature and want to stimulate innovations that	To improve innovation for greater good.	Innovations should fit the needs and requirements of the end user and their feedback is very valuable. Interesested to see	
employee	Pasta	2	7	I want to have a bigger impact/involvement - to share my experience and in that way hope to have a positive effect on the	want to stay informed and want to opportunity to make impact	wants to be the innovation ninja, more involved and appreciated. And wants to share his/her experience to have a positive	
Resident	Jellson	4	6	I want to make an actual contribution to the testing process - Because feeling usefull makes me feel like I matter	see this is an opportunity to make real impact	feels like a lab rat, confused at times about their current involvemnet. Have not given a lot of feedback. Would like to use her professional expertise. Wants to play her part of being in TGV and contribute to	"(their current contribution makes them feel like)"tester or lab rat""
Resident	Donatello	8	9	I want to help the innovation more - so the product works better - so we can live	To improve innovation for greater good.	expects communication with company. His contribution could make the product better. Involving more would bring satisfaction	"testing the innovation at our house. Sometimes provide feedback when asked"

Scanned images of the Brainwriting sheets

Appendix D

D1: Placemaking

Transforming TGV from a Space to a Place

Design goal : To foster resident's sense of place and sense of belonging through Placemaking in TGV

"Community" is often used to refer to a physical place, and creating a sense of place is important because it helps build a strong sense of community among the people who live there. The sense of place or community acts as social capital, shaping residents' personal identities, making them feel more connected to the area, enhancing the quality of life, and promoting a sense of well-being. (Australian Local Government Association, National Heart Foundation of Australia, & Planning Institute of Australia, 2008; Junot, Paquet, & Fenouillet, 2018; National Academy of Sciences, 2002).

Placemaking:
Project for Public Spaces (2015) describes placemaking as the process of making a physical space meaningful. In this sense, a place is more than just a location; it's an environment where people have developed a connection over time, shaped by its unique cultural and social identity also Calvium, (2024) defines placemaking as giving life to a location; it's a planned effort to influence how people behave and perceive a place (Lew, 2017).However, not all public spaces succeed in becoming places that people feel connected to. Project for Public Spaces (2015) points out that spaces that are poorly managed or hard to access can create barriers between people and their environment, making them feel unsafe, excluded, or even threatened.

While placemaking is often used in architecture and urban design, particularly in public spaces, there's not much discussion about how it applies to small communities. This is where digital placemaking comes in as a newer idea, offering more flexibility and resilience than traditional methods. As the digital world grows, digital placemaking helps us adapt physical spaces in ways that traditional approaches can't. Morrison (2022) describes digital placemaking as using digital services or experiences tied to specific locations to make physical

spaces more meaningful and engaging.

Chen et al. (2022) talk about three key aspects of public space—sociability, materiality, and subjectivity—and show how digital placemaking can enhance these by making social interactions more resilient, strengthening the flexibility of the space, and fostering a variety of personal experiences. This concept considers these aspects, combining traditional and digital placemaking to boost community engagement and create more meaningful spaces at TGV.

Sociability refers to their ability to facilitate social interaction, helping people connect and find balance between their public and private lives.,

Materiality refers to the physical and functional characteristics of the space, including its design, structure, and how it supports diverse activities and social interactions.

subjectivity refers to the personal and collective experiences, memories, and emotional connections that people form with a space, giving it unique meaning and significance beyond its physical attributes.

Excerpt from Chen et al. (2022)

Placemaking is not an end product but a process:
Placemaking is not just an end product but an approach that involves integrating the perspectives and roles of various participants to transform urban spaces. It goes beyond simply designing the physical environment and recognizes the social processes that shape these places(Akbar & Edelenbos, 2021). Placemaking leads to creating good spaces, but it works best when community members are actively involved in shaping their public areas. When residents take part in planning and development, they have a stronger voice and a bigger role in improving their surroundings. This not only empowers individuals but also builds local leadership and strengthens the community(Ellery & Ellery, 2019). Silberberg et al. (2013) describe how placemaking

creates a positive cycle where the community and its environment shape each other. As people transform their spaces, those spaces, in turn, influence how the community interacts and lives. This process brings physical changes and social benefits like a greater sense of belonging and connection within the community.
Design criteria:
The design intervention should

- make residents feel connected to TGV as a space
- make residents feel connected to TGV as a community
- create opportunities for interaction among the TGV community
- The process should be collaborative involving both residents and TGV employees
- Should satisfy the factors specified in the resident engagement framework

Design Approach: Placemaking as a product and a

tool to build sense of community
This project has engaged the TGV community from the outset, following a human-centred design approach. For the design of the intervention, I recommend IDEO's 3-step HCD process. In the Inspiration phase, curated ideas from this graduation research are presented to TGV. However, further detailing and validation of these ideas fall outside the scope of this project.
The next recommended steps involve the community in refining these ideas and developing the design further. By incorporating community participation and input, TGV can include residents in the decision-making process to identify the most feasible ideas and implement them. As placemaking is a continuous process, after implementation, it is crucial to gather feedback from the community and refine the ideas to sustain long-term engagement.

User participation

| Insipiration | Ideation | Implement-ation |

Context specific research informed ideas | Detailing the ideas with the community | Implementing the ideas and collect feedback

Placemaking:
- Mascot
- Third spaces
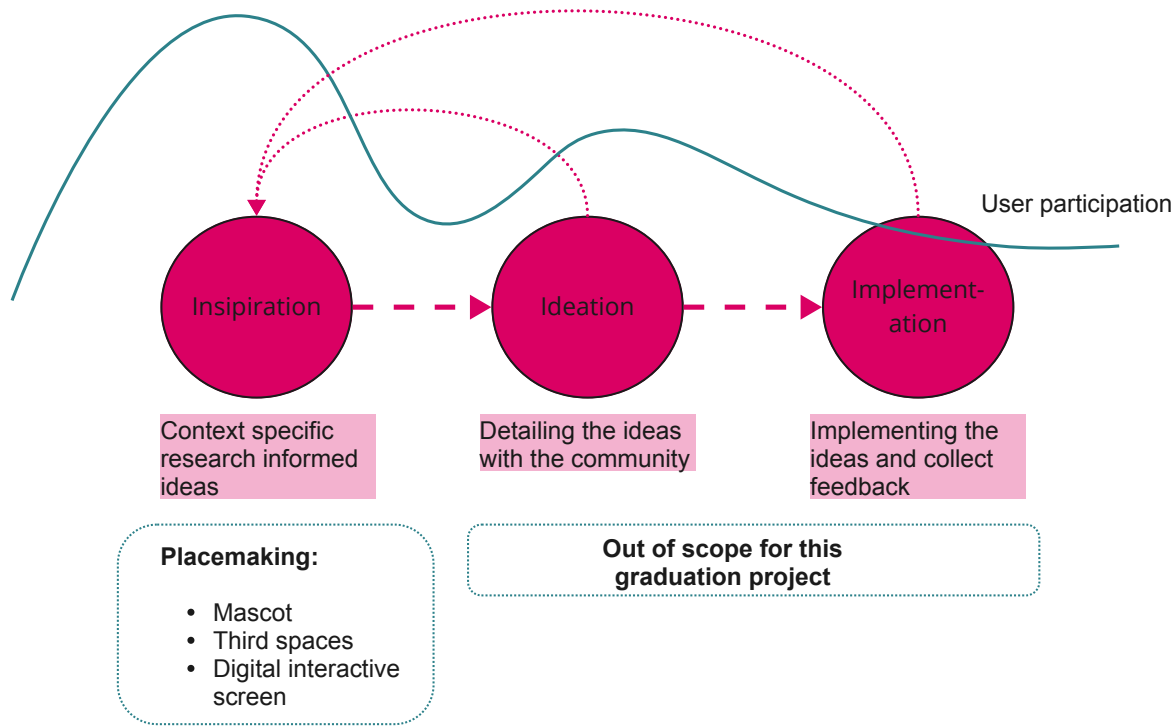- Digital interactive screen

Out of scope for this graduation project

Fig: Proposed design approach for the placemaking concept

Mascot of TGV: Humanising TGV

Recap of key Insight from research: Residents lack a sense of belonging within the TGV community, driven by varied perceptions of their role in innovation and uncertainty about the value they contribute. This disconnect has led to many residents isolating themselves from the broader TGV community. However, TGV is more than just a hub for innovation—it's a community where residents, TGV employees, and the organisation itself share a mutually dependent and enriching relationship.

How do we remind residents that they are integral to the community? How can we show them that they are valued members, no less important than any other part of TGV? How do we help them connect with the human side of TGV and foster a stronger association with the community?

The idea is to humanize TGV with a mascot—a symbol that unites the TGV community. A mascot can create a sense of shared identity, build emotional connections, and promote the feeling of collective ownership among residents, employees, and the organization. By offering a tangible representation of the community, a mascot can help reinforce the idea that everyone is part of the "pack," fostering deeper engagement and belonging.
Why a mascot? Using a mascot can be a powerful tool to foster emotional connections and social cohesion, particularly in placemaking efforts. According to Schattschneider (2005), mascots hold sentimental value, creating emotional bonds with users. As cultural symbols, they carry social, political, and cultural meanings (Peng, 2012), allowing them to resonate with people on multiple levels. By functioning as place identity markers, bonding tools, and social engagement mechanisms, mascots serve to strengthen connections between people and their environment (Radomskaya & Pearce, 2020).

