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On Limits, Models, and Misuse

An essay on why no system explains everything

By Anthony Johnson

Most people like models because they make things feel manageable.

A model reduces complexity. It gives shape to behaviour and turns uncertainty into something that appears structured and predictable. In engineering this is necessary. In organisations it is useful. In individuals it is comforting.

The comfort is the problem.

A model works by excluding what does not fit. It selects certain variables, ignores others, and creates a simplified version of reality that can be understood and acted upon.

This is its strength.

It is also where it begins to fail.

The moment a tool becomes a belief

A model is a tool. It is not a truth or a worldview.

It is a constrained description that works under specific conditions.

When a model works well, it is trusted and applied more broadly than it was designed for. This is where it stops being a tool and becomes a belief.

Beliefs do not have boundaries. Tools do.

Once a model becomes a belief, it is no longer questioned when it should be. It is applied where it does not belong and defended when it stops producing useful distinctions.

At that point, it distorts.

Consider risk models prior to the 2008 financial crisis.

They were mathematically sound within their assumptions. They described risk under normal conditions and were trusted because they had worked.

They were then treated as a description of reality itself.

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When conditions changed, the models continued to produce outputs. The failure was not that they were wrong.

The failure was that they were believed beyond their domain.

When everything fits, nothing is explained

There is a simple way to break any model.

Make it universal.

At a sufficient level of abstraction, all systems can be described as movement. Matter, energy, information and thought all move.

This is correct.

It is also useless.

If everything is movement, nothing is distinct. Thinking and acting collapse into the same category. Repetition and change become indistinguishable.

The model has not improved.

It has been emptied.

Consider thermodynamics applied directly to human behaviour.

Entropy increases in closed systems. Energy transfer governs physical processes.

This does not explain why organisations fail or why decisions are made under pressure.

When physical laws are used without translation, they produce statements that sound rigorous and explain nothing.

The abuse of correctness

A statement can be correct and still be misused.

Everything is motion.

True.

Therefore movement explains behaviour.

False.

Correctness does not guarantee relevance.

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Consider correlation in data analysis.

Ice cream sales and drowning incidents increase together. The data is correct.

The conclusion that one causes the other is not.

Temperature is the underlying variable.

Correct data produced a confident mistake.

Where systems thinking actually works

Systems thinking is effective because it operates where intervention is possible.

It identifies feedback, delay, accumulation and failure points. These are practical distinctions that allow change.

When extended beyond this level, it loses function.

When everything is described as a system, the word stops helping. When every change is movement, no change is being measured.

Consider the Space Shuttle Challenger disaster.

The risks were known. The data existed. The system had feedback.

The issue was not a lack of analysis.

The model of acceptable risk had expanded beyond its valid conditions.

The system continued to operate.

It was no longer being corrected.

The boundary most people ignore

Every model has a limit.

Inside it, the model clarifies. Outside it, it blurs.

This failure is difficult to detect because the language continues to work. The explanation still feels consistent.

Precision is replaced by generality.

The model becomes easier to apply and harder to use.

Consider Long Term Capital Management.

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Its models worked under stable market conditions and assumed liquidity.

When conditions shifted, those assumptions failed.

The model continued to produce outputs.

Those outputs were trusted.

The boundary had already been crossed.

The rule that prevents collapse

A model is only useful if it preserves distinctions that matter to outcomes.

If it cannot separate action from inaction, change from repetition, or cause from description, it has lost its function.

A model that cannot guide a decision is not a model.

It is decoration.

What remains

Drift occurs.

Delay accumulates.

Pressure reveals.

Outcomes decide.

These remain valid within their domain.

They do not explain everything.

They are not supposed to.

The value of a model lies in what it excludes.

When that exclusion disappears, the model does not expand.

It dissolves.