Tech in the City: Using Exhibition Design to Build an Emotional Connection Between People and the City with the Presence of Ubiquitous Technology

by Katy Mull

B.A. Media Arts, May 2010, Butler University

A Thesis submitted to

The Faculty of
The Columbian College of Arts and Sciences
of the George Washington University
in partial fulfillment of the requirements
for the degree of Master of Arts

May 19, 2019

Thesis directed by

Nigel Briggs
Faculty of Exhibition Design

Naomi Crellin
Faculty of Exhibition Design
Abstract

**Tech in the City: Using Exhibition Design to Build an Emotional Connection Between People and the City with the Presence of Ubiquitous Technology**

This thesis proposal for the exhibition, *Tech in the City*, explores the concept of smart urban technology and its impact on how a city interacts with the humans it serves and supports through participation in an immersive and multisensory exhibition experience. While the exhibition can connect with city-dwellers around the world, the primary audience is residents of Washington D.C. who view the city as “home”. Focusing on longer-term city residents—people born in the city, still living in the city, and who plan on remaining in the city—means an audience group that is invested in the near and far future of urban spaces and, whom, likely, have a more established relationship to the city as a place of community and familiarity. This notion is important given that the aim of the exhibition is to engage this audience with the topic of urban technology as a means to consider the nature of humans’ ongoing affiliation to life in cities and whether the city as a “home” is perceived any differently within the purview of a technologically reliant future.

*Tech in the City* evokes the concept of magical realism as a method of interpreting and designing experiences that will embark upon real territory that has yet to be fully realized. So, magical realism becomes a design strategy that allows for truth and speculation to exist in the same space, making the experience both intriguing, playful, yet encouraging reflection.

This thesis explores the considerations for attracting and engaging a crucial
audience for this topic and for creating an effective exhibition within gallery spaces that extend to include a small portion of the grand hall of the National Building Museum in Washington DC. The process of designing this thesis exhibition explores the question: how do you design a multisensory exhibition experience that builds a meaningful connection between people and the city with the presence of ubiquitous technology in the mix.
# Table of Contents

Abstract ................................................................................................................................. ii

List of Figures ........................................................................................................................ vi

Introduction .............................................................................................................................. 1

Thesis Statement ...................................................................................................................... 3
  *Exhibition Objectives

Location ..................................................................................................................................... 4

Audience .................................................................................................................................... 7

Site Assessment ....................................................................................................................... 9
  *Site Comparisons
  *The National Building Museum

Narrative Themes .................................................................................................................... 17
  *Dichotomies
  *Magical Realism

Narrative Devices .................................................................................................................... 20

Interpretive Strategy ............................................................................................................... 22

Design Strategy ....................................................................................................................... 23

Precedents ............................................................................................................................... 24

Content & Narrative Experience ............................................................................................. 34

Exhibition Takeaways ............................................................................................................. 45

Conclusion ............................................................................................................................... 45

Bibliography ............................................................................................................................ 47

Appendix I ............................................................................................................................... 49
  *Washington DC
  *Smart City Definitions

Appendix II ............................................................................................................................. 51
*Audience Research

Appendix III........................................................................................................... 53

*Site Research

Appendix IV............................................................................................................ 54

*Precedents

Appendix V............................................................................................................ 58
  *Narrative Devices
  *Interpretive Strategy
  *Design Strategies

Appendix VI.......................................................................................................... 61
  *Content Themes
List of Figures

Figure 1. “DC is Real” Campaign, A Creative DC.................................................6
Figure 2. National Building Museum, First Floor.................................................. 16
Figure 3. Experiential Journey............................................................................. 22
Figure 4. Meow Wolf exhibition, House of Eternal Return, design..................... 27
Figure 5. Meow Wolf exhibition, House of Eternal Return, hidden passageway.... 28
Figure 7. The Future of Us, Singapore................................................................. 31
Figure 8. Living in Future Cities, Barcelona........................................................ 32
Figure 9. Stop, Smile, Stroll, public space intervention....................................... 33
Figure 10. Stop, Smile, Stroll, crosswalk display.................................................. 34
Figure 11. Construction Walkway........................................................................ 36
Figure 12. LED Floor Graphic, Electric Nodes...................................................... 36
Figure 13. Responsive Floor LED Floor Graphic.................................................. 37
Figure 14. Urban Data Section.............................................................................. 38
Figure 15. Utility Hack Interactive....................................................................... 39
Figure 16. Data Decisions Interactive................................................................. 39
Figure 17. Interactive Lamp Post Drawing............................................................ 41
Figure 18. Perspective View, Flower Lamp Post.................................................... 41
Figure 19. Touch Wall......................................................................................... 43
Figure 20. Community Connect Section............................................................. 44
Introduction

Thus we live only by the grace of invention: not merely by such invention as has already been made, but by our hope of new and as yet nonexisting inventions for the future.
—Norbert Wiener, *The Need for Invention*, 3

We are at the start of an inventive century. It has only been over the last several centuries that humans have moved into cities in mass. Now, more than half the world's population can be found in urban areas.\(^1\) It is projected that over two-thirds of the world’s population will be living in urban areas by 2050 and the demands on city services will increase significantly.\(^2\) Since the millennium and the rise of the smartphone, which embodies the ultimate culmination or convergence of computers and telecommunications, these technologies are enabling us to get access to, influence, sense, and control the 24-hour city. In parallel guise, we have known for a while that cities are more like organisms than machines, evolving from the bottom up rather than being planned from the top down. They exert “pulses” that are now accessible using the recently developed massive proliferation of sensors, all part and parcel of what has somewhat euphemistically been called the “smart city.”\(^3\) This thesis addresses a revolutionary idea that will shape the form and function of cities in today’s world: smart city technology.

Cities have been one of humanity’s greatest sources of innovation for as long as people have settled in them, so, perhaps, it is only natural that the technologies we integrate in our everyday urban environments might advance and adapt into forms that

---

can mediate how our cities operate. Development of new technologies and implementing them into a city’s system is seen as the primary solutions to urban problems of today and tomorrow.\textsuperscript{4} In 2005, the smart city was more of a concept than a reality. City functions, traditionally, have developed as independent, \textit{siloed} networks of infrastructure, processes and information. The crucial difference between a modern city and the cities of the past (and most in the present) is how they capture data and how that data responds to the public.\textsuperscript{5}

With urban populations growing and infrastructure under strain, smart cities will be better positioned to manage rapid change. With the internet’s reach extending beyond people to objects, this exhibition seeks to respond to technologies’ expanding influence and presence in urban environments by exposing aspects of this future city life to the residents of urban communities it intends to serve. Since smart city technology proposes to make cities more livable, how do we examine what that future might look like without testing it? Relying on both reality and imagination is crucial to constructing this conversation because this technology-infused future is adaptable to varying people and utility needs.

