History

Information Technology for Decision Making

- ZedX Inc. was founded in 1987 near State College, Pennsylvania.
- Recognized as a leading IT solution provider for the precision agricultural industry.
- Became one of the leading developers of integrated information technology for decision making for the agricultural, environmental and energy sectors.
- In April 2017, ZedX became part of the BASF group, the world’s leading chemical company.
- ZedX was the first company to develop high resolution, raster weather databases that are compatible with Geographic Information System (GIS) programs.
- ZedX has co-developed a weather forecast service called *E-Weather* through a commercial venture called SkyBit®, Inc.
- ZedX developed a precision agriculture service called *HighQ®* through a commercial venture called AgVenture, L.L.C.
- ZedX developed *AgFleet®*, an integrated interactive, web-based in-season, tactical decision support service to support sustainable production for the agricultural community.
- ZedX developed an interactive, web-based platform (*NAPPFAST*) to support United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) planners in the allocation of resources and in the assessment of how an invasive species impacts agricultural production.
- ZedX developed an interactive, web-based platform, the integrated pest management (ipm) Pest Information Platform for Extension and Education or *ipmPIPE* for the USDA APHIS, Cooperative State Research, Education, and Extension Service (CSREES), and Risk Management Agency (RMA), as well as the government of Canada and Mexico. The public version of the ipmPIPE resulted in significant savings to growers by providing timely information that supported unnecessary spraying of soybean rust.
- ZedX created an image ordering and processing web-based product for John Deere Agricultural Services (JDAS).
History

ZedX is recognized as a leading R&D modeling company. A few key examples of its R&D works include:

- Computer models for monitoring the environmental degradation of non-ceramic insulators.
- Gypsy Moth model for simulating the phenological development of gypsy moth across the U.S. based on high resolution, climatological data.
- A Monarch model for simulating the arrival and coincident development of the butterfly life stages with corn plant phenology.
- A multi-module, agricultural model which allows a user to determine the economic advantage of planting GMO seed by assessing the potential yield loss from a local pest, such European corn borer. The grower can vary a number of parameters such choice of corn variety, planting date, and market value of a crop at harvest.
- A three-dimensional, aerobiological model that simulates the potential global movement of an invasive species, such as soybean rust, into the continental U.S.
- An integrated wireless in-field sensing decision support system for apple growers to enhance tactical field operations.
- An in-field customer support system that is integrated with operational tracking software to enhance real time reliability of customer service.
- Software models to support in-field sensing of corn moisture content for the Bio-Fuels industry.

- ZedX has been retained to develop an interactive sustainable agriculture web site for the Keystone Center “Field to Market”, to support strategic analysis of sustainable farming practices by growers throughout the nation.
- ZedX developed a web-based mechanism for seed pedigree tracking for the rice industry to insure GMO seed segregation for selected markets.
- ZedX Inc. acquired Climate Assessment Technology (CAT), Inc. of Houston, Texas. CAT, a 28-year old R&D company, has been on the forefront of developing weather and climate data, information, tools and techniques for agricultural, engineering, and architectural users. CAT has developed large-area applications of crop models for major commodities.
- ZedX is currently developing a global crop monitoring and yield forecast system, designed to provide the most accurate crop commodity yield forecasts by integrating its weather data, satellite data and crop modeled data into a seamless geo-referenced graphic interface with supporting analytical tools.

Information Technology for Decision Making
What We Do Today

Building tomorrow’s technologies for today’s solutions

- Design, develop and support decision support IT tools for the Agricultural Industry across the “food chain”
  - AgFleet family of in-season tactical web based IT services for the grower and supplier segment of the Ag sector.
  - Provide weather based decision support services for managing complex early-warning pest management forecast and monitoring systems. This includes our NAPPFAST and PIPE systems

- Design, assemble, integrate and support weather data systems
  - Develop and distribute climatological, historical, and custom weather forecast data sets at spatial resolutions of one (1) km and ten (10) km and temporal resolutions as short as one (1) hour to clients worldwide. The high resolution, weather databases serve as input into a wide range of government, university and industrial models.

