Chapter I
SHARE:
A European Healthgrid Roadmap

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ABSTRACT

The principal goal of this chapter is to elucidate the future requirements of healthgrids if they are to become the infrastructure of choice for biomedical research and healthcare. These requirements take many forms, technical, organizational and economic, with initiatives required in the domains of ethical and legal regulation. Thus, particular objectives of the chapter are to explore and analyse each of these domains to a sufficient depth to be able to make sense of the overall picture.
INTRODUCTION

Grid technology, one of the key technologies for the ‘European Research Area’, offers rapid computation, large scale data storage and flexible collaboration by harnessing together the power of large numbers of computers, from end-users’ desktops to powerful workstations and clusters of more powerful machines. The grid was devised for use in scientific fields, such as particle physics and bioinformatics, in which large volumes of data, or very rapid processing, or both, are necessary. The impact of this concept has already reached beyond eScience, to eBusiness, eGovernment and eHealth. However, a major challenge is to take the technology out of the laboratory to the citizen.

The concept of grids for health was born in Europe in 2002 and has been carried forward through the HealthGrid initiative. This European collaboration has edited a White Paper (Breton et al, 2005) setting out the concept and benefits of emerging grid technologies in different applications in healthcare.

The White Paper defines the concept of a healthgrid as follows:

HealthGrids are grid infrastructures comprising applications, services or middleware components that deal with the specific problems arising in the processing of biomedical data. Resources in healthgrids are databases, computing power, medical expertise and even medical devices.

The EU-funded SHARE project has identified some important challenges towards wide deployment and adoption of healthgrids in Europe. The project has devised a strategy to address the issues identified in the Action Plan for European e-Health and has devised roadmaps for technological developments, legal and ethical initiatives and socio-economic investments needed for successful uptake of healthgrids in the next ten years.

The SHARE roadmaps express certain measurable goals and objectives for the HealthGrid community, provide an analysis of the technical gaps to be bridged in order to achieve a number of staged technical objectives, explore the ethical, legal, social and economic (ELSE) conditions of such developments, analysing the extent to which technology and its environment will need to be reconciled, and articulate a strategy for the concurrent achievement of these goals and objectives subject to realistic contextual conditions.