It is a prominent view that Urban centers are incredible test beds for the Internet of Everything, the increasing connections between all of us, and digitization.\textsuperscript{6} In the book, \textit{The City of Tomorrow}, it is believed that the future city grows from a symbiosis between design and the public.\textsuperscript{7} Realizing that each city has its own unique needs that

\textsuperscript{5}Herzberg, Caspar. \textit{Smart Cities Digital Nations} (Petaluma: Roundtree Press, 2017), 32.
\textsuperscript{6}Herzberg, Caspar. \textit{Smart Cities Digital Nations}, 9.
technology can serve to address, this exhibition will explore the impact that smart city technology will have on the future of urban life, using Washington DC as a host for this conversation.

Taking a human-centric approach and acknowledging citizens as the actuators of urban development is important to the conversation about smart technology in our cities. In the Smithsonian article, “Humans are Becoming City-Dwelling ‘Metro-Sapiens’” Public health researcher Jason Vargo argues that, to achieve sustainability, the human species needs to embrace its urban side. The term “metro-sapien” is used as a way to embrace the idea that to make it on this planet we're going to have to adopt urbanism to help us minimize our environmental impact on the planet. All of this emphasizes the impact that humans have on this world and why it is crucial that we form our urban communities with consideration of not just functionality but how we are maintaining a feeling of home and community connection. The more we feel connected to our city as home and the range of human who call it home too, the more we will be thoughtfully invested in how the future is crafted on behalf of humans and the environment we seek to maintain.

**Thesis Statement**

Rapid urbanization is a global phenomenon. The world’s urban population will more than double by mid-century and smart urban technology is the leading urbanization solution for major issues and driving innovation. In this era of dramatic change, the

---

constant is people. Putting people first is vital to unlocking the potential of what city life can be.

This exhibition is a celebration of civil engineering and the new, ubiquitous technologies that create possibilities for our future.

By offering a space for reality and imagination to co-exist, today’s generation of city-dwellers, who view their city as “my city”, can encounter key features of the urban future that smart urban technology is proposing, experience how technology plans to shape the future of their urban home, and question how this future will influence the dynamic of life in the city. What do you think about being a part of this future?

**Exhibition Objectives**

- Appreciate technology’s relationship with cities and how it has evolved.
- Inspire curiosity and contemplation toward technology’s role in our near-future urban world—how it influences our experience of the city and responds to our behaviors.
- Playfully engage with a network of smart technology and some of its physical implications.

**Location**

The exhibition will take place in the United States capital, Washington, D.C. The District of Columbia is a considered a global hotspot that is filled with international culture.⁹ These aspects make for interesting grounds to host an exhibition about the

---

outlook of future cities and how it will impact society. Involving the public in a conversation about what it means to inject the city landscape with ubiquitous technologies hits on democratic ideals, as these future concepts will inevitably have an effect on the role of government. While the exhibition is not government-focused, this does not take away from the role that government will play in natural conversation, especially since Washington D.C. is the home of the U.S. government and, thus, known as a “federal city”.

Because of its unprecedented proximity to government, infrastructure, industry, and advocacy organizations, the District of Columbia has been a frequent venue for smart city conferences, accommodating technology leaders from around the world to congregate, discuss, and share new innovations for how cities can adapt to demands and become more accommodating and efficient. In October of this year the District of Columbia presented Smart Cities Week D.C., where it brought together hundreds of inspiring thinkers, civic leaders, and technologists to discuss urgent urban challenges and how cities around the world are solving them—highlighting that, in many cases, innovative collaborations play a role.

The “federal city” label is undoubtedly a part of Washington D.C.’s identity. It is a location factor that has significant implications for the exhibit’s audience. In 2017 the reenacted political phrase, “drain the swamp,” resulted in strong reaction from locals. A Creative DC, an online community that highlights the city’s arts and culture scene, launched “D.C. Is Real,” a social media campaign asking residents to define what D.C. means to them.
The campaign creators expressed that the idea is to distinguish between the two sides of the city: the federal Washington and the local D.C.

DC artist and founder of A Creative DC, Morgan H. West, said, “the rhetoric [‘drain the swamp’] is so often applied not just to the federal government, but to D.C. as an entire city.” She also went on to explain that “nationally, the D.C. narrative is so far off base. It doesn’t include neighborhoods, it doesn’t include residents, it doesn’t include local businesses. It’s just about politics. Anybody who’s spent any time here knows that it’s so much more than that.”

The label “federal city” can be seen both as an opportunity and a challenge for the exhibition objective to engage long-term DC residents about smart urban technology. DC residents living in the odd circumstance of “taxation without representation” makes DC a unique site for discussion around governmental infrastructure. It is important to acknowledge that there is a range of stakeholders in the smart city conversation and that,

---

in spite of that fact, this exhibition seeks to speak to neighborhood residents on a local citizen-level.

Washington DC being a federal hub can accidentally overshadow what is distinctive about the DC community who experiences DC as home. It triggers a tension surrounding community identity. Noticing this tension suggests a need to consider how to engage DC residents in a meaningful conversation about the future of the city. The identity of a city stems from its people and in order for the city’s future to be inclusive it must be representative of the people it will serve. Not only this, but the DC community needs to claim stake in this future by inserting its identity and perspective.

**Audience**

The two primary audience groups for this exhibition is native Washingtonians who currently live in the District as well as the population of Washington DC transplants who have spread roots in DC for at least 5 years and now consider themselves long-term residents. To many, the District is viewed as a transient city, but these audience groups consist of longstanding inhabitants who view DC as “home”—be it by birth or adoption—and could share stories about how DC as a city has evolved based on their own observations and experience. This audience involves those who will ultimately care the most about what the future of Washington DC looks like.

The exhibition can engage people of all ages, but the content of the exhibition is meant for adults within the age range of 25-45. This group of adults has had time to establish a personal history and connection to city life in order to be affected by and invested in the city’s future, yet, as a mix of Millennials and Generation X’s, they are
also technologically fluent and can engage in the content of the exhibition in a meaningful way.

Considering a future that is embedded with technology and how that might play out in one’s familiar city life experiences will elicit a different reaction from DC’s native and long-term residents than those who are just passing through. Those who are dedicated to living in urban spaces long-term are an ideal audience for this exhibition experience because they will get the most out of attending it.

