

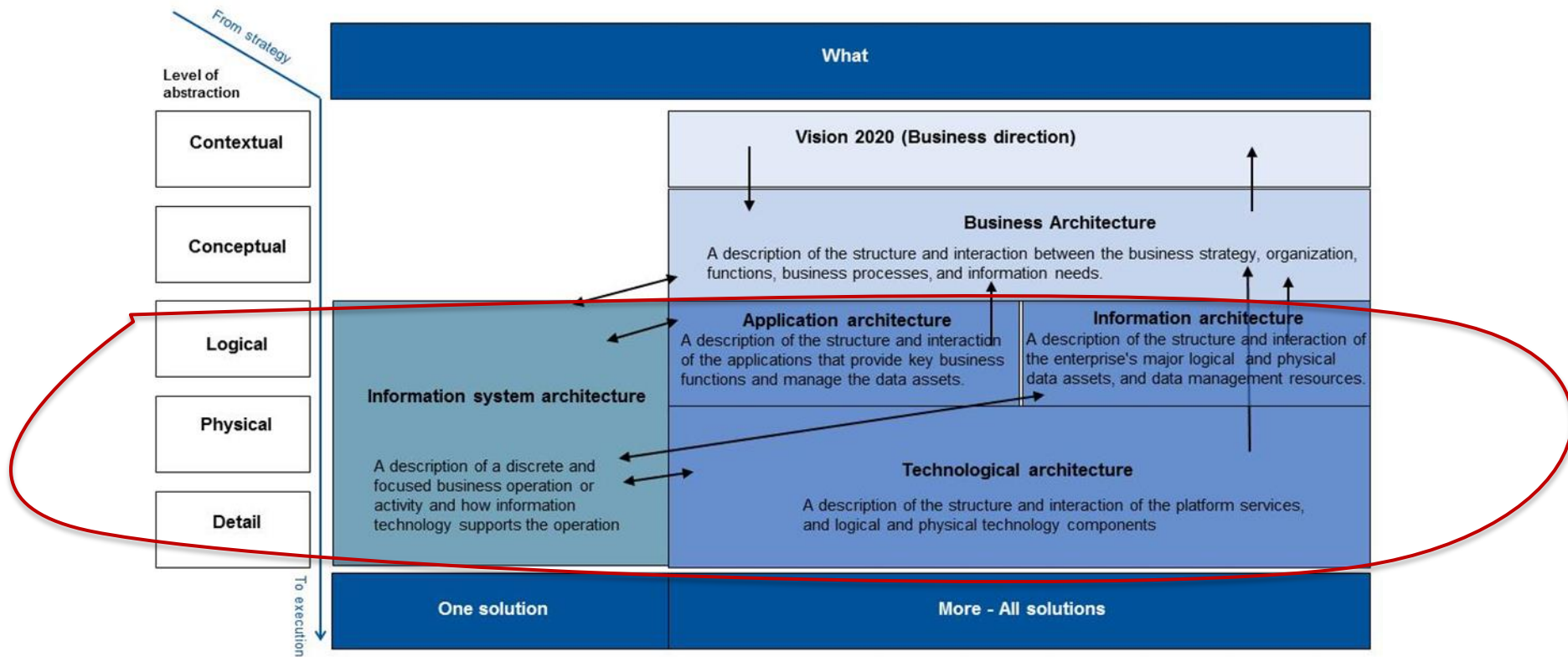
ESSnet Big Data II
Kickoff meeting of implementation track
Vienna, 3-4 December 2018

Session on Reference Architecture

Monica Scannapieco,
Istat

WP F SCOPE: WHICH ARCHITECTURES?

- Definition of **reference architectures** necessary to carry out big data production both at national and European levels



