Interoperability and Innovation in Drug Information Systems

Jean-François FORGET MD
CMO VIDAL Group

VIDAL Group

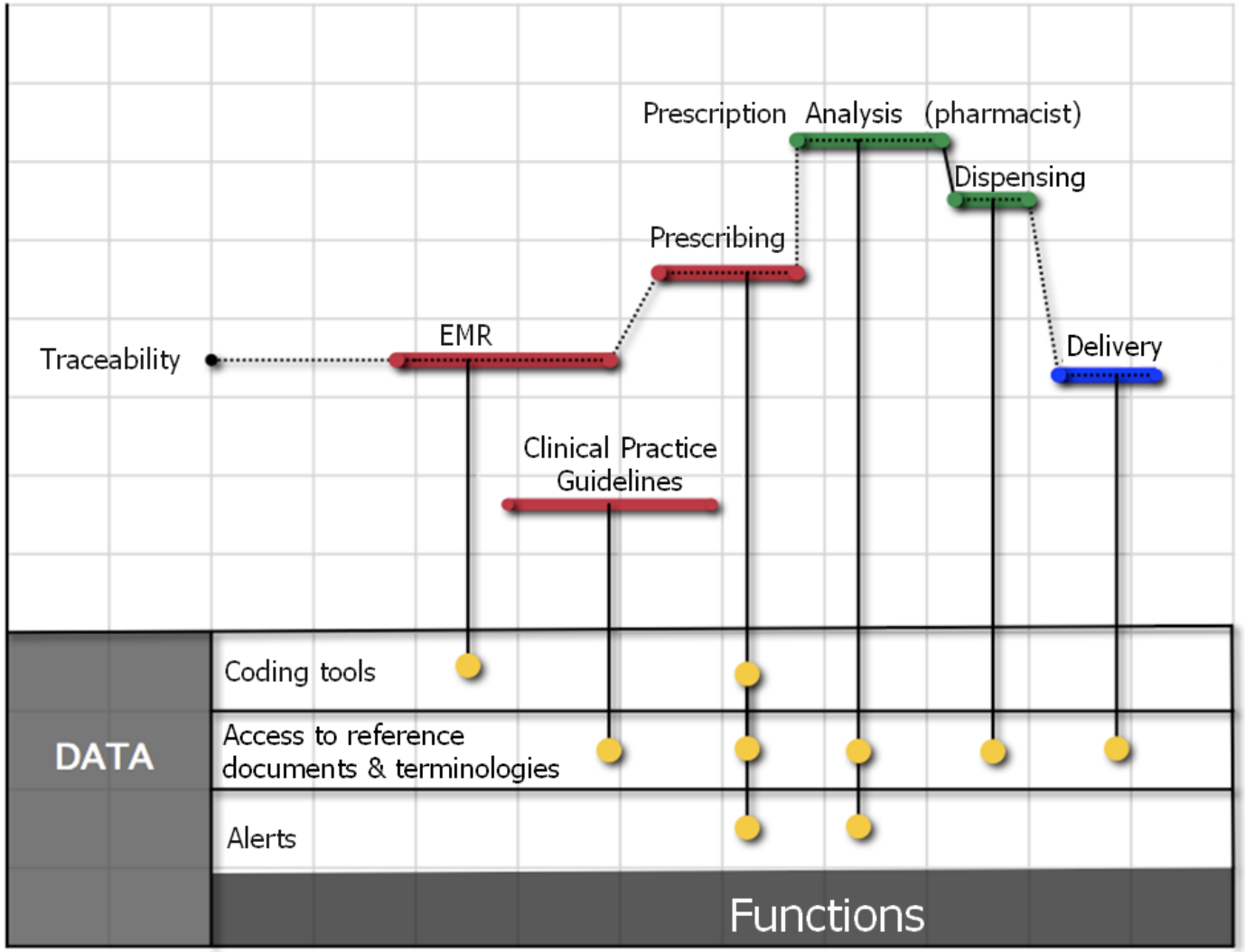
- Drug information system (DIS) provider
- 350 staff in 5 countries across Europe (Belgium, France, Germany, Spain, Russia),
  - 100 scientist (physician, pharmacist)
  - 50 IT
  - Digital and semantic oriented
- Headquartered in France (Paris)
- 200+ third party partners in Europe
- New sales in Latin America and Middle East
- 47m€ revenue in 2014

