

SAP Research IA&S Africa

SAP Meraka UTD

University of Johannesburg

University of Pretoria



Technologies for Emerging Economies – Security (Trust)?

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Agenda



- Introduction
- Research Agenda – SAP Research IA&S Africa
- EE Use Case Examples
- GARO
- Security in Technologies for Emerging Economies



- Emerging economies (EE) and fast growing markets (FGM) have different business requirements from those of developed economies.
- Technologies designed for the developed world fails to make an immediate impact in the EEs and FGMs
- Such technologies fails to capture the context of EEs and FGMs
- The end result: technology misappropriation – technology dumping
- A need exist to design disruptive and innovative technologies for EEs and FGMs
- Technologies that consider the context of EE and FGM
- SAP Research IA&S Africa has taken the initiative
 - Investigate state-of-the-art approaches of delivering innovative and disruptive technologies for EEs and FGMs

Directed Research Agenda: Objectives & Topics

SAP Research IA&S Africa/Meraka UTD



1: Research and Develop new ICT solutions for EE

- SAP Back-end Business Services (Business Suite and ByD) delivered on mobile devices for VSEs in EE
- Eco-systems – Cloud based and “business without boundaries”
- Decoupling and detaching applications from infrastructure
- Innovative front-ends focussing on novel user interfaces meeting the needs of EE
- Mobile - money transfer / Payment / Micro financing / Search - Catalogue
- Security/Trust/Privacy for mobile business solutions

2: Measure and Validate the Social and Economic impact on EE

- Study and measure the Social and Economic impact on the communities (Living Lab)
- Living Labs for requirements elicitation, prototype development and validation
- New business process models for VSEs
- Business cases for introducing new technologies relevant to EE
- Domain and use cases - Mobile Health monitoring
- Domain and use cases – eEnergy - Optimal use of energy resources (Household) / Internet of Energy

3: Investigate methodologies, technologies and techniques for EE

- Cloud computing – Private, Public and Hybrid clouds
- Mobility
- Real time in-memory (cloud/mobile/multitenancy)
- Design Thinking (HPI)
- Adaptive User Interfaces & Mobile Interaction Paradigms & User Experience (UX)



Mobile Services Platform for Very Small Enterprises in Emerging Economies



What do we want to do? VSE Example Use Case 1



Construction Services (Plumbers, Builders, Electricians, Security Installers, etc.)

“Joe the Plumber” wants to ...

Manage jobs

Manage customers

Easily and economically procure supplies

Do simple invoicing and payments

Control debtors

Do simple cash flow management

Participate in an ecosystem



... on his mobile phone in the cloud”

Your business in your pocket
Addressing the needs of a very small enterprise

What do we want to do? VSE Example Use Case

Small Rural Traders (Spaza Shops)



“Christina the Spaza Shop Owner wants to...

Purchase supplies and stock without having to close up shop and travel to the nearest town

Use a very simple process for ordering because she may be almost illiterate

Have supplies delivered, because she does not have a car

Have quick access to micro-financing in her e-Wallet when she is short on cash

Participate in a community-based ecosystem



... on her mobile phone in the cloud”

What do we want to do? VSE Example Use Case

Small Scale Traders in India



“Dipak, a Small Scale Trader wants to...

Manage his cash flow effectively as he sells products to customers

Be informed regularly on the current status of his stock in the store

Be able to procure goods in real-time from various suppliers

Rely on mobile payment for transactions with suppliers



... on his affordable mobile device”

GaRO - Background



Project Goal:

- To deliver an integrated mobile business services solution for Very Small Enterprises in Emerging Economies

