

From Terrestrial to Airborne, from Pixel to InfoCloud – Towards a Real 3D World

MundoGeo Connect

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„The world is moving so fast these days that the man who says it can't be done is generally interrupted by someone doing it.“

Elbert Hubbard



A changing world



Changes by mother nature



Changes by mother nature



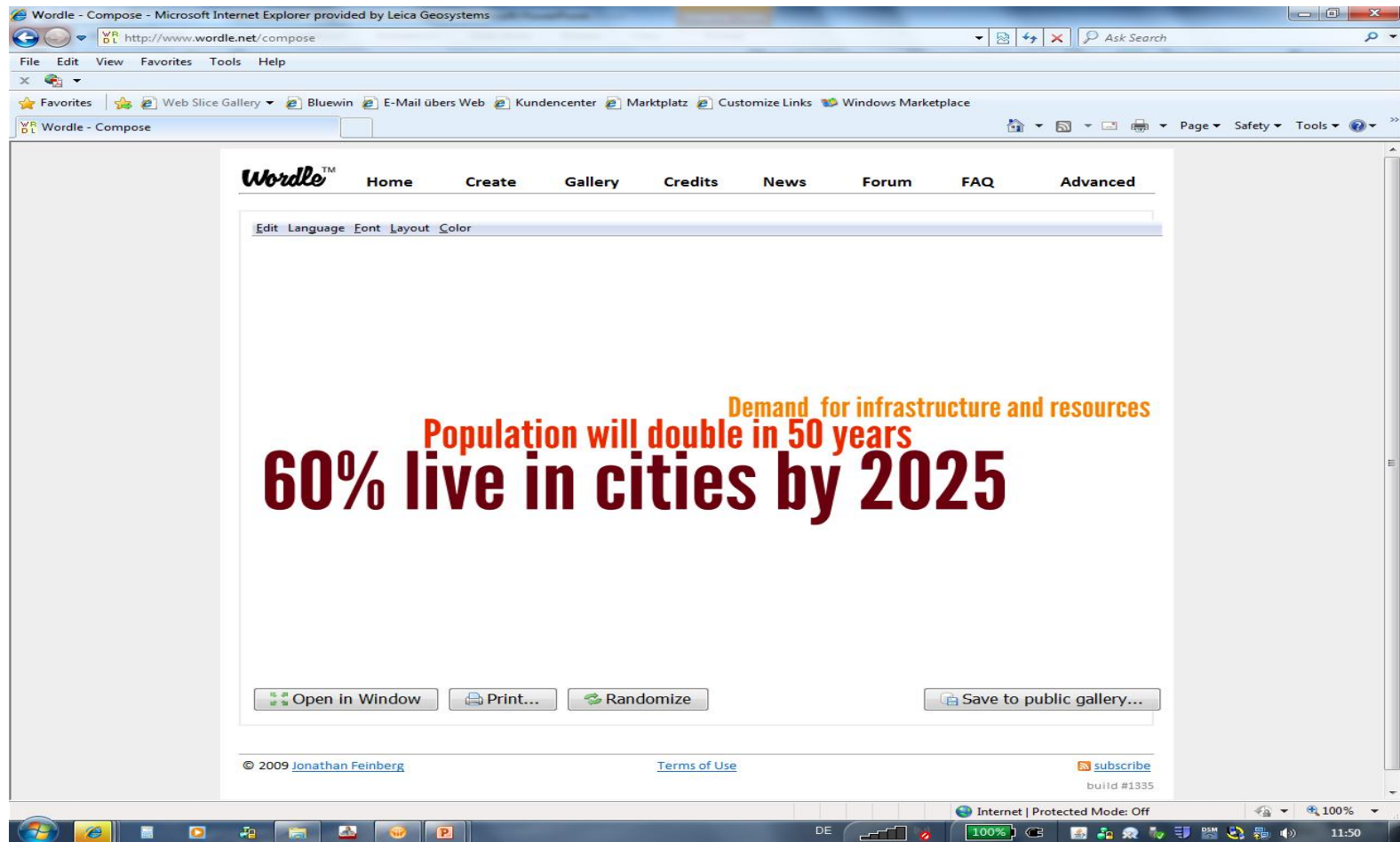
Changes by mankind

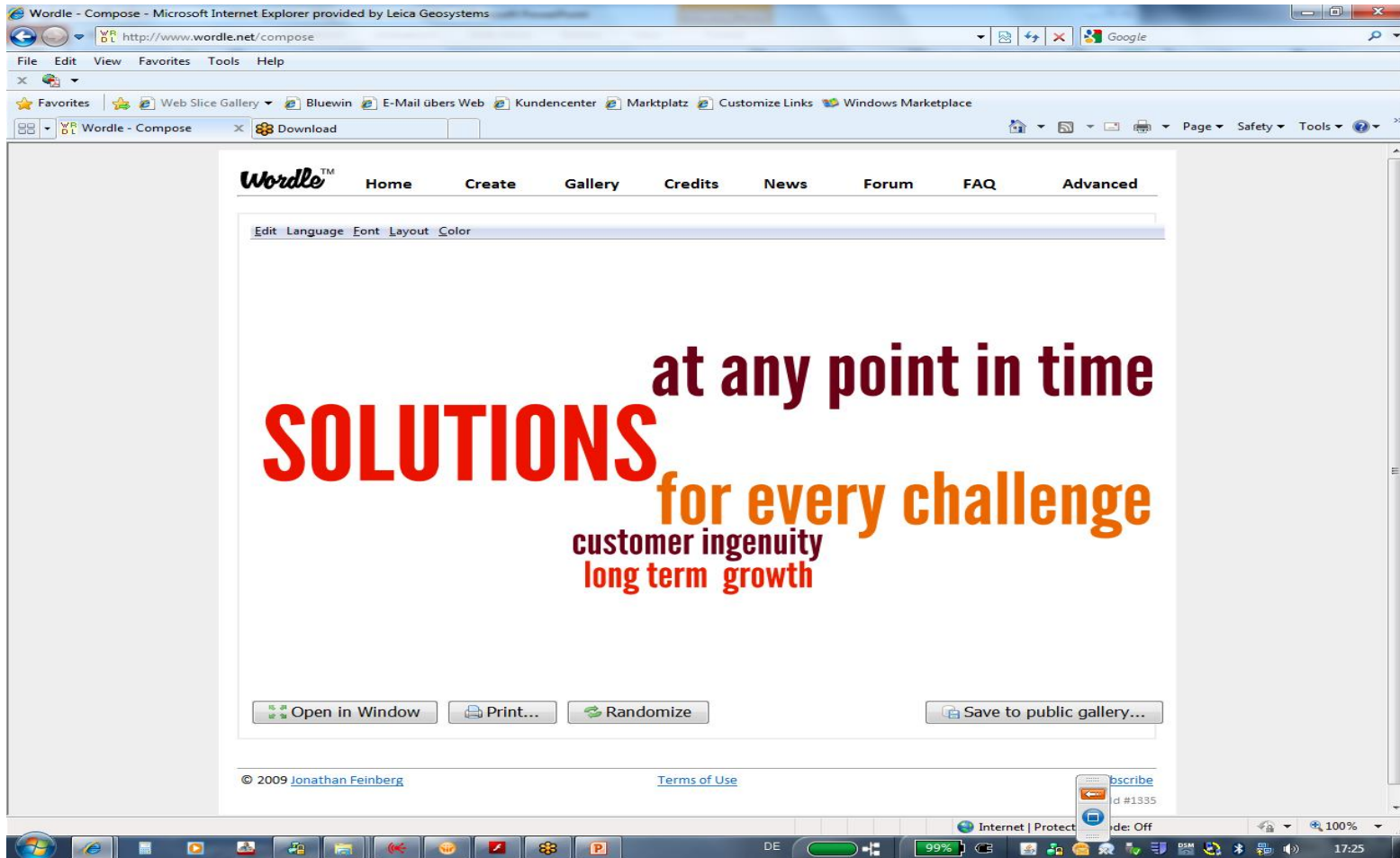


Changes by mankind



Here is a trend for you.....





