

METROPOLIS | D_CITY
A NEW GLOBAL ALLIANCE

DECLARATION OF RESEARCH PRIORITIES TOWARDS SMART SOLUTIONS FOR ECO CITIES

Approved by
The World Association of Major Metropolises [Metropolis]
within United Cities and Local Governments
at its 'Connecting Cities' Congress Sydney 2008

**Now offered to these global networks
for endorsement and/or collaborations**

Alliance for Climate Protection

Buckminster Fuller Institute

Global Business Network

Global Property Institute

Global Spatial Data Infrastructure Association

IEEE

International Federation of Surveyors [Spatial Information Management]

International Society for a Digital Earth

International Union of Architects (UIA)

United Nations [Global ICT Alliance, Environment and Habitat Programs]

World Association of Young Scientists

World Business Council for Sustainable Development

World Council of Renewable Energy

World Federation of Engineering Organizations

World Green Building Council

World Science

CONTEXT | CLEANING THE COSMOS

With an economic system based on burning fossil fuels, humans have soiled the air and water on which we depend for life. We must clean up our environment – and the next generation of spatial data systems can help us understand and manage our planet more effectively. Researchers around the world – both academic and commercial – are asked to collaborate to accelerate solutions to our climate change crisis.

What is Metropolis?

Founded in France and Spain in 1984, it is a United Nations-backed global network of governments of major cities (more than one million people). Metropolis aims to solve the challenges of climate change, including the advancement of digital systems to help manage cities.
Further information: metropolis.org

What is D_City?

Founded in Australia in 2007, it is an emerging multinational communications agency to support the global network of researchers accelerating applications of spatial information technologies to help monitor and manage cities.
Further information: dcityresearch.net

Shared Vision

Connections to evolve smart solutions for urban life.

Shared Identity

Metropolis | D_City could develop a virtual network where the world's thinkers (researchers and artists) and doers (managers, planners and builders) communicate and collaborate on better systems to create and manage eco-cities.

What is an Eco City?

Eco abbreviates the words ecology and economy, Like a city, they are complex systems of constantly fluid and inter-connected behaviours. Computers are necessary to understand and manage these behaviours efficiently. Efficient digital management is the key to minimising wasted resources and maximising efficient use of resources.

COMPATIBLE GOALS

Metropolis Goals: Innovation and Governance

Innovation will be more important than governance in facing metropolitan challenges. Improving existing services no longer will be enough. There are new services and new problems. Old and new problems must be tackled with innovative ideas.

Both governance and innovation require a close collaboration among the different government layers and an increasing public-private partnership.

—From the Metropolis Draft Action Plan 2008-2011

D_City Goal: Communicating Research

D_City is a communications system to spread knowledge among the world's key researchers and government, industry and academic supporters.

It will curate and regularly update a Data Cities Movie Collection showcasing cutting edge research outcomes and digital systems for regular dissemination to members and supporters of the network.

With Metropolis, it will invite a Global Research Leaders Group to annually update the Metropolis | D_City Declaration of Research Priorities that can help guide researchers and supporters.

Like the Metropolis cities network, D_City aims to support regional strengths through offices in strategic cities. Small teams will manage the connections, potentials, education and online promotions of their regional supporters and partners.

D_CITY'S FIVE RESEARCH THEMES

To help accelerate a new digital operating model for managing what Buckminster Fuller called 'Spaceship Earth', D_City will encourage and communicate research collaborations and knowledge integrations across five key research themes:

Natural Systems Modelling (NSM)

Gathering and incorporating terrestrial, meteorological, oceanographic and other environmental data and modelling systems (already advanced) into the first strategic planning processes of designing large urban developments. In principle, this should automatically lead to more eco-sensitive master plans.

Building Information Modelling (BIM)

Improving products and systems for 'virtually prototyping' and optimizing proposals for complex buildings, structures and environments.

City Information Modelling (CIM)

Creating virtual models of cities and improving digital systems of planning and monitoring movements of people, traffic, water and other dynamic flows within urban environments.

City Information Networking (CIN)

Exchanging increasingly sophisticated data between cities to track and compare their performances on different criteria.

Planetary Systems Modelling (PSM)

Gradually developing a dynamic, multi-dimensional, data-based, integrated, real-time virtual model, recording and predicting evolutionary behaviours around planet Earth and monitoring its relationships to the universe.

OPPORTUNITIES FOR RESEARCH

Gaps For Cities

Territorial gaps

The inequality between urban and rural areas, and the centres and peripheries in metropolitan regions.

Economic gaps

There is a global economic gap of inequality between cities in developed and developing countries, and within metropolitan regions.

Social and quality-of-life gaps

Social gaps, at the global level and in each city, refer to inequalities in education, health, housing, gender and age.

Environmental gaps

The pressure of the climate change problem should not make us forget the validity of the city environmental sustainability agenda with regards issues that were previously considered critical: water, solid waste, pollution, energy use, etc.

Cultural gaps

Questions of cultural identity and diversity emerge with force in metropolitan discussions.

—From the Metropolis Draft Action Plan 2008-2011

Knowledge Gaps

The inequality of access to knowledge, both skills and information needed to solve urban issues,

—From the International Federation of Surveyors (FIG: Commission 3)

Challenges For Cities

Traffic

The main infrastructure problem. More action is needed to manage demand and congestion.

Energy

More focus on renewable energy sources and less on electricity. Air pollution is the major environmental problem.

Water

More attention towards water and waste water challenges.

Health

Increased spending and better management of health care.

Safety and Security

Organised crime is a bigger threat than terrorism.

Unemployment

The top economic challenge.

