Innovation District in Navy Yard

DECEMBER 12

COMPANY NAME

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Background

As new technologies develop in these decades, a new supplementary form of the city has been emerging, which we call “Innovation District”. In the last century, some initial innovation landscape took place in cities and communities, for instance, Silicon Valley, a suburban corridor with abundant resources in technology companies, but less focus on the quality of life. The innovation district is the manifestation of a contemporary trend that reconnects the economy, environment, and social networking. An increasing number of innovative firms and talented workers migrate into a congested, dense area, relocate their facilities closed to other firms to share ideas and resources. These prevalent districts that are pedestrian-friendly, bikable and connect with public transit attract surrounding residents to work and live in these places. Globally, innovation districts are emerging in the past years. Barcelona, Seoul, Berlin, and Toronto all incorporate this transformation idea into their city development. In the United States, New York, Boston, Chicago, and Atlanta are all representatives in this city evolution.

As a newly developed community in Philadelphia, Navy Yard has its unique advantages compared with other neighborhoods in the region. It is located in the south of Philadelphia, near the Delaware River. The community has convenient access to other regional public transit centers, including Philadelphia

Airport and the port of Philadelphia. Besides, it is within a bikeable and walking distance to the majority of Philadelphia recreational facilities including stadiums and FDR parks. As a regional economic and cultural center in South Philadelphia, it has the potential to develop to be an innovative satellite community for Center City and University City, and provide various social, economic and environmental resources for surrounding neighborhoods.

Existing Foundation

Since 2000 when PIDC (Philadelphia public-private economic development corporation) acquired this over the 1000-acre site, the Navy Yard has grown into a neighborhood that creates an environment for employment, innovation, and production. The community successfully shift the military and industrial assets to a contemporary modern economy. Currently, Navy Yard offers active work and live environment for approximately 15000 employees and 170 employers, covering manufacture, retail, industries and institutional. Some regional and national companies set up their headquarters or main offices on this piece of land. Penn State University established a research campus concentrating on engineering and business in recent years. Also, lively riverfront greenway and some recreational parks that cater to various groups of people have been designed and constructed.

The Navy Yard provides a solid economic foundation that could be successfully transformed into the regional innovative district. Nearly 1 billion public and private investments have taken place in recent years. Its healthy community environment will keep attracting input from business and government. The established transportation systems connect Navy Yard with Center City and NGR station on Broad Street Subway Line and operate more 1200 shuttles trips per day which bring in over 130 thousand visitors a year. With 13 buildings that have been certified with LEED, the Navy Yard continues to contribute to sustainable and efficient development. A 35-megawatt unregulated electric grid was implemented in the community to deploy green and efficient energy generation and control. Solar power projects that initiated in 2017 provide a total of 440kw system capacity. (Navy Yard) It also allows the companies to be fully beneficial by sharing solar power without installing panels. All these infrastructures describe the profound market and technological forces that capable to drive the community to fully develop as an innovative district.

Challenges

Even though this revolutionary urban model fosters an open and collaborative innovation ecosystem, the development of this district is far from perfect. Some researchers argue that this kind of self-sufficient and isolated district will inflate the market and gentrify the community, which eventually divide this district with other surroundings.

Boston developed its city's Seaport District near downtown Boston into an innovation district in 2010. The government has a broad vision and are optimistic about the future of this district. Yet problems remain in this new developed, geographic and economic hub. Rising rents is one of the critical constraints which force some startups and residents to migrate into other parts of the city. In just a

few years after launching innovation district projects, the rents increased over forty percent, which reaches the same level as Boston's wealth neighborhood, for instance, Back Bay Community. How to stabilize the property value and establish a healthy real estate market is crucial for innovation district development.

When the researchers and developers argue about housing prices, it ultimately brings another topic-equity.

As the Navy Yard adopts the idea of the innovation district in the future, keeping the original residents and attracting more low-income citizens is another challenge that could be experimented in the process. One of the experimental forms that the innovation district can input is to bring community-led, tech-driven problem solving to low-income communities. This approach not only requires these low-income neighborhoods to be closed to the innovation district, but these neighborhoods are willing to promote cross-disciplinary cooperation.

On top of that, decisions on which technology will be implemented is also related to equity. Sufficient and efficient public engagement is significant in innovation district development. The developers and decision-makers are required to fully respect the neighborhood-specific culture and needs. The scale of public engagement for a certain technology implementation could narrow down into a block or street to cover more recommendations.

Another challenge that should be concerned in Navy Yard is climate change, especially for sea-level rise. As a unique geographic location in Philadelphia, Navy Yard will have high probabilities to face severe sea-level challenges in the following decades. Providing more infrastructures related to stormwater management near the riverfront is vital considering its proximity to Delaware River.

New Innovative Plan and Technologies

As we bring out the innovation district plan, it important to assign the responsibilities and designate certain departments to take more active roles. We believe the Philadelphia city itself should not only provide sufficient financial support but take responsibility for consulting, developing and leading the direction. The government should contain the Office of Innovation and Technology, Office of Innovation Management, Office of Open Data and Digital transformation and other relative departments in cooperation with PIDC together to provide leadership in innovation district development.

The new innovative, strategic plan will consist of four domains: Economy, transportation, environment, and land development.

Economy

Based on the existing economic foundation, the Navy Yard can continue to encourage entrepreneurs, companies and institutional researchers to collaborate across borders and work in multiple disciplinaries to share resources and produce new assets. It will bring more works and job

opportunities into the district and increase revenue for each company, which in turn benefits the government tax revenue. With this innovative working environment, it can galvanize and support economic growth and attract more entrepreneurs to set up their companies. To attracting more start-up companies, the Navy Yard can promote more beneficial policies, for instance, lower rents and

reduced operating expenses, or financial support to these start-ups. With these efforts, the district can turn into an urban lab serving for young firms, talent young expertise, and investors, as well as smart cities technologies.