- Design modeling and monitoring solutions for complex environmental systems.
  - Develop web based tools to shape sustainable decision making for the agricultural industry.
  - Develop web based tools to take advantage of new “role-based” architecture to create an online clearing house of scientific information about pollen movement and deposition and its impact on allergies. This ZedX developed system provides online entry and retrieval of information coupled with state-of-the-art aerobiological models. This project is an international collaboration of plant physiologists, biologists, meteorologists, and medical personnel.
  - ZedX is joining a consortium of universities and the Korean Meteorological Agency to develop a plan for enhancing the existing agmeteorological services in Korea. The goal is to take advantage of information technology (IT) tools developed by ZedX, such as the ipmPIPE, and then move towards integrating new technologies, such as ZedX’s new “role-based” architecture, in order to generate the desired scales of data and decision support programs.
  - ZedX is participating in an international scientific collaboration to build a cyberinfrastructure called the “Global Phytophthora Network”(GPN). The GPN is designed to genetically catalog, field monitor, and manage Phytophthora, which is one of the most destructive groups of plant pathogens in the world. Early detection and accurate genetic identification will significantly increase the probability of preventing the outbreak and spread of new and reemerging Phytophthora diseases.

- Integrate large-scale environmental data systems, with in-field sensing and networking technology for next generation automated decision making.

- Partner with centers of excellence to develop advanced systems and technology to meet future customer needs
Vision 2020

Working collaboratively in global partnership to create sustainable solutions

Values
• Dedication and commitment to every client’s success.
• Imagination and innovation applied to solving the most pressing problems.
• Integrity, trust and personal responsibility at all times.
• A passion for technology and an unyielding commitment to quality.
• Fostering leadership through sustainability.
• Leading change.
• Respect and Responsibility.
• Success through effective partnerships.

Core Competencies
• Commitment to build technologies and advance knowledge systems to ensure abundant, secure food and energy supplies, and a healthy environment, the foundations of sustainability.
• In-depth customer knowledge and focus.
• Lean enterprise.
• Holistic system integration capabilities.
• In-house complex environmental and agronomic modeling depth.
• Consistent and sustainable growth.

Strategies
• Build on ZedX’s twenty plus years history to tackle the worlds food, fiber, water, energy, and climate security issues by creating innovative technological solutions.
• Partner with key global organizations to scale the impact of ZedX’s innovations.
• Embrace open source thinking.
• Work on the complex problems.
• Network globally to build a diverse set of clients, partners, intellectual capital and perspective.
• Operate a healthy core business.
Global ZedX

Small organization with a big impact

- ZedX is a small impact business with a global reach.
- ZedX has clients throughout the America’s (North, Meso, and South), Europe, Australia, Africa and Asia.
- ZedX clients span the government, NGO, university and private sectors.
- ZedX clients work in the agricultural, environmental, energy, finance, risk and weather/climate arenas.
- ZedX partners with issue leaders to build the necessary intellectual capital to craft innovative and successful solutions.
- ZedX senior employees and consultants have on average more than 30 years experience in their chosen fields.
- ZedX employees, collectively have worked in more than 130 countries worldwide.
How We Are Organized

Innovative Solutions

Corporate Functions
- Administration
- Business Strategy
- Communications
- Engineering
- Technology
- Finance/Human Resources
- Legal
- Marketing/Sales
- Programming Operations

Government R&D
- Systems Modeling and Integration
- Commercial Products and Services