After directing an online survey to gauge audience more accurately, responses delivered useful insight on DC residents’ knowledge of the concept of smart city. While over half of the survey responders have heard of the term “smart city” or “smart city technology,” the majority were uncertain of its meaning. The same percentage of people who had heard of the term claimed they were unaware of the SmarterDC initiative, which is part of DC’s initial plans to begin incorporating smart technology in select locations of Washington D.C. Gaining this insight helps in assessing the knowledge-base of the local DC community and where we might begin the exhibition conversation in order to meet people where they are. It will likely be important for this audience to be able to first understand what smart urban technology is and how it is applied, so that they can begin developing their own opinion on what it means to incorporate it for the good of the DC community, based on the District’s unique needs and urban-personality. As the exhibition imagines relevant smart city scenarios for this audience to engage with, there can be a natural consideration of what is particular to urban life in DC versus other cities.

The survey also provided insight into the style of exhibition that visitors would like to experience. Based on IPOP, a model of experience preference that originated in the
Office of Policy and Analysis at the Smithsonian. The audience survey conveyed a strongest preference for “People” (emotional connections). The second highest preference was a tie between “Ideas” (conceptual, abstract thinking) and “Objects” (visual language and aesthetics). This is a useful tool in understanding what kind of experience this exhibition’s audience will be naturally drawn to. It provides a direction for what choices to make given how this audience is most interested to receive information.

Site Assessment

The historic home of the National Building Museum was built between 1882 and 1887 for three separate purposes: to house the headquarters of the United States Pension Bureau, to provide a suitably grand space for Washington’s social and political functions, and to commemorate the service of those who fought on the side of the Union during the Civil War.

Site considerations for this exhibition involves support for the exhibition’s topic, audience, the site interior architecture, and the location (i.e. accessibility and the surrounding location). The National Building Museum has proven to be a setting that positively supports these considerations, with the exception and understanding that the space and interior architecture offers unique design challenges to address.

Before further explanation for why the National Building Museum is a suitable choice, here are the sites that were assessed for comparison, which is what helped define

---

the National Building Museum as the best site in Washington, D.C. to host this exhibition:

*Site Comparisons*

*The Anacostia Community Museum*

The Anacostia Community Museum is dubbed the “neighborhood museum” in one of the District of Columbia’s developing areas. Part of the museum’s founding mission was to facilitate and promote direct community accessibility. Since the intention of this exhibition is to appeal to urban community members, the Anacostia Community Museum would offer a way of supporting that effort. Though the museum identity has understandably evolved since the 1960’s when it opened and these factors affect the audience outreach in a way that would eliminate the breadth of audience this Smart City exhibition intends to engage. Beyond the Anacostia Museum’s neighborhood focus, it has been seen as a museum producing African-American exhibitions and education materials for a national audience; and currently as a museum seeking to build networks of similar institutions offering models of community-based research exhibition development. Beyond the museum’s identity shift, the Anacostia neighborhood has developed the community emphasis is ideal, the audience does not match the audience goal for this exhibition, and, thus, the location

*The Walter E. Washington Convention Center*

---

13 Reinckens, Sharon. “Smithsonian Anacostia Community Museum at 50.”, 340.
The Washington D.C. Convention Center is 2,300,000-square feet with a total of 703,000-square-feet of exhibition space. It is located in a superblock in Mount Vernon Square and is conveniently served by the Mount Vernon Metro station.  

In 2017 and 2018 Washington D.C. hosted Smart Cities Week at the Walter E. Washington Convention Center. The latest convention was in October 2018, which culminated in 900 attendees, 100 speakers, 100 cities, and 40 countries that participated. The next Smart Cities Week in Washington D.C. is set for October 2019.

Convention Centers are defined by their capacity for large occasions, exhibitions, and bringing people together with common interests. The topics and interests covered in the Convention Center setting is a range far too broad to summarize, but the scale of its venue spaces, the ability to accommodate large crowds and groups, and the convenience of location are the main perks.

It is noteworthy that D.C. is committed to being involved in the Smart City conversation and it makes sense the Convention Center would be the venue for such a sizeable event with business-minded people. The audience that the Convention Center includes expands nation-wide and internally, which is appealing, though it does not lend itself as easily or enthusiastically to the local community without the tendency to look and feel like a corporate-focused event or a large expo. These aspects would be hurdles to get past, which can detract from achieving a level of intimacy in the exhibition experience as well as an ability to maintain an appropriate tone or focus within the

---

exhibition space. The preference is to utilize an exhibition space that can become more focused, intimate, community-geared, and, yet, still have moments for larger scale experiences.

*CityCenterDC*

CityCenterDC is a $950 million mixed-use development on the ten-acre site of the former Washington Convention Center between New York Avenue, 9th Street NW, H Street NW and 11th Street NW. This urban center was designed to reshape Downtown DC. Before the construction, the site was utilitarian; retail closed early in the evening, which ensured a lack of activity in the area at night. The main activities were those of day crowds and office workers. Now CityCenter is a hub for thirty shops, plus residences, and offices. There’s a park space at the Northwest corner of CityCenter’s lot and an even bigger park space that sits between buildings and crosses the alleyway. The Alleyway is pedestrian friendly and there are two streets that run through CityCenter area.  

This location has a lot of compelling aspects to it. The alleyway strolls through the shopping strip and connects to an urban park plaza that is meant for community gathering. With an alleyway leading into the plaza on either side, this site was under strong consideration for this exhibition. There would be a lot of opportunity to create large scale installation and structural experiences while people. It is in the heart of DC and is a popular location for residents to wander. The plaza would make for a good landing zone for the core of the exhibition experience and the alleyway would serve as a nice lead-in, to build anticipation.

---

The downside of choosing CityCenterDC as the site for *Tech in the City* is that the commercial focus and upscale shops challenge the intention of the exhibition. This exhibition seeks to be sensitive to the perception of Smart City technology, in that there is concern for it being used for corporate interests and that data-collection creates privacy concerns, which is already a touchy subject globally. The decision was ultimately to opt out of this as a site because the site itself challenges some of the fundamental objectives of the exhibition experience. The location may be too much of a distraction to the intention of this exhibition.

**Other places of public accommodation**

Public spaces like churches, government libraries, or vacant buildings were valuable to consider. In most situations, the cons wound up outweighing the pros simply because key logistical factors prevented further consideration, like, construction, new building occupation, architectural conditions, or location. For instance, the Carnegie Library is positioned directly across the street from D.C.’s convention center. It is in a busy area, filled with locals as well as tourists and, yet, it also sits on a plot of grassy land all to itself in the middle of a roundabout intersection. The building had been abandoned for years with battles over what it would be repurposed for. Timing is everything. This location was removed from a feasible possibility upon realizing that the site is under construction to soon become an Apple store. The changes underway would make it difficult to navigate what the site actually looks at this stage and its new identity is too far removed from the theme of the exhibition to go this route. This type of examination and roadblocks became a similar story for other public locations, too.
Public spaces in the city

Why not design a city exhibition about the future of cities in public city spaces? This idea cannot help but be a fascination because DC has plenty of old infrastructure mechanisms that now have historical significance or are seen as actual historical sites; it’s becoming trendy to use alleyways as an off-the-beaten-path cultural experience, with speakeasy-style restaurants, bars, and street art tucked away in these hidden hideaways that feel unique. Beyond this, while DC has yet to embark on a larger-scale Smart City plan for the future, the SmarterDC initiative has some smart projects in the works, like installing a network system of smart technologies on Pennsylvania (the first test for embedding smart infrastructure). These various location ideas could make for a versatile, well-informed journey through the city to learn about what our future urban landscape might look like. It would also be impactful to be thinking about city life in a new way while standing in a city place that locals have stood a million times before.