Bringing Precision and Efficiency to Infrastructure



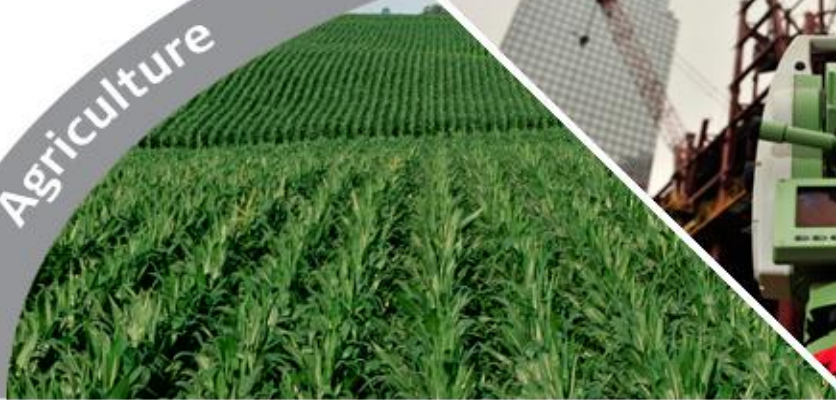
Bringing Automation to Operations



Surveying & Engineering

Building & Construction

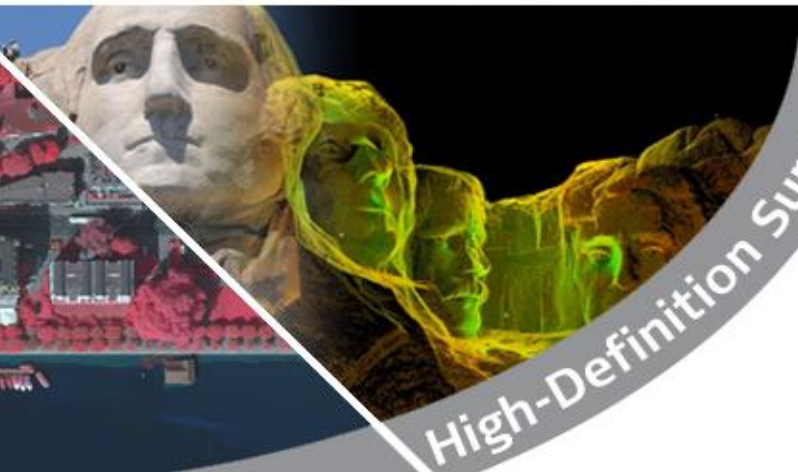
Agriculture



Mining



Digital Imaging



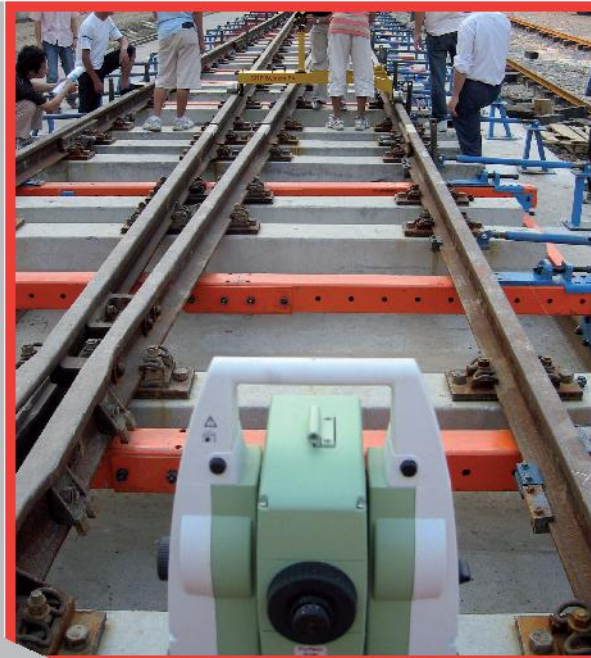
High-Definition Surveying

Increased Mobility – Driving Efficiency



Challenge

Efficiently moving people with minimum resources



Solution

More precise layout of rails allows for optimization of train speed and fuel efficiency



Result

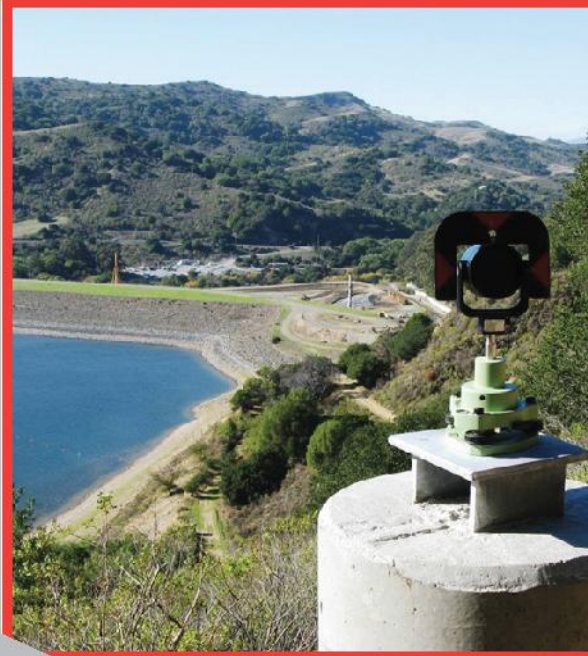
New high-speed railways are easing urban traffic congestion

Extending Life of Critical Infrastructure



Challenge

Updating aging infrastructure of 90 year old dam



Solution

Advanced real-time robotic total station monitoring system



Result

Successful rehabilitation of aging infrastructure ensures steady water supply

Urban Development – Construction Monitoring



Challenge

Cities need to grow vertically to address increase populations



Solution

Integrated geospatial sensors address needs for **tighter real-time construction** processes



Result

The Burj Khalifa, world's tallest man-made structure, built precisely according to design

Lower Cost Construction



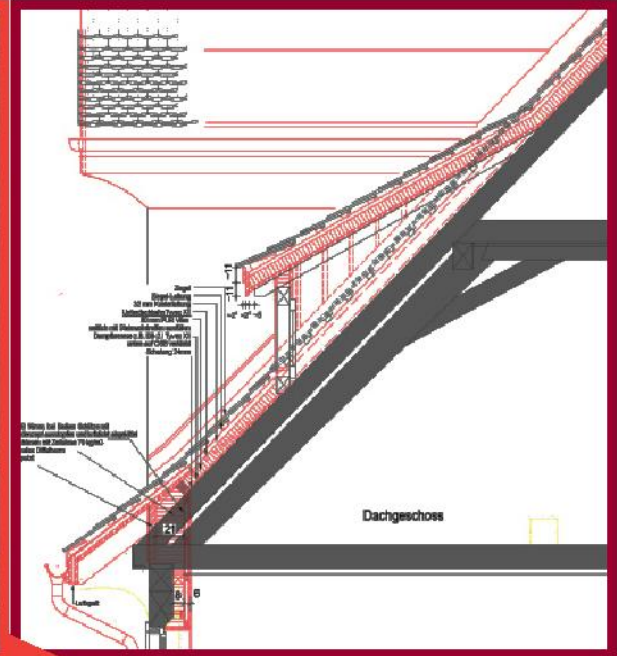
Challenge

Renovation projects require accurate “as built” documentation to maximize efficiency