The concept of anthropomorphism - assigning human characteristics to nonhuman objects plays a significant role in the effectiveness of mascots. As Cayla (2013) explains, mascots tap into a deeply rooted human tendency to relate to anthropomorphic objects, helping people navigate social and emotional interactions. Chartrand et al. (2008) suggests that anthropomorphized mascots can influence social behaviour, fostering feelings of familiarity, trust, and engagement. These psychological functions make mascots ideal for guiding

interactions within communities, creating a sense of unity, loyalty, and comfort (Dolley, 2003).
In placemaking, mascots help solidify place identity by unifying the experiences of a space through a thematic narrative (Proshansky et al., 1983). The presence of a mascot can evoke positive memories, and by serving as a recognizable and relatable character, it strengthens emotional ties to the place. Mascots can also act as social cues in environments where interaction is limited, encouraging engagement and facilitating social bonds (Callahan & Ledgerwood, 2016).

By acting as both a functional guide and an emotional trigger, mascots enhance the overall placemaking process, making spaces feel more personal and connected. Their ability to influence group dynamics and create lasting memories positions them as essential tools for fostering social cohesion and building a strong place identity.

Third spaces: Transforming underused existing spaces within TGV to places of interaction

Recap of key Insight from research: Residents feel uncertain about using TGV spaces, as these areas serve multiple purposes—functioning as a lab, workspace, living space, and venue for tours and events. Consequently, residents often confine themselves to their homes and rarely use the communal areas. They lack a dedicated communal space that feels exclusively theirs and do not feel confident using the public areas within the TGV terrain. Wait, are those for public use?!

The idea is to transform underused spaces into vibrant "third spaces" that foster community engagement and social interaction. While TGV already hosts various innovations across its terrain, these installations could be more actively utilised by the community. By introducing curated activities around these innovations, the spaces can evolve from passive locations into active hubs where residents can gather, interact, and build connections. This approach not only strengthens community bonds but also provides researchers with more opportunities to gather feedback on the innovation installations, enhancing both community involvement and the innovation process.

As Hespanhol (2018) argues, liveable spaces don't automatically become meaningful places. To create meaning, close collaboration with the local community is essential in designing and using the space over time. Meaningful public spaces go beyond being physical

locations—they are where people form personal connections, build social networks, and experience a sense of well-being through shared interactions (Dines et al., 2006). Hespanhol adds that a space becomes meaningful when it encourages thoughtful reflection or social engagement within a community, helping to create memories and traditions that draw people back repeatedly.

To design such spaces, we must facilitate active community involvement in shaping and adapting them over time to meet the evolving needs and interests of users. Hespanhol (2018) classifies public spaces by their "potential to become meaningful," distinguishing between places of interaction and places of retreat.

Places of interaction foster three types of social engagement:
1. Embodied interaction (e.g., play areas, exercise, or dance),
2. Political participation (e.g., civic debates, community engagement), and
3. Artistic expression (e.g., grassroots creative activities, collective cultural displays).

Places of retreat provide spaces for personal reflection and introspection, where people engage in focused leisure (e.g., reading, browsing smartphones), contemplation, or passive observation of others.
By designing third spaces that serve as either places of interaction or retreat, fostering social or emotional connections within the community, we create "meaning affordances" that help develop a sense of attachment through distinctive social and personal experiences

Feedback bridge like the spiritual flags on Indian bridges or locks on bridges

Reading spot

Communal space

Board games

Communal garden

Communal garden

Floor painted activities

D2. Placemaking activity

Booklet used for the placemaking activity

PLACEMAKING ACTIVITY

Your name/alias

Resident or employee? ....

We invite you to join us in a collaborative session to ideate on ways to make TGV a more meaningful place for all of us.

Why are we doing this?

As part of my graduation project, I discovered that in TGV's multifunctional and multi-stakeholder environment, residents often feel a lack of connection to the place. To address this, I am proposing placemaking strategies, which have proven effective in fostering stronger community bonds by creating spaces that feel more meaningful to the people who live and work there.

Who is invited to participate?

Anyone who lives or works in TGV—**residents, employees**, and all others who call TGV home. Your input is essential to creating a place we can all feel connected to!

Let's come together and shape the future of TGV!

Idea 1 - Design a Mascot for TGV community

Why have a mascot?

A mascot helps humanize TGV, making it more than just a location but a place of connection and belonging. It can serve as a friendly, recognizable figure that unites the community, promotes interaction, and enhances the collective identity of TGV, fostering pride and involvement among both residents and employees.

Activity 1: Braindump

What comes to mind when you think of TGV as a community?

Claim a board and use post-its to jot down everything that comes to mind. No idea is too big or too small—whether it's a feeling, a thought, a memory, or a suggestion, we want to hear it all!

Let's capture the essence of what TGV means to you as a community!

Page 32 (left spread)

Should the mascot symbolize unity, diversity, innovation, tradition, friendliness, or something else?

What type of character should the mascot be?

Animal, human, abstract figure, or something completely unique to TGV?

*Use the space provided to **draw or paste images** that align with your vision for the mascot. Feel free to take inspiration from your responses in **Activity 1** and **Activity 2** to help shape your ideas and ensure they resonate with the values and characteristics we've discussed so far.*

Let's bring our mascot to life together!

What role will the mascot play in the community?

Will it be a figurehead for events, a symbol on marketing materials, or an engaging character for social media and community outreach, physical installation or digital screen?

(Your response...)

How do you like the idea of having a Mascot to represent TGV as a Community?

(Your response...)

Any comments?

How many stars for this whole idea of having a mascot for TGV?

(out of 5 stars, copy the star to rate in the box to the right —→)

Idea 2 - Third spaces in TGV

Why third spaces?

Those social environments beyond home (first space) and work (second space)—play a crucial role in fostering community interaction, relaxation, and collaboration. By transforming underused areas within TGV into vibrant third spaces, we can create environments where residents and employees can connect and recharge.

Page 33 (right spread)

Activity 1: Walk Around TGV

Take a leisurely walk around TGV and discover the spaces shown below. These are places I found to be underutilized, but with great potential to become vibrant hubs for community interaction. As you explore, think about the atmosphere and how these areas make you feel.

Feel free to add new images and ideate if you find a hidden gem!

Activity 2: How Can We Give Life to These Spaces?

After your walk, use the box below to brainstorm how we can bring these spaces to life! Think of activities that could happen here—whether solo, in small groups, or as larger gatherings. What kinds of interactions would make these places inviting, useful, and meaningful for the community?

Your ideas can help transform these areas into thriving third spaces for everyone to enjoy!

For example:
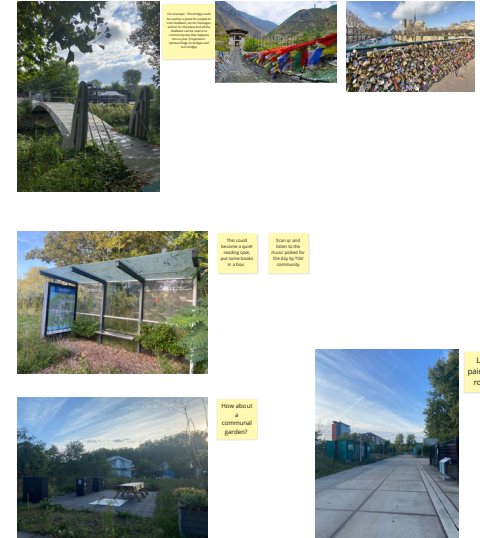
Now think of the activities that you would like to see happen in these spaces. Choose the space that sparks your interest, mention its number and share your ideas. Feel free to add your own spaces.

How can we ensure these spaces remain active and engaging over time, rather than fading into disuse?

(Your response...)

How do you like the idea of having a third spaces within TGV ?

(Your response...)

Any comments? (You can also add new ideas here)

How many stars for this whole idea of creating third spaces within TGV?

