

Differences between MIRA II and MIRA I

Basic Differences between the original MIRA and MIRA II

Feature	Original MIRA	MIRA II
Predictive Models	The original MIRA predictive models were created by statistical review and analysis of 10 years of BWC claim data (circa 1987 to 1997) and require updates every 3 – 5 years as the models are static and have no artificial intelligence ability to update itself. (models have never been updated)	MIRA II software uses neural network predictive modeling techniques to develop robust models that can react to changes in the payment and cost patterns. The neural network models learn complex relationships in the claim data to predict the outcome of a claim. Due to this feature, remodeling is not needed as frequently as MIRA I, unless there is a significant divergence of current and historical claim costs.
Data	180 data elements collected on a claim with summary level payment data. 2.4 million claims were used to build models.	Data collection is expanded to include employer financial data, claim data, transactional payment data and accident description data. Can begin with use of the original 180 data elements used in MIRA but is capable of using transactional payment data. 5.9 million claims were used to build models.
Data collection for modeling	Every 3 to 5 years	Once
Model types	Static	Custom built neural network predictive models. Can distinguish between inconsequential data and cost drivers. When new cost drivers are identified, the software re-analyzes reserve requirements and considers all implication of the changed data in relationship to other factors. Claim duration is a key component to the models, when things occur in the life of the claim is important to the outcome.
Statute and Business Rule logic	Custom built based upon clients requirements	Same. Business rules are incorporated in the software, as well as in the API. This gives the client more flexibility to control when changes can be made without having to coordinate resources and

		schedules with Fair Isaac
Reporting	BWC built MIRA CIR with heavy IT and Actuarial support required quarterly	Browser based reporting

Neural Network Modeling Definition:

- Neural network models understand complex data relationships and transform a set of inputs (claim data) into a set of outputs (cost prediction).
- Neural network models combine hundred of derived variables to determine the outcome.
- Ability to capture non-linear interactions among input data.
- Learns the relationship between variable patterns and known results (target)
- Modeling process optimally assigns weights to variables.
- Modeling process optimally selects the most predictive variables.
- Models are developed based on the historical data. In production the data sent to MIRA is processed though the predictive component and the outcome is the cost prediction for individual benefit categories.

Why is it better:

1. Models are created to be responsive to changes in the client claim management environment.
2. Models are built to concentrate on a per claim accuracy instead of aggregate accuracy.
3. MIRA II is the state of the art system for individual workers' compensation claim reserving.
4. New modeling techniques produce cost predictions that are accurate at the claim and aggregate level.
5. Models are more robust to identify trends in payment and cost pattern.
6. Maintenance of the product is more efficient.

Change in the incurred predictions produced by MIRA:

1. Updated models will reflect our current claims management environment
2. BWC business rules can be created in MIRA II as they are currently written in MIRA now.
3. The issue of how the models work will remain the same with Fair Isaac having proprietary information.