IAEA Department of Safeguards Strategic Planning and the Long-Term R&D Plan

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Needed Long-Term Capabilities

As described in the *Department of Safeguards Long-Term R&D Plan (2012-2023)*

- Deployed systems capabilities
- Analytical capabilities
- Operational capabilities
- Readiness capabilities

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Deployed Systems Capabilities

- Ability to deploy equipment at facilities to meet safeguards requirements
- Ability to acquire and deploy safeguards equipment that is sustainable, standardized and modular, with increased use of commercial off-the-shelf products
- Ability to increase effectiveness and efficiency by the use of remote monitoring of operators' and unattended IAEA equipment

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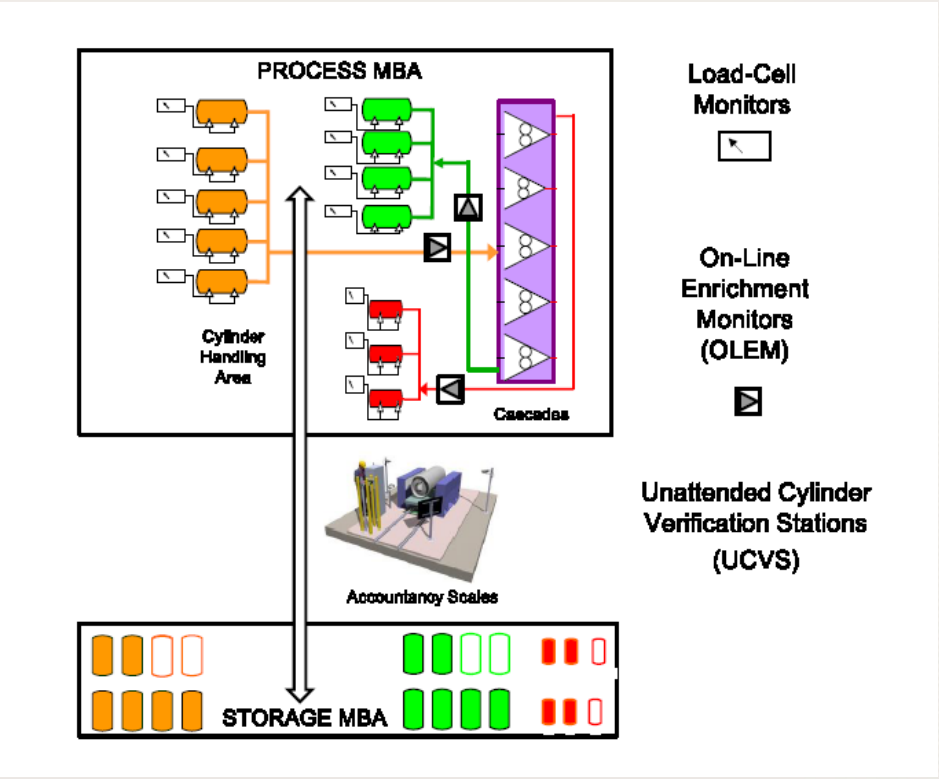
Developing System Concepts



Concepts are under development to integrate existing and potential future technologies for application at gas centrifuge enrichment plants

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Enhancing Tools for Inspectors

