CompBioMed: A Centre of Excellence in Computational Biomedicine

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This project expects to receive funding from the European Union's Horizon 2020 research and innovation programme.

Partners

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Consortium

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- *The CoE constitutes a powerful consortium of partners and will actively train, disseminate and engage with these user communities across Europe and beyond.*
- *Because this field is new and growing rapidly, it offers numerous innovative opportunities.*
- *There are three SMEs and three enterprises within the project, as well as eight associate partners drawn from across the biomedical sector.*
- *We will engage closely with medical professionals through our partner hospitals in order to establish modeling and simulation as an integral part of clinical decision making.*

Our CoE is thus user- driven, integrated, multidisciplinary, and distributed; presenting a vision that is in line with the Work Programme.

Outline

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- *Will advance the role of computationally based modelling and simulation within biomedicine.*
- *Brings together academic, industrial and clinical researchers to build, develop and extend such capabilities in line with the increasing power of HPC.*
- *Three distinct exemplar research areas will be pursued: cardiovascular, molecularly-based and neuro-musculoskeletal medicine.*

CompBioMed already featured in Nature:
http://bit.ly/24jBf27

Key Objectives

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1. *Coalesce the burgeoning HPC user community within the biomedical research field.*
2. *Promote innovation in the field of computational biomedical modelling and simulation.*
3. *Train future generations of scientists within the field of computational biomedicine*
4. *Use best practice Software Carpentry tools and techniques to develop and sustain existing community codes.*
5. *Engage with a range of industries across the entire healthcare value chain.*
6. *Engage closely with medical professionals to promote the tools, techniques as well as access mechanisms developed within our Centre.*

Outline

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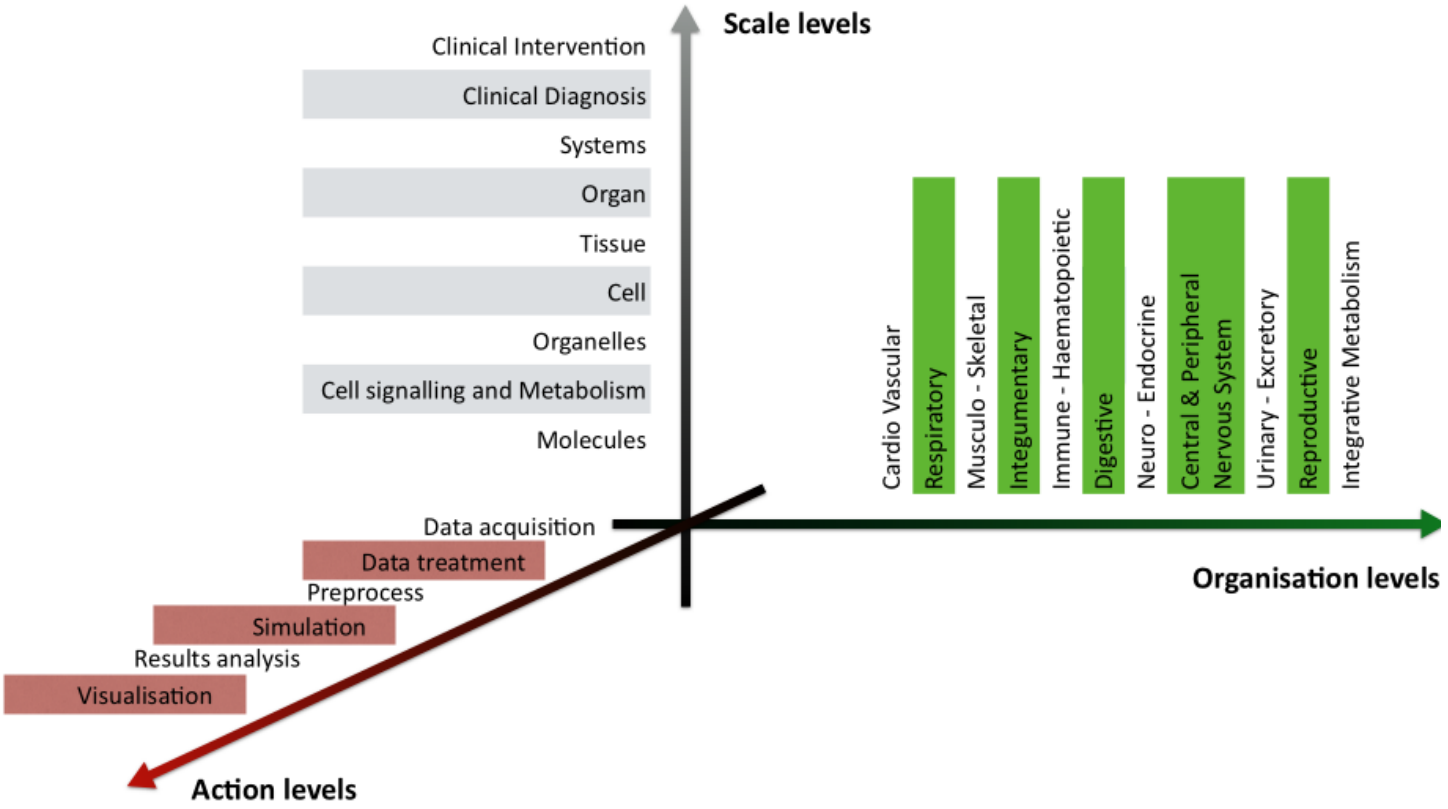
- *Predictive computational biomedicine involves applications that are comprised of multiple components, in automated workflows in which data is taken from an individual patient, processed, and combined to produce predicted health outcomes.*