Agricultural, Weather, Environmental, Energy
Company Leadership

Keith Wheeler, Chairman and Chief Executive Officer
Keith Wheeler, Chairman and CEO, is responsible for ZedX's operations and strategic direction. He is also Chair of the Commission on Education and Communication for the World Conservation Union (IUCN). He has served as a senior advisor to many public and private organizations including the World Business Council on Sustainable Development, the President Clinton’s Council for Sustainable Development and General Motors Corporation. Keith was Managing Partner for WorldViews LLC a strategic planning consultancy to Fortune 500 companies in the area of environment and sustainable development strategy. He served as an internationally recognized research scientist and international development specialist for the U.S. Department of Agriculture and for Cornell University for twelve years. Mr. Wheeler was the founding President of the Foundation for Our Future, a nonprofit organization providing leadership in the area of capacity development, knowledge management, eLearning, scenario planning and strategic analysis for sustainable development both nationally and internationally. He was the first Executive Director and CEO of Global Rivers Environmental Education Network (GREEN), a 135 nation international non-governmental organization that was a recognized leader in watershed conservation. He holds an undergraduate degree in biochemistry from Syracuse University and graduate degrees in soil science and geotechnical engineering from Cornell University.

Frederick (Ted) Brown, Chief Financial Officer
Ted Brown is the Chief Financial Officer, responsible for accounting and auditing activities at ZedX. In addition, he directs the Human Resource activities of the company. He was previously the Chief Financial Officer of a printing business recognized in Inc. 500 as one of the fastest growing companies in the United States. He has held positions of Director of Finance and Director of Human Resources for a large not-for-profit dairy cooperative, Treasurer and Board member of a coal mining company, and was co-founder and part owner of a successful start-up business. Early in his career he was Treasurer of a retail shoe store chain and a member of its Board of Directors. Mr. Brown has extensive experience in accounting, auditing, and tax preparation. He received a B.S. in Business Administration from St. Francis University, and he is a licensed certified public accountant.

Joseph Russo, President and Co-founder
Joe Russo, President, co-founded ZedX, Inc. in 1987. Beyond his management responsibilities, he leads the company’s innovation and product development activities. He has guided the development of a wide range of software tools used in modeling, precision agricultural products, decision support systems, and data management programs. Dr. Russo is also a co-founder and president of SkyBit, Inc. since 1992. SkyBit specializes in the electronic delivery of site-specific weather data to the agricultural communities of government, university and private industry. Dr. Russo participated in the design and development of SkyBit’s “E-Weather” service which delivers site-specific tabular and graphical products via facsimile or email to users. He is responsible for cooperating with university researchers in the development of integrated pest management algorithms and models that use SkyBit’s weather data as input. Dr. Russo is also a co-founder of AgVenture, L.L.C., a provider of precision agriculture products to dealers, consultants and growers to assist them in making strategic production decisions. Prior to his affiliation with ZedX, Inc., Dr. Russo was an assistant professor of Agricultural Climatology at the Pennsylvania State University from 1981-88. He received his undergraduate degree in Meteorology from St. Louis University, a M.Sc. in Meteorology from McGill University, and Ph.D. in Agricultural Meteorology from Cornell University.

Rod Beard, Chief Operating Officer and General Counsel
Rod Beard is ZedX’s General Counsel. Prior to joining the organization he practiced law in Pennsylvania for nearly twenty years. His practice emphasized business and commercial activities, with a focus on technology applications and contracts, start-up enterprises, business planning and opportunities, and employment matters. He has worked with several software and data distribution companies, and has assisted clients with procuring and protecting trademarks, copyrights, and other forms of intellectual property. He also has been involved in licensing and technology transfer ventures. Mr. Beard has litigated numerous commercial cases, including representing creditors in bankruptcy proceedings, and has been involved in complex multi-district federal litigation and commercial arbitration cases with the American Arbitration Association. Mr. Beard is a member of the Board of Directors, and serves as Vice-Chairman, of the Chamber of Business and Industry of Centre County Pennsylvania, and is on the Board of the Centre County Industrial Development Corporation. He served as a Member of the Board of Governors of the Centre County Bar Association. He also served as a Board Member and past President of the Central Pennsylvania World Trade Association. He received a B.A. from Pennsylvania State University, and a J.D. from the Marshall-Wythe School of Law of the College of William and Mary.