The existing Penn State research center can be developed into a regional research hub, with collaboration with local educational resources, such as the University of Pennsylvania and Drexel University. It will also bring more students and researchers to live and work in this district. As a district concentrating on economic growth and job creation, we believe it can provide the prospect employment opportunities for the surrounding low-income neighborhood. With more companies and educational facilities move in, a special education program can be launched to offer specific job training camps for residents locally and nearby.

Transportation

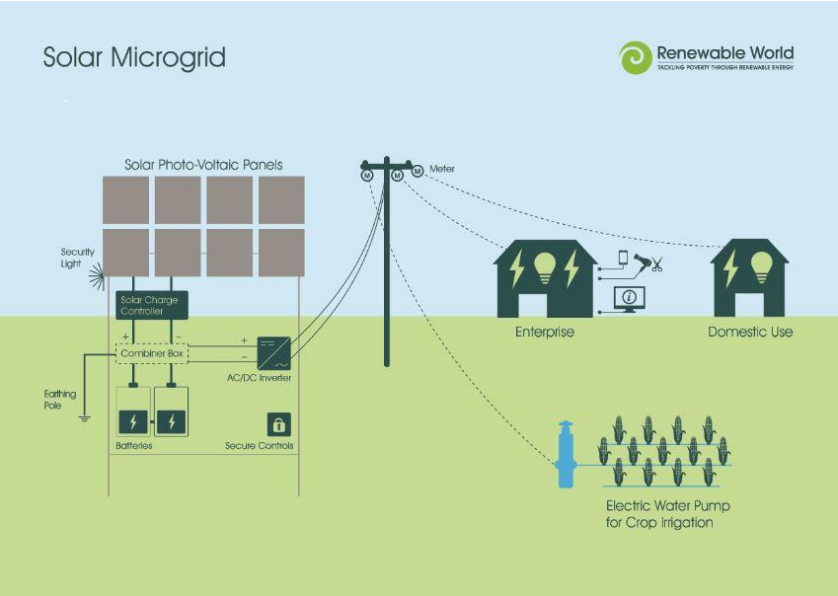
Transportation assets that tie the district to a broader metropolis are strategic investments to remove the barriers of communication. These strategies for innovation district transportation systems are to strengthen the connectivity to an entire city, which aims to ensure the districts do not isolate themselves. With current transit with Center City and NRG station, we propose more transit connections, such as shuttle service, with

University City, regional train station, airport, and other low-income neighborhoods. Our goal is to ensure all citizens have equal chances to access and connect with innovation districts.

As one of the key characteristics in innovation districts, smart cities technologies related to transportation can be flexibly tested on these renovated complete streets. More green mobility facilities, such as biker sharing stations, EV chargers, scooters as well as car-sharing stations can be tested on certain streets or blocks. We can transform some blocks into a pedestrian-bike shared area without vehicles. To reduce carbon emission and pollution, we promote more car-sharing and shuttle services in the district. Navy Yard on-demand transit service would potentially relieve the congestion of modern transportation. Currently, the Navy Yard has a large number of areas which serve as surface parking space. We propose a reduction of these grey space and build a new parking garage center for all the private vehicles, which also become a main operating station for all on-demand transit service in this district. In this scenario, visitors and workers can access Navy Yard by either public transit or private vehicles – on-demand transit for daily needs. Moreover, app service and online data would be necessary for operating transportation systems and providing real-time information for citizens. However, one of the challenges is the mobile device's accessibility. What if the elder is not able to use devices to request transit. We would like to deploy more instruction stations and a few information kiosks with high-speed wifi connections in the district to help these groups of people.

Environment

The Navy Yard will keep maintaining and improving the current unregulated electric grid that provides reliable and sustainable energy for the entire district. Promoting more microgrid distribution will be the next step for the innovation district process. Microgrid provides an option for balancing the



carbon emission and electric production. It also offers a robust foundation for neighborhoods when renewable energy is not available at a certain period due to severe weather conditions or natural disasters.

Considering the implementation of the solar panels in Navy Yard now, we can introduce the solar microgrid system which fully embraces this green and cost-effective energy to support our district. In this case, the solar will become the substitute for traditional power generator, which eventually reduce the cost and save money for the residents and business.

The Navy Yard will continue to promote and distribute LEED concepts in new construction buildings. More energy sensors such as smart water grid, air quality monitor and electric sensors should be applied with some government financial support if necessary. Installation for some of these infrastructures may be very expensive. Even though high cost and lack of incentives may constrain the implementation, these expenses could eventually be offset by revenue and saving in operation.

As this proposal mentioned in the challenges, sea level is threatening the Navy Yard riverfront. Stormwater management facilities on both street and green space should be implemented without hesitation to ensure the safety and sustainability of the innovation district.

Land Development

To ensure equity and facilitate innovation, new property assets are designed to support new demographic transformation. For instance, Navy Yard can propose more mix-used buildings with increasing shared areas, more affordable office space for startups. Even though affordable housing may reduce the land value to some extent, it is still another approach to attract low-income and mid-income class and slow the pace of gentrification. One of the creative land development strategies is micro-housing, which are innovative small units with access to co-working space, environment, and entertainment area. These housing units can be flexible and target the market for young workers, students, local citizens, and some migrating workers.

Conclusion

Navy Yard is a community with abundant resources that has the potential to transform into an innovation district. Through concentrating on dealing with these challenges and implementing strategic development plans, Navy Yard will ultimately turn into a livable urban hub embracing all the residents, businesses, workers and visitors.

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