ESS EARF Enterprise Architecture Reference Framework

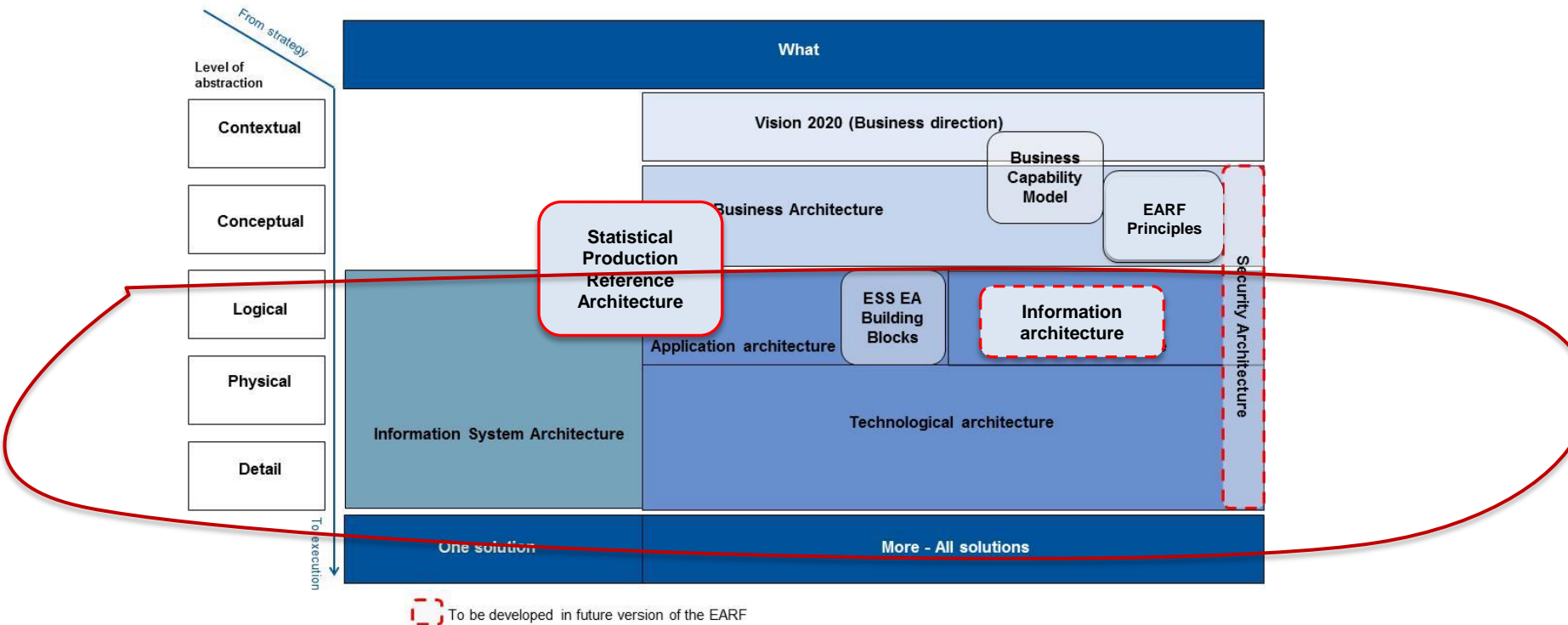
ESS EARF

- A set of abstract artifacts: principles, templates and models
 - describing **how to organize statistical capabilities** in order to meet business information and technology requirements and satisfy the implementation of Vision 2020