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Corporate Offices

ZedX corporate headquarters is located at:
369 Rolling Ridge Drive
Bellefonte PA 16823 USA

ZedX has a research office located at:
The Technology Farm
Cornell Agriculture & Food Technology Park
500 Technology Farm Drive
Geneva, NY 14456

ZedX has a regional sales and marketing office located at:
726 Alden Drive
Sycamore, IL 60178
AgFleet is the leading fully web-based Precision Ag software, utilized worldwide, providing anytime-anywhere access to manage data in a fully secure environment resulting in increased profitability. AgFleet’s secure modular web-based design allows growers, dealers and other agricultural professionals state-of-the-art flexibility and efficiency to make real-time management decisions.

What Users Say About AgFleet

“If you were to look at ZedX’s AgFleet product just from an information technology management perspective alone, you would immediately see that they are years ahead of the competition. Their truly real-time Internet-based solution is easy to maintain and support. AgFleet easily falls in line with our current infrastructure and our long range information technology goals.”

Scott E. M. Plato
Evergreen FS, Inc.

“AgFleet is a very versatile ag management software program designed with the needs of all our clients in mind. Its ease of use and straightforward design allows for users of all GIS experience and background to use this effective tool to help maximize yield and increase profits.”

Erin Abegg
A&L Labs - Memphis, TN
ZedX Weather Systems

Reliable data, best-in-class modeling, quality results

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Environmental and Energy Solutions

Providing solutions to complex environmental systems

Environment
- Water management
- Carbon
- Non-point source
- Pollution credit trading
- Environmental security

Energy
- Wind
- Transmission
- Biofuel

Human Health
- Pollen and allergies
- Aerial vector transmission
Integrated Modeling Systems

Integrated real-time sensing and decision support

Model climate/weather at synoptic scale

Model at meso/microscale

 Equip/in situ sensor calibration

Synoptic -Scale Models

Mesoscale Models and/or Integration of Surface Features

Local Models and/or Interpretation

Grower Class

1 2 3 4
Advanced Technology Integration

Bringing the best technologies together to solve our most pressing challenges

- Advanced irrigation model systems
- Wireless in-field sensing systems
- Remote operational tracking systems
- Aerial spray tracking systems
- Autonomous machine - remote data - sensor decision support integration
- Field-to-table crop tracking systems
- Genomic data integration management
How We Operate

The ZedX Management Model

**Live ZedX Values**

- Shape the Future
- Innovate & Impact

- Forecast driving economic, environmental, political and social forces that impact our success and that of our clients
- Sustained Growth
- Client Satisfaction
- Efficiency
- Productivity
- Competitiveness

**Quality in Thought and Product**

- Forecast driving economic, environmental, political and social forces that impact our success and that of our clients
- ZedX profitable success
- Attract and retain world class employees
- Plan for performance
- Effective communication

**Manage for High Expectations**

- Partners and stakeholders

Building technologies and advance knowledge systems to ensure abundant, secure food and energy supplies, and a healthy environment, the foundations of sustainability.
Corporate Citizenship

*Investing in social capital is key to business success*

- ZedX encourages its employees at all levels to support a wide range of institutions and communities, locally and globally, through active participation and philanthropy. Some key institutions that ZedX and its employees support include:
  - Pennsylvania State University
  - Cornell University
  - The International Union of Conservation and Nature (IUCN)
  - The Keystone Center
  - The Paul F-Brandwein Institute
  - Chamber of Business and Industry of Centre County (CBICC)
  - The Technology Collaborative (TTC)
  - The Cornell Agriculture & Food Technology Park
  - The Soil Science Society of America
  - The American Society of Agronomy
  - American Meteorological Society
  - Centre LifeLink EMS
  - USA National Phenology Network (USANPN)
Our Employees

Our employees are our greatest asset

- Many ZedX employees and consultants have advanced scientific degrees in:
  - meteorology
  - climatology
  - agronomy
  - engineering science
  - soil science
  - environmental science
  - computer science
  - mathematics
- ZedX offers competitive salaries and benefits, including on the job training and encourages external educational advancement.
- ZedX encourages its employees to participate in national and international scientific meetings and actively contribute to their chosen scientific field.
- ZedX is an equal opportunity employer
www.zedxinc.com