Solution

Leica 3D Disto enables tradesmen to **accurately measure, set-out and document in 3D**



Result

Detailed CAD models created from 3D Disto data reduce cost, accelerate schedule and optimize the finished product

Manage & Protect Natural Resources



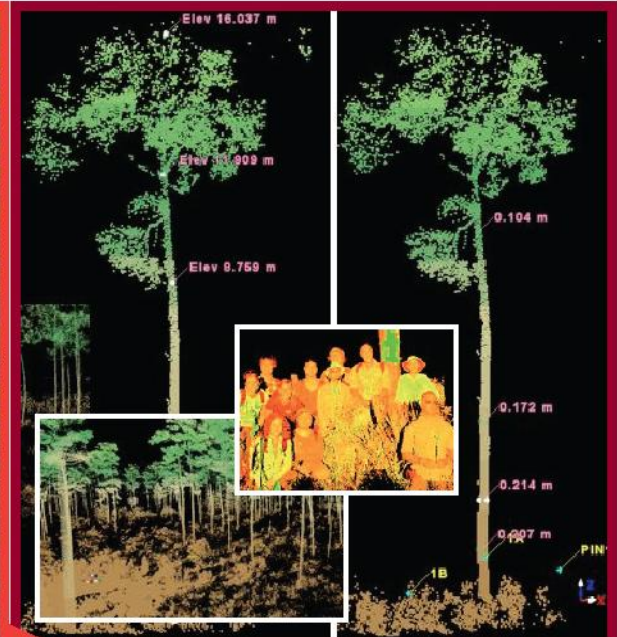
Challenge

Ecosystems under pressure from expanding populations and higher demands on natural resources



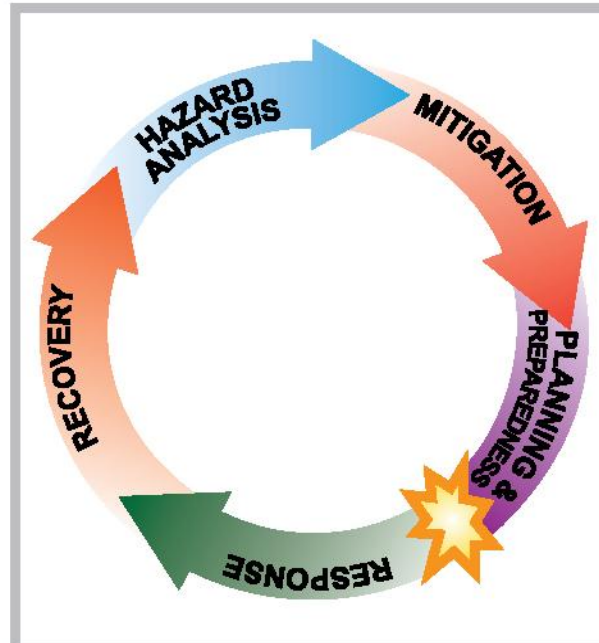
Solution

Imagery and scanning provides basis to measure changing FL, Everglades Biomass



Result

Continuous monitoring of Everglades health to make more informed decisions



Challenge

Security preplanning and crime scene investigation requires accurate 3D information



Solution

High Definition Surveying sensors produce point clouds which document the scene in 3D



Result

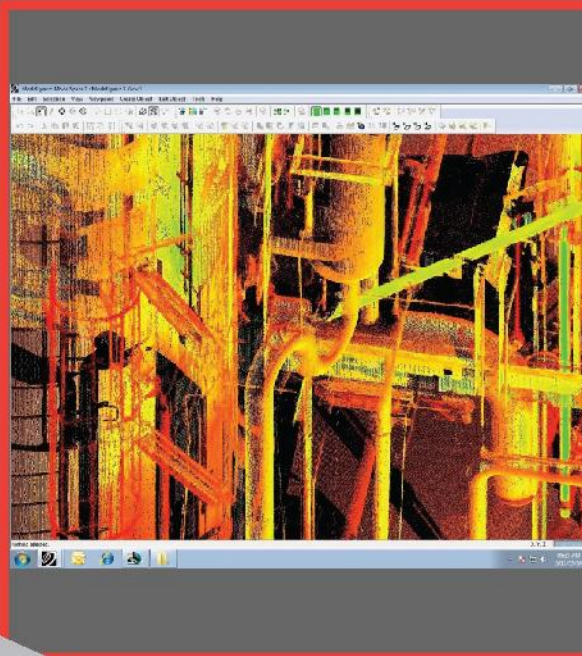
Improved ability to prepare, prevent, respond to, recover and prosecute perpetrators

