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New ICT paradigms driving Digital Transformation in social security

Parallel Session II: Digital Solutions for Social Protection

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Outline

- **New ICT paradigms and social security**
  - Data-driven social security using Analytics, Big Data and AI.
  - Distributed information and operations using Blockchain
- **Digital Transformation and Governance**
- **Conclusions and related ISSA activities**

New ICT paradigms and social security

- **New ICT paradigms transforming social security:**
  - *Data-driven social security:* Big Data, Analytics, Artificial Intelligence (AI).
  - *Highly distributed information and operations*: Blockchain.
- **Innovative social security measures through (innovative) ICT solutions.**
  - Developing preventive measures by understanding new phenomena.
  - Improving customer services through automation and intelligent processing.
  - Implementing large-scale social programmes through interorganizational solutions.
- **New technologies are strategic enablers for transformations.**
  - Improving institutional innovation capacity.
  - Enabling to tackle hard problems.
  - Enabling to strengthening or developing an institutional Digital Governance.

Data-driven social security

- **Background:**
  - *Rational:* Taking advantage of growing social security databases
  - *Related technologies:* Big Data, Analytics, Artificial Intelligence (AI)
- **Analytics 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.
  - Understanding heterogeneous Big Data and communicating in natural language.
- **Challenges:**
  - Data Quality and Data Management become critical.
  - ***Risks:*** biased results due to application development models based on training data.

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Analytics and Big Data

- **Analytics enables to :**
  - Improve operational and strategic decision making.
  - Develop proactive measures based on predictive analysis (e.g. Employment, Health).
- **Analytics on Big Data enables to exploit such data resources:**
  - Very difficult to process otherwise because of the data volumes.

Type of application	Project	Institution
Discovery	Detecting evasion and fraud in contribution collection	ACOSS France, TGSS Spain, GOSI Saudi Arabia, AFIP Argentina, BPS Uruguay
	Detecting Fraud in benefits claims. Identifying non-take-up of benefits	INAIL, Italy CNAF. France
	Detecting trends on Temporal Disability applications	INSS, Spain
Prevention	Analysing Big Data for preventive Health measures	IMSS Mexico
	National Big Data system including Health & Social Security data, supporting preventive measures	NHIS Korea

Artificial Intelligence

- **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*
- **Objectives:**
  - Interpret complex events, automate processing and support decision making.
- **Critical factors:**
  - Data quality → algorithms are trained using large datasets.
  - Multidisciplinary teams involving data scientists, ICT and Business staff.
  - Limited algorithm explainability.

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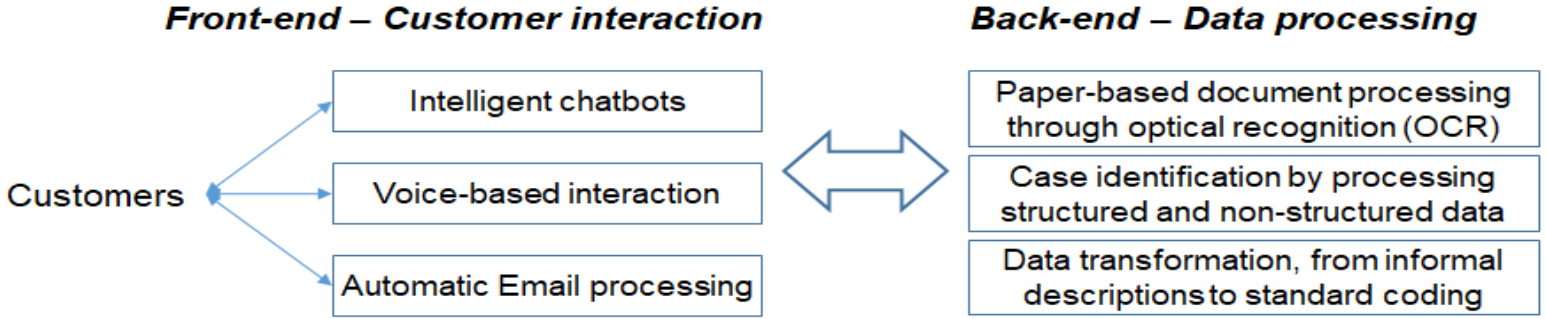
AI application in social security

- **Applying AI in social security:**
  - How to take advantage of the AI's capabilities but also minimizing risks ?
- **Types of AI applications:**



- **Intelligent chatbots:**
  - Respond to users' inquires on specific topics in an autonomous way simulating a human behaviour.
  - Available 7/24 and adaptation to users' preferences.
  - Developed by training an AI system using knowledge based with the response contents.

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AI application experiences

Type of mechanism	Applications	Institution
Intelligent chatbots	Chatbots to re-design of service delivery: combining intelligent e-services and person-based services	KELA Finland, EPF Malaysia
	Chatbot – Domestic workers scheme	BPS Uruguay
	Chatbot – Occupation accidents and diseases	SRT Argentina
	Chatbots to support beneficiaries' inquiries	NAV Norway, INSS Brazil, CSS Panama, GOSI Saudi Arabia, EPF Malaysia
	Chatbot in benefits case management	HVW/CAPAC Belgium
AI-based automation	Chatbot, email dispatching & reimbursement process	Austrian Social Insurance
AI-based data processing	Identification of beneficiaries by processing non-structured data	ESDC Canada

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Distributed information & operations: 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, high distributed transactions and information systems.

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

Digital Transformation

- ***Digital Transformations*** **enable to develop new or improved capacities based on an institutional strategy.**
  - Relevant experiences in Australia, Canada, Finland, Germany, Malaysia.
- **Key factors of *Digital Transformations*:**
  - Establishing a strategy → ***Digital transformation strategy***
  - Alignment with institutional strategies and objectives.
  - Involvement of the top management.
  - Dealing with fast evolution of technologies.
  - Developing and strengthening the ***Digital Governance***.

Digital Governance

➢ ***Managing or being managed by technologies ?***

- ***Digital Governance*** comprises the high-level and strategic decision making for achieving efficient ICT-based services**.**
  - Medium and long-term plans involve strategic and practical challenges related to the adoption of modern technologies.
  - Carrying out a gradual incorporation of ICT into the business and service delivery processes requires investment and involves a number of risks inherent the complexity of ICT project management.

➢***Digital Governance is crucial to adopt new technologies in a systematic way***

Conclusions and related ISSA activities

- **Innovation and new technologies are increasingly relevant for social security institutions.**
  - Technologies are a key enabler for transformations in services and administration:
  - Other relevant emerging ICT: Biometrics, Robotic Process Automation (RPA), Internet of Things
- **Digital Transformations need an institutional framework: Digital Governance**
- **ISSA products and services related to Digital Transformation:**
  - **International Conf. on ICT – Estonia, 4-6 May 2022.**
  - Members' good practices and short articles analysing members' experiences.
  - ISSA webinars (recording available).
  - Workshops, training and recognition services based on the ISSA Guidelines.

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Thank you

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