(out of 5 stars, copy the star to rate in the box to the right —→)

D3: Evaluating ideas using the CBRE Framework

Ideas	Identity	Interaction	Influence	Impact
Digital platform for residents	By providing residents with personalized login details and tailored information, the platform fosters a sense of community and belonging. It ensures that residents feel informed and connected to TGV's innovations.	The platform structures communication in a more engaging and accessible way, promoting resident involvement and awareness of innovation.	Features like support, feedback mechanisms, and issue tracking empower residents, making them feel their contributions are valued.	The platform can highlight residents' contributions and serve as a channel to connect with innovators directly, creating opportunities for learning and recognition.
Digital mascot of TGV	The mascot humanizes TGV, building an emotional bond with residents and creating a relatable, recognizable symbol of the community.	As an interactive, motion-sensing character, the mascot promotes active engagement with TGV's activities in a fun and positive way. It helps share important updates and offers entertainment.	Since the mascot is an extension of the digital platform, it offers the same support, feedback, and issue tracking, reinforcing residents' sense of being valued.	This medium can be used to inform and celebrate TGV's success and publicly recognize residents for their contributions, enhancing their sense of fulfilment and acknowledgment.
Adaptive Scheduling tool	Helps residents better manage their involvement, allowing them to feel in control and engaged with their contribution to the community.	Provides residents with real-time scheduling flexibility, fostering collaboration and ensuring that residents' contributions fit within their personal calendars.	The tool is collaborative, providing transparency and giving residents a clear overview of the activities that require their input, enhancing their sense of autonomy.	Shows the resident all the feedback and activities they've contributed to, reinforcing the tangible impact of their involvement.
Resident's pathway to innovation	Clearly defines the resident's role in the innovation process, ensuring that they understand how they fit within the broader TGV mission and community.	Establishes clear expectations from the outset, promoting effective communication and ensuring residents feel informed from the beginning.	Gives residents the autonomy to tailor their level of participation, empowering them in decision-making processes.	Provides opportunities for residents to grow their contributions, reinforcing their role and identity within the community.
Communal Space for Residents	Builds a sense of place and ownership for residents, helping them feel connected to the physical and social aspects of TGV.	Fosters interaction among residents, helping them create meaningful memories and fostering a sense of community through shared experiences.	By providing residents with tools and experiences that meet their social and emotional needs, while inviting them to actively explore and engage with the space. This sends a clear message that TGV values their presence and contributions, reinforcing their importance within the community.	This communal space can provide emotional fulfillment, acting as a gathering point for residents to relax, unwind, and build friendships.
TGV ExploreAR	Provides residents with a sense of ownership and belonging, connecting them to TGV's mission through an innovative and interactive experience.	Helps residents experience TGV in new ways, fostering deeper connections between residents and the space through augmented reality experiences.	By providing residents with tools and experiences that meet their social and emotional needs, while inviting them to actively explore and engage with the space. This sends a clear message that TGV values their presence and contributions, reinforcing their importance within the community.	Brings emotional fulfilment by enhancing residents' understanding of how their usage and participation in TGV contributes to the broader goals of the community.

Appendix E

E1. Framework evaluation

Booklet used for the evaluation

Scenario

<u>The Uncertain Residents of TGV</u>

In recent months, it has become apparent that something may be amiss within our community. The once-vibrant atmosphere of our community drinks—events that brought together TGV residents to relax, share ideas, and discuss exciting innovations—has noticeably diminished. Attendance at these gatherings has steadily declined, and when residents do attend, the enthusiasm appears to be lacking. Conversations often feel obligatory rather than genuine, leading to a sense that the strong community spirit that once characterized TGV is beginning to fade.

In our quest to understand this shift, we delved into the reasons behind the residents' disengagement. What we discovered was more nuanced than a simple disinterest in socializing. It seems many residents are uncertain about their roles in TGV's innovation process and within the community as a whole. They expressed doubts about whether their contributions are valued and whether their presence truly makes a difference. A number of residents noted that, while they were initially eager to provide feedback on the innovative systems being tested in their homes, that enthusiasm has since diminished. It's not that they lack the desire to help; rather, they feel uncertain about the impact of their input.

"I provide my feedback, but I rarely hear back," one resident remarked. "I'm not sure if my thoughts were helpful or if they made any difference at all. It feels like I'm just speaking into the void." Others shared similar feelings, noting that the innovators seem less engaged with residents than before. What was once a collaborative exchange has felt more like a one-sided interaction, where residents are asked to test innovations without receiving updates on how their feedback influences the outcomes. This lack of communication has left many feeling undervalued and disconnected from TGV's objectives.

Beyond the feedback process, residents have voiced a more personal concern—they feel a diminishing sense of ownership over their living spaces. Because of TGV's multifaceted environment: a home, an office for innovators, a testing lab, and a venue for tours and events, most often residents are unsure about using TGV spaces and facilities. *"Can we use these spaces, or are they reserved for visitors and staff?"* Furthermore, decisions affecting their homes—regarding installations, testing schedules, and modifications—are sometimes made without their consultation. While some residents have been involved in the decision-making process, others feel overlooked, contributing to their frustration.

Over time, this uncertainty and lack of communication have begun to weigh on them. Residents who were once eager to participate in the innovation process are now withdrawing. They are just fitting more into the perception of just residents than being an active contributor to the innovation and member of the community.

Disclaimer: This scenario is inspired by research insights from my graduation project but has been significantly exaggerated and fictionalized. It is intended solely for the purpose of this activity. Please do not take offense, as no harm or disrespect is intended.

Idea generation and evaluation activity

Your name/alias

The activity is divided into two parts

The activity is divided into two parts:

1. You will read the provided scenario, empathize with the residents, and brainstorm ideas based on the suggested solution direction.
2. You will take on the role of a TGV representative responsible for addressing the challenge outlined in the scenario, utilizing a conceptual framework and guided activities that I am developing for my graduation project.
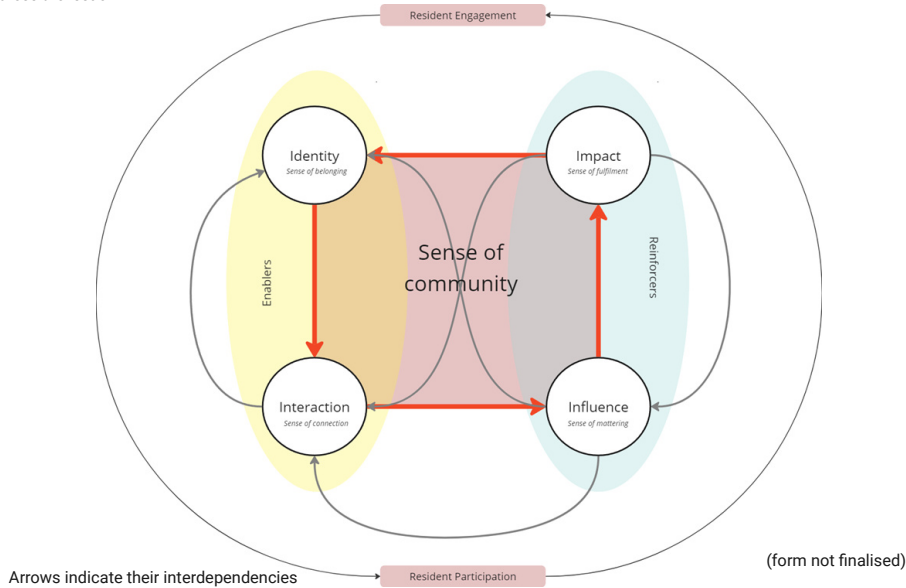
Part 1
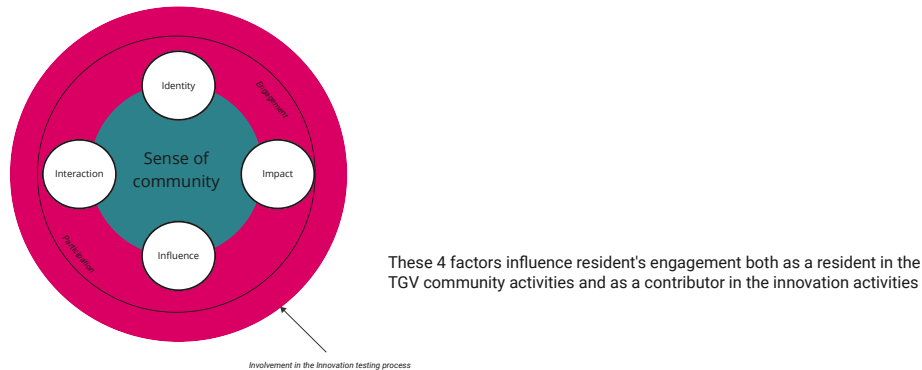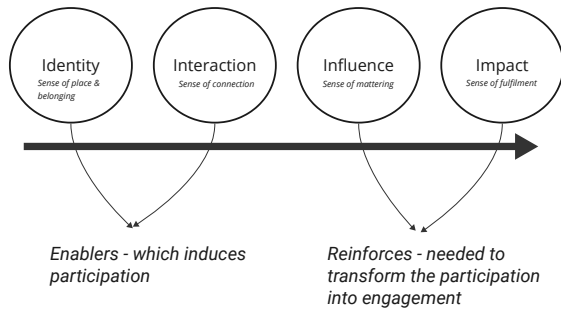
Ideate as a member of TGV community

Part 2

Use the framework to understand the problem and evaluate the idea as a TGV employee responsible to make the change

Conceptual framework: to guide TGV to build sustainable cycles of resident engagement

To be used to understand the problem and its impact on resident engagement, as well as to evaluate ideas that could help address the issue.

Arrows indicate their interdependencies

(form not finalised)

Elements that influence resident engagement

Enablers - which induces participation

Reinforces - needed to transform the participation into engagement

These 4 factors influence resident's engagement both as a resident in the TGV community activities and as a contributor in the innovation activities

1. Identity: Building a Sense of Belonging

Identity refers to how residents see themselves in relation to the TGV community, its values, and its mission. It is essential for residents to feel they are not just temporary occupants but integral members of a community that shares common goals. However, it is important to recognize that residents' primary needs (e.g., comfort, safety, privacy) differ from TGV's mission of innovation. For residents to align with the broader objectives of TGV, they must feel part of something larger—both emotionally and practically.

