Technology configuration inventory

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Community (UN SD goal):	Goal 11 – Sustainable Cities and Communities
Date:	2021-10-05

Instructions

It is useful to inventory the current technology configuration of the community, i.e., the current technology that the people working, learning, advancing knowledge (etc.) in the specific area you are engineering software for are using, as a way to understand the community better and what matters to them better. If yours is a new community, it may not have any specific technology yet, but even for brand new communities, the current configuration may not be empty, for instance if general tools like email or phone are going to be used. You can use a version of the table on the next page to inventory and analyze the current configuration of your community:

1. Get the big picture. Research the area and make a list of all the platforms and stand-alone tools in your community's configuration as best you can
2. For each platform, list the tools and check the ones that are being used. Why are some not being used? Are there duplicates? Are there issues around integration between tools?
3. To the left, make a note of which community activities/orientations the tools currently support in your community
4. To the right, identify the key features of tools. Are some of these features commonly or rarely used? What are the reasons for that?
5. Assess actual tool use if you can. Identify which are dominant and which are only used by smaller groups and individuals.

NOTE: Add new rows as needed below. Please know your search should be as exhaustive as possible given the area you are researching

Platform	Prairie Robotics		
Supported activities	**Tools**	**Key features**	**Usage notes**
Data Collection	Service Event Database	Each service event is a point of waste collection Images of contamination These occur automatically and for every bin that is collected	This data is collected automatically using the hardware embedded within the truck. Cameras present on the truck take images of the waste being dropped into the truck as well as coordinates for where the bin was picked up. The city uses this information to analyze whether a truck is contaminated or not as well as if the truck needs to be redirected to a landfill
Contaminant Detection	Edge	The machine learning model which identifies the contaminants as they are dropped in the truck	This is heavily relied upon to catch common contaminants which have been misplaced into recycling. This is a thorough and automatic process which examines every recycling bin in the city as

			opposed to manually reviewing a few on a random basis.
Understand Contamination Source	Onboard truck cameras, Household GIS data, RFID tags	Households mapped to their recycling bins	Recycling bins within the city have no correlation to the house they belong to. The current way of attaching a bin to its corresponding household is by using GIS information that is publicly available of household boundaries. The nearest recycling bin is assigned to the house. Households which have common recycling bins or where GIS data is not conclusive, RFID will be used to confirm the recycling bin's identity. This is not currently being used but will be incorporated in the near future. RFID's improve reliability but require a much larger incorporation and maintenance cost which is why the software alternative is preferred when possible.

Platform	City of Regina Recycling		
Supported activities	**Tools**	**Key features**	**Usage notes**
Inform Contamination Sources	CartSmart Postcard	An automatically generated "OOPS" post card is created and sent to households where contamination was detected Card contains an image with annotations on which contaminants were detected	This is a new program and just beginning to gather information on common contaminants and to encourage people to avoid placing these items in their recycling

Stand-alone tool	UR StreamSight		
Supported activities	**Tool**	**Key features**	**Usage notes**
Mapping Detected Contaminants	Visual Interface	Displays collection points and individual points of contamination	Allows the user to view each household which has placed a contaminant in their recycling

		Annotated Images of what the common contaminant is	It is a quick method to visualize who placed as contaminant and what the contaminant was

Stand-alone tool	Waste Wizard		
Supported activities	Tool	Key features	Usage notes
Waste and Recyclables database	Search tool	Allows users to quickly see whether an item is recyclable or not Shows user where the item can be disposed	Allows users to quickly see whether an item is recyclable or not and provides them guidance on its method of disposal. This is used by the City of Regina to lower contamination rates and give the public an easy way to avoid confusion Unfortunately, this is not very advertised, and most people do not even know this tool exists.

External but Closely Related Technologies Used in Other Communities:

Platform	ESRI UC *https://www.esri.com/about/newsroom/arcuser/addressing-locations-of-recycling-offenders/*		
Supported activities	Tools	Key features	Usage notes
Record Recycling Observations	Simple observation buttons on the QuickCapture app.	Tap simple buttons present on the app to create a quick note on observations made of bad recycling habits	Allows recycling truck drivers to quickly assess recycling and press simple buttons to quickly note whether a household is showing signs of bad recycling habits. This is not an optimal solution as the notes aren't detailed. It also relies heavily on workers to view the camera feed and flag contaminants manually as they are being dropped in the recycling truck. This process should be automated for improved efficiency
Visualize Records	ArcGIS Dashboard	Records from the app are directed to the dashboard Various metrics are created to visualize data	Immediately plots the record on an ArcGIS dashboard and creates notifications. The dashboard is interactive and intuitive for staff members to use. Contains panels with graphs and charts which provide analysis

			Quick method of providing the state of progress and brief updates to supervisors and recycling program administrators.

Platform	AMP Robotics		
Supported activities	**Tool**	**Key features**	**Usage notes**
Identify Contaminants	AMP Neuron Platform	Uses machine learning and computer vision to enable recognition of different colors, textures, shapes, sizes, brands, and patterns to identify contaminants	This contamination detection software does thorough analysis of every item and categorizes them as precisely as possible. This is done in real time as items are placed on a conveyer belt at the recycling facility.
Sorting Waste	AMP Cortex Robots	Picks items at a rate of 80 per minute which is twice as fast as humans with greater precision and consistency	Intelligent robots which are applies information as detected by the Neuron Platform, to remove contaminants from the recycling stream. This creates an efficient process which rapidly removes contaminants without requiring manual inspection. It also reduces the need of recycling trucks to be diverted to landfills when contaminants are present as they can be extracted at the facility. More importantly, this allows people to be away from hazardous material which could be present in the recycling stream.

Stand-alone tool	Waste Management (WM)		
Supported activities	**Tools**	**Key features**	**Usage notes**
Identifying Contamination in Recycling Loads	Stationary Cameras and Wheel Loader Operators taking pictures	These pictures can be viewed at a safe distance to verify if a recycling load contained contamination	These images are taken from a distance of entire loads of recycling from a truck. Although general contamination from these images can be determined, these images lack the quantitative depth of all contaminants present in a load. This method allows WM to place responsibility of incoming contamination on their inbound customers who bring recyclables.