Consider workplace AI's impact before it's too late, study says

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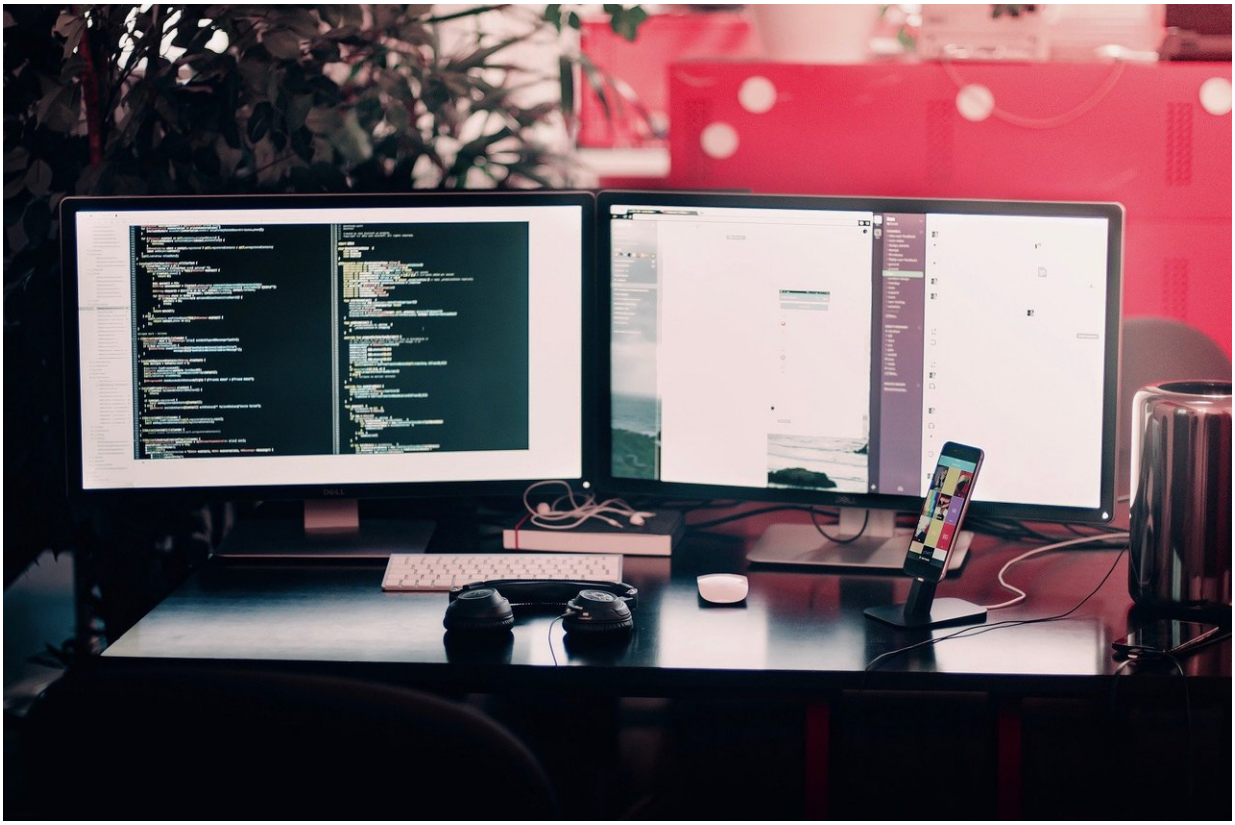

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The consequences of workplace automation will likely impact just about every aspect of our lives, and scholars and policymakers need to start thinking about it far more broadly if they want to have a say in what the

future looks like, according to a new paper co-authored by a Cornell University researcher.

"Mostly, people in our field wait until technology is implemented in a workplace to study it. And then we go in and say, 'How is work different?'" said Diane Bailey, the Geri Gay Professor of Communication in the College of Agriculture and Life Sciences. "But faced with a technology that has the potential to disrupt the landscape of work in such a universal way, immediately and simultaneously, we felt like we have to get in the barn before the horse leaves."

The paper, "Beyond Design and Use: How Scholars Should Study Intelligent Design Technologies," was published in December in *Information and Organization*. Bailey co-authored the study with Stephen Barley, the Christian A. Felipe Professor of Technology Management in the College of Engineering at the University of California, Santa Barbara.

According to the paper, past examples of new technology suggest it will take longer than companies predict for workplaces to become fully transformed by AI, and some jobs might not be as easily replaceable as economists believe. This means researchers have more time to gain a deeper understanding of how workplace automation will affect society, in order to have more say in how it unfolds.

Fully understanding workplace automation, the researchers said, requires an interdisciplinary approach that considers everything from the power dynamics within tech companies to the design of our societal institutions. At Cornell, Bailey and Martin Wells, the Charles A. Alexander Professor of Statistical Sciences and chair of the Department of Statistics and Data Science, are heading a core team of nine other researchers from eight departments to follow this cross-disciplinary roadmap. The group is currently seeking funding to plan the creation of an institute to study AI

and work.

In the paper, Bailey and Barley identified four factors scholars should study in order to assess AI's future impact: variation; power; ideology; and institutions.

Considering variety among jobs is important, Bailey said, because not all jobs—even in the same fields—are identical. Researchers generally use U.S. Department of Labor databases to predict how automation might affect certain job categories, but most studies don't consider differences in implementation, skills, tasks and work practices across organizations or locations.

Because designers and engineers don't function independently, power is another crucial factor, the paper said. Which AI technologies are pursued and how aggressively they're implemented depends on the dynamics within companies, as well as the priorities of the government entities that might fund or regulate those companies.

The ideology of design can provide insight into how technologists create new systems, Bailey said. According to the paper, the AI community often approaches design with its own culture, potentially emphasizing technical over social aspects. This could mean that some systems that are predicted to replace humans might still require them, though possibly in different roles.

"We have to understand how all of these market mechanisms operate if we're going to be savvy enough to work in that world and say, 'No, we want technology that looks like this' [or] 'Design something that operates this way,'" Bailey said. "We need to work backwards from some desired future that we want, to get the technologies that will help us get there."

Researchers also need to consider the potential impacts of

automation—and the widespread unemployment it will likely bring—on our institutions, the paper said. For example, Bailey said, being home together all day—without the demands and concrete rewards of a paid job—could strain marriages and families. Roads, highways and transit systems that were designed to move people from home to work will need to be reconsidered.

"Maybe the reasons our neighborhoods work well is that so many of us are away from them during the day," Bailey said. "We might have to rethink all of these things—and that's what the paper argues we should do."

Researchers and policymakers also need to weigh the societal benefits of work, in order to make informed decisions about which jobs are worth saving.

"We have to think about what aspects of work have meaning and value to us," Bailey said. "We might decide, 'Maybe AI can do this better than a person, but we don't care, because we get some value out of it.'"

More information: Diane E. Bailey et al. Beyond design and use: How scholars should study intelligent technologies, *Information and Organization* (2019). DOI: 10.1016/j.infoandorg.2019.100286

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