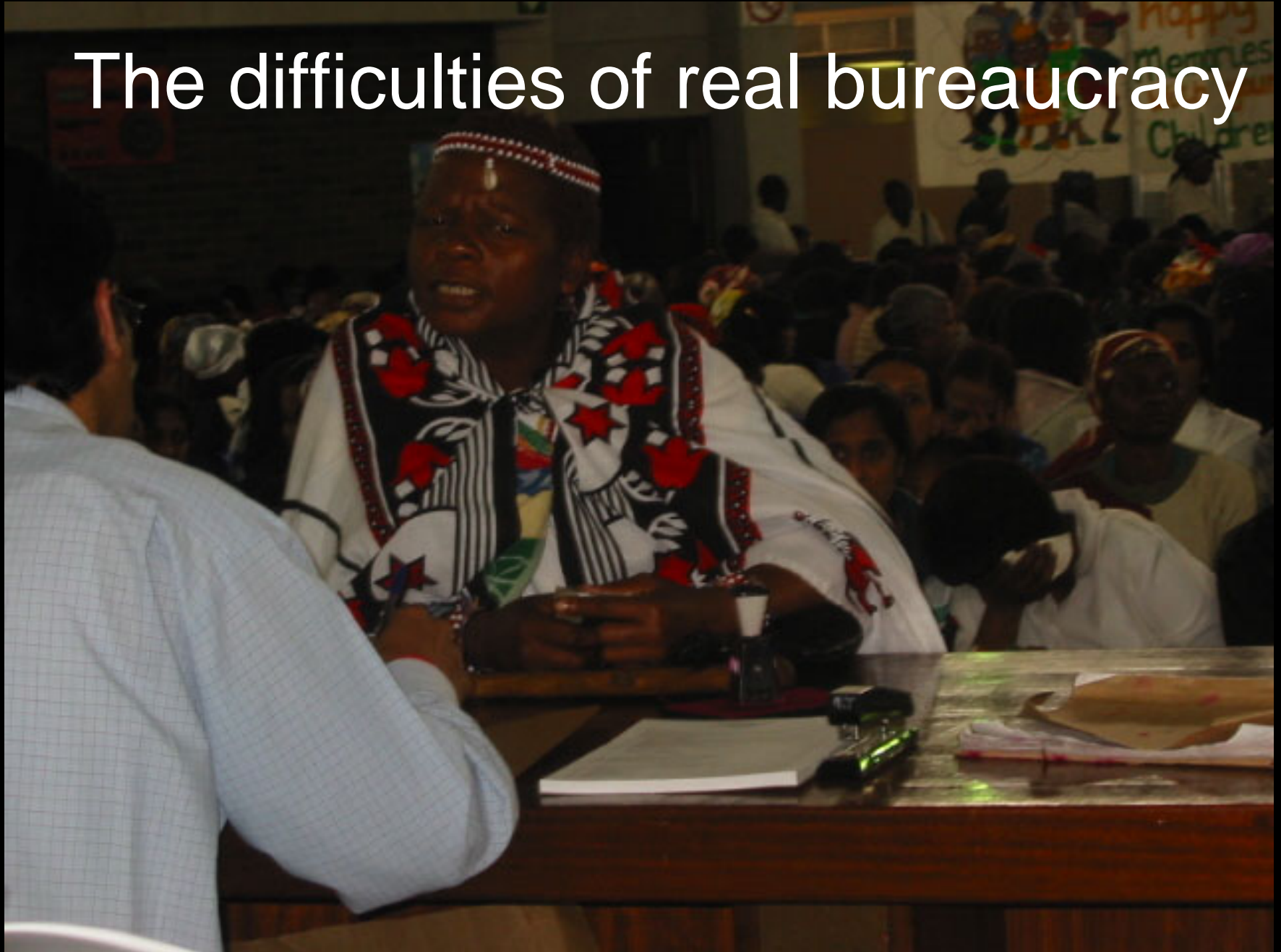


The Anti-Bank: Privatized biometric encrypted social grant delivery in South Africa

Computer Laboratory Security Seminar,
Cambridge, 4 December 2007

Keith Breckenridge,
Howard College Campus, Durban
University of KwaZulu-Natal
breckenr@ukzn.ac.za

