RESEARCH BRIEF

August 2016

ICTD Conference 2016

Open Session Report

Organized by

Digital Financial Services Research Group
University of Washington

Digital Financial Services Research Group

University of Washington

1. About the conference

ICTD Conferences provide an international forum for researchers and practitioners exploring the role of information and communication technologies (ICTs) in social, political, and economic development. The conference reflects and deepens the multidisciplinary nature of ICTD research in a broad range of areas including computer science, anthropology, communication, design, economics, electrical engineering, geography, information science, political science, health, sociology, and many others.

2. About Digital Financial Services

Digital Financial Services (DFS) have emerged as a complex, but powerful tool for supporting economic development and providing a path out of poverty for the world's poorest. A growing body of work illustrates the impact of DFS, from savings and credit to P2P and G2P payments. While the field has expanded significantly in recent years, specific challenges remain that impede the introductions and wide scale deployment of these financial products. Many of these barriers and frictions could be addressed by high potential emerging technologies but often the requisite translation of these technologies from the lab or from other sectors into usable tools for the DFS space.

3. About the session

The Open Session was organized and moderated by Richard Anderson, Director of the Digital Financial Services Research Group (DFSRG) at the University of Washington. The 90-minute session was one of the scheduled Open Sessions and began with several rounds of direct questions to panelists, followed by questions from the audience. Panelists included:

- Jonathan Donner - Senior Director, Research at Caribou Digital.
- Jacki O'Neill – Researcher at Microsoft Research
- Lakshmi Subramanian – Systems and Security Researcher and Associate Professor in the Courant Institute of Mathematical Sciences at NYU

The goals of this session were to:

- Provoke discussion around the growing area of financial services
- Identify areas of interest and coordinate current research to avoid duplication and leverage resources
- Define a research agenda for DFS

4. Priority themes

Priority Themes

- As the use of Android devices continues to grow, new opportunities have arisen for mobile money and the suite of applications has broadened. However, usability and security remain entrenched barriers.

- Usefulness should be a key consideration in the design of new mobile money products and services. Research should focus not only impact, but also attempt to recognize and understand how people use digital financial services in their daily lives, in order to build products and services aligned with the needs and wants of customers. For example, DFS flourished in Kenya because it was risky to carry cash there and despite fees, mobile money offered a better system. In other countries, however, people may prefer cash because they don't have to pay a transaction feed. Rickshaw drivers in India abandoning Ola offers another example. When examining barriers to uptake and adoption, we must ask questions about the usefulness of mobile money products to design future systems.

- Though usefulness is important, we must be cognizant of the difficulty of translating ethnographic studies to technological realities. Often, users aren't aware or able to articulate what they want. Additionally, there exists a gap between current technology and future developments meaning that, in many cases, solutions are likely to be something that doesn't yet exist. Thus, while usefulness is an important consideration in design, we should also be open to new technologies.

- Research should address the question of financial inclusion within digital financial services. Mobile money and access to financial services must be part of a larger conversation around truly increasing financial inclusion. We need to question whether mobile money will lead to financial inclusion, and we need to study what would actually lead to these outcomes.

- DFS can encompass a range of financial services beyond mobile money, including credit and credit scoring, insurance, loans, savings and micro transactions, all of which technology can support and expand. The beginning of DFS was built upon remittances and M-Pesa in Kenya became an early leader due to a number of contextual factors. However, new ingenuity may not necessarily come from Kenya. Additionally, any one of the major social networks could potentially play a huge role and change how people view mobile money.

- While feature phones dominate the DFS field at present, there have been movements toward the adoption of smartphones, largely driven by the practitioner community. The ecosystem may move solely to smartphones in the next 3 years, due to factors such as Microsoft's purchase of Nokia, the production rates of Android phones in China, Samsung's termination of production on many non-smartphones, and the drop in smartphone price. While smartphone apps potentially simplify security concerns, disadvantages lie in the 20-30% of users who will be left behind. Research and projects

related to DFS and smartphones is currently being undertaken by a number of actors and reports and data sets are widely available.

5. Research Agenda

The research agenda below is a broad overview of the current challenge areas and pain points in DFS that technology can potentially address and identifies fields of CS and ICTD that are relevant to DFS. This agenda is by no means exhaustive, but rather represents the key areas for research that emerged from discussion. Our hope is that this agenda can serve to foster collaboration, thwart duplicate efforts and initiate fruitful conversations and research around the role of technology in DFS.

1. Proximity payments - Linking a transaction with customer and agent
2. Agent network - Management of the agent network with technology and beyond
3. Identity – To identify and protect customers against fraud
    A. Proving identity with different forms of ID or biometrics to approve or sign a key
    B. Offline authentication and the ability to enable it in offline manner, despite challenges of cloud access and bandwidth

4. Financial education – Can be interpreted in two ways:
    A. Training on the use of financial instruments, or
    B. The broader financial management education, e.g. loans and budgeting
    C. Many services use an intermediated use agent model

5. Fraud and security - Important issues that occur at multiple levels
    A. The consideration not just of security, but of usable security
    B. Aligning with identification needs
    C. Outlining threat models for fraudulent transactions to evaluate the system

6. Infrastructure - Making systems robust with regard to failures

7. Data analytics – Leveraging data from systems to improve and evaluate services

8. Business modes - Banks and the DFS community are still struggling to build business models that work with poorest of the poor
    A. The current approach is based on charging per-transaction
    B. A new model must be inclusive, affordable and usable

9. Understanding the capacity and capabilities of banks – Integrating DFS systems into the regulations and systems of banks

10. G2P payments – Payments in the context of G2P is controversial and rife with issues of fraud, corruption and identity.
    A. Understanding the structure and current corruption
    B. Helping G2P payment practitioners limit corruption and create trust

6. Conclusion

The field of Digital Financial Services is expanding at a rapid pace, creating an abundance of exciting questions for further research. Many grants and research opportunities are available and the DFSRG invites the submission of position papers. In addition, the growing DFS market presents a significant opportunity for new startups.

As technologists and researchers begin to address the challenges areas embedded in the wide scale deployments of DFS products and services, the broader ICTD community can continue to identify areas in which ICTD knowledge can bridge the gap from user to technology and initiate further advances in DFS.