

# Systems Biology Format Converter

A generic conversion framework



EBI is an Outstation of the European Molecular Biology Laboratory.

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# Introduction

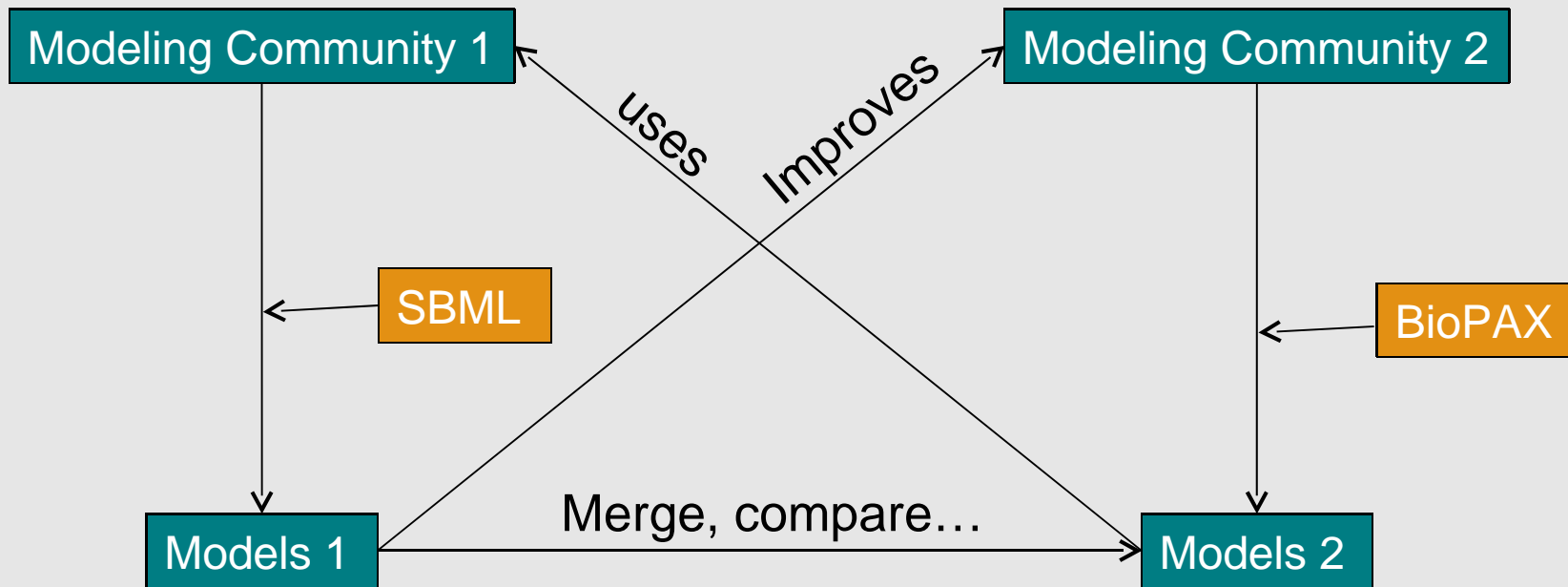
- 4 months internship in Hinxton (near Cambridge)
- Personal goals before the internship
  - Integrating a complex group
  - Using the knowledge acquired during the mastère
  - Trying to take advantage of my double competence

# Project

- Context
  - The modeling community
    - Different goals
      - Descriptive models
      - Mathematical models
    - Different formats
      - SBML, BioPAX, CellML...
      - Octave, R, Matlab, Mathematica...

# Internship project

## Problematic



- Problem of inter-operability
- Need for conversion means between formats

# Project

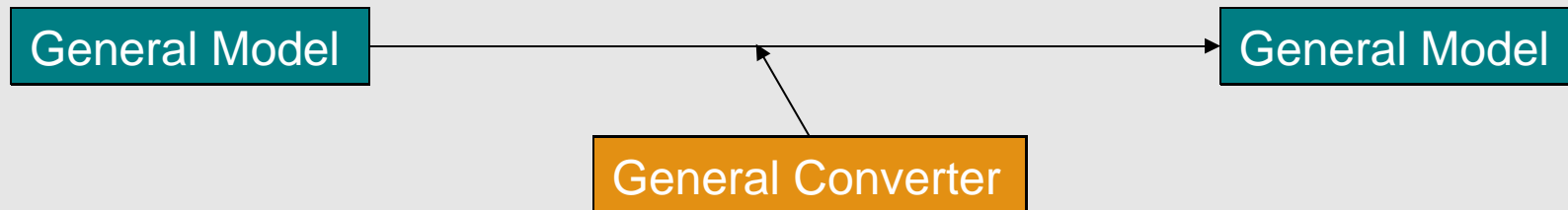
- Problematic
  - Lots of conversion tools already exist but :
    - They're all developed by different groups
    - All separated programs → different programming languages
    - Not always easy to use (different syntax...)
    - Not accessible as web applications or web services → need a local installation

# Project

- Goals
  - Create a generic Framework in Java that can:
    - Potentially translate any format into another
    - Be updated with a new converter easily
    - Easy to use locally→ Project General Converter
  - Create a web application for the General Converter
    - Models upload (file, URL, copy/paste)
    - Using the EBI resources (Computer Farm, servers...)
  - Create a web service for the General Converter
    - Way to enable calls to the converter from a distant application

# The SBFC package

- Specifications
  - Conversion framework
    - Single executable file
    - Generic conversion



→ Interfaces GeneralModel & GeneralConverter



# Web application

- Specifications
  - Online application accessible from a simple browser
    - allow any user to convert models in a given format to another
      - from file(s) on their computer
      - from an URL
      - copy/paste the model in a text area.
- Program running on a server at the EBI
- Conversion jobs very demanding in terms of CPU or memory
  - The conversion jobs sent to another machine
  - Use of the Computer Farm



# Live demo

# Web service

- Specifications
  - Easy way to convert file from one format to another inside a program developed by a third party.
  
- Problems
  - Synchronisation
    - Several ways to make the call

# Conclusion

- **Meant to be a collaborative project**

→ Sources available on SourceForge :