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# Smart Food Management

## ASSIGNMENT 3/4: DIGITAL STORYTELLING



### VISION STATEMENT

A smart city that implements proper food waste management and distribution will use better ICTs (Information and Communications Technologies) to allow for greater access and availability of communications, both in the locality's businesses, pantries, food conservation organizations and as well as those in need of such utilities, such as low-income families, the homeless, and anyone who have no access to hot meals on a daily basis. Understanding the underlying lack of ICTs in such a system will allow for better development, provide streamlined regulatory functions in creation of policies, and act as a facilitator in creating a network for the system already in place. We know that even with a plethora of existing food waste management organizations systems in place, there continues to be a large amount displaced food in the United States. The hope is to mitigate problems in such a system by using smart city development processes to create technologies and socio-cultural change within the society the system resides.

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## Background and Literature Review

**Beyond Food Sharing (Ciaghi and Villafiorita, 2016)**

ICT tools and applications are heavily discussed in this piece of work. Tools such as web applications have been shown to significantly help reduce food waste. Further, the tools mentioned in Ciaghi and Villafiorita's work, developed by the author's team, helped Italy redistribute 720 tons of food in 1.5 years. The strongest form of reformation and influence comes by making it easier to manage inventory, coordinate collection and deliveries, and raise awareness about reducing waste.

Informing users of food expiration date and quantity helps users to be more aware of their food supply and encourages them to reduce waste. Such education could be used in Charlottesville, and more so in an educational environment like UVA. Data collection, if efficient and significant, can allow us to get to the root of the problem: understanding what caused the food waste and how we can support restaurants/dining halls to reduce waste.

As food moves downward in the supply chain, the recoverability of food waste decreases. A possible idea is to connect parties higher on the supply chain (manufacturers, retailers) directly to beneficiaries. There are no established web applications which facilitates the collection of food from restaurants. There exists a void for our web app to fill, possibly collecting and being transparent with data, or merely connecting food sources to people in need.

**An overview of food waste management in developing countries**  
Current status and future perspective

The per capita food waste in developed countries and developing countries are 107 kg/year and 56 kg/year, respectively. These values show that food waste generation between developed and developing countries are quite evident with higher living standards resulting in greater food waste generation. Charlottesville is considered a developed city within a developed country. Therefore, data proves that there is a room for food waste reduction through various trial and errors.

Current methods to handle food waste:  
Animal feeding (developed countries)  
Anaerobic digestion (developed countries)  
Land usage, crop rotation, population densities.  
Composting (developing countries)  
Incineration (developed countries)  
Landfill (developing countries)

**Organizational engines for smart territorial networks: the case of an initiative for food waste reduction**  
Italian pioneer project R.e.b.u.s. → an acronym that means 'Recovery of goods in surplus, usable for charities': for-profit organizations + charity organizations + government bodies, using ICT as the platform

**The governance of a smart city food system: The 2015 Milan World Expo**  
Some data conclusions that can be drawn from the abstract is that there are three important factors to consider:  
1) smart cities encompass environmental/social/cultural terms  
2) requirements support the growth of food systems  
3) inclusive agenda to growth of needs in meetings expectations across socio-economic systems  
4) resilience  
Governance of smart city food systems topics:  
Water recycling, energy consumption, carbon emissions, ecological footprint  
Land use, crop rotation, population densities.  
"The informatics of this governance is underpinned by the digital infrastructures and data management systems of these infrastructure developments..."  
The article mentions there is a "trust-deficit" in governmental policy statements made by various organizations, such as the UN, World Bank, and EC.  
What we already have:  
Comparison of Charlottesville city food systems and necessity of the Internet-based implementation of such technology

**Smart Food City - Conceptual relations between...**  
This work explores governance, smart cities, and food.  
Urban food research acknowledges the importance of technological innovation for the cause, but with a blend of social innovation and institutional change. Therefore, ICT is very important for communication (social innovation) to carry out connections between producer resources and consumer. However, we need to be aware that ICT cannot fix politico-economic and socio-cultural problems. These problems are an undertaking in themselves, and will need to be given a considerable amount of effort in order to maximize food waste reduction significance.  
The government focused on urban and regional economies while urban food is focused on food security (socially oriented). An example is SUPERBFOOD - a program throughout Europe.  
Urban food research is often thought of in terms of food security, but this is wrong. It is very much connected to community cohesion, social well-being of community members, and overall mental health of a city. Draw from "The Vertical Farm" Dickson Despommier, countries have been able to make significant improvements. This can be related to our project.

After analyzing and taking in this reading, we NEED data systems to improve food chain performance in terms of energy use and distribution. We cannot fix every problem, be that governmental, social, or economical. However, we can make steps in the right direction of targeting the biggest problems preventing people from reducing food waste - data transparency, acquisition, and communication.