The difficulties of real bureaucracy



Pensions, Child Support, Disability (HIV, TB), 13 million people





Home Affairs: Problem No 1



No 2 Capturing Good Data

APPLICATION FOR REGISTRATION/REGISTRATION AS A GRANTEE ON THE NATIONAL SOCIAL GRANTS REGISTER

PHOTO

PROFESSOR CLASSIFICATION

BAR CODE

Identity Number

Sumama

Sumama (Continued)

COLLED PRINTS

THUMB

INDEX

MIDDLE

RING

PINKY

PROVINCIAL GOVERNMENT OF

OFFICE OF

(1) Identity Number

(2) Reference Code Number

Sumama

Registration

Registration date

Signature of official

(3) Thumbprint identifier

Date

Pay Point

Based on the number of Reference Code number

(4) Reference Code number

(5) Thumbprint identifier

(6) Other

Signature, Registered official

Date

OFFICE STAMP

OFFICE OF REGISTRATION

No 3 In a society organized around
fingerprint registries





No 4



Biometric Registration

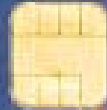
Automated

Paperless

Privatized

Delinguistic

CITIZEN CARD

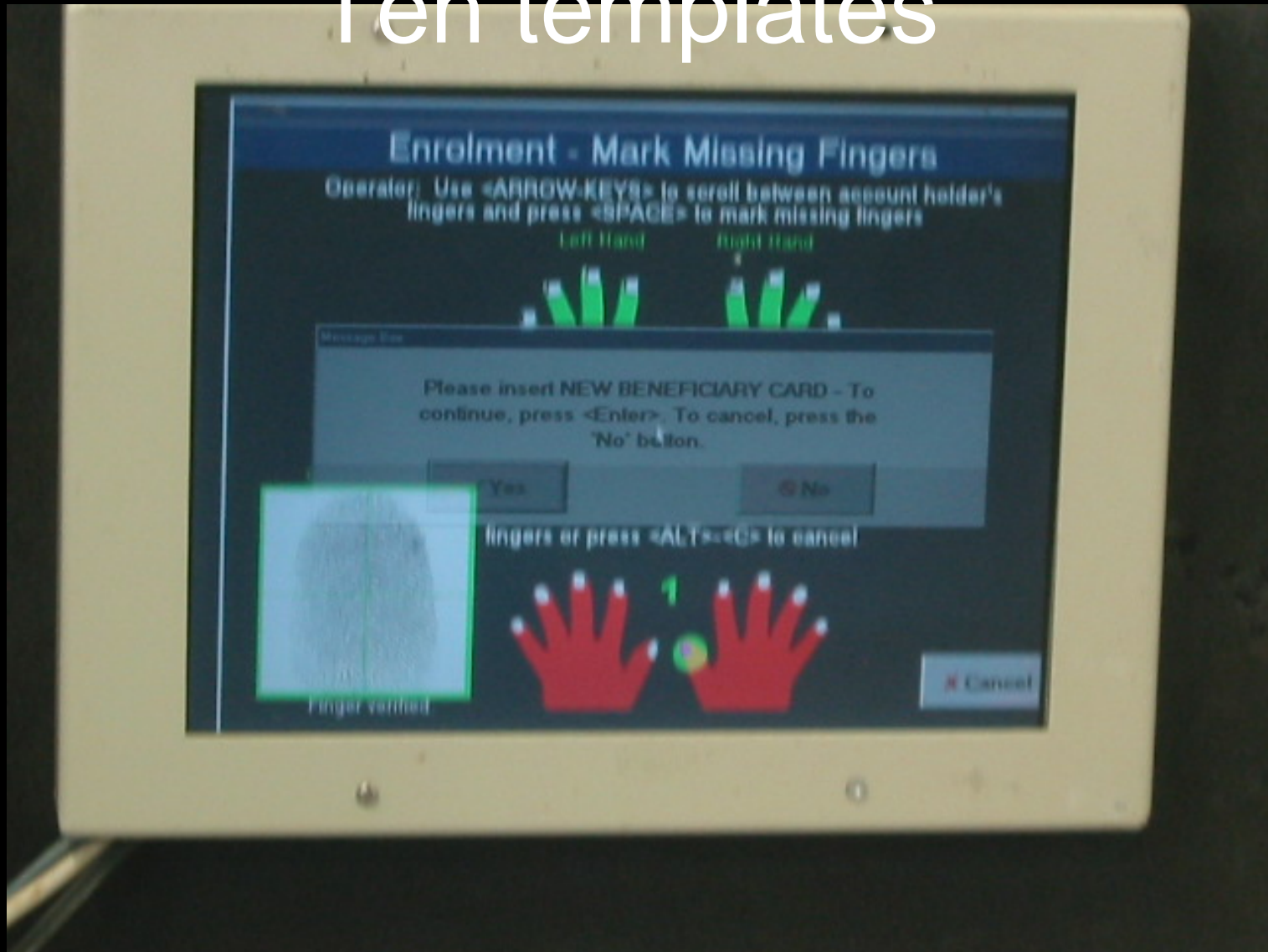


Welfare (KZN)

Capturing Templates



Ten templates



Pensioners' Committees



Private Security



Automating payments Card to Card



Sagem's Morpho-touch





Attended
fingerprinting,
no enrolment
problems

No talking





Fingerprint-based grants, no pin codes or passwords



Smartcard equipped ATMs





Only the
recipient
handles
the Money

Banking the unbanked



Funeral Plans



CORNERSTONE
1st Anderson Street, Soweto, Pretoria
Reg. No. 1992/015007

POLICY NUMBER
755004

CORNERSTONE PENSIONER PLAN

POLICY CERTIFICATE

Cornerstone Insurance Limited
1st Anderson Street, 1st Floor, Soweto, Pretoria
Reg. No. 1992/015007

1. PERSONAL DETAILS OF LIFE ASSURED

1. Title Full Name Surname

Address or Paypoint

Pensioner Number **ID number (if different from Pensioner number)** NOTE: Please attach papers

I hereby apply for assurance as indicated by me in the schedule of benefits

2. PREMIUM PAYMENT AUTHORISATION