Reader

Reference image

iCobra fibre-optic seal

Raman Spectroscopy Device

'nanoRAIDER' Radionuclide Identifier

Inspector Toolkit

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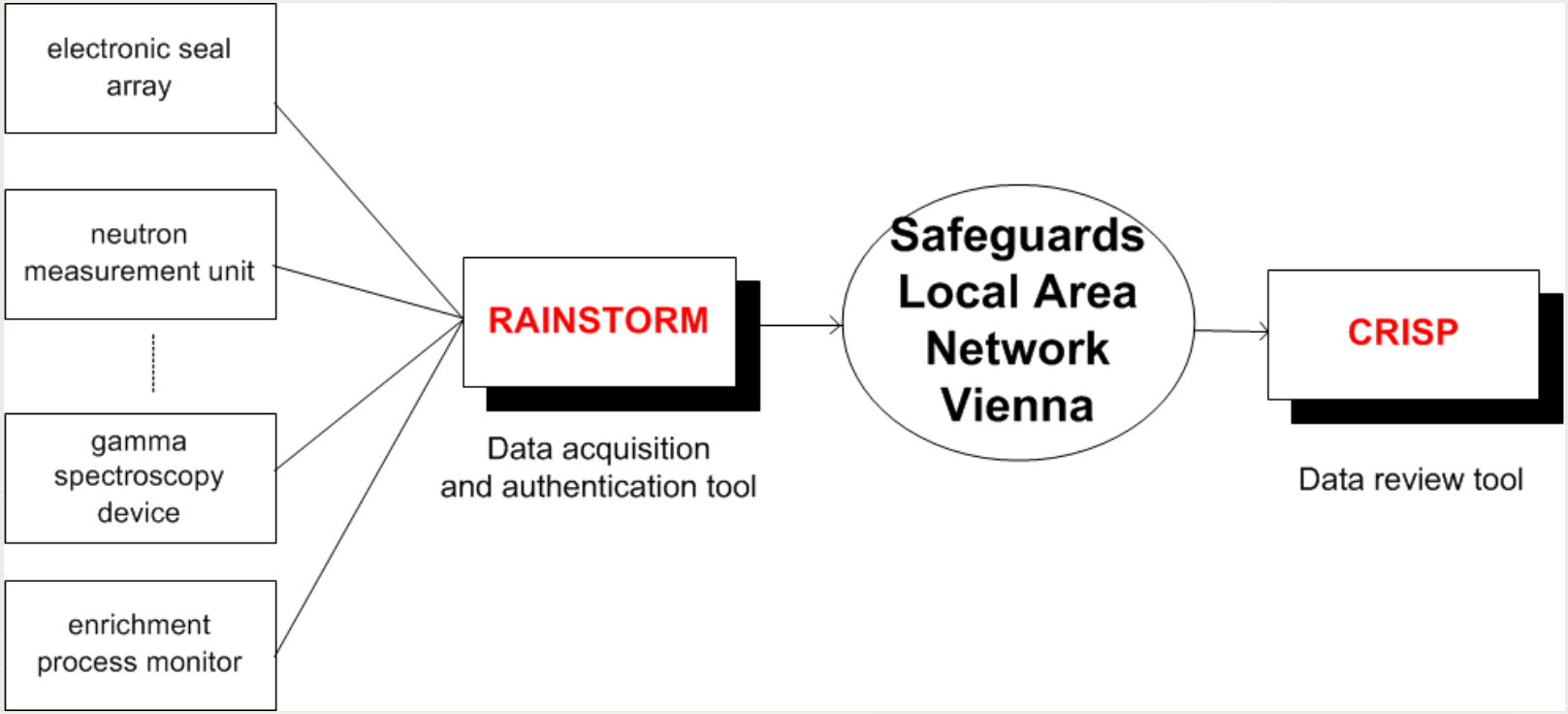
Standardizing IAEA Equipment and Systems



The IAEA is standardizing the acquisition, authentication and review of data from different instruments

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Analytical Capabilities

- Ability to use safeguards information in a fully integrated secure environment, maintained and available to those who need it
- Ability to communicate and secure, authentic information between the IAEA, States and inspectors or equipment in the field
- Ability to provide analytical services through the Network of Analytical Laboratories (including the IAEA Safeguards Analytical Laboratories) to support verification requirements
- Increased ability to detect undeclared nuclear material and activities

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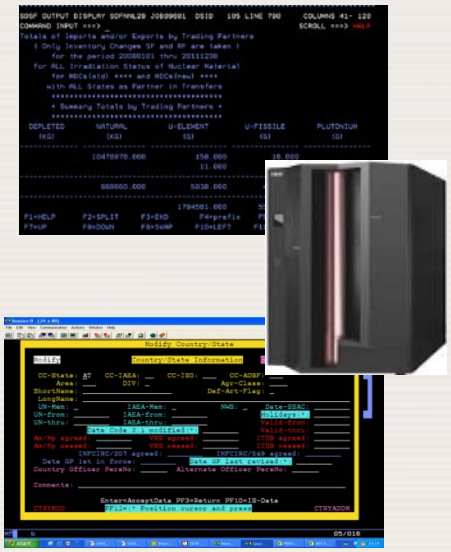
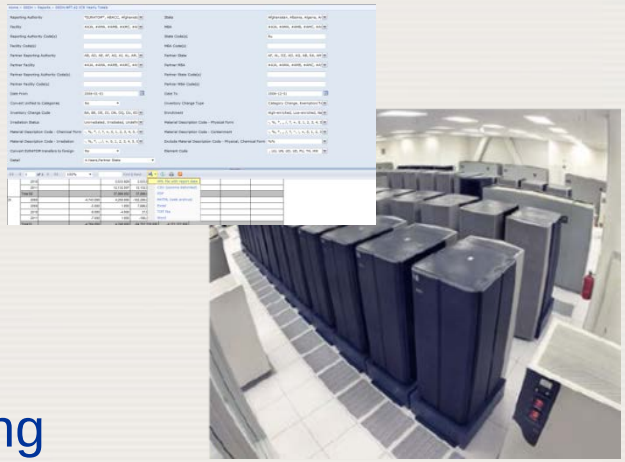
Modernizing the IAEA's Information Systems



Outdated Mainframe

Data and software applications are being migrated from a mainframe computer to a modern platform



Modern Secure Platform

Safeguards-specific software applications, such as the Agency's Geospatial Exploitation System, are being developed

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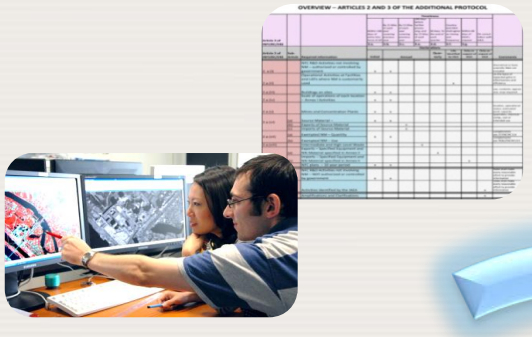
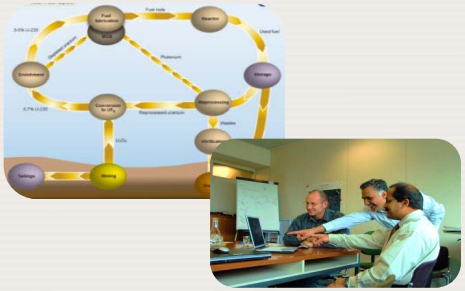
Strengthening Information Analysis