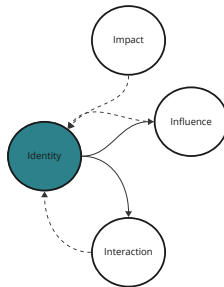In this context, "identity" encompasses two dimensions:
·A sense of place, an emotional attachment to the physical environment of TGV, including the homes, communal spaces, and surrounding areas.
·A sense of purpose, a connection to TGV's mission of sustainable innovation, helping residents see how their participation contributes to this larger vision.

How *Identity* influences resident engagement in TGV:
When residents identify with the TGV community, they are more likely to participate in innovation activities, as they feel a personal stake in the community's success. They are more willing to align their behaviours and decisions with the community's goals. Identity also fosters a sense of belonging, which is critical for developing emotional bonds with the community. This feeling of belonging helps residents engage more actively and feel motivated to contribute their time, feedback, and effort.

Strategies for building Identity:
·Clear communication: Providing clear, consistent information about TGV's innovation activities, goals, and values helps residents understand their role in the broader mission.
·Alignment of resident's role: Addressing uncertainties about residents' roles—both as tenants and contributors to innovation—ensures they feel part of the group and understand their value to TGV.
·Sense of Ownership: Residents should feel a degree of ownership over their living space and the activities happening around them. Efforts should be made to clarify their influence in the innovation process and their ability to shape outcomes.
·Community rituals and symbols: Holding events, festivals, and rituals that resonate with the community can create symbols of belonging and shared purpose, reinforcing the idea that residents are part of a collective identity.

2. Interaction: building a sense of connection

Interaction refers to the nature of the social relationships and connections formed among residents and with other stakeholders at TGV. The depth, frequency, and quality of these interactions significantly impact resident engagement. Positive interactions foster a sense of trust, mutual respect, and collaboration, all of which are essential for a thriving community. Interaction also includes the emotional and physical investments that residents make when engaging in innovation activities, as well as their expectations for the outcomes of these interactions.

Interactions can take many forms, from casual social gatherings to formal feedback sessions. Strong social connections have been shown to increase residents' investment in the community and their willingness to contribute to its success.

How *Interaction* influences resident engagement in TGV:

Residents are more likely to engage in the community and the innovation process if their interactions are positive, meaningful, and fulfilling. Trust and openness in communication between residents and TGV staff, as well as among residents themselves, can help create an environment where residents feel comfortable sharing feedback, raising concerns, and collaborating on innovation efforts. On the other hand, poorly organized or unstructured interactions can lead to disengagement and frustration, as residents may feel undervalued or ignored.

Strategies for facilitating positive interaction:
·Transparency: Maintaining open communication and sharing relevant updates about innovation activities builds trust and ensures that residents are well-informed.
·Safe spaces for feedback: Creating opportunities for residents to share their thoughts, both formally and informally, in an environment where they feel respected and heard is crucial.
·Social Events : Hosting regular social gatherings, such as community drinks or resident networking events, strengthens bonds and helps build a sense of community.
·Considerate Planning : Activities that affect residents' daily lives, such as maintenance or testing sessions, should be planned well in advance, with clear communication and consideration for their schedules.
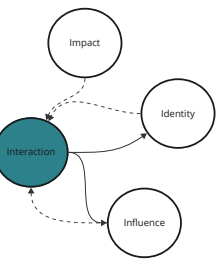
3. Influence: building a sense of mattering

Influence reflects the degree to which residents feel they have a voice in the community and the ability to shape its activities and outcomes. People are more likely to engage when they believe their input matters and that they can have an impact on the group's direction. This includes the sense that their contributions to innovation are valued and that their feedback leads to tangible changes.

Influence is a two-way process—for the community to influence residents and shape their behaviours and engagement levels, the residents need to feel that they can influence the community.

How *Influence* affects resident engagement in TGV:
When residents feel empowered and that their opinions are recognized, they are more likely to remain engaged in the community and the innovation process. A participatory approach, where residents are consulted and their feedback visibly acted upon, strengthens their sense of agency and investment in the community.

Strategies for enhancing Influence:
·Active Participation: Encourage residents to take an active role in decision-making processes, whether through resident clubs, committees, or other platforms for input.
·Recognition: Acknowledge and celebrate the contributions that residents make to the innovation process, reinforcing their sense of influence and importance.
·Participatory Feedback Loops: Show residents how their feedback is being used by providing regular updates on changes made as a result of their input.
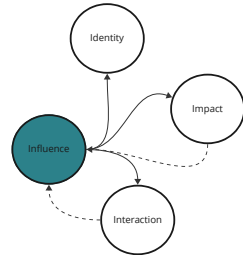
4. Impact: sense of fulfilment

Impact refers to the rewards residents experience as a result of their participation in the community and innovation activities. These rewards can be both tangible (e.g., access to new skills, opportunities, incentives) and intangible (e.g., a sense of personal growth, fulfillment, or contribution to a meaningful cause). The impact should be evident not only in the outcomes of innovation projects but also in the residents' experience of living at TGV.

How Impact Strengthens Engagement:
When residents can see the tangible results of their contributions, they are more likely to continue engaging with the community. Success, whether in terms of personal growth or witnessing the achievements of the innovation process, reinforces their commitment and strengthens the bonds between residents and TGV. It is important for residents to feel that their efforts are acknowledged and that they receive meaningful rewards in return for their participation.

Strategies for maximizing Impact:
·Tangible Rewards: Offering rewards such as access to exclusive knowledge, skill-building opportunities, or incentives can motivate residents to stay engaged.
·Fulfillment of needs : Ensure that residents' primary and secondary needs are met, from comfort and security to personal development and intellectual growth.
·Witnessing Success: Provide residents with opportunities to see the impact of their contributions, whether through project updates or community-wide celebrations of milestones.
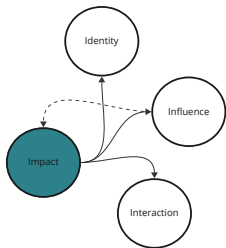
Reflection

Please reflect on the entire activity (both Part 1 and Part 2) and share your thoughts. Your insights are extremely valuable to my graduation project. (Please answer all questions)

How did the framework enhance your understanding of the problem?
....

In what ways did the framework help you generate new ideas and structure them more effectively?
....

What additional elements, probes, or activities would improve the framework to help you develop actionable strategies?
....

How well does the framework address the key aspects you consider when tackling this challenge, and how easily can it be adapted to your needs?
....

Can you imagine using this framework in other scenarios or for different use cases? If so, how?
....

Did the framework help you identify any gaps or areas for improvement in your current approach? If so, what were they?
....

How easy or difficult was it to comprehend and follow the framework and its associated activities?
....

What challenges or limitations, if any, did you encounter while using the framework?
....

In what ways do you think this framework could support collaboration during the process? Any suggestions
....

Any other comments?

Understanding the problem with the help of the framework

	Identity	Interaction	Influence	Impact
Which factor do you believe the problem affects the most for residents?				
How does it influence other factors for the residents(use the arrows as guides to think, if you feel new connection map it)				
How does it affect the other stakeholders? (short term & long term)				
How does it affect TGV activity? (short term & long term)				
How significant is this to address? (Based on the previous 2 questions)				
What would be a suitable measure to resolve the challenge? Eg. change of process, incentive, workflow				
Who should be involved? (Residents, innovators) and their level of participation (eg.inform, consult, workshop, ideation)				
Anything else to consider before making a decision?				

Evaluating the idea with the help of the framework

	Identity	Interaction	Influence	Impact	
					Which factor do you think this idea focuses on for residents?
					How does it influence other factors for the residents(use the arrows as guides to think, if you feel new connection map it)
					How does it add value to other stakeholders, both in the short term and long term?
					How does it add value to TGV, both in the short term and long term?
					Which (add) features/ element of the idea would facilitate the value discussed above?
					Is the feature/element feasible?
					What capabilities or resources are required to implement these feature/element??
					Anything else to consider before making a decision?

E2. Sensitising booklet

Sensitising Booklet_Draft version

*Resident experiences
and engagement*

Introduction

Welcome to The Green Village (TGV) Sensitising Booklet on Resident Experiences and Engagement. The Green Village is more than just a living lab—it is a dynamic innovation community where sustainable solutions are tested in real-world environments with real users. For this ecosystem to thrive, it's essential that we, as a community, foster shared ownership and collective goals. However, like many innovation-driven communities, TGV faces challenges in achieving active resident participation and engagement —two critical components of its long-term success.

As part of my graduation project, I explored the dynamics of resident experiences within TGV and the broader innovation process. Through this research, I identified several barriers that hinder meaningful participation. To address these challenges, I developed a framework based on the principle that community engagement is a powerful driver of resident participation in innovation. The framework highlights four key factors that influence residents' sense of community, which in turn encourages greater involvement in innovation activities.

