

TAP2CHANGE: CASHLESS TRANSACTIONS FOR PANHANDLERS

IMPLICATIONS AND FEASIBILITY OF ALL CASHLESS

An Undergraduate Thesis Portfolio
Presented to the Faculty of the
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Bachelor of Science in Computer Science

By

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SOCIOTECHNICAL SYNTHESIS

The overall goal that connects the technical project to the STS research paper is investigating the effects and feasibility of moving toward a cashless society. Given that people are already moving away from cash, the technical capstone project addresses a group of people hindered by the move to a cashless world, by providing a seamless platform that allows people to give digital donations to the less fortunate. The research paper provides insight into the larger-scope implications of transitioning to a digital economy, as well as investigating a potential digital replacement for cash and how it could be integrated into society. Some implications that are discussed include increased household consumption and infrastructure requirements.

For the technical project, a prototype web application was developed that supported online transactions between users. Online payment applications exist already, but the goal was to model both the speed and anonymity of giving someone a few dollars on the street. The prototype supports transactions between users and connects users via QR codes to provide anonymity. This application was used to identify important aspects that should be considered for future iterations. Some of these aspects include minimizing the requirements necessary to sign up for the application and providing a wider variety of payment method options.

For my STS research, I performed a case study on central bank digital currency being tested in China. Central bank digital currency is a new form of currency that is issued and backed by a central bank. The vast majority of central banks worldwide are performing research on this new currency due to its potential to fully replace cash. The study reveals several advantages, such as improving transactions' efficiency and security and promoting financial integration. In addition, the study recommends best practices for implementing central bank digital currency. To demonstrate how this type of technology could be incorporated into society, I employ an Actor-

Network Theory model and analyze the relationships that would result from introducing central bank digital currency.

In completing the technical project, I learned and followed the engineering design process to address a problem. Developing the web application prototype allowed me to both learn and integrate new technologies, such as QR codes, as well as apply technologies I have used previously but in new ways. The STS research paper allowed me to investigate the effects of transitioning from cash to digital options, which is already underway. Money is something that is central to society, and I am interested to see if people are willing to adopt a new form of money in the near future.

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PROSPECTUS

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