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Managing the Data Revolution

Presentation by the Chief Statistician of Canada

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Realities of the early 21st Century

- **Environment**
  - Continuous, accelerating, cumulative change
  - Generating a stream of opportunities and challenges for official statisticians
- **Data needs are changing**
  - The world we are trying to measure is changing
  - The needs of policy makers are changing (e.g., post 2015 development agenda, SEEA)

The official statistician's mission

Provide our citizens with the largest quantum of relevant, high-quality statistical information possible, in response to their highest priority and evolving information needs, given the resources those citizens have made available to us

Managing the business architecture

- **Business architecture comprises:**
  - Structures (hierarchical organizational structures, actual program/project management structures, corporate governance structures such as committees, planning systems)
  - Systems (both informatics hardware and software)
  - Processes (the production of outputs from inputs such as data collection from specifications, questionnaires, systems and collection resources)

Business architecture redesign - initial goals and ultimate benefits

- **Initial goals:**
  - **Efficiency:** obtaining the same or greater output with fewer inputs
  - **Robustness:** reduced risk of failure, funded capital plans for maintenance, resilient systems and processes
  - **Responsiveness:** reduced time from identification of a statistical information need to its fulfilment
- **Added benefits:**
  - Higher quality, more coherent, more integrated data

Business architecture principles

- **Key principles:**
  - Corporately optimal solutions rather than locally optimal
  - Smallest possible number of structures, systems and processes for any given purpose (ideally, one)

- **Goals achieved through:**
  - Generalized systems and shared data centres
  - Centralized, mandatory corporate services (collection, informatics, methodology, classification and coding, dissemination, etc.)
  - Meta-data driven processes, standardization of concepts
  - Service-oriented systems architecture with processing achieved by linking together small, easily updatable components
  - Limited software tool kit

International initiatives in business architecture

- Blaise, PC-Axis, X-12 ARIMA, etc.
- Statistical Network
- UNECE Conference of European Statisticians High Level Group on the Modernisation of Statistical Processes
  - Generalized Statistical Business Process Model
  - Generalized Statistical Information Model
  - Common Statistical Process Architecture
- Technical assistance for business architecture

Innovation

- **Challenge:** Keeping pace with change in the world we are trying to measure
- **Opportunity:** New technologies and data sources that can be exploited for statistical purposes
- **The Key:** Engagement of all of our people in meeting challenges and in identifying, triaging, and exploiting opportunities in useful time

Old and new data sources

- **More intensive exploitation of existing data sources:** changing administrative systems to make their data more useful for statistical purposes; partnerships
- **Big data:** scanner data, smart meter data, credit/debit card transactions, cell phone transactions, etc.; public/private partnerships
- **Technological innovation:** satellite imagery, mileage loggers, Wifi connected devices
- **Method innovation:** crowd-sourcing?

Leave it to others

- In a world of scarce resources, focus on doing that which official statisticians are uniquely able to do
- Leave to others those things they can do equally well (and be modest about our own capability)
- Develop explicit and implicit partnerships

Conclusion

- Even in times of government austerity, it is possible to meet emerging data needs while improving the robustness of our systems and processes and our agility in implementing new programs
- Achieving this requires:
  - partnering with others in national statistical offices, the public and private sectors
  - a rigorous approach to management of business architecture and exploitation of new technologies and new data sources
  - that we focus on what we are uniquely able to do and remove obstacles that prevent others from doing what they can do equally as well as us