This booklet presents my research findings, the framework I developed, and practical strategies that TGV employees can use to better understand and improve resident engagement. One of the primary issues I uncovered is the lack of alignment and the differing perceptions regarding residents' roles within the innovation process, often leading to disengagement. The aim of this booklet is to help you, as a TGV employee, develop greater empathy for residents, align perceptions of their role, and implement strategies that foster meaningful engagement.

Whether or not your role directly involves working with residents, this booklet will provide valuable insights into their experiences. By understanding their perspectives and contributions, you can help build a more connected, aligned, and engaged community—one that moves innovation forward together.

Contents

Vision scenario

Scenario 1

The Fragmented Future of the Living Lab Community

In this future, the "New Horizons Living Lab"—once intended to be a thriving ecosystem of collaboration—has devolved into a fractured environment where the lab's internal community of innovators and stakeholders operates in silos, driven by individual motives. Residents, who were meant to be the foundation of the lab's work, are now treated merely as test subjects, disconnected from the core vision.
The innovators within the lab focus solely on their personal projects, racing to secure funding and recognition. There is no collaboration, no shared mission; each individual is locked in their own silo, blind to the larger goals of the lab.
The residents, brought in only to test innovations, feel more like guinea pigs than collaborators. Their role is transactional—filling out surveys and providing data—without being consulted or valued as part of the process. The technologies they test are often irrelevant to their lives, designed for innovation's sake rather than meaningful impact. Over time, they disengage, showing up only when incentivized and offering no real feedback.
Without shared goals, mutual trust, or cooperation, the living lab community—once intended to be a dynamic, innovative space—collapses into a collection of isolated individuals. The lab becomes a disjointed place where innovation lacks purpose, residents are marginalized, and stakeholders add no lasting value.

With no sense of collective identity, the living lab community falls apart. There is no exchange of value—residents, innovators, and stakeholders operate as isolated entities, failing to contribute to each other's success. The lab becomes a space of stagnation, where voices are unheard, contributions go unrecognized, and innovations fail to make a meaningful impact.

Scenario 2

The Thriving Future of the Living Lab Community

In this future, the "New Horizons Living Lab" has blossomed into a vibrant, collaborative ecosystem where residents, innovators, and stakeholders work together seamlessly toward a shared goal of creating sustainable, impactful innovations. Every member of the lab—whether a resident or a cutting-edge innovator—contributes to and benefits from a collective identity built on trust, mutual respect, and shared purpose. Innovators within the lab don't work in isolation. Instead, they engage actively with residents and fellow innovators, seeking feedback and ideas that shape their projects. Each innovation is co-created, designed not just for technical excellence but with a deep understanding of residents' needs and aspirations. This collaborative spirit fuels creativity and ensures that solutions are both cutting-edge and meaningful for the community. Innovators are eager to learn from others, continuously growing through diverse perspectives. Residents are not passive participants but key stakeholders. They actively engage in shaping the innovations they test, voicing their insights, concerns, and aspirations. Their lived experiences guide the direction of projects, ensuring that the technologies developed are practical, sustainable, and tailored to the needs of the community. By learning from innovators and gaining new skills, residents become empowered co-creators, fostering a sense of ownership in the lab's progress. The living lab facilitate connections, encourage shared learning, and create opportunities for innovators and residents alike to grow and thrive together. With a strong sense of collective identity, the living lab community flourishes. There is a continuous exchange of value—residents, innovators, and stakeholders all contribute their unique strengths while gaining new insights and skills from each other. The lab becomes a space of shared learning and innovation, where every voice is heard, and every contribution is valued. Together, the community drives sustainable change, developing solutions that not only address immediate needs but also foster long-term growth and resilience. In this thriving living lab, the success of one is the success of all. Everyone works toward a common goal— building a better, more sustainable future—rooted in collective impact, shared progress, and a deep sense of belonging.

Reflective questions

Which of the two scenario's is desirable? Why?

Scenario 1 _____

Scenario 2 _____

What elements of the desirable vision resonate most with you, and why?

_____

_____

_____

How do you envision your role in creating a positive living lab environment?

_____

Lets meet the residents:

Diligent Dana
The quiet, introverted

Leadership Leo
The outgoing resident

Mindful Maya
The sensitive resident

Jolly Jamie
The cheerful and playful

Engaged Emma
The proactive resident

Welcome to the heart of our community!

Here, we want to introduce you to the wonderful people who live in our living lab. Our residents come from all sorts of backgrounds, bringing their unique stories and personalities with them. Some are single, some are couples; some are feeling happy, while others might be going through tough times. This mix makes our community feel real and vibrant, just like any neighbourhood you'd find out there.

But what really brings everyone together is their need for housing—a place to call home. In addition, they all share a passion for sustainability and innovation. They're excited to share their expertise as users and make impactful contributions to the innovation process.

Let's focus on what brings us together instead of what sets us apart! By highlighting our shared interests and goals, we can build a stronger, more supportive community. Together, we can inspire each other and work toward a brighter, more sustainable future for everyone!

Sneak peek into our residents' lives

In this section, we invite you to explore the short narratives of our residents' experiences. These stories highlight their interesting experiences and encounters here, blending real insights with a touch of exaggeration and fiction. Our aim is to give you a deeper understanding of the diverse possibilities that exist within our community. As you read through these narratives, we encourage you to think critically, reflect on the situations presented, and decide for yourself how much of it resonates with reality. Each story offers a unique glimpse into the varied experiences of our residents' lives.

Let's dive in and see what their lives look like!

How would you feel if you were in Sarah's shoes?

What actions can you take to improve her experience?

A Resident's Onboarding Experience at TVG Living Lab

Meet Sarah, our enthusiastic new resident at the TVG Living Lab, who embarked on her onboarding adventure with a mix of excitement and confusion. As she arrived, she was greeted with bright smiles from the team, who whisked her away on a tour of the terrain, showcasing sustainable innovations big and small. "Welcome to TVG!" they exclaimed, and Sarah felt the energy around her.

As the team explained the innovations in the house and the surrounding area, Sarah struggled to keep track of all the instructions. She thought, "Do I need to remember all these? Where's my cheat sheet?" The impressive technology was fascinating, but it felt like a lot to absorb in one go.
After the tour, she settled into her new space, ready to embrace the innovative lifestyle. Feeling a bit chilly, Sarah decided to turn on the heating through the app. It felt empowering at first until she swiped the button to turn it off, only to discover that the app and the actual heater were having a serious communication breakdown. The app showed the heater was off, but the room was getting warmer and warmer.

Minutes turned into a mini sauna experience, and Sarah's mind raced as she thought, "Is it supposed to feel like a tropical vacation in here?" Panic set in when she remembered it was a weekend—no one from the TVG team was around to save her from this warm disaster. Thankfully, the team was quick to respond via text, reassuring her they'd help.
In a delightful twist, an old resident chimed in with a quick fix, explaining how to reset the heater by figuring out that tricky white plug and replugging it. Relief washed over Sarah as she finally got the room back to a reasonable temperature.

As she settled in, she couldn't help but think how much easier her onboarding would have been if all this information was documented in one place. "A handy guide for dummies," she chuckled to herself, picturing a bright cover with the title "How to Not Roast Yourself in a Smart House." With a smile on her face, Sarah embraced her new home, excited to learn and grow in this unique living lab—just maybe with a little less sweating next time!

The Uninvited Visitor

It was a beautiful Saturday morning, and Sarah woke up in high spirits, ready to soak up some sunshine. With a bright smile on her face, she pulled open the blinds, anticipating a warm ray of light to greet her. However, instead of the tranquil morning she envisioned, she nearly flashed a group of wide-eyed kids on a tour of the TVG campus!
In that split second, she felt like a deer caught in headlights, quickly ducking back behind the curtains as laughter erupted from outside. Her heart raced, and she couldn't help but giggle at the absurdity of it all. "Well, that's one way to make an entrance!" she thought, shaking her head in disbelief.

Later that day, while sharing her unexpected morning mishap with a fellow resident, she discovered she wasn't alone in her predicament. He chuckled and recounted his own wild experience. One sweltering afternoon, he'd left his door wide open, happily working away in his studio, when he was startled by a curious passerby peeking in, mistaking his workspace for yet another installation. "I had to politely tell them it was a private space," he said, shaking his head. "They looked so confused! Maybe we should put up a sign or something!"

As they both laughed over their uninvited visitors, Sarah suggested that it might be helpful for residents to receive some sort of announcement or schedule about campus tours and visitors. "A little heads-up would go a long way," she said. "I'd like to be prepared—after all, not everyone wants an audience for their morning routine!"

How would you feel if you were in Sarah's shoes?

What actions can you take to improve her experience?

"For next year, they might introduce new innovative thing in my house. OK, I learn how to use that. That's it. But I don't feel I'm contributing this."

"Some sometimes, yeah. I feel a bit lonely because neighbours are quite separate."