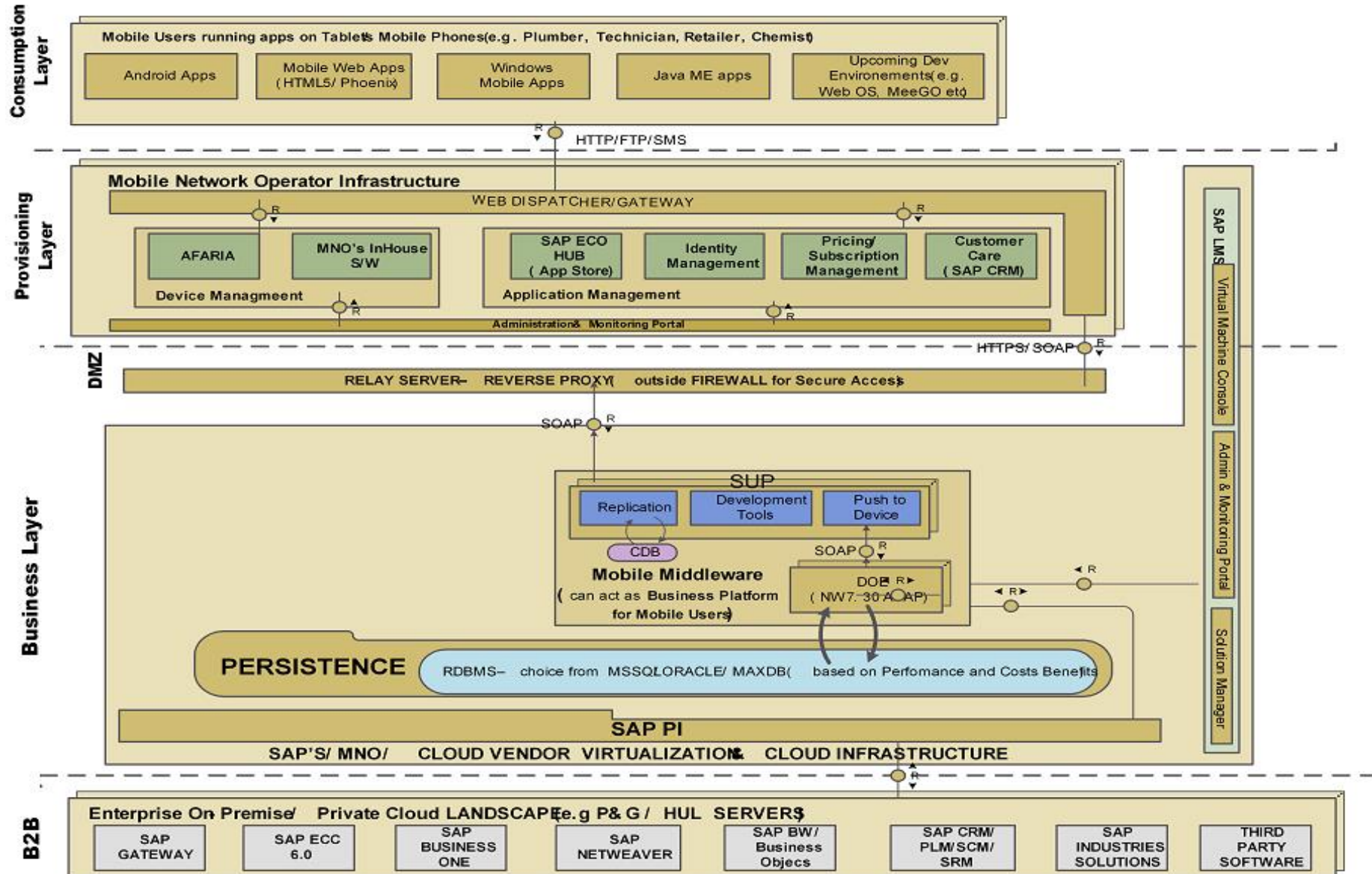
Focus:

- Engagement with Early Adopters to support the real-life piloting of the integrated solution
- Development of a Business Case for the proposed integrated solution
- Very Small Enterprises in the Service and Retail sectors in South Africa and India (BRICS?)
- Key services for development:
 - **Shop:** Ordering products and checking the delivery status
 - **Services:** Managing the day-to-day activities of rendering a services
 - **Sales:** Recording of over-the-counter sales to customers
 - **My Finances:** Viewing and managing the businesses financial information
 - **Contacts:** Managing contacts, paying suppliers and recording payments made by customers
 - **Stock:** Managing the business stock items
- Delivery of services to VSEs, as needed and wherever they are, from a mobile device (phone or tablet).



GaRO Value Chain for VSEs in EE

GARO Technology Architecture



Security in Technologies for Emerging Economies



Christina the Spaza Shop Owner



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What do we want to achieve?

A sense of “normality”



Social controls

Institution guarantees

Rule of law

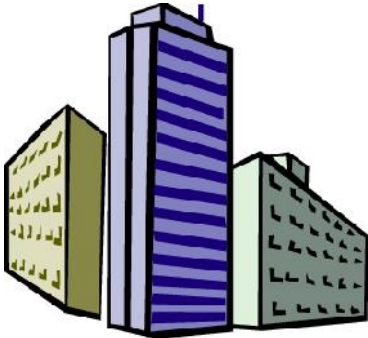
Assurance

Security

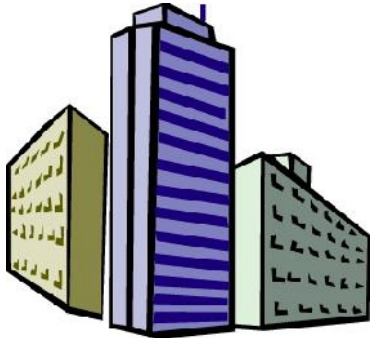
Identity, confidentiality etc..