As the exhibition narrative developed further, it became clear that dispersing sections of the exhibition would break up the narrative in, perhaps, a harmful way. The narrative needs to be a linked and connected experience in order to instill an emotional journey. So, given the direction that the exhibition narrative has taken, using city spaces as the exhibition location would make the narrative experience less effective.

The National Building Museum

---

The National Building Museum is considered America’s leading cultural institution devoted to the history and impact of the built environment. It focuses on architecture, design, engineering, construction, and urban planning. It is located at 401 F Street N.W., Washington D.C., 20-feet from Judiciary Square Metro station, a-less-than-5-minute walk from Chinatown and its metro station, and four blocks from the National Mall. This profile fits the theme of the exhibition more powerfully than the other exhibition sites that were considered, and, thus, the museum’s audience is well aligned with the focus of the exhibition; the museum location is highly accessible and in a prominent area of D.C., for the primary audience, transient residents, and tourists alike.

The National Building Museum has both spatial opportunities and challenges at opposite ends of the scale. When entering the National Building Museum, the Grand Hall atrium is the first space you encounter, with colossal 75-foot-tall Corinthian columns and ceiling four-stories tall. It is an important early large-scale example of Renaissance Revival architecture, and was designated a National Historic Landmark in 1985. One of its notable architectural features is the 1,200-foot terra cotta frieze. Over the past decade, this large, tall, open space has over become a host for playful summer blockbuster exhibitions, bringing in a much-desired younger audience to the museum.

The museum hosts various temporary exhibits in galleries around the spacious Great Hall. In 2013 the National Building Museum began its summer blockbuster series, using its Great Hall to host large-scale, immersive, installation experiences created by an

---

architecture and design firm. This series has drawn in an enormous number of visitors and broadened the age-range of its audience.

*Tech in the City* will be located on first floor, North West side of the building. The entrances to the main level first floor are accessible from the street and the galleries surround the large grand hall atrium. The gallery spaces have dome ceilings that are about eighteen-and-a-half feet high with light tracks suspended thirteen feet from the floor. The specific gallery spaces are linked rooms, 118-114 & 112. These six gallery spaces will be the core focus of the exhibition experience. The arched doorways and historic architecture create design challenges in that the exhibition must creatively adapt to the unique features of the interior architecture. The exhibition experience will begin and end in a portion of the atrium space directly outside of the galleries, which provides an exciting opportunity to explore a larger scale installation and set the tone for an experience of the exhibition that is not confined by the same spatial constraints as the gallery spaces. The challenge with the atrium is the opposite. The massive ceiling and columns require careful consideration in how the journey into the exhibition will take form and what feelings it will evoke. The atrium is a powerful experience in and of itself, and, so, it is crucial that the entrance experience of the exhibition be able to hold its ground in a thoughtful way.
Narrative Themes

Dichotomies

In developing the conceptual design of this exhibition, a series of dichotomous relationships have come to reveal their existence within the topic, and now define part of the storyline and, perhaps, an interesting tension within the exhibition. The most notable dichotomies are:

- Nature vs. Digital Technology, or Natural vs. Manmade
  - Cities are physical artifacts inserted into a preexisting natural world. They are manmade, built environments, that manage natural resources and natural landscapes within its cityscape.

- Tangible vs. Intangible
  - The structure of the city has physical forms that we interact with. Street level infrastructure is a dividing line between city features that are visible and tangible vs. not (at least to typical urban residents). Similarly, and even more pronounced, are technologies that interface with city parts. This
digital activation empowers results that can be visible, but the much of the actual process to achieve those results are hidden from view.

- Raw Structural Material vs. Finished/Decorative Materials
  
  o Cities were built for utility and industry to thrive. They are made of cement, concrete, steel, and bricks. The topic of ubiquitous technology presents a new, modern theme into the mix, which, in a visual sense, usually implies a finished or polished quality. While it may look or sound foreign, part of the appeal of new technology is that it usually shiny with a new design quality.

- Old vs New (or Antiquated vs. Modern, or History vs. Imaginary)
  
  o Similar to the material dichotomy, old vs new presents itself with topic and site. The National Building Museum offers historic architecture, while the exhibition need not possess a solely modern look and feel, certainly aspects of the topic lend itself naturally to a modern style of conversation.

- Digital Network vs. Grid Network
  
  o The city grid concept is nearly as old as cities itself. It is interesting to consider the integration of a digital network within city grids and beyond. It is a network on top of a network, a grid on top of a grid.

These dichotomies have become useful to embrace. The concept of magical realism has not only been an inspiration for approaching the subject matter of this exhibition but it has also become a valuable tool to blend these dichotomies together more harmoniously and purposefully. Magical realism injects these dichotomous relationships with meaning and direction.
Magical Realism

The concept of magical realism originally arrived on the scene of this thesis in its earliest form. It began with a fascination toward “fictional space.” This idea of fictional space has a unique approach to dualities and, thus, as an inspiration it deserves space in this exhibition. So, magical realism plays a conceptual role in the narrative structure of this exhibition by allowing the naturally existing dichotomies to live in harmony, as each presence is meaningful and relevant to the story. Magical realism also influences the design strategies for the exhibition.

Magical realism is broadly descriptive rather than critically rigorous. Matthew Strecher defines magical realism as "what happens when a highly detailed, realistic setting is invaded by something too strange to believe”. Magical Realism encompasses a range of subtly different concepts, expresses a primarily realistic view of the real world while also adding or revealing magical elements. It is sometimes called fabulism, in reference to the conventions of fables, myths, and allegory. Perhaps the most common term, often refers to fiction and literature in particular, with magic or the supernatural presented in an otherwise real-world or mundane setting.21

“I am interested in fictional space. How, in reading or viewing a fictional world, is space (the sense of direction and distance, the sheer up and downness and back and forthness, the scale) to be imagined? Magical realism makes the problem extremely interesting. The copresence of oddities, the interaction of the bizarre with the entirely

---

ordinary, the doubleness of conceptual codes, the irreducibly hybrid nature of experience strikes the mind’s eye."