I (the lifeholder) of this policy, herewith authorise the premium payment facilitator to collect the monthly premium indicated on this policy document from my account and pay it over to the contributor of the Cornerstone Pensioner Plan in terms of the Master Policy Agreement between Cornerstone and the underwriter.

3. CONDITIONS

- The inception date of this policy is the date of the first premium deduction.
- The total death benefit payable under this policy will be the amount corresponding with the benefit applicable to the chosen period having the appropriate dependent spouse and the age of the policyholder on the date of application but subject to a waiting period of 6 months in which period the benefit payable under it will be applicable.
- Please refer to the master policy for the full terms and conditions applicable to this plan. This policy certificate and the master policy contract is available at all offices of Cornerstone for inspection and the policy certificate shall constitute proof of membership of the Cornerstone Pensioner Plan.
- In the event of the death of the life assured named herein, Cornerstone will pay out the benefit amount to the policyholder's spouse, children or blood-ling relative (I hereby appoint: Name as the bank beneficiary of the benefits to arise on this policy. Please indicate phone
- Cornerstone will not pay any claim unless I (the insured) have received payment of all due contributions, 6 death certificate and proof to its satisfaction of the identity and age of the deceased.
- In the event of death of the policyholder, the master Cornerstone office is to be notified.
- Premiums are guaranteed for one (1) year from inception date. Thereafter, premiums and total benefits may increase or decrease if some experience modification.
- Withdrawal of the premium authorisation will not be valid for the term of notice of cancellation until the policy is effectively cancelled.
- Should a client have further policy premiums will not be returned. **see annexed for further conditions**