In contrast...



In contrast...



Social controls



~~Institution guarantees~~

~~Rule of law~~



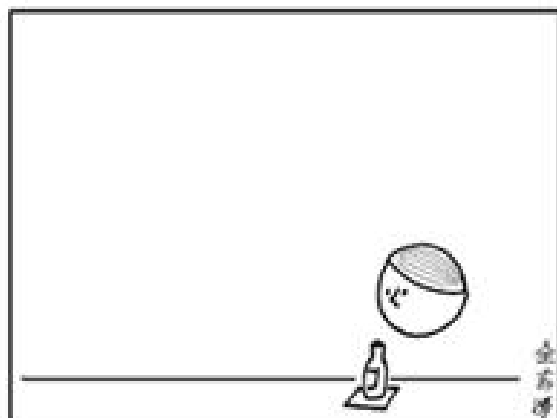
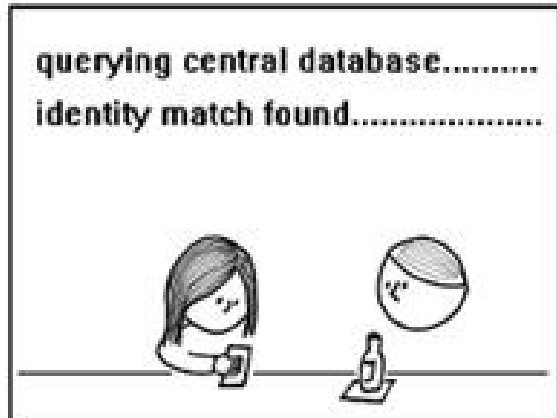
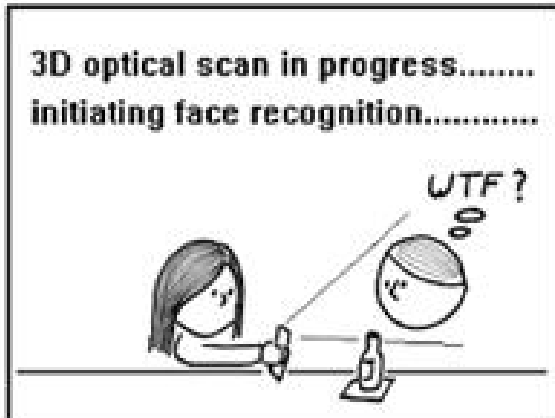
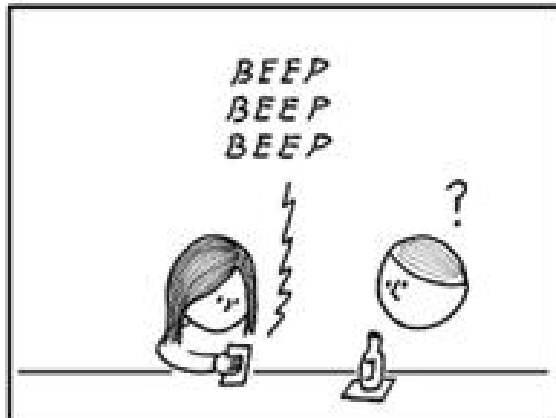
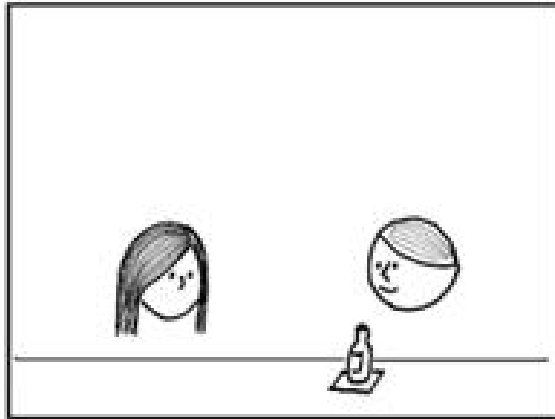
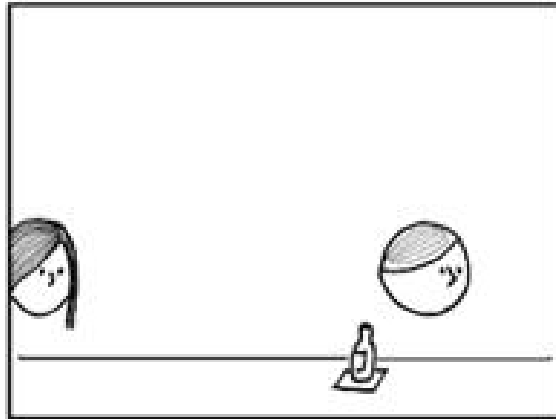
~~Assurance~~



~~Security~~

Identity, confidentiality etc..