"Like as an outsider, either as an international person, sometimes you feel a bit outside of the community"

"(their current contribution makes them feel like)try person or alarm person""

"(their current contribution makes them feel like)tester or lab rat"

"I want to make an actual contribution...Because that's why I live here(under such good circumstances, so I want to play my part in return).. This way i can.. It makes be feel useful, makes me feel like i matter

Are you seeking support to create a positive intervention for the residents? Do you need a solid foundation for your ideas? If you're unsure where to begin or looking for proven methods, you're in the right spot! While literature offers various strategies for resident engagement, many of them lack the context-specific relevance you need

Resident engagement framework

Welcome to the framework I've developed for my graduation project, aimed at engaging residents in innovation through a strong sense of community

The core premise of the framework is that resident engagement is strongly tied to their sense of connection and belonging within the TGV community. Residents need to feel they are active, valued members of the community, that their contributions are integral to the larger goals of TGV, and that they are recognized for the value they bring. Furthermore, their interactions with the community and the innovation process should be positive, rewarding experiences that fulfil both personal and community needs. When these elements are in place, residents will not only engage more fully but also continue to do so over time, creating a positive cycle of participation.

The framework identifies two categories of elements that influence resident engagement:
1. Enablers - elements that initially attract and engage residents, such as creating a sense of belonging, identity, and connection.
2. Reinforcers - elements that help sustain and deepen engagement over time, such as the sense of mattering and fulfilment.

Elements that influence resident engagement
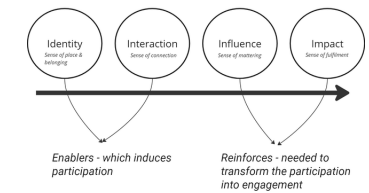
The 4 building blocks of Resident engagement

1. Identity: Building a Sense of Belonging

Identity refers to how residents see themselves in relation to the TGV community, its values, and its mission. It is essential for residents to feel they are not just temporary occupants but integral members of a community that shares common goals. However, it is important to recognize that residents' primary needs (e.g., comfort, safety, privacy) differ from TGV's mission of innovation. For residents to align with the broader objectives of TGV, they must feel part of something larger—both emotionally and practically.

In this context, identity encompasses residents' personal motives, their knowledge and awareness of the group, attraction to the group, and their willingness to invest time and energy in the community. A strong sense of ownership—both over the group and the physical space of TGV—fosters deeper connections, while a collective mentality encourages residents to work together toward shared goals. Additionally, it includes a spiritual bond, rooted in a common passion that residents can identify with.

How Identity influences resident engagement in TGV:
When residents identify with the TGV community, they are more likely to participate in innovation activities, as they feel a personal stake in the community's success. They are more willing to align their behaviours and decisions with the community's goals. Identity also fosters a sense of belonging, which is critical for developing emotional bonds with the community. This feeling of belonging helps residents engage more actively and feel motivated to contribute their time, feedback, and effort.

Factors
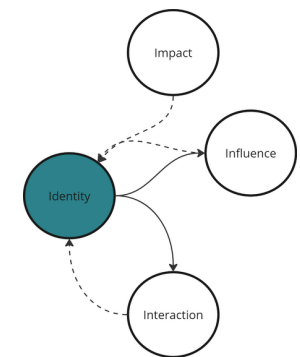
Perception of resident's role
Communication
Ownership
Collective identity

2. Interaction: building a sense of connection

Interaction refers to the nature of the social relationships and connections formed among residents and with other stakeholders at TGV. The depth, frequency, and quality of these interactions significantly impact resident engagement. Positive interactions foster a sense of trust, mutual respect, and collaboration, all of which are essential for a thriving community. Interaction includes the emotional and physical investments that residents make when engaging in innovation activities, as well as their expectations for the outcomes of these interactions.

Interactions can take many forms, from casual social gatherings to formal feedback sessions. Strong social connections have been shown to increase residents' investment in the community and their willingness to contribute to its success.

How Interaction influences resident engagement in TGV:

Residents are more likely to engage in the community and the innovation process if their interactions are positive, meaningful, and fulfilling. Trust and openness in communication between residents and TGV staff, as well as among residents themselves, can help create an environment where residents feel comfortable sharing feedback, raising concerns, and collaborating on innovation efforts. On the other hand, poorly organized or unstructured interactions can lead to disengagement and frustration, as residents may feel undervalued or ignored.

Factors

Social relationship
Transparency
Trust
Interaction quality and frequency
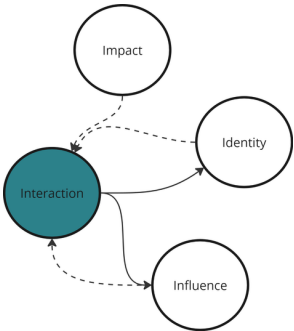
3. Influence: building a sense of mattering

Influence refers to the sense of mattering—feeling both valued and able to add value. It reflects the degree to which residents believe they have a voice in the community and can shape its activities and outcomes. People are more likely to engage when they believe their input is important and that they can influence the group's direction. This includes an individual's perception of how they are viewed, the belief that their contributions to innovation are valued, and the recognition that their feedback leads to tangible changes.

Influence is a two-way process—for the community to influence residents and shape their behaviours and engagement levels, the residents need to feel that they can influence the community.

How Influence affects resident engagement in TGV:
When residents feel valued and empowered and that their opinions are recognized, they are more likely to remain engaged in the community and the innovation process. An empathetic approach where they feel they are heard, their needs and efforts are noticed and a participatory approach, where residents are consulted and their feedback visibly acted upon, strengthens their sense of agency and investment in the community.

Factors

Recognition
Participation
Empowerment
Feedback utilisation
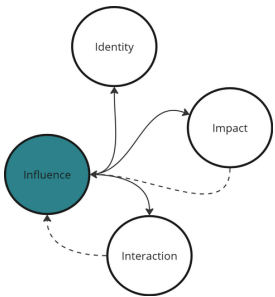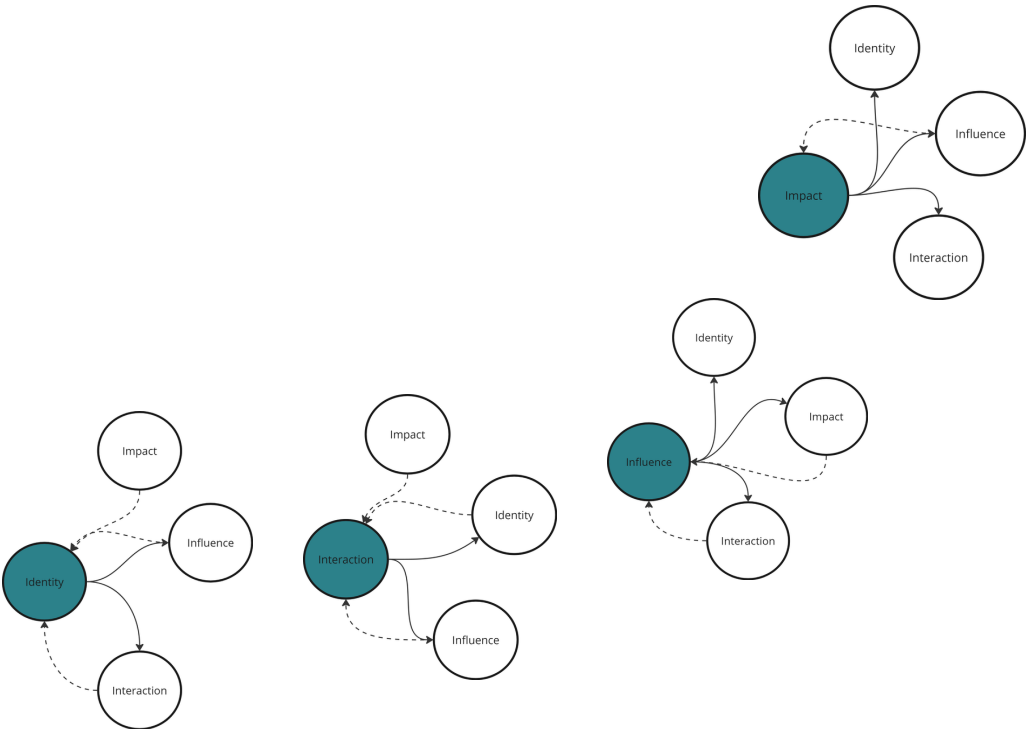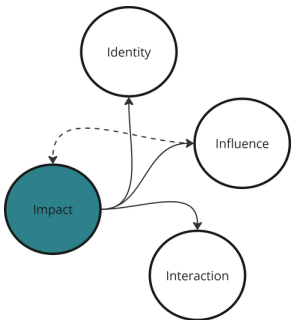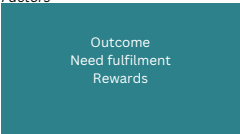

4. Impact: sense of fulfilment

Impact refers to the sense of fulfilment and satisfaction that residents experience from seeing the tangible and intangible rewards of their participation in the community and innovation activities. These rewards can be both tangible, such as access to new skills, opportunities, or incentives, and intangible, like a sense of personal growth, fulfilment, or contributing to a meaningful cause. Impact is not only reflected in the outcomes of innovation projects but also in the overall living experience at TGV.

