Biosciences WG

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AIST

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Questions

- What projects the PRAGMA biosciences group are currently working on and what are they interested in pursuing?
  - *Is there anything that can be sustained in biosciences with the members and what is the common issue for them?*
- Should Biosciences refocus its scientific expedition or integrate projects into existing expeditions?
  - *This depends on interest and ability to follow-through.*
  - *If we create an entirely new expedition, then we need to define the projects/goals/common issues.*
  - *If we integrate with existing expeditions, then how can the projects tie-in with the other expeditions?*
- What is practically possible, with a focus on funding sources for participants and their ability to participate?
- Can we provide virtual screening as a service for other biologists?
  - *Great driver for virtualized network and machines and it leverages on past experience, but is this sustainable and who would use it?*
  - *Genomics as a driver?*

PRAGMA 27 Summary (1/2)

- Current projects of Biosciences
  - Science Community Laboratory, Thanh Truong
    - Crowdsourced virtual screening (scalability problem)
  - Infectious Disease Bioportal, Nor Arlina Amirah
    - Big data integration, processing, user access
  - SimFlu, Insung Ahn
    - Big data integration, processing, user access
  - ASTI, Jelina Tetangco
    - Works with International Rice Research Institute (IRRI), rice genomics project, 3K genomes
- Should Biosciences refocus or integrate with other expeditions
  - Proteomics
    - Virtual screening/drug discovery
    - Helping to drive resources on PRAGMA-ENT
    - Educational tool, clear link to cyberlearning
  - Genomics
    - Pipeline workflows
    - Infectious disease portals
    - Clear link to biodiversity

PRAGMA 27 Summary (2/2)

- What is practically possible (funding sources, participation, etc.)
  - Issues
    - Advantage – PRAGMA-ENT is breakable
    - Disadvantage – PRAGMA-ENT is breakable
    - Need more crosstalk with other groups
    - Genomics is a very large field, we need to be focused
    - Need more genomics domain scientists to develop roadmap

- Bioscience services
  - virtual screening?
  - genomics analysis?

To be continued in Nara…

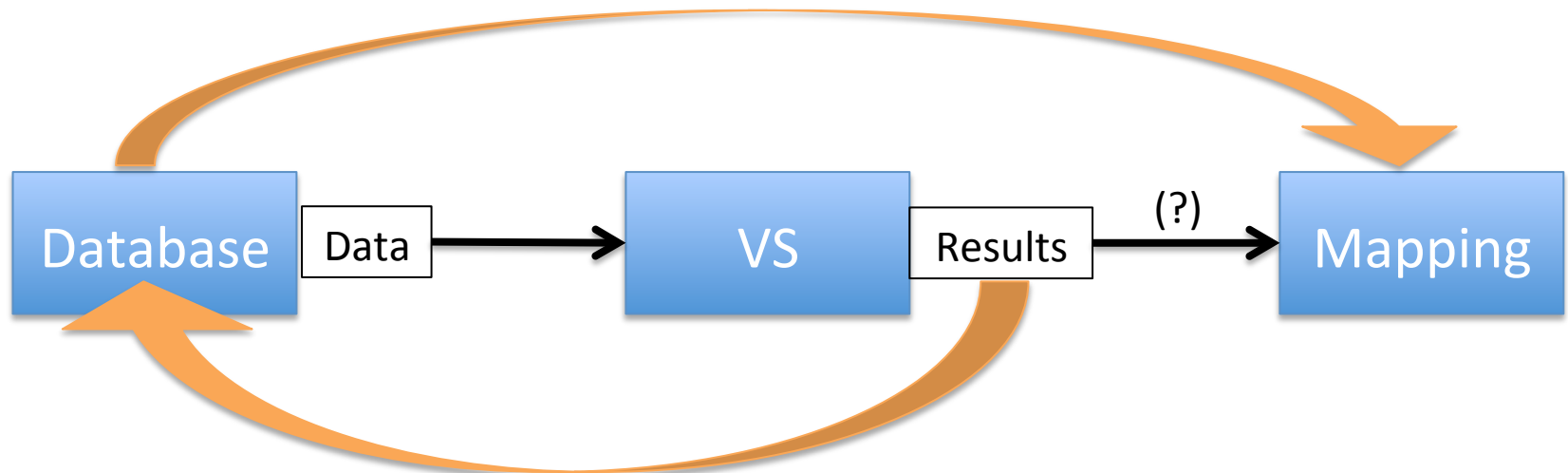# SEAIP 2014 – Indonesia Bioscience Activities

- *Heru Suhartanto, Arry Yanuar, Universitas Indonesia, Indonesia*
Current Progress on Integrating High Performance Computing Resources, Molecular Dynamics - Virtual Screening Software, and Database Resources into Cloud Computing Platform to Support Drug Design based on Indonesian Medical Plants

- *Kudang B. Seminar, Bogor Agriculture Institute, Indonesia*
An HPC solution for Weed Control Decision Support System Based on Precision Agriculture Approach

- *Muhammad Hafizhuddin Hilman, Universitas Indonesia, Indonesia*
Accelerate Massive Data Processing on Virtual Screening Drug Discovery

- *Ummi Azizah Rachmawati, Yarsi University, Indonesia*
Yarsi University (Islamic Hospital Foundation) E-health Research

- *Yeni Herdiyeni, Bogor Agricultural University, Indonesia* IPB Biodiversity Informatics (IPBIOTICS)

PRAGMA 28 Goals (1/2)

- Establish clearer priorities and goals in two areas
  - Genomics
    - Need to identify area (Tommy Lam, Ly Le)
    - Where to start
      - Deploy standard set of tools to PRAGMA Cloud (?)
      - Create easy to use UI for the tools
    - Involvement of International Rice Research Institute (IRRI), rice genomics project
      - Link to biodiversity efforts
  - Proteomics
    - Virtual screening/drug discovery still area of interest with long history
    - Natural Products Discovery Portal
      - Can we create a more unified effort
      - Can benefit entire region
      - Identify key partners in this effort

PRAGMA Natural Products Discovery Platform

- Components
  1. Natural products database
  2. Virtual screening
  3. Biodiversity mapping
- What are the infrastructure requirements for each component?
  1. Storage, data format
  2. Network, compute nodes
  3. Mapping tools, visualization

PRAGMA 28 Goals (2/2)

- Can these efforts be offered as a service?
  - Academic use
    - Research and teaching tools
  - Industry use
    - Small companies (not large pharma)
  - Policy issues
    - Intellectual property
    - Privacy