Improving Viability of Alternative Fuels



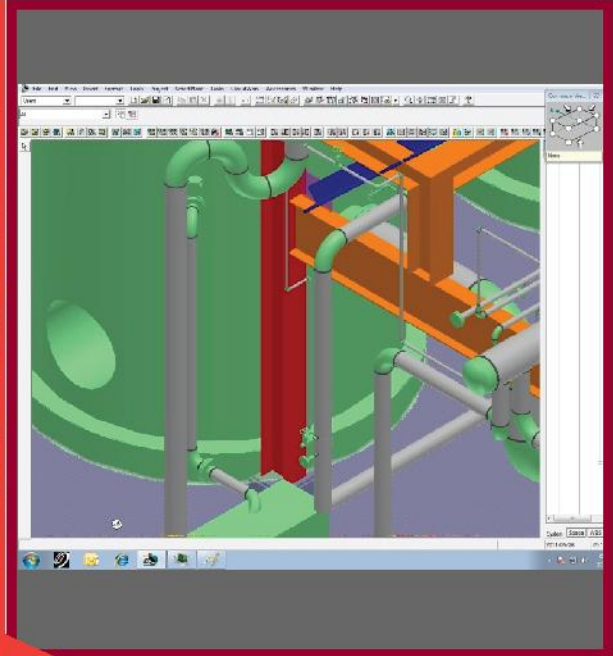
Challenge

As alternative fuel usage grows, plants that produce them must be cost-competitive to build & maintain



Solution

High Definition Surveying + Intergraph plant design and asset management software provide better plant models



Result

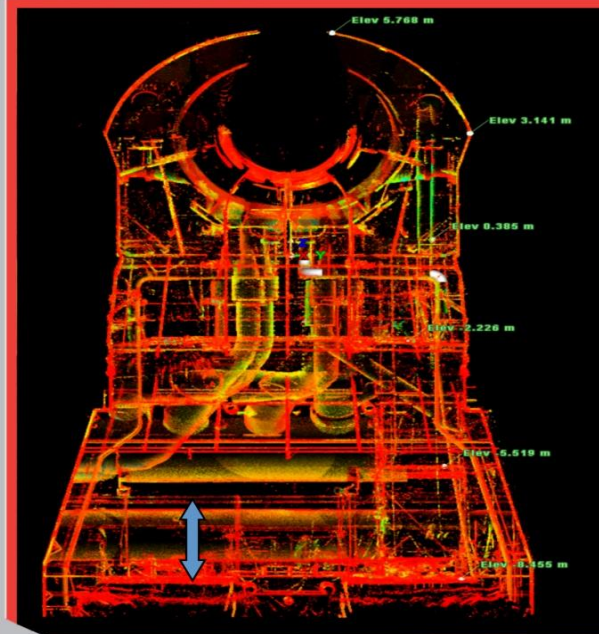
Better plant models yield better designed, lower cost, and safer alternative fuel plants

Extending Life of Critical Infrastructure



Challenge

Aging nuclear power plants need to be upgraded to improve efficiency and to extend the life of the facility



Solution

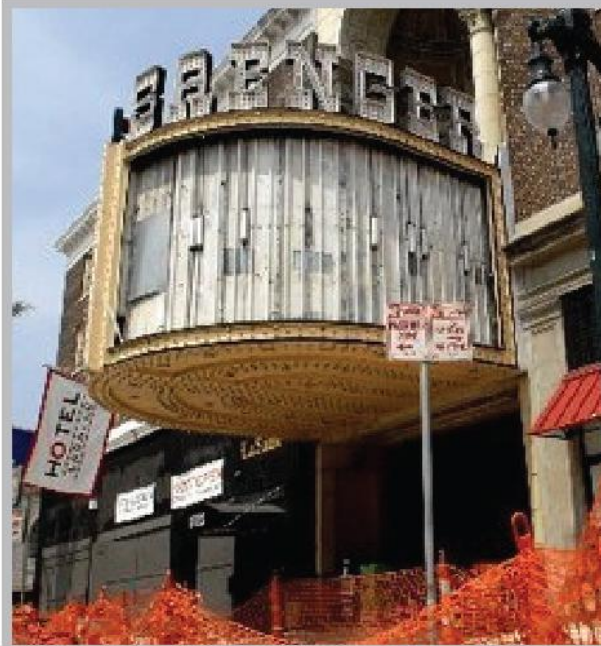
High Definition Surveying and Metrology Laser Trackers to virtually and then physically fit up and install



Result

Reduced construction time and risk resulting in reduced nuclear exposure and 7 figure project savings

Efficient Rebuilding and Response after Natural Disaster



Challenge

Theater renovation after damage from Hurricane Katrina



Solution

Scan to create a 3D model to be used in the **BIM** process



Result

Reduced construction costs and schedule reducing barrier to rebuild after disaster

Better, Faster Response to Natural Disasters



Challenge

Flood recovery in Queensland, Australia, required fast, repeatable monitoring.



Solution

High-resolution multispectral airborne digital imaging system.