This factor encompasses various elements that contribute to an individual's feeling of meaningful contribution and satisfaction. It includes rewards that acknowledge personal and collective achievements, fostering a sense of shared purpose and common goals. The success of the group and the expertise within the community further enhance feelings of accomplishment and progress.
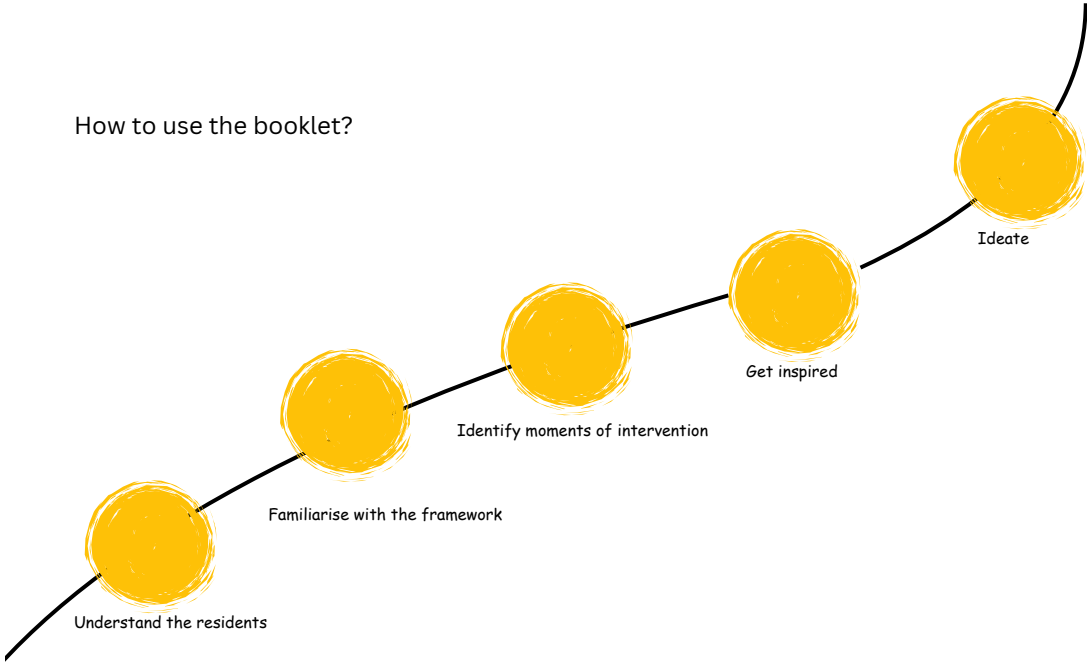
How Impact strengthens engagement:
When residents can see the tangible results of their contributions, they are more likely to continue engaging with the community. Success, whether in terms of personal growth or witnessing the achievements of the innovation process, reinforces their commitment and strengthens the bonds between residents and TGV. It is important for residents to feel that their contribution is impactful and that they witness it.
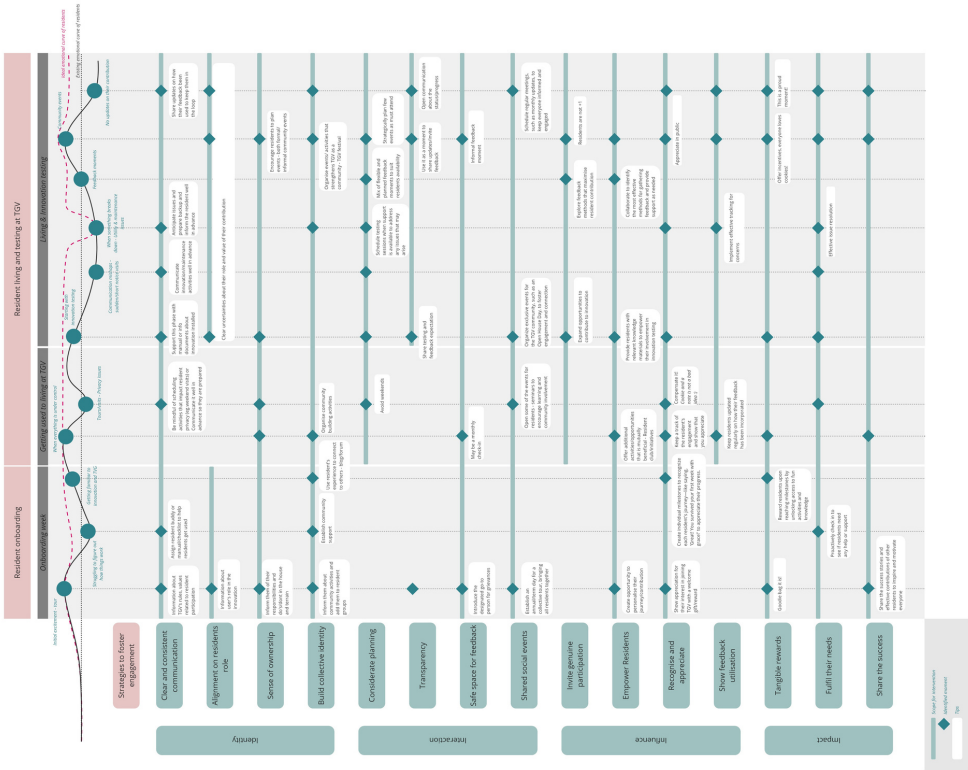
Factors

Outcome
Need fulfilment
Rewards

Elements	Affect	Factors	Strategies
Fosters participation			
Identity	Sense of belonging	Perception of resident's role Communication Ownership Collective identity	• Clear communication: Providing clear, consistent information about TGV's innovation activities, goals, and values helps residents understand their role in the broader mission. • Alignment on resident's role: Addressing uncertainties about residents' roles—both as tenants and contributors to innovation—ensures they feel part of the group and understand their value to TGV. • Sense of ownership: Residents should feel a degree of ownership over their living space and the activities happening around them. Efforts should be made to clarify their influence in the innovation process and their ability to shape outcomes. • Community rituals and symbols: Holding events, festivals, and rituals that resonate with the community can create symbols of belonging and shared purpose, reinforcing the idea that residents are part of a collective identity.
Interaction	Sense of connection	Social relationship Transparency Trust Interaction quality and frequency	• Consider planning : Activities that affect residents' daily lives, such as maintenance or testing sessions, should be planned well in advance, with clear communication and consideration for their schedules. • Transparency: Maintaining open communication and sharing relevant updates about innovation activities builds trust and ensures that residents are well-informed. • Safe spaces for feedback: Creating opportunities for residents to share their thoughts, both formally and informally, in an environment where they feel respected and heard is crucial. • Shared social events : Hosting regular social gatherings, such as community drinks or resident networking events, strengthens bonds and helps build a sense of community.
Fosters engagement			
Influence	Sense of mattering	Recognition Participation Empowerment Feedback utilisation	• Show that they matter; show that they add value • Invite genuine participation: Acknowledge their expertise and involve residents genuinely in activities. • Empower Residents: Encourage residents to take up decision making in community related aspects (that doesn't affect professional work of TVG) through resident clubs, committees, or other platforms for input. • Recognition: Acknowledge and celebrate the contributions that residents make to the innovation process, reinforcing their sense of influence and importance. • Showcase feedback utilisation: Show residents how their feedback is being used by providing regular updates on changes made as a result of their input.
Impact	Sense of fulfilment	Outcome Need fulfilment Rewards	• Tangible rewards: Offering rewards such as access to exclusive knowledge, skill-building opportunities, or incentives can motivate residents to stay engaged. • Fulfilment of needs : Ensure that residents' primary and secondary needs are met, from comfort and security to personal development and intellectual growth. • Share the success: Provide residents with opportunities to see the impact of their contributions, whether through project updates or community-wide celebrations of milestones.

Applicability

Meta (organisational)

Develop Actionable Strategies for Resident Engagement - Provides a foundation for TGV to design long-term, system-wide strategies that foster resident participation and engagement in innovation activities.

Evaluate and Strengthen Existing Practices - The framework can be used to assess and refine existing system-wide practices related to innovation and resident involvement, ensuring they align with community engagement goals.

Meso level (Community)

Stimulate Creative Solutions for Community Cohesion - TGV employees can use the guidebook as a tool to brainstorm and develop new initiatives for improving resident participation and community cohesion.

Facilitate Conversations with Innovators - The guidebook can be used as a resource for TGV employees to engage with innovators, ensuring they understand the residents' roles and how to incorporate them into the innovation process.

Problem-Solving and Root Cause Analysis - By using the framework to identify the root causes of challenges related to resident participation, TGV can ideate targeted solutions at the community level.

Micro Level (Individual)

Build Empathy: Use insights to understand and connect with residents on a deeper, more personal level, fostering trust and open communication.

Positive interaction: Adapt communication to be more resident-centered, ensuring residents feel heard and innovators understand their contributions.

How to use the booklet?

Ideate

Get inspired

Identify moments of intervention

Familiarise with the framework

Understand the residents

Moments of intervention

For inspiration

How might we make it easier for residents to access and consume information about TGV and its innovations, while keeping them informed and streamlining communication to improve issue resolution?