- *Many of the models are multiscale, requiring the coupling of two or more high performance codes.*

- *Computational biomedicine holds out the prospect of predicting the effect of personalised medical treatments and interventions ahead of carrying them out.*

Multiscale Biomedical Modelling COMPBIOMED



The multiple hierarchical levels of modelling and simulation that arise in computational biomedicine.

Analytics Environment

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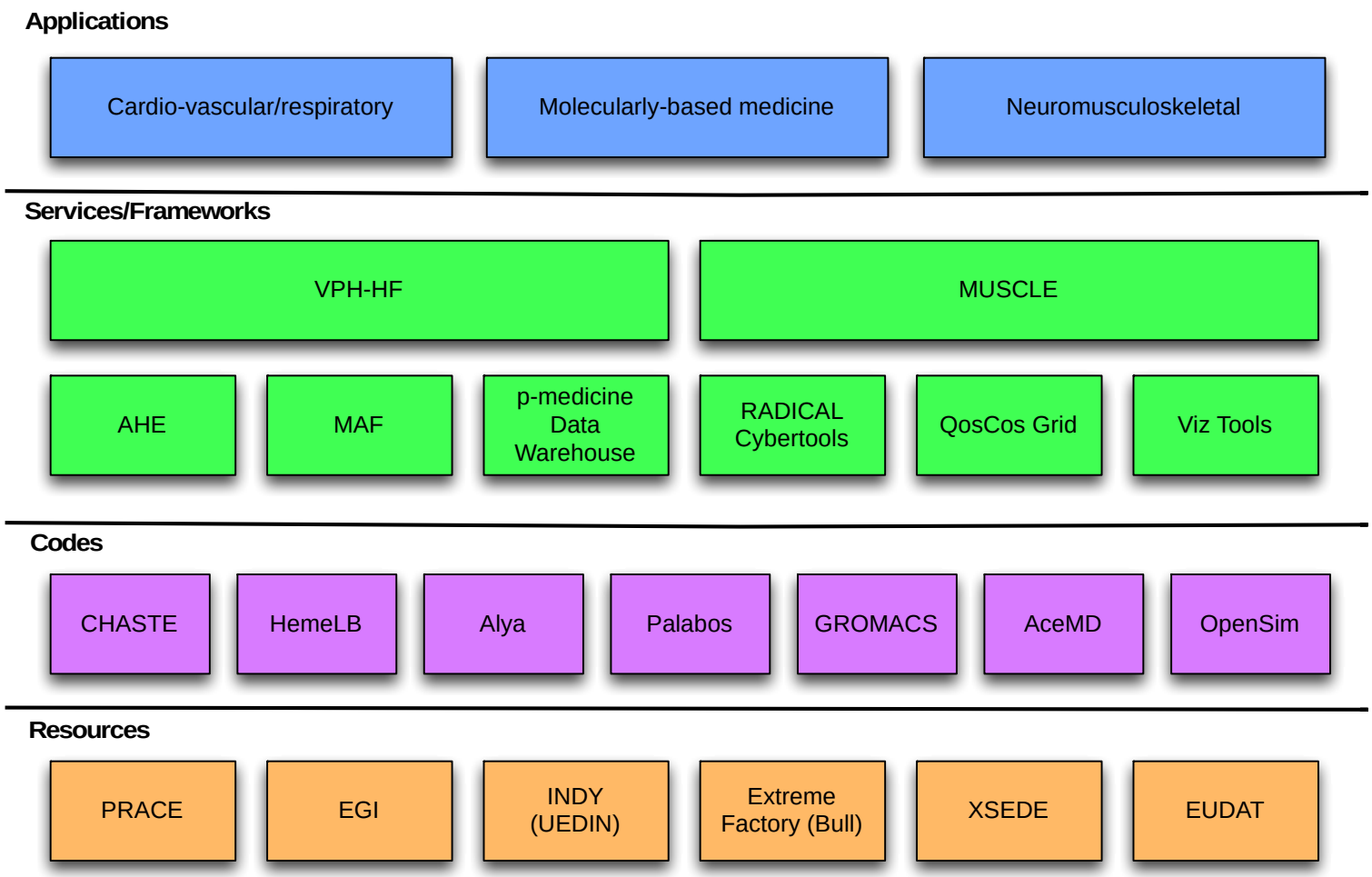

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