



Decision Making for Critical Linkages among Infrastructure Networks

University of British Columbia – Infrastructures Interdependencies Simulation (I2Sim) Team



Who we are

- Inter-disciplinary team involving researchers from Electrical, Civil, the Sauder School of Business, Health Sciences, Geography and Computer Science

Our Mandate

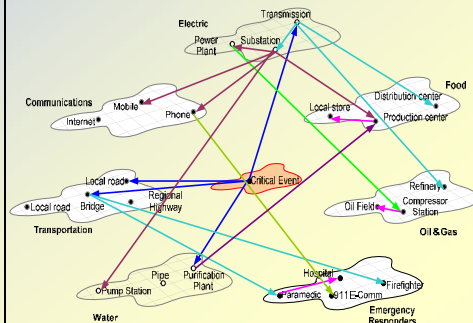
- Develop an interdisciplinary model to simulate the extensive human and multi-infrastructure interdependencies that need to be coordinated to cope with large disaster scenarios in order to maximize the survivability of Canadians

Our Sponsors



I2Sim Applications

- EOC Personnel Training
- Simulation Based Learning
- Policy Analysis
- On-Line decision Making Analysis
- Infrastructure Planning



I2Sim Studies Capabilities

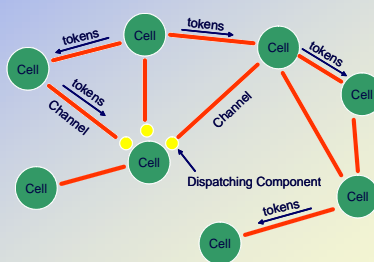
- Assessment of Human-Physical Interdependencies
- Identification of Critical Links
- Dynamic Identification of Islanding Schemes

Advantages of I2Sim

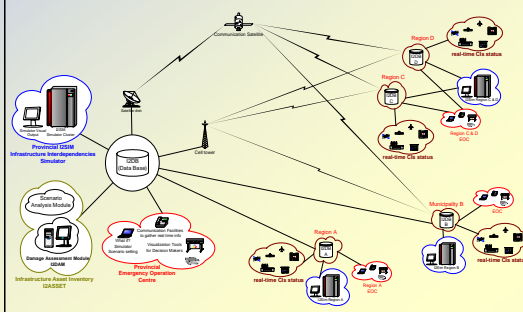
- Integrate Multiple Ontologies
- Highly Scalable
- Holistic Analysis of System Performance

I2Sim Ontology Components

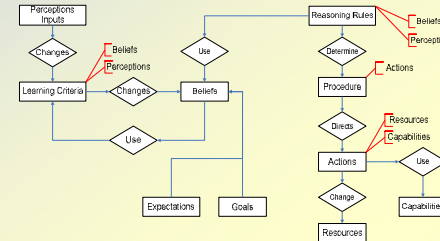
- Cell
- Token
- Channel
- Dispatching Component
- Nodes