Result

Use of **near real time accurate digital surface models** allowed for better deployment of assets

Airborne Mapping of Critical Infrastructure



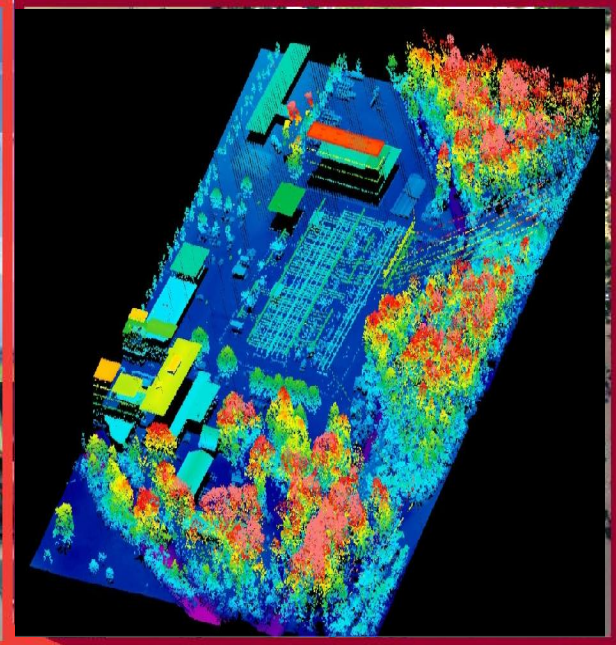
Challenge

Critical infrastructure and environmental mapping along lengthy corridors



Solution

High-resolution airborne LiDAR scanners with multispectral cameras deployable in helicopters and UAVs



Result

Cost-effective mapping tool gives structural and spectral information

Info-clouds for Real World Mapping



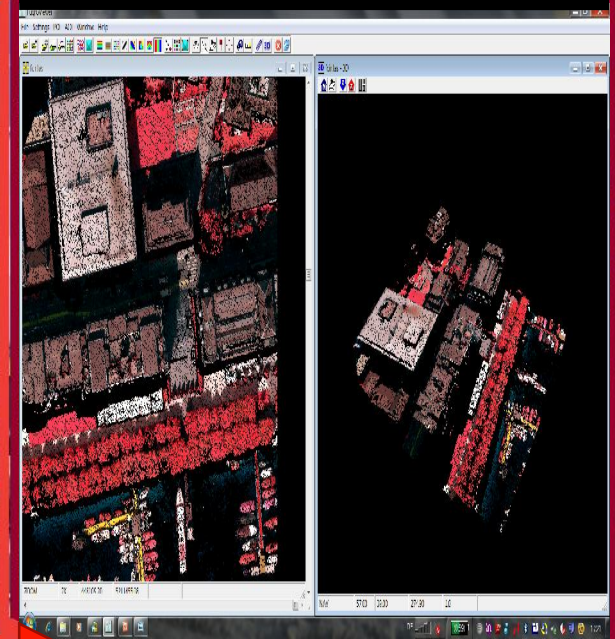
Challenge

Represent the changing Real World accurately



Solution

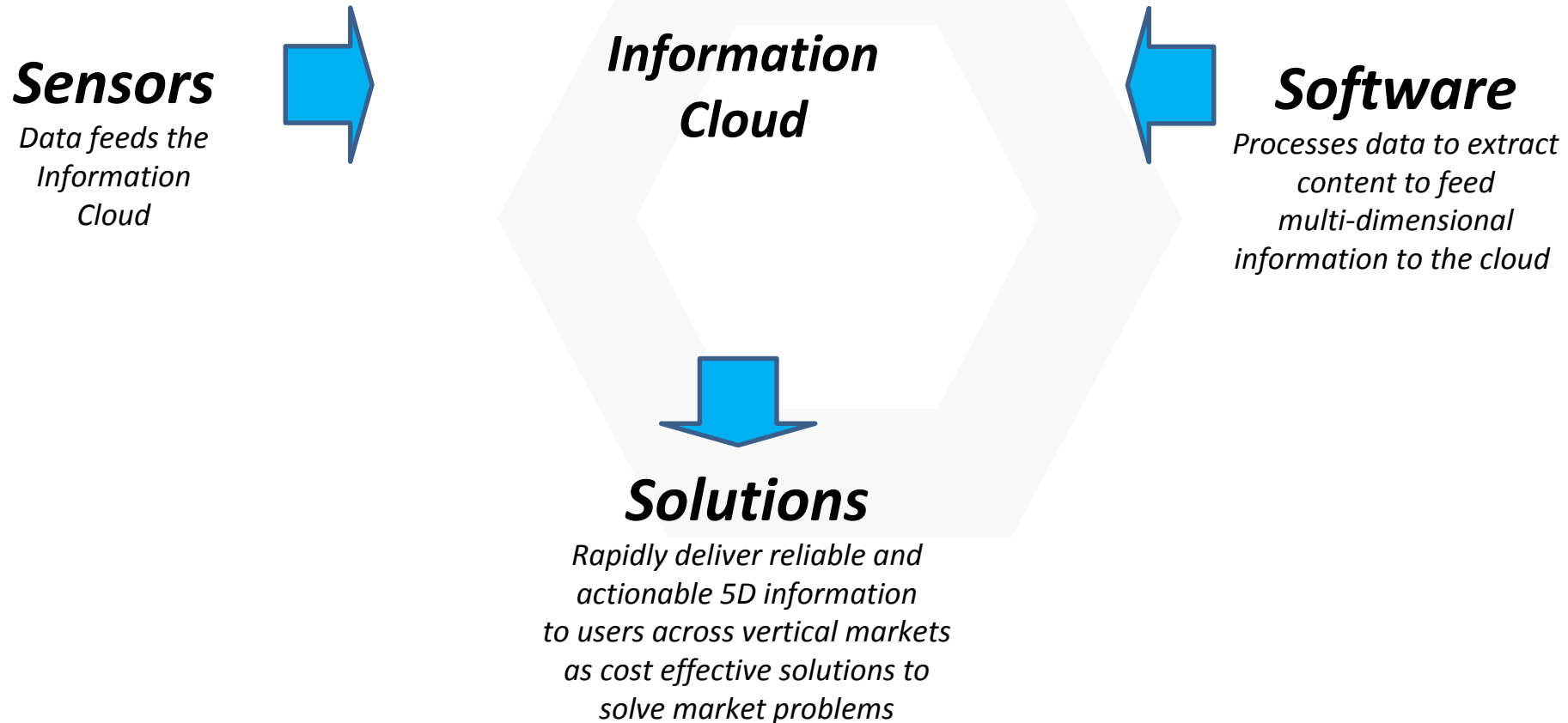
Image-based pixelmatching to extract DSM plus spectral information