Key Use Cases for DIS

- Use Case Actors
  - Hospitals
  - Pharmacies
  - Physician offices
  - Nurses…
- Access to Reference Drug Information
  - Website, intranet, desktop, mobile
- Access to APIs to guide « safe prescriptions »
  - Integrated system (CPOE*, EHR)
  - Decision support module for prescribing, dispensing, and administration
  - EHR coding tools
- Support for Clinical Data Repository analysis (aggregation of patient-specific data)
  - Medico-economics metrics
  - Pharmaco-vigilance (PSIP, ADR-Prism)
  - Nosocomial infection
  - Medical procedure metrics

*CPOE: Computerized Provider Order Entry

Drug-related workflow



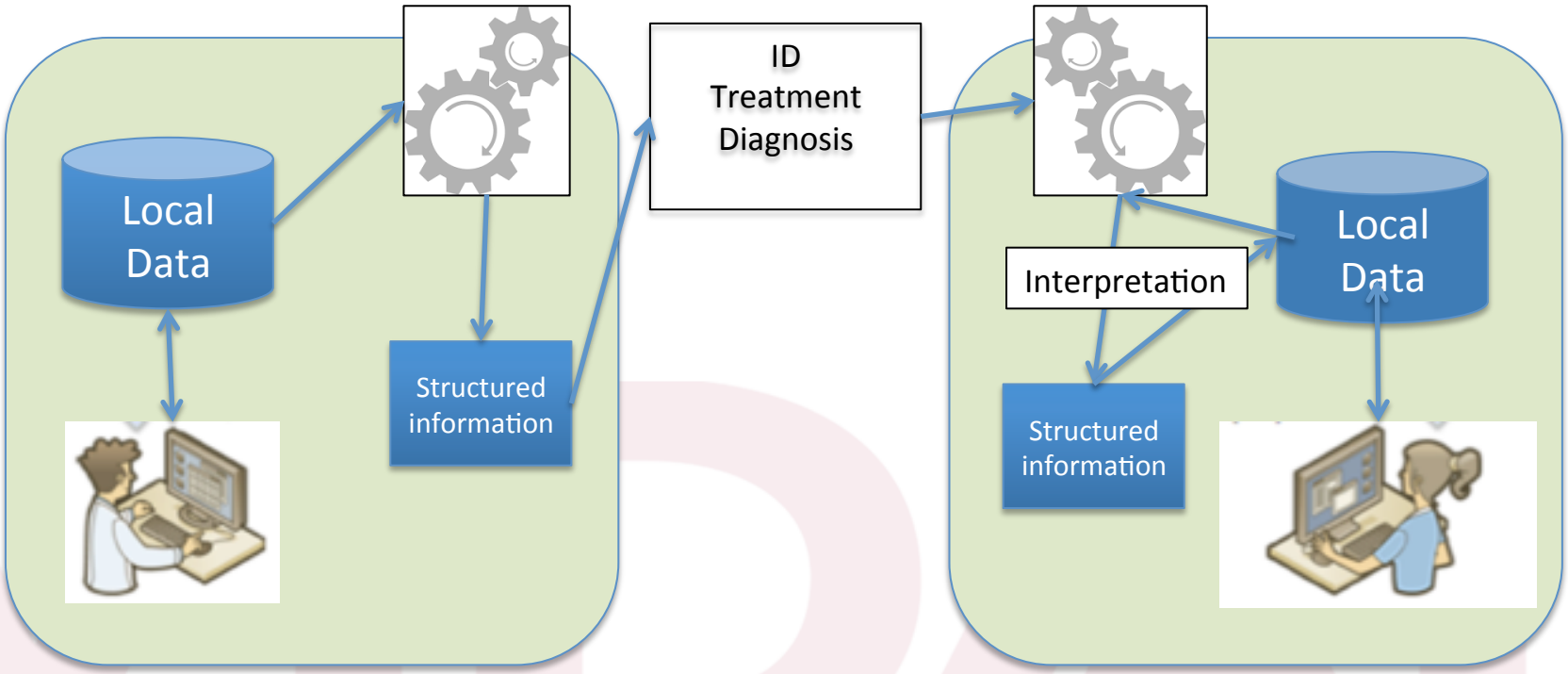
From trusted sources of information to end user: Each skill “layer” creates added value