The book *Magical Realism, Theory, History, Community*, discusses how space works in a “realistic” novel: “The navigational routes, the lines on a map, the rational cartographical space, unfold lucidly and unmistakably. (It is, of course, the representation of the space that you take for granted, and in which you walk and move about. It is such a familiar space that you can easily see right through it.)

We can view *Tech in the City* as a fictional space where the rules of reality exist but are magically decorated or embedded with intentional technological whimsies that operate on a different set of rules, on its own grid, yet, it still interacts with the reality grid we live in.

This passage says it best: “Magical realism focuses the problem of fictional space. It does this by suggesting a model of how different geometries, inscribing boundaries that fold and refold like quicksilver, can superimpose themselves upon one another.”

**Narrative Devices**

The dichotomies and the concept of magical realism apply themselves through a language of neighborhoods, cityscapes, elements of structural infrastructure, and scale. The narrative devices this exhibition utilizes is urban neighborhoods and the familiar city structures that urban dwellers see on a regular basis, though city routine might have these elements blend into the city landscape without further thought. Pulling out the structural

---

features of the city that are part of the usual city furniture or city operation is a way to make the conversation recognizable, yet, allow a new kind of noticing. Placing thematic content within and around city structural elements allows the city to do the talking and may grab city residents’ attention in an unexpected way. Neighborhood as a narrative device also evokes intimacy, shared experiences, growing families, and childhood play. Using city features stimulates a comfortable setting for visitors to encounter new and unfamiliar information that they can engage with or experience.

Thinking about neighborhoods, broadly, as the livable areas of cities (towns, suburbs, rural areas too) where community is formed and social interactions with community member occur, it is a space supposedly tucked away from busy city life where nesting happens and the intimacy of “home” begins to feel real, and literal. Choosing neighborhoods as a conceptual space to organize content is a way to draw a clearer connection between people and city in a tangible, meaningful way.

The city’s recognizable structural features create a setting for thematic content to exist. Whether these city structural elements inhabit levels that are above or below ground or at street level, they will be scaled to a size that is proportionate for visitors to walk up to and touch or step into to explore. This narrative device, more explicitly, provides opportunity to elicit magical realism-inspired experiences and, because the city features are identifiable, it will prompt common behaviors.

One city structural feature was chosen for each section to provide a narrative and design communication:
Interpretive Strategy

The book *Deep Mapping the Media City* investigates material urban spaces as infrastructures for mediation, proposing that archeological tools, like excavation and mapping, might help us to acknowledge and understand our smart, mediated cities over the long term. This book offers an inspiring approach to media (or technology) exploration in the city, with ideas about digging deep into the information that our material urban spaces have to offer beyond their façade.

Smart city technologies are no longer a new concept, but the implementation of smart technology as a reality is still obscure to many. Because of this, the mysterious nature of how a city operates and what technologies might be doing behind the city walls lends itself to interpretive strategies that will expose and reveal information to visitors. This idea stems from some of the dichotomous relationships mentioned earlier, like: Tangible vs. Intangible or Natural vs. Manmade.

The exhibition will explore the relationship between structural elements and how technology can be used to manage how it operates, detect its conditions, collect data, and respond to real-time information. Being able to explore and understand these functions in
a meaningful way means exposing what we normally cannot see and revealing the interconnected nature that smart technology networks are proposing. This strategy will allow for both digital and physical elements to play in harmony together, working together both overtly and covertly to reveal information to visitors in a compelling way—this means projecting information digitally throughout the exhibition and allowing ways to physically expose information to visitors. This strategy provides an opportunity for visitors to take initiative to explore and to make the structural elements of the exhibition seemingly come alive in a playful manner.

When digging into the story of a media city, Frederich Kittler reminds us, “networks overlap upon other networks.” Exposing these layers makes for a fascinating way to discover information.23

**Design Strategy**

Magical realism is the main inspiration for the design strategies chosen for this exhibition. With the concept, content, and site of the exhibition, it seems appropriate to investigate materials that are structural in form that can be made expressive. Creating built forms that can transform the environment to possess spatial makings or structural features of a city is important to capturing an urban reality with smart, hidden qualities. Such hidden qualities can also exist with the walls or structural features of the exhibition as digital projections reveal themselves. This corresponds with the dichotomy of tangible

---

versus intangible—adding seemingly intangible digital movement or information within the tangible façade of “the city”.

Biomorphic shapes, raw structural materials, large scale installations, digital displays, and applying color to establish place and focus are strategies that this exhibition plans to employ to help create an atmosphere that is clear about the discussion, but holds hints of magic that keep story curiously moving. Revealing digital information within walls

Given that this is an ideas exhibition, the design strategies aim to create an atmosphere that encourages people to connect with ideas about city life. Biomorphic shapes not only form a location setting but using malleable materials can help establish how a city is changing, responding, or adapting. Applying color to a raw city canvas not only signifies a place and focuses attention, but it injects new life and color into the old and familiar.

The National Building Museum is a setting with historic architecture that represents the past and this exhibition seeks to craft a conversation where past is present in the future conversation. These strategies are chosen based on the exhibition content, site, audience, and style of the story and conversation.

**Precedents**

The following precedents examine exhibitions, an immersive, multisensory art experience, and a public space intervention that are relevant to the objectives and design goals of this exhibition. By looking at how smart city technology is discussed in other exhibitions and the range of choices that were made to conduct the conversation, it
provided valuable insight into how this topic has already taken form and what design choices were made to facilitate those experiences. The style of content displayed and discussed in other various settings became interesting to observe as it helped to expand the consideration of possibilities available. The immersive art experience showed how magical realism could create a playful, interactive atmosphere that provided both familiarity and oddities. The public space intervention shows an example of smart technology in action in a real-city scenario, but used in a slightly unexpected way.

*Precedent: Ideas Exhibition*

_Toward the Sentient City - Architectural League, New York City, New York_

This exhibition is about smart cities and the extent that these smart technologies (and how we use them) influences how we experience the city and the choices we make there, and how they challenge the role traditionally played by architects in shaping the urban environment, a role which has historically—with a few notable exceptions—focused predominantly on the organization of space and material in terms of built form. The goal is to broaden the purview of architecture vis-à-vis these contemporary conditions. It presents five case studies commissioned by the Architectural League of New York and it critically explored the evolving relations between ubiquitous computing, architecture and urban spaces.²⁴

*How does it inform this thesis?*

- _Sentient City_ is an ideas exhibition that is inspired by other exhibitions that focus on space being understood more through interaction than delineation. The five

---

case studies in the exhibition present documentation of the projects, combined with preliminary experiments, background research, material investigations, interaction prototypes, and analysis. These case studies are content pieces that share precise ideas, which can be made clear and tangible for visitors. Though, it becomes a launching point to continue the conversation in other ways. This premise of using case studies as a foundation for discussion is an interesting approach to direct visitor focus and then to design extensions of those content experiences.

