2018 MIT FINTECH & DESIGN HACKATHON

Voice Biometrics & Blockchain:
Identity Management in Humanitarian Aid Distribution

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https://commons.wikimedia.org/wiki/File:Red_Cross_aid_distribution_in_Port-au-Prince_2010-01-25_2.jpg

Problem statement

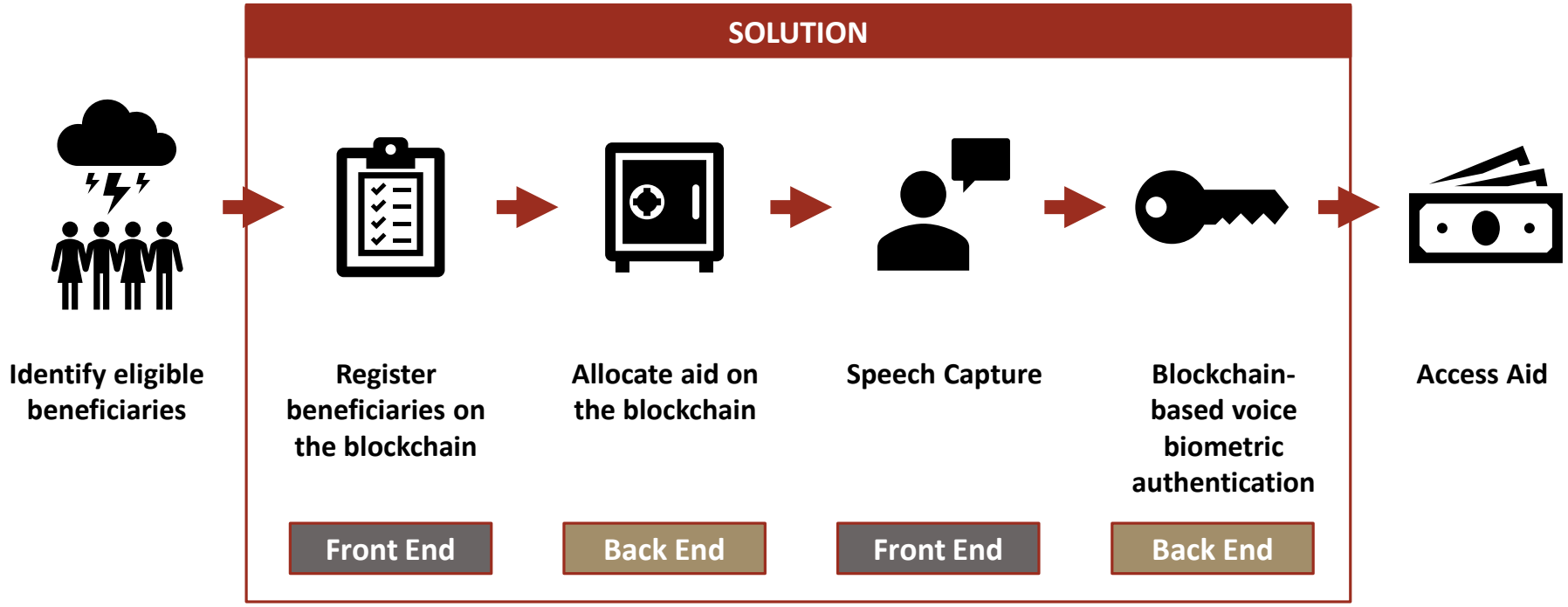
How can the Red Cross allocate aid in a way that minimizes the issue of double-dipping, reduces risk to beneficiaries, and can operate in technology limited settings?

The solution

An integrated system with:

1. **Voice biometrics identification**
2. **Blockchain-based back end for identity management and aid allocation transactions**

New possibilities enabled

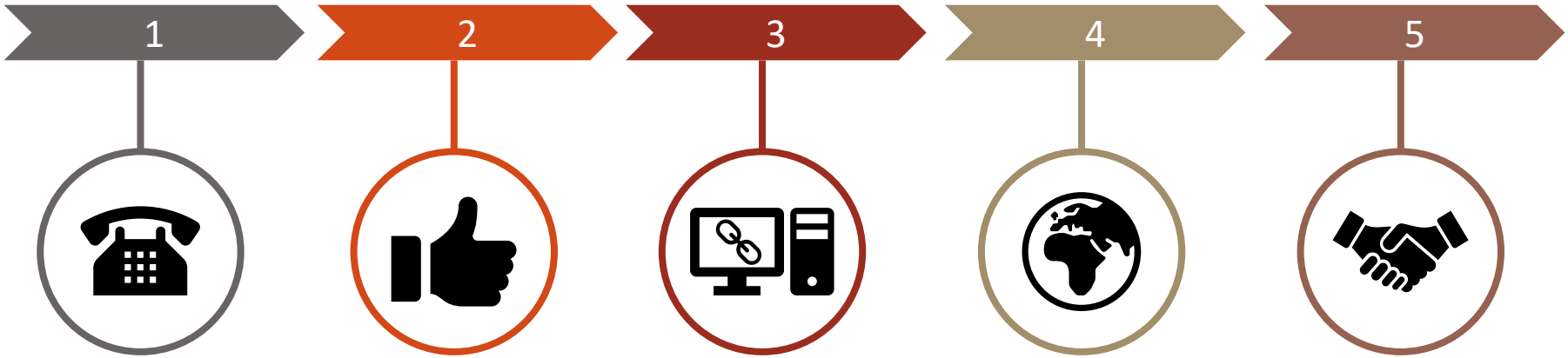


- Ways to utilize without steady power, internet, or cell service
- Ability to work with various devices (e.g. traditional phone, smart phone, laptop with microphone, etc.)
- Voice biometrics is already proven technology (e.g. used by banks)

Benefits

Red Cross	Aid Recipient
1. Prevents “double dipping”	1. Secures access to aid support
2. Flexible implementation to suit various settings	2. Improved safety and anonymity
3. Reduces operating costs	3. Does not require physical identifier (e.g. smart phone, punch card)
4. Helps achieve UNSDGs	

Phased approach to implementation



Develop Voice Biometrics App (MVP)

Conduct Local Pilot

Build Out Robust Blockchain-Based Solution

Train & Deploy

Expand to Partner Organizations

Considerations

- Build user trust in voice recording technology
- Enable informed consent and control of personal data under GPDR

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APPENDIX

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	Paper/Excel	Iris scan	Fingerprint	Face recognition	Voice recognition
Cost		Need to buy and maintain specific equipment 	Need to buy and maintain specific equipment 	Can do on phone 	Can record on wide range of devices 
Resilience	Easy to lose/delete 	Little alternative if equipment breaks 	Little alternative if equipment breaks 	Little alternative if equipment breaks 	Can record on wide range of devices 
Accuracy	Entries easy to change 	Hard to fake 	Fingerprints may not register if finger pads worn down 	Need to have correct height, expression to recognize face 	Hard to fake voice 
Speed	Beneficiaries may need to be entered by hand 		Can take long time to record fingerprints 		Voice registration and recognition occurs in seconds