Result

N-dimensional info cloud as best match to real world

Dynamic GIS



Better Operating Efficiency



Challenge

World's largest coal producer needs to reduce waste



Solution

Advanced system **automatically optimizes** truck and shovel assignments, **increasing productivity**



Result

Coal producers keep up with increased world demand

Lowering Costs and Protecting the Environment



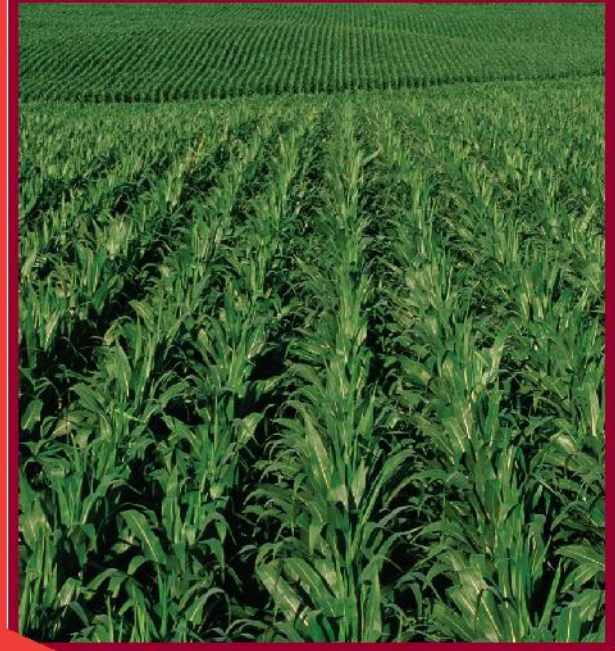
Challenge

Rising populations require farmers to grow more food in same space in an environmentally friendly way



Solution

GPS-equipped sprayers automatically detect overlaps and turn spray off and on as needed



