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## INORA Technologies, Inc. Company Synopsis

Inora is a well-known company that builds upper end Intelligent Decision Making (IDM) software products. Inora utilizes its revolutionary Knowledge Discovery Math Engine at the core of its IDM software. With this core Math Engine, decision makers can now, for the first time ever, have the capability to extract instantaneously the knowledge and the insights hidden in the stream of data. This unique software capability provides instantaneously accurate, reliable and autonomous decision making that creates tremendous opportunities for businesses to improve their competitive advantage and therefore their bottom line.

Over the last decade two INORA Technologies product lines have been successfully introduced into the market and sold worldwide in the automotive and aerospace industry.

WISEgap (U.S. and EU patent) and INORAsrs (U.S. Japan and EU patent) have been invented and designed with the Inora math engine technology at its core. Customers using the Inora Math Engine powered products are experiencing the significant advantage over competitive products in the market which do not have the built-in IDM capability.

Inora is wholly-owned by private investors.

## KNOWLEDGE DISCOVERY MATH ENGINE

INORA has developed a software product incorporating a 21<sup>st</sup> Century Math Engine. Its revolutionary mathematical concept of a Generalized Equilibrium was first introduced by Prof. Nash ("Beautiful Mind" movie fame). However it took many years of dedicated work by Inora scientists and researchers to develop the Math Engine to evolve this concept into an analytical tool that can be used for extracting new insights from ever increasing data sets in any type of human enterprises.

The paradigm shift introduced by the logic of the generalized equilibrium rests in the fact that the algorithm always autonomously determines the center of equilibrium in any data set, which is defined as the unique center where all participating data points have the shortest distance thereto. The self-regulated procedure and computational processes of the core engine not only determines the center of equilibrium but also reveals another scientific knowledge breakthrough: Around this unique Equilibrium point there is a unique form/shape which we call **The Inner Reference!**

The Inner Reference is uniquely defined for each data set as the form where all participating data points have the shortest orthogonal distances thereto! This also defines the optimum generalized space around the center point.

For the first time a user is now able to achieve the true capability of autonomous Intelligent Decision Making (**IDM**). The intelligent decision making is defined as decision making that is based on the determination of ALL characteristics of a data set, whether obvious or not, for any moment in time and under any real world condition, making the need for assumptions and approximations in data analysis totally obsolete. True intelligent solutions can only be achieved by holistic and deterministic approach. This capability makes probabilistic forecasting tools obsolete! The user has perfect situational knowledge from one instant to the next.

All current generation Math Engines are based on assumptions and human rule based technology. The results from these models will be correct only if the underlining assumptions and rules are correct for the real world situation they are attempting to analyze. Unfortunately, this is almost never the case because of the complexity and unpredictability of real world environments and human behavior. In other words they suffer from fundamental logic deficiency. Therefore, the results from such systems are unreliable, not repeatable, nor reproducible, inaccurate and therefore unsatisfying, frustrating, confusing and wasteful. The proponents of such Math engines mask the deficiencies of the underlying technology by masking it behind a snazzy graphical user interface and various graphical outputs. However these shells do not add any true value in relation to the amount of money and time wasted.

In addition, traditional math engines have two major limitations. One is they are based on the use of arithmetic mean and Least Squares / “Best Fit” methodology; and second they deploy mathematical filters for outlier detection and to explain away these outliers that do not fit the predetermined mathematical model. This leads to the “smearing effect” or “fuzziness” of the results from these models. The reason for the “Fuzziness” is that the predetermined filter is always dedicated to a specific scenario, which in real world situation is impossible to predict reliably. These traditional methods lose lots of information and valuable knowledge and insights, by filtering out data points.

In contrast, INORA Math Engine does not make any assumptions about relationships between data points, nor does it filter out a single data point. It utilizes all the data points to extract the true insight and the knowledge from the data set provided.

INORA Math engine is the ultimate tool for Knowledge Discovery and Data Mining. This is a true breakthrough technology that overcomes what is wrong with traditional Math Engine core algorithms.

## IN SUMMARY:

The INORA Math Engine unfolds a new era in Knowledge Discovery and Data Mining. It provides the following capabilities to users:

- Instantaneous Situational Awareness
- Forecasting models are rendered irrelevant
- No need for mathematical or statistical modeling
- No data filtered out, every data point is used
- No restriction on type of data input as long as can be digitized
- Instantaneous decision making that is always reliable and repeatable, based on the incoming streaming data
- Tremendous aid to decision makers who require complete situational awareness that may change from instant to instant
- The engine works on any standard PC or Laptop

### **Areas of application for Inora Math Engine:**

**Manufacturing** - High volume in process inspection, production, scheduling, Inventory control

**Autonomous Vehicles** - IFR or radar data analysis to make instantaneous decisions to avoid undesirable results

**Finance/Banking** - Instantaneous global market data analysis for trading floor decisions, investment/loan risk analysis

**Defense** - Instantaneous situational awareness for robots or autonomous vehicles; Instantaneous analysis of radar, IFR or satellite signals for correct target detection and identification

**3-D Imaging** - Quick on the spot analysis of large scale data from satellites, underwater robots, other sensing devices, reliable and accurate datum invariant shape & pattern recognition

**Healthcare** - Patient diagnostic records for significant trends or out of line conditions, early infectious disease identification & control

**Oil/Gas/Energy** - Quick on the spot analysis of geological sonar scanning exploration data  
**And many other fields**

## Addendum

### Inora core engine technology novelty features

**Generalized Disorder Detection (Unexpected Deviation Detection):** erroneous or missing data cannot crash the data analysis anymore

**Full Restriction Treatment:** hidden and latent restrictions are automatically identified and treated correctly

**Mathematical Singularity Treatment:** mathematical singularities cannot compromise the data analysis process anymore

**Inner Reference:** any group of information is now uniquely definable through its own corresponding optimum space creating a NEW natural constant

**Dimension and Unit:** the data analysis can handle any dimension, any unit and any number of participants

**Heteroscedasticity: combined** homogeneous and heterogeneous information processing capability, such as space/time continuum calculations.

**Universal Application:** no pre-information/approximation value input required

**Self-Regulation:** the data analysis is autonomous, fully automated, repeatable and reproducible

**Speed:** most applications run on state of the art PCs in real time

The Inora core is programmed in ANSI / ISO C code.

Currently, the leading scientists of the technology are associated with the KTH, Royal Institute of Technology in Stockholm, Sweden.