Significant Events in the DIS Landscape

- Development and maturity of the internet -> increasingly distributed collaboration
- Development and maturity of open-source software and open-source data → increased technology support
- The development of the usage of standards at different layers of the "interoperability" stack increased interoperability
  - ISO IDMP, SNOMED CT, LOINC, ICD9, ICD10
  - HL7, IHE
  - Semantic Web standards (W3C standards)
- DISs are implemented both globally and locally
  - Cross-border prescription management
  - Local economic data and SPC compliance
  - Global safety information

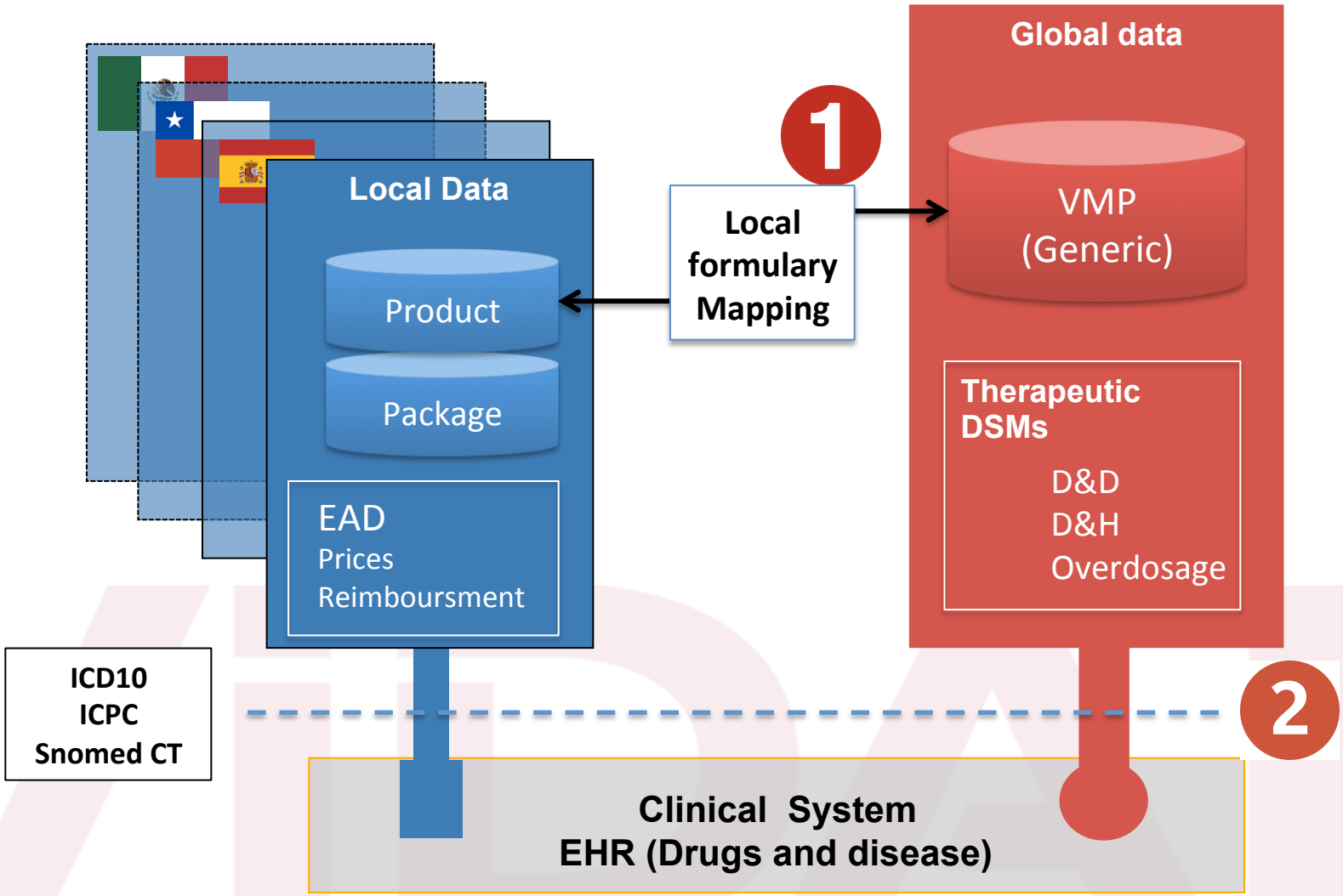
DISs requires semantic computable interoperability and the use of global and local standards

