Emerging Technologies in Social Security: International trends and perspective

Raul Ruggia-Frick
Head of Centre for Excellence Knowledge, ISSA

36th ASSA Board Meeting

17 September 2019 | Brunei Darussalam

Outline

- **Emerging technologies and social security**

- **Experiences applying emerging ICT**

- **Analysis: Barriers and risks vs. Opportunities**

- **Conclusions and related activities**

Emerging technologies and social security

- **Social security institutions increasingly applying emerging technologies.**
  - Mainly Analytics on Big Data, Artificial Intelligence (AI), also Blockchain.
- **For what purpose ?**
  - Tackling hard problems.
  - Innovative social security measures through (innovative) ICT solutions.
- **Emerging technologies are strategic enablers for transformations:**
  - Improving customer services:
    - Personalized web portals, intelligent assistants, involving other partners.
  - Understanding new phenomena and developing preventive measures.
  - Improving institutional capacity to apply technologies for transformations

(Big) Data-driven technological solutions

- **Analytics on Big Data enables to :**
  - Discover and understand what happened.
  - Predict future developments with a certain probability
- **Artificial Intelligence (AI) adds autonomy and decision making:**
  - Self-learning systems based on Big Data.
  - Features:
    - Understanding heterogeneous Big Data, including regulations.
    - Communicating in natural language.
    - Autonomous decision making: *what to do next*
- **Applying AI in social security:**
  - How to take advantage of the AI's capabilities but also minimizing risks ?

Analytics & Big Data: Discovery &Prevention

Type of application	Project	Country
enabling **Discovery**	Detection of complex fraud manoeuvres Analysing beneficiaries' "itineraries" for service improvement	CNAF, France
	Detecting evasion and fraud in contribution collection	AFIP, Argentina BPS, Uruguay TGSS, Spain
	Detecting Fraud in Work Injury and accidents claims	INAIL, Italy
	Detecting Fraud in registration, contribution collection, Occupational diseases and Unemployment	GOSI. Saudi Arabia
Prevention	Analysing Big Data to support preventive Health measures	IMSS, Mexico
	National Big Data system covering Health & Social Security data, supporting preventive measures	NHIS, Korea

AI applications: Intelligent chatbots

- **Goal of chat-based intelligent assistants:**
  - Respond to users' inquires on specific topics in an autonomous way simulating a human behaviour.
  - Available 7/24 and adaptation to users' preferences.
- **What the chatbot has to do:**
  - Analyse and understand user's questions in free natural language.
  - Manage the conversation flow.
- **Implementation:**
  - Train an AI system to respond to the inquires using:
    - Knowledge based with the contents for the responses.
    - Dataset with potential questions.
    - ➔ Involves a lot of data

Intelligent chatbots experiences

Applications	Country
Chatbots enabling a re-design of service delivery: combining intelligent e-services and person-based services	EPF Malaysia KELA, Finland
Chatbot – Domestic workers scheme	BPS, Uruguay
Chatbot – Occupation accidents and diseases	SRT, Argentina
Chatbot in benefits case management	HVW/CAPAC, Belgium
Chatbot for general inquires on social security services	GOSI, Saudi Arabia
Chatbots to support beneficiaries' inquiries	EPF Malaysia

Blockchain

Key aspects:
- Blockchain is a **distributed ledger**
- **Shared** across a number of nodes
- Business transactions are permanently recorded in **sequential immutable** way
- A Blockchain is neither stored nor managed by a central authority
- *Consensus*: collaborative process to agree on the validity of a transaction

Main applications:
- Finances, traceability, highly distributed transactions.

Experiences.
- Estonia:
  - e-Health records, e-Prescription
- Belgium:
  - Re-eng. health insurance information
- Saudi Arabia (GOSI):
  - Pilot: sickness certificates and data exchange Gulf Countries
- Spain (INSS), IBM, ISSA:
  - Pilot: traceability of international data exchange

Emerging ICT for improving institutional capacity

Project	Country
Transformation of the ICT platform and operational models for providing proactive, comprehensive services by adopting cutting-edge technologies (e.g. AI).	KELA Finland
Comprehensive business re-engineering and modernization of ICT platform comprising communications, Master Data, e-services, BI and Analytics	INPS Cape Verde
Digital Transformation for building a data-driven and highly automated organization by adopting cutting-edge technologies: AI, machine learning and Analytics.	EPF Malaysia

- **Key messages:**
  - Improve institutional capacity to adopt cutting-edge technologies in order to carry out strategic transformations.
  - Smarter use of human capital and technological innovation

Analysis: Challenges and Opportunities

- **Challenges:**
  - Complexity and costs of adopting new technologies and transforming business processes
  - Ensuring required data quality levels for effective analysis and AI application.
  - Comply with data protection regulations in Big Data applications.
  - Economic and reputation risks due to failures.
- **Opportunities:**
  - Generalized technology adoption by customers.
  - Improved Data Management and data availability.
  - E-Government development: inter-institutional connection, interoperability
  - Increasing awareness among CEOs and Management on the crucial role of ICT in social security.
  - Growing innovation culture in social security.

EXCELLENCE IN SOCIAL SECURITY

Conclusions and related ISSA activities

- **Fast evolution of technologies and adoption in social security:**
  - Technologies are a key enabler for improved services and administration.
  - Social security institutions develop capacities to adopt emerging technologies

- **Innovation and emerging technologies are increasingly relevant for social security institutions.**
  - For improving customer services, operations and prevention capabilities.
  - Leveraging on institutional & external data → *data-driven social security*

- **Other emerging ICT relevant for social security:**
  - Biometrics , Internet of Things

- **ISSA activities :**
  - World Social Security Forum (14-18 October 2019, Brussels).
  - Collecting innovative practices, including experimental experiences.

![ISSA - EXCELLENCE IN SOCIAL SECURITY]

Thank You

Contact:

  Raul RUGGIA-FRICK
  ISSA - Head of Centre for Excellence Knowledge
  ruggia-frick@ilo.org