

United Nations Economic and Social Commission for Western Asia (ESCWA)

Round Table on Building the Information Society in Western Asia ICT as an Enabler for Economic Development Beirut, 29-30 April 2004, UN-House, Beirut-Lebanon

Evolving from "e" to "see" by Spatially Enabling the E-

Jacques Ekmekji Thursday April 29, 2004

SEQUENCE of PRESENTATION

- Introduction
- The Inspiration
- "see"ing

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- Eye-Brain Pathway
- Semantic Web
- Intelligent Visualization
- Spatial and Visual Technologies
- Conclusion

INTRODUCTION

- The Electronic World
- The Greater Reality
- Background

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• http://www.geoconnexion.com/magazine/article.asp?ID=757

The Inspiration

Language is the dress of thought (Samuel Johnson 1797)

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- Iterview with (5) prominent thinkers in HBR'97.
 - "The way we talk colors the way we think, and the way we think shapes the way we act. We are the unconscious prisoners of our language" (Charles Handy 1997)
 - Information breeds yet more information and the temptation, as simulation and other sensemaking tools become more sophisticated, will be to substitute them for human judgment. That would be a mistake." (Paul Saffo)

The Inspiration

• Leadership in the future will be distributed (Peter M. Senge)

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 Today's knowledge is tomorrow's ignorance and the knowledge that matters is subject to abrupt change. (Peter F. Drucker) and

• Through the www, the world can easily see organizations for what they are, not what they pretend to be." (Esther Dyson)

The Inspiration

- BUT CAN WE REALLY "see" as Ms Dyson concludes? The answer is YES but
 - Only if we Spatially Enable the E- to "see" and weave visualization in cyberspace;
 - And if we

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• Digitally Emulate the Eye-Brain pathway. then the "see" will be realized in the Semantic Web.

"see"ing

Simulating the Eye-Brain pathway

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FROM FRONT OF THE EYE TO BACK OF THE BRAIN



A REPORT F R O M T HE H O WA R D H U G H E S M E D I C A L I N S T I T U T E

"see"ing

• Simulating the Eye-Brain pathway

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National Geographic, The incredible human body



"see"ing

- Simulating the Eye-Brain pathway is now possible with the new generation of web technology based on:
 - The Semantic Web
 - XHTML built atop the HTML
 - GIS and ICT

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• Resulting in intelligent Visualization

Semantic Web Core technology Standards

- Universal Resource Identifier (URI)
- eXtensible Markup Language (XML)
- Resource Description Framework (RDF)
- Ontology

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Software agents

Intelligent Visualization Microcosm

Geographic Information System (GIS) Spatial Technology Visual Language



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Means "see"ing the whole

Intelligent Visualization Mesocosm

Geographic Information System (GIS) Visual Language

> Social Factors Bio-diversity Engineering

Land Use

Environmental Considerations

Means "see"ing the whole

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Intelligent Visualization Macrocosm



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Scientific Visualization

• Focus is on numerical data

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relationship between variables well understood

Information Visualization

- it is about accelerating time to insight,
- sharing information discovery within organizations,
- Time-to-insight' refers to the speed at which decision makers are able to analyze massive and complex data sets to gain in-depth understanding and then be able to share the analysis and discovery with others.
- The "see" seeking Mantra

 City Planners to see their cities digitally long before they are physically developed;

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- Medical Doctors to see beyond an epidemic to divulge trends and patterns;
- Environmentalists to see the results of their policies;
- Engineers to see the effect of a simulated outage;
- Bankers to see the situations and forecasts of their future business activities and the true color of their businesses;
- Investors to see trends and patterns in stock-market trades;
- with GPS-based navigators, Drivers to see far beyond the windshields of their cars;
- Meteorologists to see inside a 3D model of a storm cloud;and
- Scientists to see the effect of atomic, cosmic and common three-dimensional phenomena.

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seeNET3 (IEEE).

Now Shooting



A partially translucent arc map showing the WWW traffic.



Let me see demographic information by postal code using color fill, and let me see sales by state using stacked bar charts (SAP-ArcGIS)





Search Results info. tinfip. ledg. info: info. leafer) ĥ PHOTO inde. info. into. letin. letin. Relevance Feedback **Refine Search Results**

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CNN announcement of April 16, 2004 on the 3D search engine and W3C announcement on April 24, 2004 of the two key technologies for the Semantic Web, on the revised Resource **Description Framework** (RDF) and the Web Ontology Language (OWL) come timely.



Spatial & Visual Technologies

GIS-based Applications

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 zooming, filtering, detailing-on-demand, relating, dynamic querying, spatial analysis, buffering, allocation, address matching, overlays, intersection, tracing, dynamic segmentation, pathfinding, locating, and others

Visualization techniques

• viewsheding, visibility, hillshading, suitability location, least cost travel, obstacle to travel, cost surface, shading and transparency, slope, aspects, steepness, level of illumination, line of sight on a surface and many more



Future Projects Photo Gallery



Spatial & Visual Technologies



Spatial & Visual Technologies

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