**Precedent: Magical Realism**

*House of Eternal Return, Meow Wolf Art Center, Santa Fe, New Mexico*

Meow Wolf is an artist collective that works with technology to create immersive, interactive installations. It was formed in 2008 in Santa Fe, where its first permanent installation, House of Eternal Return, opened in early 2016 in a former bowling alley. Visitors enter House of Eternal Return through a door that deposits them in front of a two-story, hyper-realistic Victorian house. There’s a porchlight with a warm glow in the (fictional) night and fellow visitors are visible through the windows on both stories, exploring the rooms. Upon entering the house, people are struck first by the normalcy and specificity of it all: the knick-knacks and framed photos, throw blankets, clutter of papers, and televisions left on says this is a house you've been in before, inhabited by people like you. But the familiarity rapidly gives way to oddity and absence. After all, there is a mystery storyline throughout the house that needs to be solved.²⁵

---

How does it inform this thesis?

- Visitors can open the kitchen refrigerator and walk into another room, or crawl through the living room fireplace. The style of the exhibition has a playful magical realism excitement and uses familiarity to instill oddities that allow you to explore a string of experience and find new content. The playful and creative approach that Meow Wolf exhibits is an important precedent for this exhibition to consider and pull from.

- Meow Wolf is also known for embracing dichotomies as a part of what makes it a unique, enjoyable experience for visitors. They make this apparent from the very beginning that you enter a familiar house and you want to discover what is different about this place. There are a number of juxtapositions in *Tech in the City*. The way Meow Wolf has included these contrasts as part of the storyline, with clear intention, is a helpful tone or attitude to embody.

Figure 4. Meow Wolf exhibition, *House of Eternal Return*, design
Figure 5. Meow Wolf exhibition, *House of Eternal Return*, hidden passageway

**Precedent: Community Themes & Interactives**

*City Now City Future, Museum of London, London, England*

In 2006 *City Now City Future* began its first ever year-long season at the Museum of London. It explored the challenges we face and how our cities are evolving to meet them. This series examines the various challenges that an increasingly urbanized earth poses to the world and its inhabitants. Some of the themes are: “The People’s City”, “Sharing the City”, “Changing the City”, “The Future City”

“The City is Ours” is an exhibition that took place within the *City Now City Future Series*. It’s based on data from real cities around the world, and we partnered with 25 different London initiatives who were using real solutions to current problems.

*How does it inform this thesis?*

- It provides useful examples of interactive methods that can provide visitors with varying ways to view, handle, and reconsider urban life.
- It is inspiring that the exhibition was able to utilize initiatives and visions from other cities around the world to open people’s minds to future city solutions for
London. This is an idea that could be a helpful addition to content of this exhibition.

Figure 6 – City Now City Future exhibition, London, interactive

Precedent: Large Scale & Multisensory

The Future of Us, Gardens of the Bay, Singapore

The Future of Us exhibition explores a new dialogue between architecture and nature for the tropics through the use of advanced design and fabrication technology. This exhibition has six key zones which provide an interactive and immersive experience, offering you a peek into the possibilities of how our citizens can live, work, learn and care in the future.26

How does it inform this thesis?

- The exhibition’s structural building skin that generates shading and visual effects is reminiscent of a tropical forest. This is an inspiration for materials that can create an interactive quality; in this case it was an interactive city forest.

- The style of this exhibition is in a large outdoor dome and the designed experience is large-scale structural installations that possess digital and mechanical interactives. *Tech in the City* plans to build structural installations, though not at this scale. It is nice to see how this exhibition approached the interactive elements within these installations.

- The exhibition’s Theatre of Generations and Home Tomorrow spaces are experiential journeys that focus on community-building and honoring Singaporeans from past generations. This is a unique focus on the Singapore audience. *Tech in the City* hopes to connect with audience in a meaningful way. Though the scale of these experiences would not translate to the National Building Museum gallery spaces, these examples inspire possibilities for experiential moments.

- The Future of Us encouraged visitors, before attending, to post their hopes for Singapore's future as well as their own envisioned role on the website's "What is your dream for Singapore's future" feature. This idea is interesting because it’s a way to build early audience engagement as well as produce content that relevant and true to visitors.
Precedent: Ideas Exhibition & Community Themes

Living in Future Cities, MUHBA Oliva Artes, Barcelona

The content of the exhibition is isolated to an architectural institution’s research projects, but the goal of these projects is to examines issues of the near future and to propose technological solutions that can aid us to positively define the spaces and cities we live, grow and thrive in. This exhibition poses compelling questions like: can we program the spaces we inhabit to act as living organisms that respond to our emotions and our needs? And, is it possible to use digital interfaces and augmented reality as tools to ensure public participation when defining our cities?

How does it inform this thesis?

- The display of the exhibition uses unfinished wooden frame structures to support the projects its showcasing. It gives a skeletal look and feel, like wood scaffolding. It is as if you are seeing the makings of something that may or may not be built. This display method could be an interesting way to communicate to
visitors that they are part of ideas that are only partially constructed and that the visitors are invited to participate mentally or, perhaps, physically to formulate how these ideas might take place in real life—whether or not the ideas are even worth exploring further within their own city life.

Figure 8. Living in Future Cities, Barcelona

*Precedent: Play & Public Spaces*

*Stop, Smile, Stroll, Design studio Hirsch and Mann, Bristol, UK*

This public space intervention transforms a pedestrian crossing into a 30-second opportunity for sharing a moment of magic. It is a playful intervention at pedestrian crossings that brings strangers together for a moment of shared fun, breaking the mundane ‘stop and walk’ routine. We travel the city in our own worlds – often
disconnected from our surroundings and other people. The ingredients for a magical moment are always around us: Lights, noise and people.  

_How does it inform this thesis?_

- This intervention is an example of using smart technology to create playful interactions with passersby. While the goal is not to claim that smart technology is the best solution for the future, allowing moments to play or interact with technology in a city street setting is a useful way to make the technology feel more real and tangible. The success of this public space experience means there can be other possibilities for how to bring city streets to life in a way where people can connect with it.

![Stop, Smile, Stroll](image)

**Figure 9. Stop, Smile, Stroll, public space intervention**

---

Precedents Conclusion

These precedents were useful in considering strategies and approaches to different aspects of the *Tech in the City* exhibition experience. The takeaways ranged from how exhibition story is framed (*i.e.* space being understood more through interaction than delineation); an example of magical realism being used in an experiential style that is playful, yet, uses familiarity and oddities; ways that community can be an intimate focus and a generator of content for the exhibition; materials and structures that add to the setting and narrative experience; and an example of how smart technology can showcase an interactive experience in a real-city experience while being playful.