- At the disease level : ICD10 / ICPC / Loinc / SNOMED CT
- At the Drug level : SNOMED CT / IDMP / ATC / local formularies including packaging and economic and administrative properties

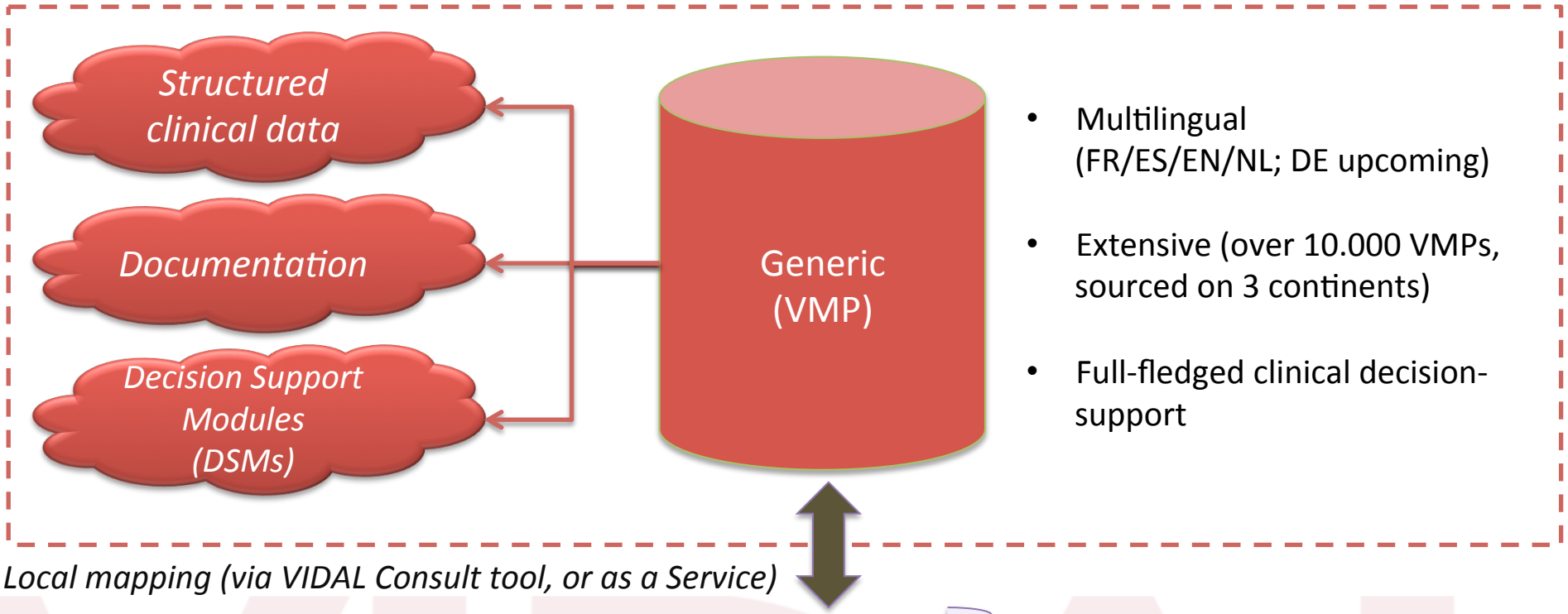


Adapted from ASIP Santé, France, May 2015

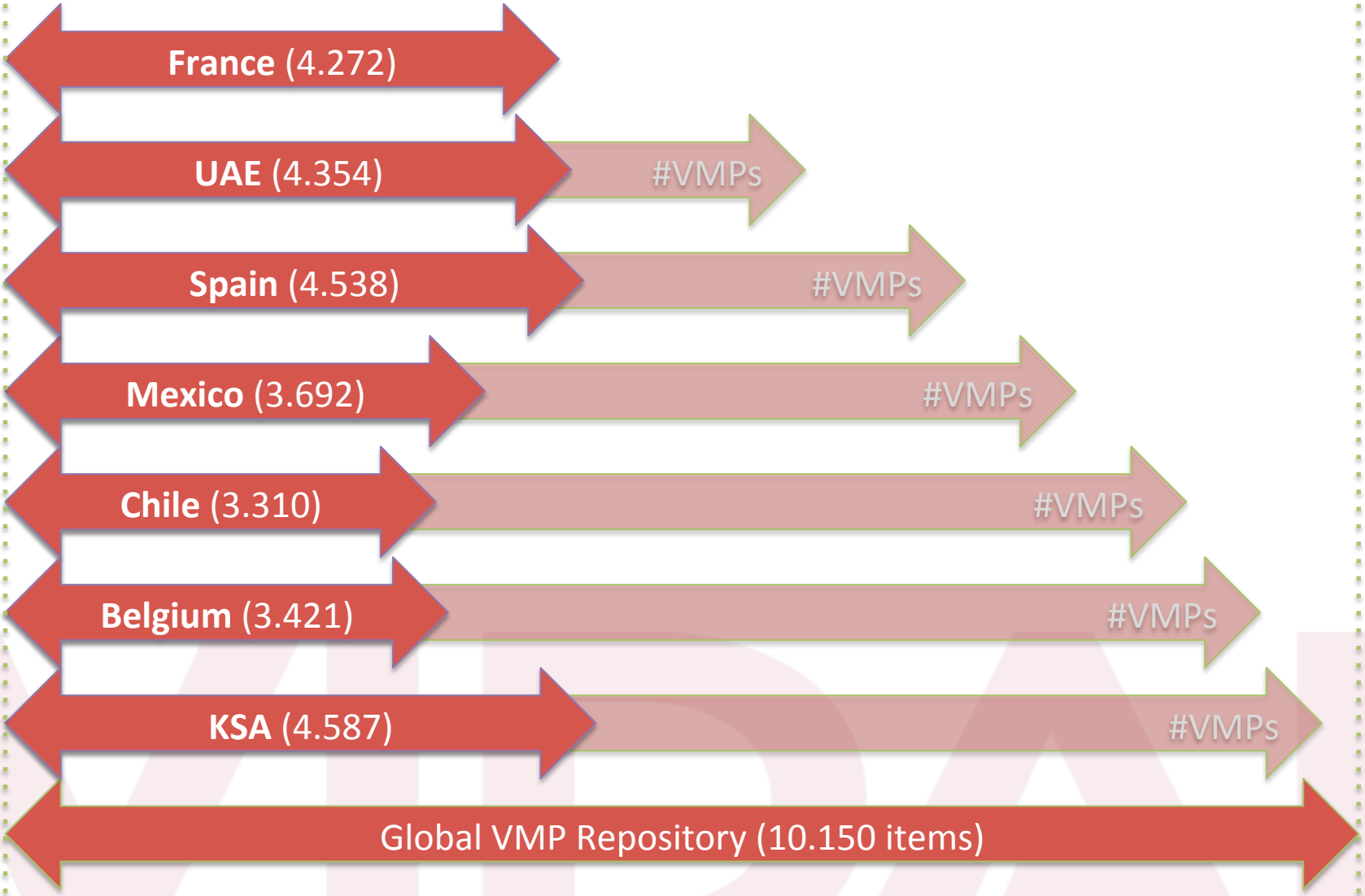
EHR integration use case:
A unique set of multilingual DSMs based on global and local data,



Flexible drug databases architecture



Critical VMP volume reached



Vidal is adopting the W3C's Semantic Technology Standards (RDF, RDFS, OWL, etc.) for Multidimensional DSMs and Centralized terminology graph representation and management

- Graph models more suited to describing the complexity of medical data → Enhanced Decision Support Modules (DSMs)
- Graph models more intuitive to domain experts → narrowed communication gap between domain experts and technologists ("semantic impedance")
- Graph-based representation of relevant standards are a fundamental enabler sharing semantics → semantic interoperability
- Semantic technology standards are built « on top of » commodity internet technologies (http, XML, REST) → open-source interoperability

Conclusion

- DISs are implemented both globally and locally
- DISs requires computable semantic interoperability and the use of global standards, at drug level and at disease level
- Mapping with local formularies (medicinal products) is the “cornerstone” for usability in health informatics.
- Creating new data is easy. Maintaining it is harder. Computationally integrating it across multiple sources and contexts is the hardest.
- The complexity of these needs requires an interdisciplinary approach and the support of an extensive network of partners : information technology professionals, terminologists, pharmacists, physicians…

Questions, contacts ?

- Jean-francois.forget@vidal.fr
- pbonnet@vademecum.es