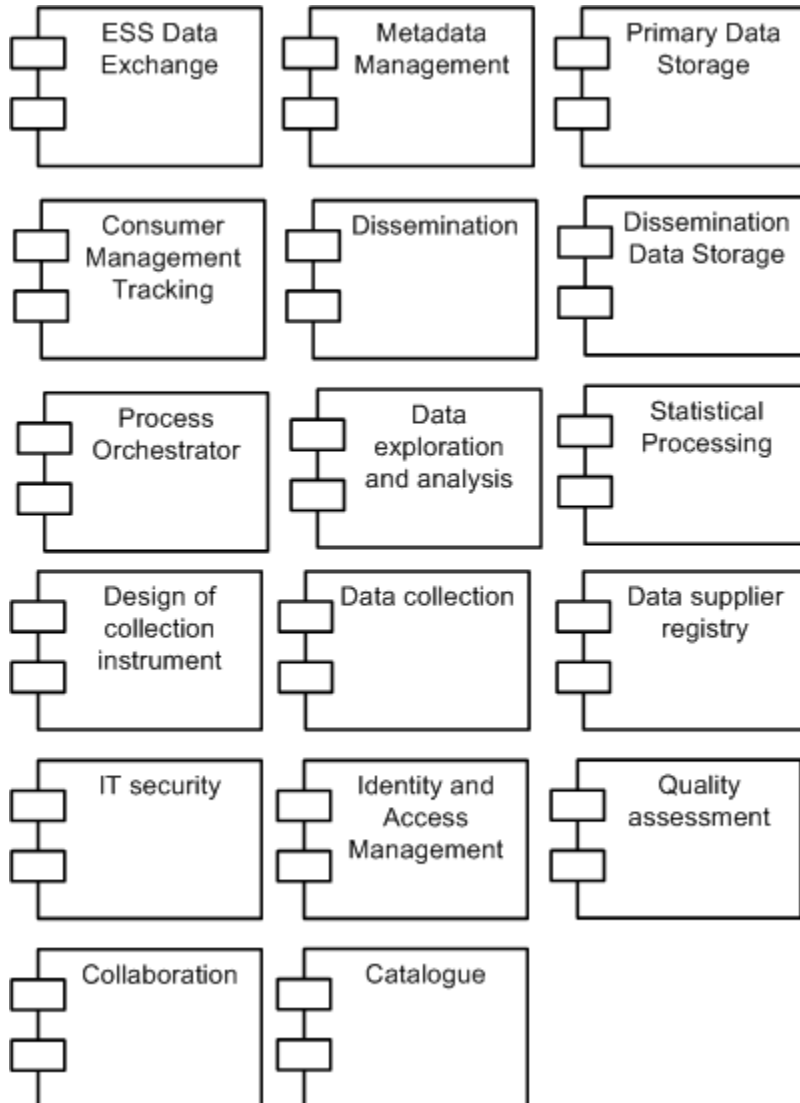
ESS EARF ARTIFACTS

- ESS Business Capabilities model
- ESS EA Building Blocks
- Principles for the ESS EARF
- Statistical Production Reference Architecture - SPRA: (supporting document)
- https://ec.europa.eu/eurostat/cros/content/ess-enterprise-architecture-reference-framework_en

EARF Artifacts on Layers



ESS EARF BBs



17 Building Blocks deemed necessary to realise the ESS Vision 2020 in NSIs

The basis for analysing the project IT developments and the reuse of existing components

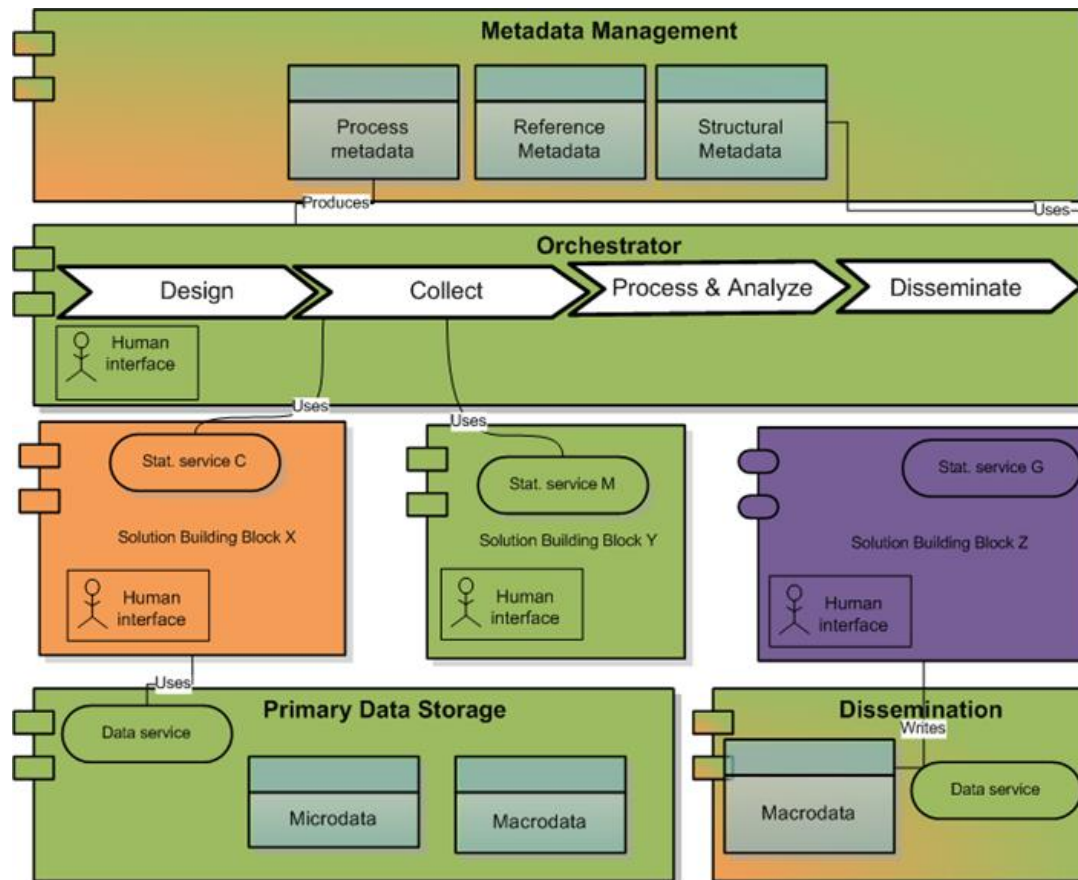
ESS Statistical Production Reference Architecture