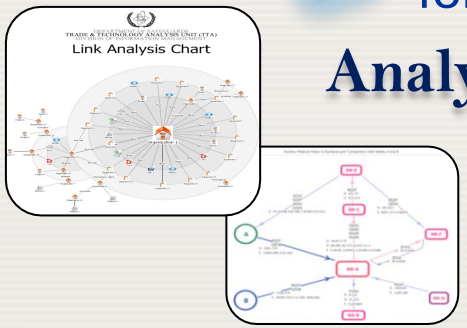




Review

Planning

Adequate data, processes, tools, techniques and competencies are needed for information analysis



Analysis

Collection

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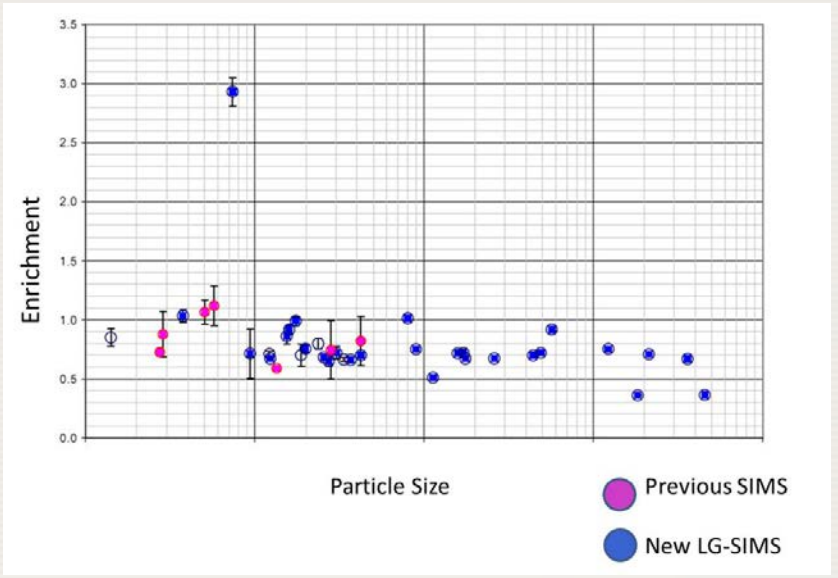
Enhancing Capabilities for Sample Analysis

Large geometry secondary-ion mass spectrometer (LG-SIMS)



The new LG-SIMS provides increased volume and quality of data over the previous instruments.

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Operational Capabilities

- Ability to deploy the required expertise and skills to continue to fulfil the IAEA's mandate(s)
- Ability to fully implement the State-level concept for the planning, conduct and evaluation of safeguards

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Readiness Capabilities

- Ability to safeguard new types of facilities
- Ability to take on technical challenges and opportunities and emerging tasks
- Ability to deal with possible new mandates
- Ability to provide credible assurances with respect to nuclear material used in non-proscribed military activities

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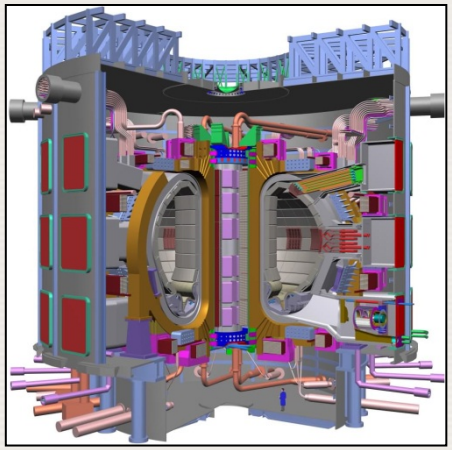
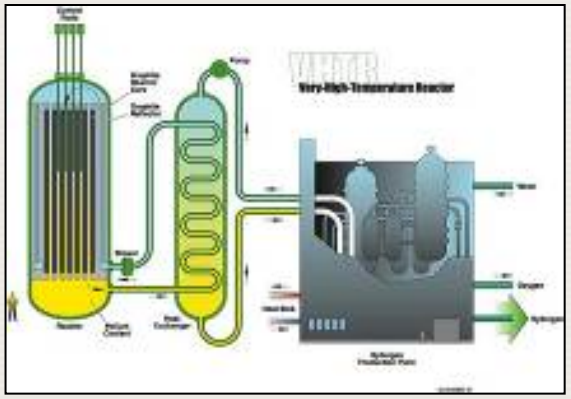
Safeguarding New Nuclear Facilities





- Generation III and other advanced reactor types,
- Innovative fuel cycles facilities (Generation IV)
- New enrichment processes
- Other new facility types or activities

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Thank You

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