Can we build a trust model focusing on social controls?

Research challenge?

What is the characteristics of social control in rural communities?

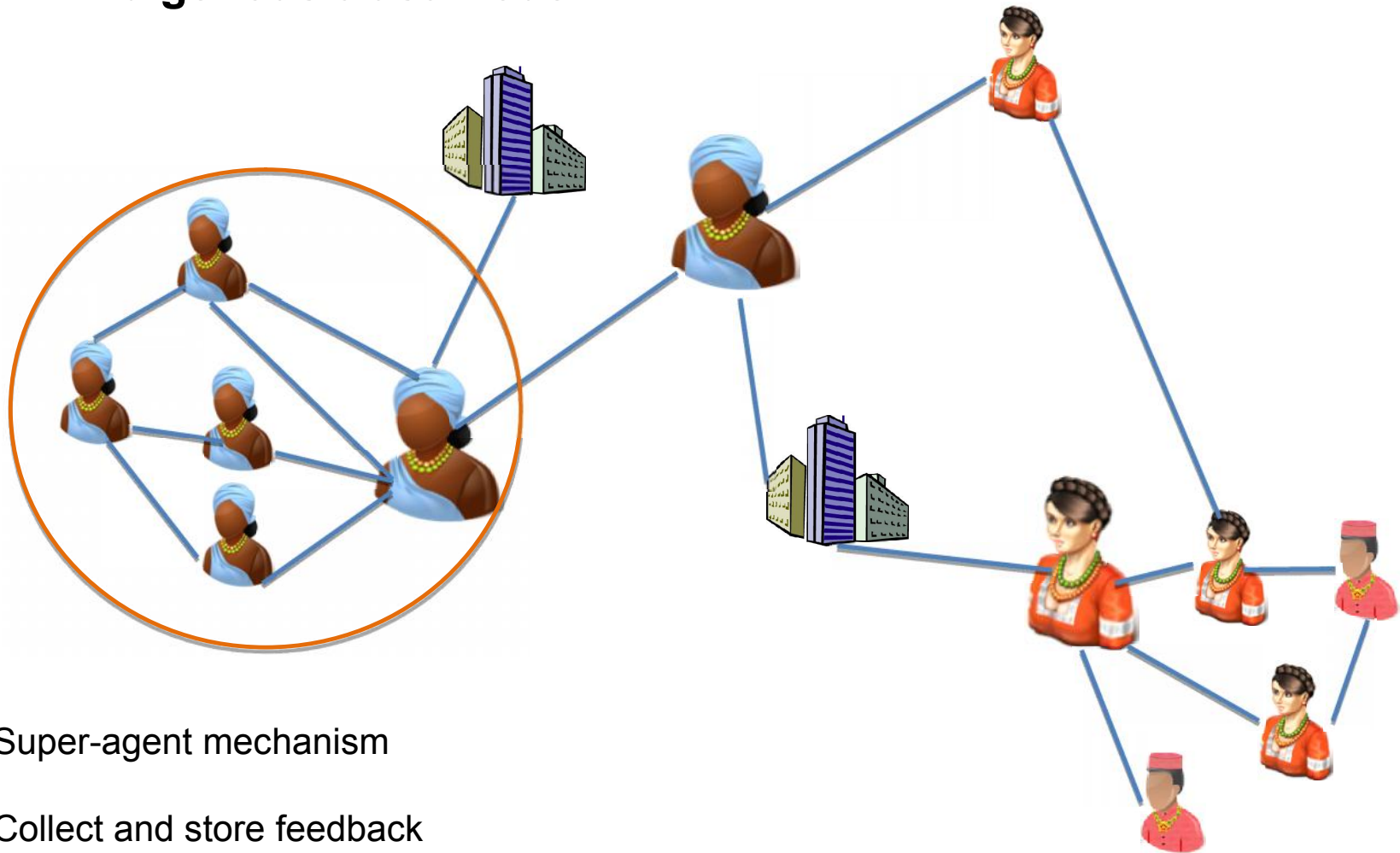
2 ideas....

- The role of the tribal leader (a moderator in the community)
- The stokvel (a community of similar members with financial power)

 **An indigenous trust model**



An indigenous trust model



- Super-agent mechanism
- Collect and store feedback
- Build and share reputation
- Community-based reputation



Thank you!



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