Digital platform for residents

To simplify information and provide it in an engaging manner and streamline communication to improve issue tracking and resolution. This concept proposes a digital platform to deliver personalised information and streamlined communication to residents. The plan involves upgrading the existing TGV website to include user login, allowing residents to access tailored information and features that make their innovation testing process and communication more organised and efficient. This simplified version of the earlier virtual TGV concept (early concept 1) focuses on addressing residents' needs and enhancing the value this platform can offer. Additionally, the platform will host resources related to innovations, creating a comprehensive knowledge base that will benefit the field over time. Residents will be able to explore installations in other houses, participate in virtual testing, and provide feedback, increasing their engagement with the innovation process. The platform will track residents' involvement in innovation activities, projects, and feedback, recognizing their contributions.

Interactive digital screen/wall that serves as a vibrant community hub

In addition to providing awareness of what's happening on the terrain, it also addresses the need for residents to have a space for interaction. The screen is accessible to everyone, with content tailored to individual users. Residents who sign in can choose to view updates and announcements either on the screen or privately on their phones via QR codes. It also offers virtual simulations of TGV's innovations, allowing visitors to explore these innovations like never before and provide feedback, helping innovators better demonstrate their work to guests.

The screen is a natural gathering spot where residents can hang out, interact, and take part in spontaneous community activities. It supports virtual meetups, workshops, and social events, and can host live video streams, virtual reality experiences, or augmented reality interactions. For entertainment, the screen offers a variety of digital games and challenges, including quizzes, puzzles, and creative activities, which help encourage community participation and the screen can also be transformed into a community hub for movie nights, interactive storytelling, or live performances. It also keeps residents informed with real-time updates, emergency announcements, and celebratory messages like birthdays and achievements.

How can we empower residents and make the innovation process more collaborative?

Adaptive Scheduling tool - for enhanced collaboration and real time inputs

The idea is to involve residents in the planning and scheduling of innovation testing, feedback, and maintenance activities, making the process more collaborative. This approach ensures that residents are better prepared, informed, and have the flexibility to adjust activities to fit their schedules, similar to how one would manage tasks when owning or renting a home. While it may not be entirely possible to replicate this level of control in a living lab environment, involving residents in the planning process can foster a sense of ownership and lead to more positive outcomes.

This tool aims at improving communication and coordination between residents and project coordinators. Currently, project managers (PMs) individually reach out to residents to inform them of upcoming activities, which can often lead to confusion among residents due to the challenges of coordinating with multiple contacts. To address this, I propose the introduction of a new role: the Resident Coordinator. This position would serve as the single point of contact for residents, acting as their advocate and ensuring they are supported in living comfortably while contributing to the innovation process.

Through this tool, residents will receive notifications of all scheduled activities as requests, with the flexibility to reschedule, accept, or reject certain optional activities. A timeline feature will keep residents informed of upcoming activities well in advance, helping them plan accordingly.

Each resident will have a personalised digital profile, featuring a planner where they can mark their available days in advance. This planner will be accessible to the TGV Resident Coordinator, who will use it to schedule activities that fit residents' availability. Furthermore, the planner can be integrated with Apple or Google Calendar, allowing for seamless synchronisation with residents' existing schedules. The tool could be available as an app, part of the platform, or as a community planner in the interactive wall.

Resident's pathway to innovation

The central idea of this concept is to shift the resident's role from a passive participant to an empowered contributor in the innovation ecosystem. By providing the necessary structure, resources, and autonomy, residents can optimise their contributions, leading to more effective and inclusive innovation processes within living labs. This idea is based on the role mechanism concept discussed in the literature. According to Herrmann et al. (2004), role mechanisms determine the development of the role of users. Users can become creative consumers and proactive user innovators in living labs through two main approaches: role taking and role making. Role taking refers to an actor adopting a predefined role, with tasks and responsibilities outlined by another party, known as the role sender. Role making describes how an actor interprets and modifies the expectations of others into specific actions and behaviours (Turner, 1988). In this process, the actor actively defines and shapes the role according to their own contributions and interpretations.

A central feature of this concept is the creation of a personalised plan for each resident, allowing them to set their own goals, access feedback, and track their progress. Residents will have the freedom to explore a wide range of activities, testing and feedback methods (such as interviews, co-creation sessions, focus groups, etc.), and choose their preferences. They can also specify how frequently they would like to be involved, allowing them to consider their personal commitments and plan accordingly. Additionally, they will have access to knowledge resources and support features that help them gain knowledge in relevant topics, enabling them to engage with the content more confidently and offer informed feedback.

By integrating this feature into the resident onboarding process, it ensures that residents understand their roles and expectations from the outset. Quarterly check-ins with the TGV resident coordinator will help align resident interests with ongoing innovation and testing demands, offering TGV an opportunity to support them in navigating this pathway, making it a more collaborative experience. The tool could be part of the platform, session design or a feature available in the interactive wall.

How can we foster stronger connections between residents and the human side of TGV, encouraging a deeper association with the community?

TGV Mascot:
The idea is to humanize TGV by introducing a mascot—an engaging symbol that represents and unites the entire TGV community. A mascot can create a shared identity, build emotional connections, and promote a sense of collective ownership among residents, employees, and the organization. By serving as a relatable and tangible representation of the community, the mascot would reinforce the idea that everyone is part of the same "pack," encouraging deeper engagement, participation, and a stronger sense of belonging within TGV.

Communal Space for Residents - Repurpose MOR

The goal is to create a multi-functional communal space for residents—a place where they can relax, socialise, play, and cook at their convenience. This idea emerged from initial feedback from residents who expressed a preference for casual interactions with their neighbours. Currently, the MOR building at TGV, which is temporarily used as an office, includes a kitchen, laundry, bathroom, and an outdoor patio. This facility is accessible to residents only after office hours on weekdays and during weekends.
The proposal is to repurpose the MOR building into a fully accessible communal space for both residents and employees. By removing work-related activities from this area, it can be transformed into a versatile space that supports various activities, such as recreation, quiet reading, movie viewing, or even alternate workspaces for the residents. Residents should be able to use this space freely, without needing a specific reason, and engage in activities that suit their interests and needs.

Third spaces: The idea is to transform underused spaces into vibrant "third spaces" that promote community engagement and social interaction. While TGV already hosts various innovations across its terrain, these installations could be more actively utilized by the community. By introducing curated activities around these innovations, the spaces can evolve from passive locations into active hubs where residents can gather, interact, and build connections. This approach not only strengthens community bonds but also provides researchers with more opportunities to gather feedback on the innovation installations, enhancing both community involvement and the innovation process.

How can we help residents connect more deeply with TGV as a place?

TGV ExploreAR, an AR integrated experience tool that guides residents to experience TGV in new ways

Another challenge intrinsic to the nature of the living lab is its multi-functionality—TGV serves as a living space, a workplace, a venue for tours and events, and a social hub. In juggling these diverse roles, TGV has unintentionally created an invisible barrier that leaves residents uncertain about whether they can freely access and use certain resources. This lack of clear permission makes residents feel hesitant to fully embrace the space as their own.

This concept aims to empower residents to explore and experience TGV with confidence through the use of augmented reality (AR). TGV ExploreAR is an AR-integrated experience tool designed to guide residents in discovering TGV in new and engaging ways. The tool allows residents to choose from pre-set experiences based on their current mood or needs (such as "Camping at TGV," "I want to get some vitamin D," or "I am feeling social"). It then generates a digital path overlaid on the map of TGV/TU Delft that residents can follow, updating in real-time as they move and providing prompts about activities and explorations available at each spot.

This tool not only offers clear guidance on where to go and what can be done but also includes features that allow residents to add to existing trails or create new ones. The goal is to help residents experience TGV in fresh, exciting ways, fostering new associations and memories that, over time, will strengthen their sense of connection to TGV.

E3. Evaluation questions

Understanding Resident Problems and Engagement
1. How important do you think it is for TVG employees to understand the problems residents face and the techniques to engage with them effectively?

Vision and Desirability
2. Did you read through the vision outlined in the booklet? Which aspect of the vision do you find most desirable, and why?

Understanding Resident Experience & Emotional Response to Insights
3. Do you feel that the booklet helps you better understand the resident experience in the Green Village? If so, in what way?
4. How does learning about the residents' experiences and challenges make you feel? Does it inspire you to change or work on something in your approach?

Applicability
5. How do the booklet, opportunity map, and template support you in your role as an employee and as a member of the Green Village community?
6. After going through the materials, Do you feel better equipped to engage and interact with residents? Why or why not?
7. Can you think of a specific scenario in your work where you would use this framework to engage residents or solve a problem?

Format of the Framework and Tools
8. What are your thoughts on the format in which the framework and tools are presented, particularly in the form of a booklet? Do you think this format is effective?
9. What do you think about having the framework and tools in a physical versus a digital format? Where do you think this information should be stored? Should it be used as part of an individual activity, a session, or an ideation process?
10. Do you find the structure of the framework and tools clear and easy to follow? Is there any part that you think could be made more understandable?

Alignment with Desired Vision and suggestions
11. Do you think this framework and the tools provided help you work towards the desired vision for the Living Lab, as outlined at the beginning of the booklet?
12. How satisfied are you overall with the booklet as a tool for enhancing resident engagement? Could you explain your response?
13. Did you feel there were any gaps in the information or methods provided in the booklet? What additional tools or information would have been helpful for you?
14. If you could suggest one improvement to make the booklet more effective, what would it be?