Social Wellbeing

Improve living conditions, health, jobs and opportunities for the poor.

—From MegaCity Challenges: A stakeholder perspective, Globescan and MRC McLean Hazel for Siemens, 2007 (survey of stakeholders and influencers in 25 megacities).

Planning and Development

Improve whole of city spatial planning processes to achieve balances between development and conservation needs. Improve citizen engagement in planning processes. Improve capacity to implement and enforce plans. Most cities face natural hazards, from earthquakes to sea level rises and need the ability to plan, prepare, respond and recover from disasters.

—From the International Federation of Surveyors (FIG: Commission 3)

Investment Priorities for City Stakeholders

Transport 86%

Environmental protection 77%

Education 77%

Health care system 74%

Public safety and security 71%

Waste management 71%

Water 70%

Public housing and civic buildings 69%

Energy supply 67%

Social services 66%

—Views of stakeholders in 25 megacities, ranked by percentages of city stakeholders expressing the problem, from Megacity Challenges, Globescan and MRC McLean Hazel for Siemens, 2007.

TASKS

Metropolis and D_City agree to collaborate, together and with other global organisations invited to endorse this agreement, to help set up a system to support relevant researchers internationally in these ways:

Metropolis Governments

Exchange Information on Innovation and Governance

With its Action Plan 2008-2011, Metropolis will expand and strengthen its network of cities and their governments' capacities for innovation, effective and beneficial governance and measurement and comparison systems for performance.

D_City Communications and Supporters

Offer An Online Research Co-ordination System

Develop a self-funding online media business to enlarge and improve services to the public, partners and members of the research community.

Catalyse Opportunities for Partnerships

Develop opportunities for global corporations to sponsor annual awards bestowed by a Metropolis-approved Global Research Leaders Group and to partner with researchers pursuing d_city's directions. Regional offices will support the Metropolis | d_city research alliance as well as their own communities of researchers, industry and government partners.

Communicate Achievements

The Global Research Leaders Group will annually issue a Recent Achievements and Future Directions statement to the Metropolis | D_City Research Alliance. This will highlight important research contributions and outcomes.

Metropolis | d_city Alliance and Supporters

Develop a System to Market Approved Software

The alliance will identify significant proofs of concept with potential to be marketed to urban development and government customers and will develop a system with major investors to offer a pathway to commercial success for concepts approved by the Global Research Leaders Group.

Demonstrate City Information Modelling

As the CIM research and technologies advance, Metropolis members will be offered regular demonstrations of the latest advantages of integrated models.

Demonstrate City Information Networking

As the CIN research and technologies advance, Metropolis members will be offered regular demonstrations of the advantages of globally connecting city models so they can exchange information on different performance measures and behaviour patterns.

Researchers and Supporters

Survey Existing Research

Collaborate with all relevant organisations on a general survey of existing research in fields relevant to d_city's five research themes. Also survey all existing software in the eco cities and environmental modelling domains. This is an essential preliminary to network all the key people, form global

teams and avoid duplication. The survey will need to be regularly updated to accurately inform the network and its Global Research Leaders Group.

Establish Data Exchange Protocols

Collaborate with the Global Spatial Data Infrastructure Association and other relevant global networks to agree on a set of data exchange protocols for the various modelling systems to work together. This task is urgent to prevent wasteful and expensive proliferation of softwares which cannot work together.

Agree the Basic System to Create a Dynamic Virtual Planet

Collaborate with relevant research leaders and organisations to write a specification for the gaming system which could form the basis of research towards a dynamic model of the planet.

HOW WILL THE METROPOLIS | D_CITY RESEARCH ALLIANCE WORK?

Selection of Global Research Leaders

Organisations which endorse the alliance and its Declaration of Research Priorities Towards Smart Solutions for Eco Cities will be invited to nominate their preferred members of a multi-disciplinary Global Research Leaders Group that would annually update the Declaration.

The GRLG will comprise 15 eminent research leaders – three for each of D_City's five research themes. They are natural systems modelling (NSM), building information modelling (BIM), city information modelling (CIM), city information networking (CIN) and planetary systems modelling (PSM).

Members of the GRLG will be decided by the Board of Metropolis, beginning with its meeting in Moscow in May 2009. Members will be appointed for three years – renewable if there is enough continuing support from the endorsing organisations and if approved by the Metropolis Board.

How Would the Global Research Leaders Group Work?

Members of the GRLG will be asked to meet (physically and/or virtually) alongside the Metropolis annual Board meetings and triennial Congresses in different cities. This will encourage valuable discussions between government and research leaders about problems and solutions for cities.

As well as updating the Declaration of Research Priorities, members of the GRLG will honour substantial research accomplishments, approve applicants for recognition as Academic Associates [in the Metropolis | D_City alliance towards smart solutions for eco cities], and make its views known in other appropriate ways.

How Would Academic Associates Work?

After acceptance by the GRLG, Academic Associates would represent an approved pool of multi-disciplinary talents with potentials to thought-lead, organise, peer-review and propose ways to deliver innovations contributing to the GRLG's latest Declaration of Research Priorities.

Becoming an Academic Associate with the Metropolis | D_City Alliance would be a sought-after level of global stature beyond the current national and institutional limits of the university research system. This level of stature also would give confidence to global corporations considering investments in research projects that might be led by or include Academic Associates.

Academic Associates will be appointed on the basis of their recent research performances – offering a new international method for bestowing academic stature across a variety of disciplines which are beginning new conversations about future cities.

Criteria for acceptance as an Academic Associate will be decided by the Global Research Leaders Group at its first meeting after the Metropolis Board's approval of members in May 2009.