All of these examples are relevant in demonstrating communication tools that are relevant to the objectives of this exhibition and offer design inspiration to consider for an effective storytelling experience.

Content & Narrative Experience
This is an “ideas” exhibition. The content themes of the exhibition are focused on ideas and the supporting content for the sections will be a mix of produced objects, experiential interactions, and visual and textual information that add meaning to the thematic subjects.

The exhibition journey begins on the first floor of the National Building Museum. Upon entering the building, the visitors’ eyes will be drawn to a large, colorful grid-like structure, which is visible from the grand hall atrium as it sits in front of the NW corner main floor gallery.

Section one:

Section One is an introduction to a city being constructed into a more-connected city, implementing new digitally-responsive technologies. The experience itself suggests that you are entering an urban environment that is being infused with new technologies, that it is something currently being constructed, and that you’re walking into a sensory experience. The visitor will walk through a painted metal grid-like tunnel that represents a construction walkway. This experience is meant to be inviting, curious, and most of all, fun.
Upon entering the construction walkway, attention is drawn to the LED floor graphic, a colorful array of electric nodes that follows the path of the visitors’ movement with a glow of interactive light.

At three separate stages along the walkway, the LED floor graphic displays big messages about the exhibition topic.
Section Two:

Section Two presents the idea that data and information are a new energy source for the city. The content themes of the space were chosen in response to the question: *how do we connect to the city through data?* The mood of this space is dim and illuminated, with the idea that it might be nighttime and the city itself never sleeps. The city is alive and moving with data. Placing the visitor in the unique position of viewing what is usually invisible, like data and information, the space represents an urban experience that is beyond the city surface—inside, below, or within the city, where data moves about, to be made sense of and, thus, responsive to that information.

This section will frame the importance of data by, first, explaining the problems that cities currently face, which is why data has become a foundation for a smarter urban living environment. Urban population is rapidly growing and this revolution of new smart technologies is seen as the primary solution worth investing in. Infographic globes will express key information about urbanization.

Manholes are the key design featured in this space. They change size and form to share data in various ways, allowing the visitor to explore and see what data reveals. Some of these experiences provide knowledge from data and others are simply meant to be amusing.
The content begins with global and general data visualizations about city life and its operations. As a visitor moves towards the back of this room they can go deeper into content, more related to Washington, DC. There are two interactives. First is the “Utility Hack” interactive where visitors can compare neighborhood utility usage from over the past 12 months: water and electricity. Visitors focus in on a specific neighborhood or areas within the neighborhood, turn on or off water or electricity, and the data expresses itself through a tube and into the cloud. The cloud represents an internet database that stores data condensation, which can be released into a visual downpour of digitized water and electricity particles. The visitor has space and freedom to playfully submerge in it. This interactive is meant to provide a soft and fun way of looking at local data, and to share information in a spirited, digital manner.
The final interactive, “Data Decisions,” takes place within a large manhole and is more-so focused on allowing the local DC community to look at city problems based on data and participate in decision-making. The first problem is data privacy preferences. Visitors are prompted with questions about what data they would be willing to share (or not) based on what the data would be used for. This engages citizens in the concerns of comfort and trust when it comes to urban data distribution. The second problem is to use data to manage city resources. The goal is to make this DC-focused and the takeaway is that the city should use data to allow community input because it can help build awareness of the situations our city faces and what possible solutions are. Data can provide unique insight.
Figure 16. Data Decisions Interactive

One of the legitimate fears about a world that runs on data is privacy and surveillance issues. Data transparency is one of the ways a city can make people feel safer and by letting the public be involved in the value of what data can offer, it shows that new urban technology can empower the urban community.

Section Three:

Section Three presents the idea that connected devices are the pulse of the digital network of a smarter city, which makes objects “talk” to other objects as well as to people. These sensor devices are what make the city “smart” and responsive, and they are essentially on-the-ground-data-generators. The content themes of this space were chosen in response to the question: how do we connect to the city through “things”? The mood of this space is still somewhat dim but less so than the previous section. We transition from the city at night to the glow of morning as city services begin to wake up and people are easing into their day of activities.

A crosswalk lays across the middle of the room. As visitors walk across it, they’ll notice names of major cities that are already investing in smart city projects. These projects are worth exploring to assess how each is uniquely fitting the particular city’s needs, let alone community needs.

The focal point of this section is large-scale lamp posts. These lamp posts take special form as the posts act as the stem of a flower; petals hang off of the lamp face and, in its default, inactive mode, it remains asleep and wilted with the soft glow of a standby light. The lamp senses a visitor approaching. When the visitor stands underneath its
petals, the petals open like an oversized parasol and the lamp shines more brightly. The visitor will look up as the petals open and then look down to see that the lamp’s light is projecting an animated video story of the Internet of Everything. The lamp flower itself is a thing of the internet.

This interactive flower embodies the idea of blooming, not only in relation to morning, but in response to humans. The lamp opening up its petals can also be interpreted as an act of protection or care, providing the message that “the city is made for you.”

Figure 17. Interactive Lamp Post Drawing
Section Four:

Section Four presents the idea that the city will respond to us, the natural environment, and communicate with connected-objects within the city in real-time. The content themes of this space were chosen in response to the question: How do we connect to our city in tangible, everyday ways? The setting is an urban neighborhood, where life takes place in the city. The mood is based on the activity of everyday city life, during the daytime, filled with possibilities.

A thin paved roadway is applied to the center of the room. It can signify that we are now in an active space and that there’s places to go, things to see and do. In the middle of the roadway the pavement lifts up into a countertop with stools. Visitors can rest and play with digital sidewalk chalk.

Building facades are the main design feature of this section. They line either side of the road and act as interactive touch screens or designate a space for exploration. Some of the topics discussed are materials hacked by technology, a smart tiny house with an urban garden, and monitoring noise pollution in a traffic-heavy city.

One building façade serves as an interactive touch wall that displays a range of city services as illustrations. When a visitor places their hand on one of the illustrated icons, a sensor-activated projector is programmed to illuminate an emergency scenario that starts from that icon and creates a linked path to other icons, expressing information about what is happening. This interactive is meant to provide hypothetical stories about real emergencies that can occur in cities and show how smart technology plays a
beneficial role in these situations. This experience should be meaningful to long-term city residents because the city is home and where they want to feel safe and taken care of.