- A generic architecture linking the key BBs
- A functional view of the 3 main business functions of statistical production (collect, analyse&process, disseminate)
- A tentative list of business services and their link with GSBPM and the BB;
- A set of design principles
- Scenarios for ESS deployment (opt-in / opt-out)
 - Autonomous, interoperable, replicated, shared

Refers to CSPA for statistical services identification, specification and design

SPRA

- Conceptual model of key SPRA elements



NIST Big Data Reference Architecture

- National Institute of Standards and Technology (NIST)
 - part of the U.S. Department of Commerce. NIST is one of the nation's oldest physical science laboratories
- NIST Big Data Public Working Group (NBD-PWG)
 - 600 participants from industry, academia and government

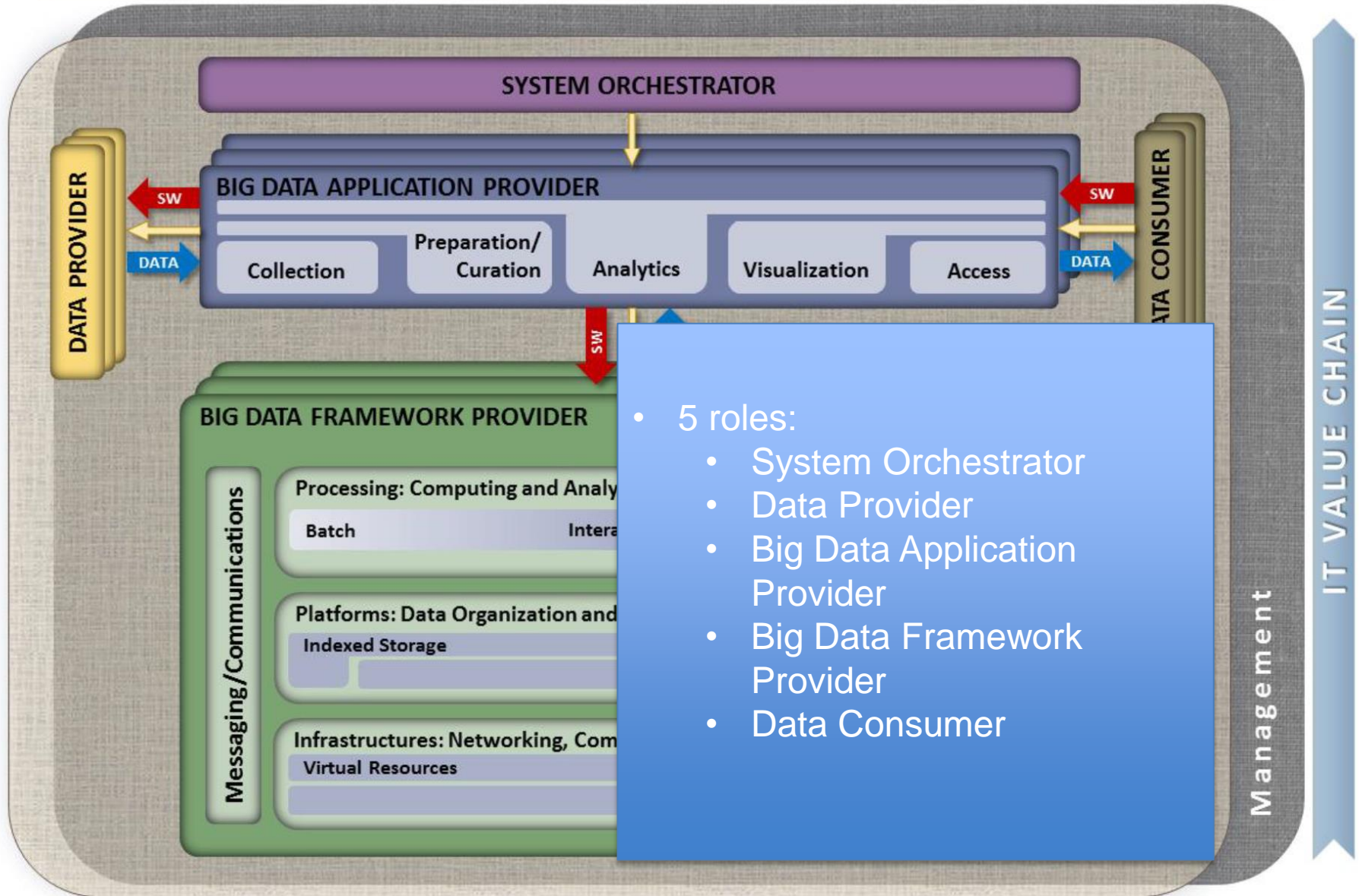
NIST Big Data Reference Architecture

- NIST Big Data Public Working Group (NBD-PWG) prepared the NIST Big Data Interoperability Framework (NBDIF)
 - 9 volumes
 - Will be released in three versions
 - Currently version 2 is available at:
<https://bigdataawg.nist.gov/>
 - Volume 6 is a Reference Architecture: NIST Big Data Reference Architecture (NBDRA)

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INFORMATION VALUE CHAIN



KEY:



