STATUTES

CS-DC Preamble

The Complex Systems Digital Campus (CS-DC) is recognised by UNESCO as a UniTwin within its Cooperation Programme. It is an international network of scientists working together to share resources in Complex Systems teaching and research. The members of the CS-DC include universities, other organisations, and individuals. This large-scale collaborative work will embody social intelligent strategies towards new scientific and educational practices, dealing with the difficult societal and environmental challenges of an increasingly interconnected world.

The new science of complex systems will be at the heart of the future of the Worldwide Knowledge Society. It is providing radical new ways of understanding the physical, biological, ecological, and techno-social universe. Complex Systems are open, value-laden multi-level multi-component reconfigurable systems of systems, situated in turbulent, unstable, and changing environments. They evolve, adapt and transform through internal and external dynamic interactions. They are the source of very difficult scientific challenges for observing, understanding, reconstructing and predicting their multi-scale dynamics. The challenges posed by the multi-scale modelling of both natural and artificial adaptive complex systems can only be met with radically new collective strategies for research and teaching.

Complex systems science bridges the gap between the individual and the collective: from genes to organisms to ecosystems, from atoms to materials to products, from digital media to the Internet, from citizens to society. It cuts across all disciplines. It enables new and shorter paths between scientists and integrates the flow of scientific knowledge. It reduces the gap between pure and applied science, establishing new foundations for the design, control and management of systems with unprecedented levels of complexity, which exceed the capacity of current approaches. It will benefit the environment and industry, the health and education sector and all public and social actors. Understanding complex systems will be the basis of *worldwide wealth and socio-economic wellbeing* in the 21st century.

The *Complex Systems Digital Campus* federates research and education organisations worldwide to deal with the challenges of complex systems science. It coordinates an evolving social network to identify the scientific challenges through living complex systems roadmaps and facilitate sharing research and educative resources to overcoming them. The Digital Campus is be structured through interdisciplinary education and research e-departments, each federating the e-laboratories of a roadmap chapter. Each interdisciplinary education and research e-laboratory federates the e-community addressing the challenge of each chapter. The Digital Campus will strongly contribute to an Open Science by involving citizens with their sensing, computing and thinking resources towards ubiquitous observing, learning and computing. The CS-DC will design the best possible integrated knowledge and integrated models that will be used by societal actors to ground their strategies for the best possible environmental and societal impact.

Environmental, societal, technical and economic benefits stem from complex systems engineering. These benefits come from predictive, adaptive and robust integrated models that allow us to live with and protect the complex systems within and around us. The most noteworthy results will be improved understanding of complex systems,

increasingly personalized health and education, the prevention of, and resilience to epidemics and more generally, extreme events. Reducing uncertainty regarding the impact of our actions on complex systems will lead to a transformation in the relationship between science and society, engineering, economics, politics and ethics.

AGREEMENT

BETWEEN

THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

AND

THE NETWORK "COMPLEX SYSTEMS DIGITAL CAMPUS"

CONCERNING THE ESTABLISHMENT OF A UNITWIN COOPERATION PROGRAMME

The United Nations Educational, Scientific and Cultural Organization (hereinafter referred to as "UNESCO"), 7 Place de Fontenoy, 75352 Paris, France, represented by its Director-General, Ms Irina Bokova,

and

The International Network for **"Complex Systems Digital Campus"** (hereinafter referred to as "the Network"), represented by:

Le Havre University (25 rue Philippe Lebon, 76063 Le Havre Cedex, France), represented by its President, Monsieur Pascal Reghem, and

Strasbourg University (4 rue Blaise Pascal, CS 90032, 67081 Strasbourg Cedex, France), represented by its President, Monsieur Alain Beretz,

Considering that one of the essential factors favouring development in UNESCO's fields of competence is the exchange of experience and knowledge between universities and other higher education institutions;

Convinced that joint work by university teachers, researchers and administrators from different regions all over the world will provide important benefits for the entire academic community;

Bearing in mind UNESCO's mission and objectives as set forth in its Constitution, and its role in promoting international inter-university cooperation;

Taking into account the experience of UNESCO Chairs Programme as a stimulus for academic mobility and the rapid transfer of knowledge through twinning, networking and other linking arrangements;

Have agreed as follows:

Article I Purpose

UNESCO and the Network will create a Cooperation Programme in complex systems science and engineering (hereinafter referred to as "the Cooperation Programme") in the framework of UNESCO's UNITWIN Programme.

Article II Main objectives

The main objectives of this Cooperation Programme are to:

- promote an integrated system of research, education and training, information and documentation in the domain of the science and engineering of complex systems,
- contribute to the aims of global development by taking into account its social, economic and cultural dimensions and to this end, make the science and engineering of complex systems accessible to all, in order to get the relations between science, engineering, politics and ethics to evolve towards a sustainable development,
- contribute to a research and education of the highest quality in the domain of the science of complex systems,
- promote the development of integrated knowledge and integrated models of complex systens in order to bridge the gap between science and engineering,
- promote a lifelong personalised education for all in the science of complex systems as well as in integrative and predictive sciences — including the integrative and predictive science of personalised education for all — at all levels,
- contribute to an education and training in citizen cyber-science, open to all, independently of previously achieved academic levels, respectful of the diversity of social and cultural environments, genders, religions or ways of life.

In order to achieve these objectives, the object of the current agreement is to:

- launch a Complex Systems Digital Campus as a social intelligent ICT system in order to federate all resources and efforts on education, research and the applications of the science of complex systems,
- launch the CS-DC roadmap at all scales in order to identify the scientific, educational and societal challenges of CS-DC with its cloud-based computational ecosystem and educational ecosystem,
- launch the scientific cloud-based computational ecosystem of the CS-DC in order to construct complex systems of societal impact, by sharing partial multi-level models as well as software platforms and e-infrastructures of all kinds,
- launch the educational ecosystem of the CS-DC in order to construct a map of integrated knowledge, with the aim of creating and adapting educational contents as well as to develop a lifelong personalised education on complex systems.