4. SCHEDULE OF BENEFITS

NOTE: Chosen benefit premium and age must correspond

AGE GROUP	TOTAL BENEFIT	TOTAL BENEFIT	TOTAL BENEFIT	TOTAL BENEFIT	4.1 Benefits payable during waiting period: Accidental Death - Total Benefit Natural Death - month 1-3 - R500,00 Natural Death - month 4-6 - R750,00 Natural Death - month 7 - Total Benefit
0 - 69 years ▶	R4 500 ▶	R6 000 ▶	R7 500 ▶	R8 000 ▶	
70 - 79 years ▶	R2 250 ▶	R3 000 ▶	R3 750 ▶	R4 500 ▶	
Above 80 years ▶	R1 150 ▶	R2 200 ▶	R2 700 ▶	R3 300 ▶	
MONTHLY CONTRIBUTION	R30,00	R40,00	R50,00	R80,00	

NAME OF REPRESENTATIVE ACCREDITATION CODE TELEPHONE NUMBER DATE

As a long-term insurance policyholder, or prospective policyholder, you have the right to the following information:

1. **The intermediary (insurance broker or representative) dealing with you must at the earliest reasonable opportunity disclose:**

- (a) Name, physical and postal address and telephone number
- (b) Legal capacity, whether independent or representing an insurer or brokerage
- (c) Concise details of relevant experience
- (d) Insurance products that may be sold
- (e) Insurers whose products may be marketed
- (f) Indemnity cover held - Yes / No
- (g) Shareholdings in insurers if 10% or more
- (h) Name of insurers from which the intermediary received 30% or more of total commission and remuneration during the past calendar year

(The intermediary must be able to produce proof of contractual relationship with and accreditation by the insurers concerned.)

2. **Your right to know the impact of the decision you elect to make:**

- (a) The intermediary or insurer dealing with you must inform you of:
 - The premium you may be paying
 - The nature and extent of benefits you may receive
- (b) If the benefits are linked to the performance of certain assets:
 - How much of the premium will go towards the benefit?
 - To what portfolio will your benefits be linked?
- (c) The possible impact of this purchase on your finances
- (d) The possible impact of this purchase on your other policies (affordability)
- (e) The possible impact of this purchase on your investment portfolio (affordability)
- (f) The flexibility of changes you may make to the proposed contract
- (g) The contract terms of the product you intend to purchase

(It is very important that you are quite sure that the product or transaction meets your needs and that you feel you have all the information you need to make a decision.)

3. **Your right when being advised to replace an existing policy. You may not be advised to cancel a policy to enable you to purchase a new policy or amend an existing policy, unless:**

- (a) The intermediary identifies the policy as a replacement policy
- (b) The implications of cancellation of the policy are disclosed to you such as:
 - The influence on your benefits under the old policy
 - The additional costs incurred with the replacement
- (c) The insurer which issued the original policy will contact you, you are advised to discuss the matter with its representative

4. **Your right to be informed by the insurer. The insurer will forward you documentation confirming policy details as discussed in paragraph 2 of this Notice, which will also include:**

- (a) The name of the insurer
- (b) The product being purchased
- (c) The cost in Rand of the transaction and specifically:
 - (i) the loadings, if any;
 - (ii) the initial expense; and
 - (iii) the amount of commission and other remuneration being paid to the intermediary
- (d) In the case of policies with an investment element, the ongoing expense and any other fees or charges payable.
 - The summary in terms of section 48 of the Long-term Insurance Act, 1998
 - The contact number and address of the complaints and compliance officers of the insurer

5. **Your right to cancel the transaction**

In most cases, you have a right to cancel a policy in writing within 30 days after receipt of the summary contemplated in section 48 from the insurer. The same applies to certain changes you make to a policy. The insurer is obliged to confirm to you whether you have this right and to explain how to exercise it. Please bear in mind that you may not exercise it if you have already claimed under the policy or if the event, which the policy insures you against, has already happened. If the policy has an investment component, you will carry any investment loss.

6. **Important warning**

- It is very important that you are quite sure that the product or transaction meets your needs and that you feel you have all the information you need before making a decision.
- It is recommended that you discuss with the intermediary or insurer the possible impact of the proposed transaction on your finances, your other policies or your broader investment portfolio. You should also ask for information about the flexibility of any proposed policy.
- Where paper forms are required, it is advisable to sign them only once they are fully completed. Feel free to make notes regarding verbal information, and to ask for written confirmation or copies of documents.
- Remember that you may contact either the Long-term Insurance Ombudsman or the Registrar of Long-term Insurance whose details are set out below, if you have any concerns regarding a product sold to you or advice given to you.