**The informational turn in food politics: The US FDA's nutrition label as information infrastructure**  
The food label impacts how food is produced, distributed, and consumed more so than commonly understood. Production is affected because of how consumers are 'nudged' to consume in a given direction based on how they perceive information on food labels. Informational regulation (ie. how nutritional content is rendered on the label itself) is seen as an opportunity to steer the market in a given direction.  
The market has resultantly been encouraged to consume without regard to the amount of waste produced, profit driven producers can also take advantage of the current state of 'nutritionism' and change recipes to deceive consumers at their own expense.  
Companies reformulate their product recipes to minimize sticker shock of new nutrition labels. Schleifer's (2013)  
The food label has repeatedly changed to preserve the dividing line between markets for treating versus markets for eating.  
The nutritional content present has blurred this line at times, especially when producers decide to 'substituted a cheaper, often synthetic ingredient in place of the natural 'normal' one.'  
Scholars argue that nutritional labels have failed consumers, as 'information is not knowledge'  
Consumer confusion can be manipulated, as it has in the past, as food labels are leveraged to 'govern by [information] infrastructure'

**Some various references of current food management organizations in the Charlottesville area:**

Charlottesville Food Justice Network <https://www.cvillefoodjustice.org/>  
Meals on Wheels <https://www.cvillemeals.org/>  
Little Free Pantry <http://www.littlefreepantry.org/>  
USDA-FNS <https://www.fns.usda.gov/>  
FoodAssist UVA: <https://publicservice.virginia.edu/volunteer-foodassist>

**Food Banks and Pantries in Charlottesville area**

Blue Banks and Pantries - Thomas Jefferson Area <https://www.brafb.org/>  
Emergency Food Bank/Network <http://emergencyfoodnetwork.org/>  
Loaves and Fishes Food Pantry <http://cvilleloaves.org/>  
The Salvation Army <https://virginiasalvationarmy.org/charlottesvilleva/home/contact-us/>  
Meals on Wheels of Charlottesville/Albemarle <https://www.cvillemeals.org/>

**Various Church Organizations**

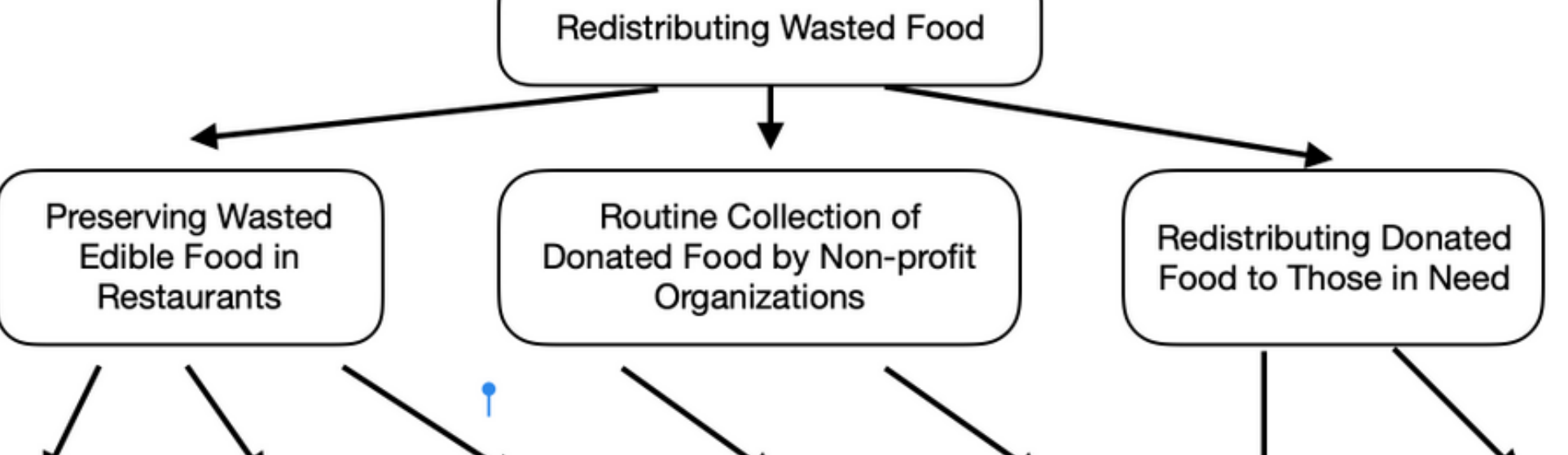
Thomas Jefferson Memorial Church Unitarian Universalist  
<http://www.uucharlotteville.org/collection-food-pantry/>  
Holy Comforter Catholic Church  
<https://holyccomforterparish.org/soup-kitchen/>  
New Beginnings Christian Community  
<http://www.newbeginningschristiancommunity.com/index.html>  
Saturday 12:00-1:00 PM Food ministry at New Beginnings-all are welcome, no paperwork required  
Church of Our Saviour  
<https://www.coonline.org/food-pantry>  
Bethany Seventh-day Adventist Church  
<https://www.risensaviour.org/bethany-food-pantry>

## Research Questions

- Alex: How can we efficiently and productively use technology/data acquisition to facilitate reduction in food waste by means of connecting community members in Charlottesville?
- Eric: How does waste food impact natural environment chemically and biologically? What are some approaches that exist already in facilitating food donation?
- Pablo:
- Dale: If individuals were aware or could track the exact monetary cost for their yearly food waste, would this reduce or limit their individual food waste?
- Ruey: With already incorporated food management organizations, how is food waste management handled differently in a city such as Charlottesville compared to a place in China? Does the socio-political system contrasted between the two states have a stake in determining development of the smart-city implementation of smart food management?
- James: How does Shenzhen handle its food waste and food donations? How is that different from Charlottesville and what caused these differences? Does cities like Shenzhen have practices that we can learn from?

## Stakeholder Diagram and Analysis

Different groups/Stakeholders  
Local Food Pantries  
Charity Groups  
Homeless Communities  
Restaurants, Local Businesses  
Church Pantries  
Low-Income Families  
Foster children/Shelters



## Value Mapping and Hierarchies



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