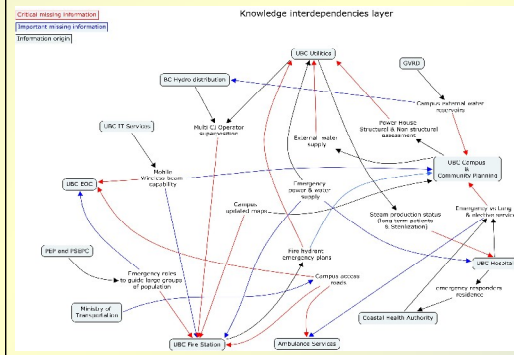
I2Sim Scalability



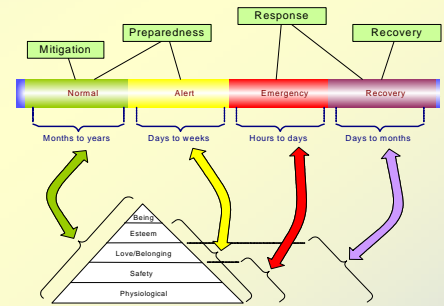
Policy Coordination Simulation



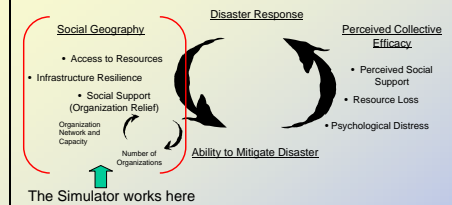
Knowledge Interdependencies Analysis



Dynamic Assessment of Human Needs



Vulnerable Populations Loop

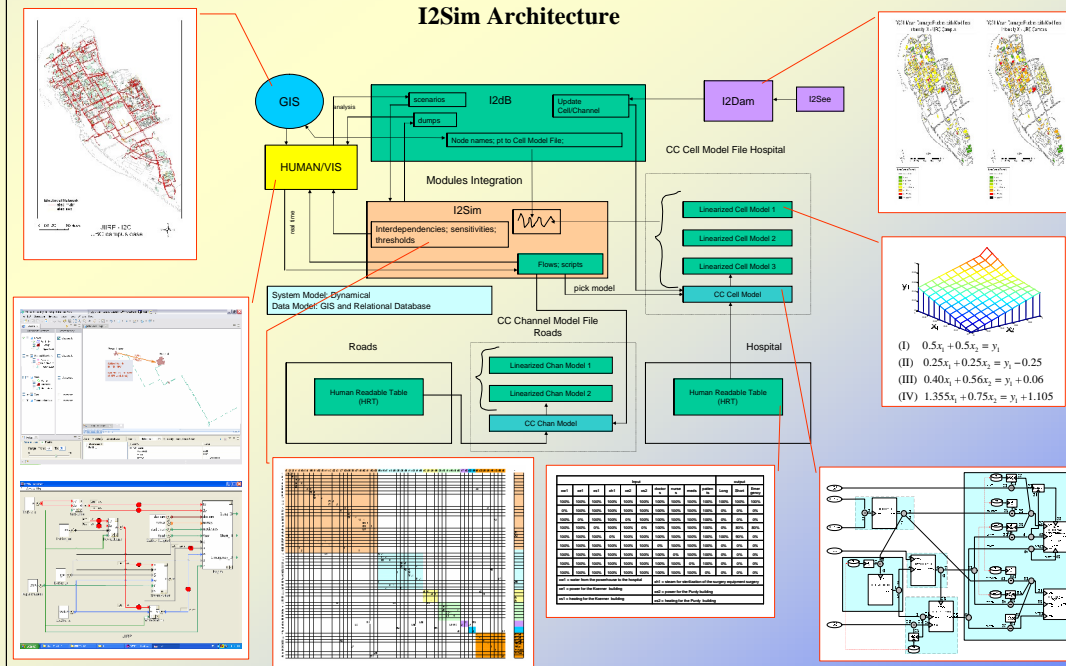


Panic & Affiliation: A Social Attachment Model

- Classic conception: Panic = perceived imminent danger + limited escape options
- Newer conception: location of attachment figures more important than escape options

	Affiliation Present	Affiliation Absent
Threat Low	Increased attachment	Low intensity avoidance of threat
Threat High	Increased attachment Closely flight/evacuation Occasional panic	Mass panic — toward the familiar, not always away from danger

I2Sim Architecture



I2Sim Team

Electrical and Computer Engineering

Dr. J. R. Mant (Project Leader)
 Dr. K. Beznosov
 Dr. J. Jatskevich
 Dr. P. Kruchten
 Dr. K.D. Srivastava
 Dr. M. Armstrong
 Dr. J. Holtman (Project Manager)
 M. DeTao
 Q. Han
 L. Liu
 H. Rahman
 N. Ozog
 M. Scoteodeh

Civil Engineering

Dr. C. Ventura
 H. Juarez
 K. Thibert

Computer Science

Dr. K. Booth
 Dr. R. Pottinger
 Dr. R. Rosenberg
 J. Xu

Geography

Dr. B. Klinkenberg
 A. Cervantes

Sauder School of Business

Dr. C. Woo
 K. Monu

Simon Fraser University

Dr. L. Barram
 C. Jiang

Clinical Psychology

Dr. G. Poole
 A. Clarkson

For further information contact info@i2sim.ca

Visit our website: <http://www.i2sim.ca>

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