7. **Particulars of Long-term Insurance Ombudsman**

P O Box 45007, CLAREMONT, 7735, Tel: (021) 674-0330, Fax: (021) 674-0951

8. **Particulars of Registrar of Long-term Insurance**

Financial Services Board
P O Box 35655, MENLO PARK, 0102, Tel: (012) 428-8000, Fax: (012) 347-0221

(You may be requested to sign a copy of this document)

Lending without risk

Aplitec-owned microlending

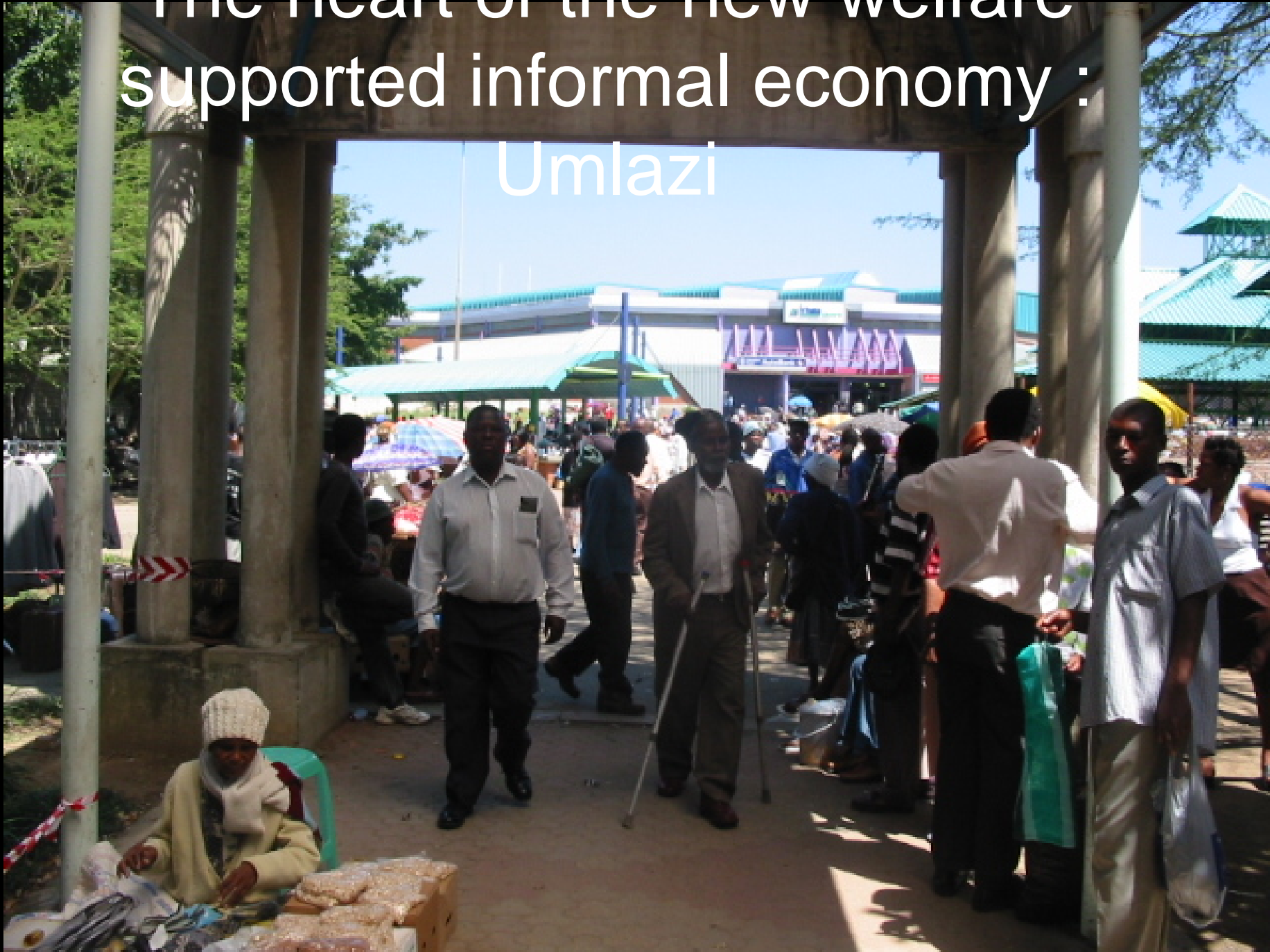
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OPER. USN: 2148987015 Batch# 027
Payroll# 1 521304
Old Ages R 620.00+
RENTHEISTER: R 20.00+
Age Secures R 170.00+
Pay Amount 1 R 430.00+
New Ball 1 R 0.00+
Next Pay Date is 1
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1050EFD0806AC4060000F2300025 734
#1300000017E1801AF087810008
1050EFD0806AC4060000F2300025 734