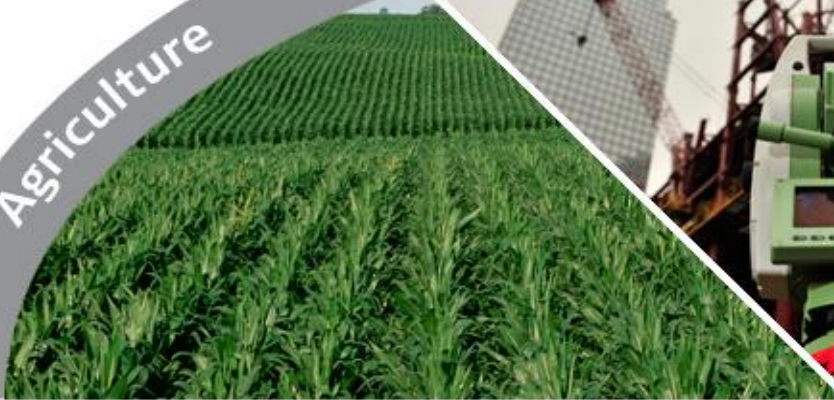
Result

Pesticide use reduced by 5-15% preserving land and water

Surveying & Engineering

Building & Construction

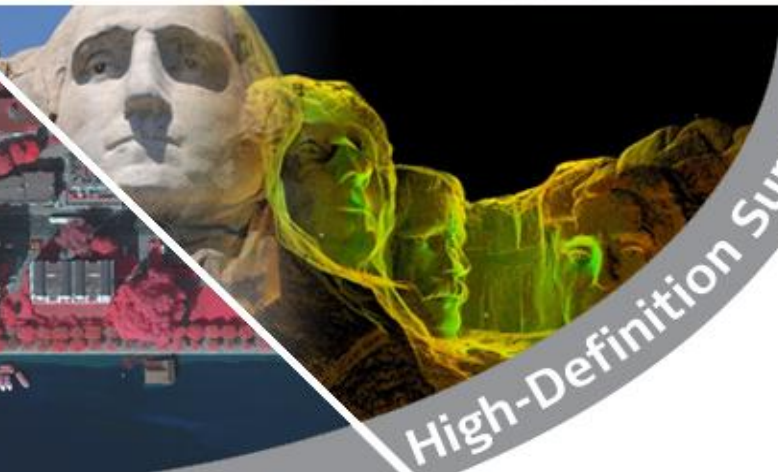
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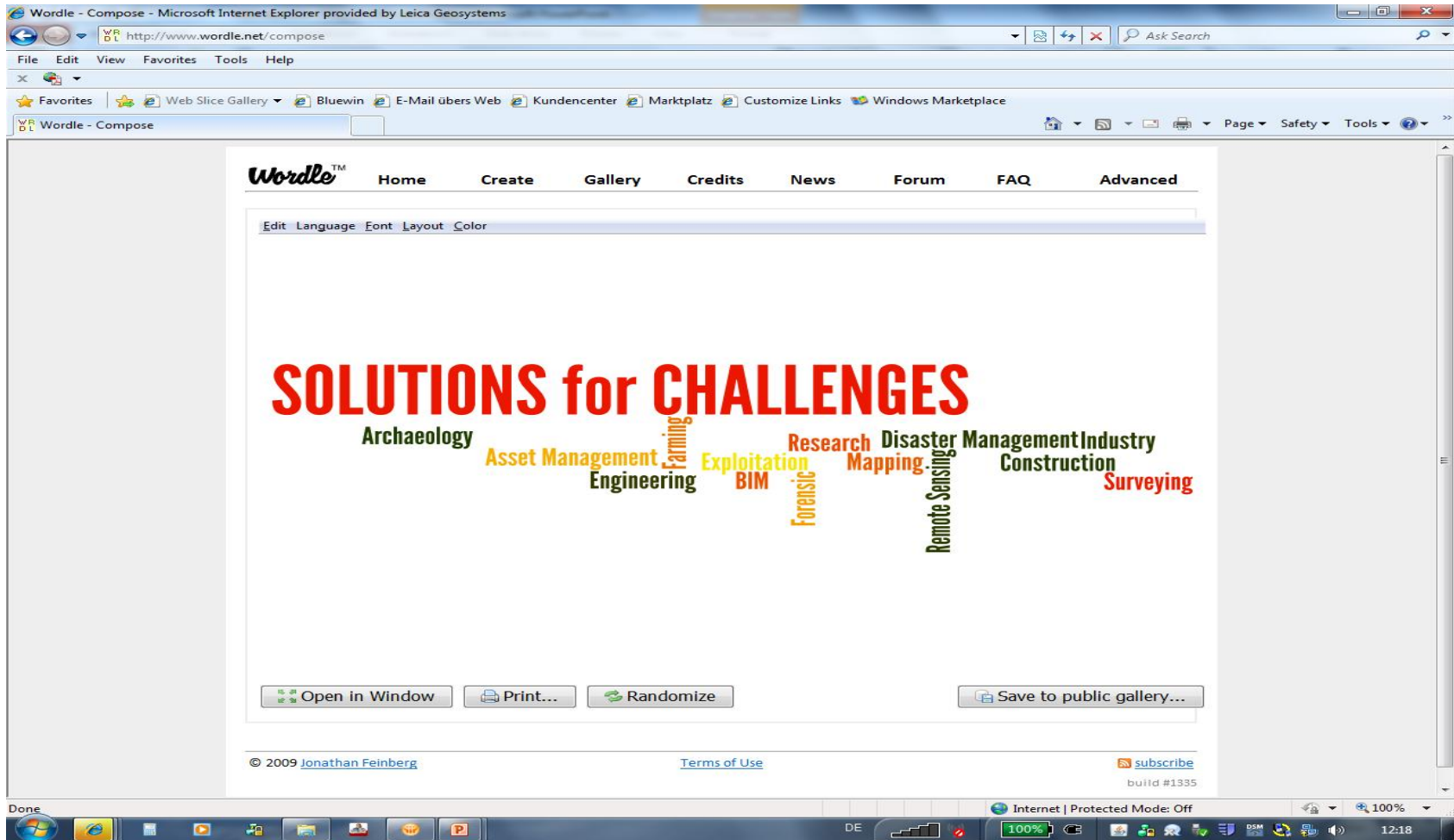
Mining



Digital Imaging



High-Definition Surveying



Our technology is everywhere (Antarctica)



And is designed for toughest environment ...

**Viva is “swimming”
and Bluetooth connection
still works...**



**However,
to much is to
much!**





Thank you!