Figure 19. Touch Wall

Section Five:

Section Five presents the idea that, while there is no universal definition of a “smart city”, the implied intelligence of a city can only be measured by how well it serves its community and, ultimately, these ubiquitous technologies should enhance the identity and individual values that are representative of the city. The content themes of this space were chosen in response to the question: How do we connect to our city as a community and how does technology strengthen city identity? The mood is warm, as if the sun is setting after an active day and it’s time to commune with family, friends, and the fellow community.

The main design feature is an urban tree, which is meant to spark the instant familiarity of an urban park space. The setting is an urban park living room hangout. Trees represent social spaces and Washington DC is known for its emphasis on public
park spaces throughout the city. The design intention is that this space feel calm and
reflective of your city life experience and connection to the urban community identity.
The urban tree serves as a community listening post and place for reflection. Visitors
respond to prompts about their city’s identity or aspiration for how to improve city life.
These responses are translated into wall-projected thought bubbles that become a part of
the room’s ambience. The messages appear and move up the wall before they fade. They
run in a continuous loop to be viewed by visitors.

![Image of Community Connect Section]

Figure 20. Community Connect Section

*Exit:*

The Exit experience shows a mural that celebrates urban community with
technology fireworks as well as a rotating display of the digital images people drew with
the sidewalk chalk in Section Four.
Exhibition Takeaways

1. Smart urban technology can be a means to enhance the individual characteristics of a city, to reflect the values of the city and its people.

2. Smart urban technology allows the city to be responsive to human needs more quickly and to function more efficiently.

3. A more connected city can also mean a more connected community.

4. The Smart City movement does not have one universal definition

Conclusion

This exhibition proposal for *Tech in the City* uses large scale installations and intimate multisensory environments to build an emotional connection between humans and the city, and the presence of ubiquitous technology in the mix. This exhibition will help pull Washington DC residents out of their usual, everyday view of the city streets they walk on, the neighborhood block they live on, the urban parks they leisure in, or the commute from here to there, to see the urban world they live and breathe in with more curious eyes. The contrasts and dichotomies present in this exhibit are natural aspects of everyday life. Allowing those elements to arise in visible ways helps to generate conversation. Visitors of *Tech in the City* will encounter a unique experience where they can gain insight, be curious, and connect with others through a new city experience that is a mix of reality and imagination.
Bibliography


Shepard, Mark. *Sentient City, Ubiquitous computing, architecture, and the future of urban space*  


SmarterDC. “SmarterDC Initiative, Guiding Principles for a More Capable, Inclusive, and  

Smithsonian Institution.“What is IPOP?,” August 6, 2015.  
https://www.si.edu/Content/opanda/docs/IPOP/IPOP%20short%20description%20150806.pdf.

https://aal.sutd.edu.sg/research/future-us-gardens-bay/

“The Urbanization Prospects: The 2018 Revision.” *United Nations, Department of Economic and  

http://smartcities.gov.in/upload/uploadfiles/files/What%20is%20Smart%20City.pdf


Wikipedia, the free encyclopedia. “Walter E. Washington Convention Center.”  

Zamora, P. Lois, and Wendy B. Faris. *Magical Realism, Theory, History, Community*  
Washington DC

![Image of campaign image](image_url)

Figure 1 – “DC is Real” Campaign Image, CreativeDC


Smart City Definitions

The first question is what is meant by a “smart city”. The answer is, there is no universally accepted definition of a smart city. It means different things to different people. The conceptualization of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. A smart city would have a different connotation in India than, say, Europe.²⁸

communities to act smarter. While no one definition suits all cities, a useful definition is from the ITU:

_A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects._²⁹

_The Internet of Things_

The key technology behind the success of smart city initiatives, whether that’s improving pollution levels or traffic conditions, is the IoT. The IoT is a network of physical connected devices, like vehicles or home appliances, that enable these ‘things’ to connect and exchange data. This in turn, is creating never-before-seen opportunities to converge the physical and the digital – via data analytics – to improve efficiency (both in public and private sectors), drive economic benefits and improve livelihoods.³⁰

The technical definition of the Internet of Things (IoT) involves small devices, each with their own Internet Protocol (IP) address, connected to other such devices via the Internet. In other words, lots of little “things” connected to lots of other little “things” over the Internet. Instead of connecting people to other people, as does the current Internet, the new Internet of Things connects things to things. A lightbulb that can be switched on using a smartphone app is an IoT device, as is a motion sensor or a smart thermostat in

---

³⁰ https://www.information-age.com/smart-city-technology-123473905/
your office or a connected streetlight. An IoT device could be as fluffy as a child's toy or as serious as a driverless truck, or as complicated as a jet engine that's now filled with thousands of sensors collecting and transmitting data back to make sure it is operating efficiently.\footnote{Miller, Michael, \textit{The Internet of Things}, Pg. 2}

\section*{APPENDIX II}

\textbf{Audience Research}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{chart.png}
\caption{Are you familiar with the terms "Smart City" and/or "Smart technology"?}
\end{figure}

\textit{Audience Survey Results, Google Form}

APPENDIX III

Site Research

Each year, the National Building Museum hosts a Summer Block Party installation, part of an ongoing series that aims to showcase innovative museum experiences and the incredible design capabilities of the museum’s Great Hall.32

The National Building Museum is located at 401 F Street NW in Washington, D.C., United States. It is a museum of "architecture, design, engineering, construction, and urban planning". It was created by an act of Congress in 1980, and is a private non-

---

profit institution; it is adjacent to the National Law Enforcement Officers Memorial and the Judiciary Square Metro station. The museum hosts various temporary exhibits in galleries around the spacious Great Hall. The building, completed in 1887, served as the Pension Building, housing the United States Pension Bureau, and hosted several presidential inaugural balls. It is an important early large-scale example of Renaissance Revival architecture, and was designated a National Historic Landmark in 1985.33

Figure 2 – National Building Museum, First Floor


APPENDIX IV

Precedent Images

Figure 4 – Meow Wolf Exhibition Installation


Figure 5 – Meow Wolf Exhibition Installation


Figure 8 – “Our Urban Living Room” exhibition, Copenhagen

COBE. “Our Urban Living Room.” Danish Architecture Centre.  
http://www.cobe.dk/project/our-urban-living-room

Figure 9 – “Stop, Smile, Stroll”, Playable City 2016


**APPENDIX V**

Narrative Devices

Neighborhood, Sketch
Structural Infrastructure, example


Interpretive Strategy
Example of Expose & Reveal Interpretive Strategy

Pinterest. Pinimg.
https://i.pinimg.com/originals/63/36/6b/63366b3b6de3391da851efc0cd4ba793.png


Design Strategies

Structural Materials

Biomorphic Materials


APPENDIX VI

Content Themes
Control Room, Data Network, Sketch

Neighborhood Block, Street Infrastructure, Sketch

Urban Park, Responsive Environment, Sketch
Content Organization Bubble Plan