Selling on
Commission,
Explaining
automatic
deductions

The heart of the new welfare supported informal economy :

Umlazi





Aplitec's solution



Who is Aplitec? People

- Serge Belamont,
 - developed and managed the SASwitch interbank system, 1983 – 1987
 - Third largest bank switch in the bank in the world
 - Entrenched conflicts over standards, mostly against IBM clients
- Also Hanoch Neishlos, Wits Computer Science ...

Who is Aplitec? Investors

- Initially, in 1997, Cosatu's Kopana ke Matla trust
- Nedbank (28%), sold in 2007
- Serge Belamont & other staff own 12%
- Doing an "Aplitec"
 - Nasdaq relisting in 2005, market cap increased 15 fold, from \$100 million to \$1.5 billion
- Obscure South African investors
 - Trust in the Cayman Islands

Aplitec divisions

- May 1998, Net1, Nedbank's supplier of smartcard and pos equipment
- March 1999, Cash Payment Services, FNB owned biometric pensions delivery scheme
- 1999 & 2000, two large microlenders
 - Moved their clients to smartcards
- 2006 Prism & Easypay, largest online SET
 - 200 municipalities, utilities, traffic departments
 - Retail interbank
- 2007 merger with Grindrod Bank
 - Smartcard wages and banking

Aplitec Projects

- Taxi Recapitalization 1999
 - Using smartcards to control overloading, routes, 'corruption'
 - Ended in violence
- Massive expansion of grants in 2002 – 3, from 2.5 million to 13 million recipients
- African bank switching (Ghana, Nigeria, Malawi, Botswana, Namibia) and UEPS

Aplitec Infrastructure

- Biometrically-encrypted smart cards
 - We are talking people that are not going to remember the pin number on the card. I cannot remember my pin number on my card. So we have a system here, which is completely based and it has been based for the last ten years on fingerprint technology. We do not use pins at all. There are no pins ...
 - Encrypted and unencrypted wallets
- 4000 Smartcard equipped POS Devices
 - Mostly in the countryside
 - 2005 \$ 133 million, 2006 \$ 614 million
 - 850,000 clients using the POS to draw grants
- 8000 mobile and fixed payment points
- Easypay

Aplitec and the EMV Std

- Big four interest in a ‘common standard’
- Belamont – EMV is the poor paying for the rich
 - “There is no fingerprint technology on Visa and MasterCard. It does not work offline. It cannot do money transfers. It is expensive. And therefore we cannot use this technology and therefore we removed it but somebody had managed to put Visa/MasterCard, which is a proprietary money making organisation world wide, as a normal standard for the country.
- Aplitec’s deliberately proprietary standard
 - The UEPS is proprietary. It is designed for a specific market that requires specific features and as such is not compliant or compatible with other smart card systems. If it were compatible with other systems, the usefulness of the UEPS would be as limited as these other systems and could not provide a solution for the unbanked populations of the world.
- Dual System & Morphing ...

Politics

- Relationships with Government
 - Politics of “Joint Venture” in South Africa and beyond
 - Prince Gideon Zulu in KZN
 - Sandi Majali’s Permit Group
 - Also Accountability
 - Skweyiya’s fury in 2000 over the death of four pensioners in queues
- Foresight on the HANIS debacle
 - July 2000 : “Government will separate the payment application from the ID card and leave the payment card to the financial industry “