Big Data Information Flow

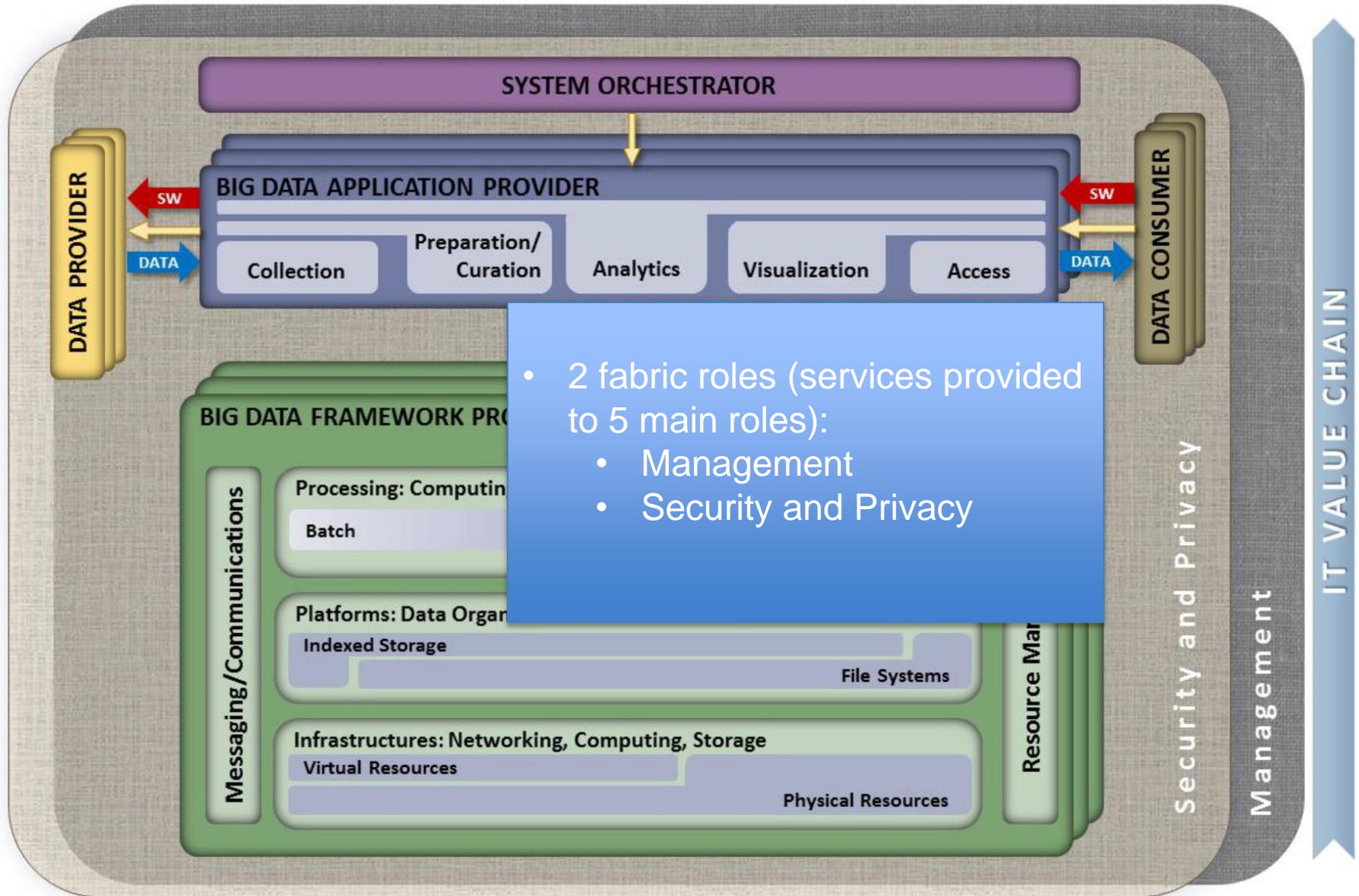


Service Use

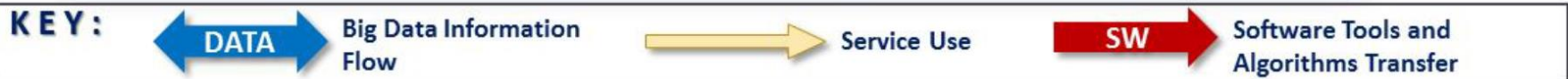


Software Tools and Algorithms Transfer

INFORMATION VALUE CHAIN



- 2 fabric roles (services provided to 5 main roles):
 - Management
 - Security and Privacy



NIST Big Data Reference Architecture

- Activities View
 - Activities by roles
 - Examples:
 - ‘Governance’ by ‘System Orchestrator’
 - ‘Preparation’ by ‘Big Data Application Provider’
 - ‘Storage’ by ‘Big Data Framework Provider’

NIST Big Data Reference Architecture

- Functional Component Views
 - Functional component: software, hardware, people organization
 - Functional component by role/activity
 - Examples:
 - ‘ISO 20000 for IT services MGMT’ by System Orchestrator
 - ‘Data transformations’ by ‘Big Data Application Provider’
 - ‘Virtual networks’ by ‘Big Data Framework Provider’

What's the usage of EARF and NBDRA for the ESSnet work?

- EARF: surely a good starting point for
 - EA Layering
 - BBs to specialize
 - OS standards to take into due account

What's the usage of EARF and NBDRA for the ESSnet work?

- **NBDRA, helpful for:**
 - Checking completeness of BIDREA (e.g. by an explicit mapping)
 - Taking in the due account
 - Technological issues
 - Security and Privacy topics (volume 4 of NIST Big Data Interoperability Framework dedicated to that)

What's the usage of EARF and NBDRA for the ESSnet work?

- Examples of NBDRA possible usage:
 - Big data application provider Activities
 - Collection
 - Preparation
 - Analytics
 - Visualization
 - Access
 - OS Activities View:
 - Map to GSBPM ?

What's the usage of EARF and NBDRA for the ESSnet work?

- Examples of NBDRA possible usage:
 - Big data application provider Functional components
 - Workflows
 - Transformations
 - Visualization
 - Access Services
 - Algorithms
 - OS Functional component View:
 - Map to OS Building Blocks
 - E.g.: Access Service → Web Scraper

CONCLUSIONS

- Let's work for the definition of a Big Data Reference Architecture for Official Statistics
 - OSBDRA Too difficult to pronounce!
 - BigDataREferenceArchitecture – BIDREA for OS sounds better 😊
- A Big Data Reference Architecture for Official Statistics sounds like an ambitious goal...
- However, ambitious goal are often the landing of funny journey...then let's begin our journey!

