

## Artificial Intelligence: Doing Something About the Writing on the Wall



What do Arizona State University, Amazon, graffiti, and artificial intelligence (AI) have in common? Graffiti is an expensive burden for any community as it lowers property values, generates repair costs and can foster additional criminal activity if not addressed

in a proactive and efficient manner. Graffiti removal is one of the data-driven performance measures used to help meet the Tempe City Council strategic priority of *quality of life* in Tempe. The target performance measure for graffiti removal is less than 1 occurrence per four square miles by 2023; our current measure is 1.3 occurrence per four square miles.

Information Technology (IT) created a Geographic Information System (GIS) to track the data and assist staff with abatement. This system improved response times but relies on citizen or staff observation to report the graffiti. Tempe is looking for a more proactive and innovative means to quickly identify the location and type of graffiti to drive response time down for abatement.

Earlier this year, Arizona State University opened the ASU Smart City Cloud Innovation Center (CIC) that focuses on building smarter communities by leveraging technology to solve community and regional challenges, Tempe's graffiti performance measure was selected as one of the first challenges using Amazon's unique "working backwards" approach to problem solving by building a mock press release to frame the solution before leveraging technology to advance our performance measure. The CIC is staffed with technology experts that will work with Tempe staff to leverage artificial intelligence on our real-world graffiti problem.



Did you know that Solid Waste has new route optimization technology that collects street level video footage as the trucks are collecting refuse? What if Tempe could look through that video and detect graffiti as it's seen by the truck and then notify our remediation team, categorize the graffiti, and track trends? It would take a human hours to look through all the video and complete such a task but through the magic of artificial intelligence, staff can train the computer to analyze the footage and report possible graffiti in seconds. Imagine Amazon's AI robots looking through our data and then producing pictures of what it believes to be graffiti. Tempe's humans will grade the computer results and the new system will learn from its successes and failures to improve the accuracy of the detection over time. As the machine learns it will get to the point it can identify the specific tagger based on the characteristic writing style, paint colors utilized, and subject matter.

Tempe is excited to bring ASU, Amazon, graffiti, and artificial intelligence together in this first of a kind solution to a real-world problem that will improve our city. There are ten other innovation centers across the globe working with other cities and governments to improve our lives. All these solutions are shared so we can leverage ideas from other municipalities to advance our strategic priorities. The possibilities are only limited by our imagination.