# Decision Record Management as a Core Executive Function

*Toward Systems That Understand* by Russ Ackoff

"The words *information, knowledge,* and *understanding* are often used interchangeably, even by professionals. They are not the same and the differences among them are very important, especially to system designers.

"Information is what is contained in *descriptions*, answers to questions beginning with such words as *who, where, when* and *what.* Knowledge is what is contained in *instructions*, answers to questions beginning with *how can.* Understanding is what is contained in *explanations*, answers to questions beginning with *why.*

"An ounce of knowledge is worth a pound of information, and an ounce of understanding is worth a pound of knowledge. Nevertheless, the time devoted to each in both our educational and management support systems is inversely related to their value. The reason for this is that it is very difficult to provide what one does not have and does not know how to obtain.

"Most management support systems are management information systems. Those that incorporate artificial intelligence are knowledge systems, not intelligent systems. An intelligent system is one that has the ability to learn and adapt to changes in its users, the systems they manage, and their environments. What are most needed by management are systems that are truly intelligent and that produce understanding. These, and only these, merit the name *decision control systems.*

"Understanding, as noted above, derives from explanations. Explanations are of two fundamentally different types. *A priori* explanations identify the *cause* or *producer* of the thing or event to be explained. For example, "Johnnie went to the store because his mother sent him there," or "The tent collapsed because of a high wind." *A posteriori,* explanations identify the *intended effect* or *product* of the thing or event to be explained. For example, "Johnnie went to the store to buy ice cream." A posteriori explanations are relevant only where *choice*, hence, free will – is involved.

"Decision control systems are understanding systems that learn and adapt. They consist of the following parts:

1. A record of the decision which identifies:

   a. the decision that was made,
   b. its expected effects defined operationally and the time by which they are expected,
   c. the critical assumptions on which these expectations are based,
   d. the way the decision was made and by whom, and
   e. the information used in making the decision and its source(s).

2. Storage of the decision records in an inactive memory.

3. Observations, made as frequently as relevant data become available, of the critical assumptions on which the decision was based and the effects produced by it.

4. Comparison of the observations with the assumptions and expectations contained in the decision record. (When the observations and the assumptions and expectations match, nothing further need be done; the decision is in control).

5. When the observations and the assumptions or expectations do not match, the difference must be explained. (Diagnosis of the deviation is required.) Only four types of explanation or combinations are possible:

a. the information used in making the decision was in error,
b. the decision was made incorrectly,
c. the decision was not implemented correctly, and
d. the environment changed in an unexpected way.

6. Once the deviation is explained, corrective action must be prescribed.  Such prescriptions must be directed at changing either the system that provided the information used, the decision making process, the system that implemented the decision, or some combination of these.

"This much makes it possible for the decision makers to learn, improve their performance over time, and to adapt to changing conditions.  But the system can easily be extended to have an even greater capability.

"The prescriptions for change generated out of explanations of the deviations observed are themselves decisions.  Therefore, records of the change orders can also be prepared and be controlled in the same way as the original decisions.  Then the control system itself learns and adapts, improves its performance over time.  The system displays what some call *double-loop learning and adaptation.*
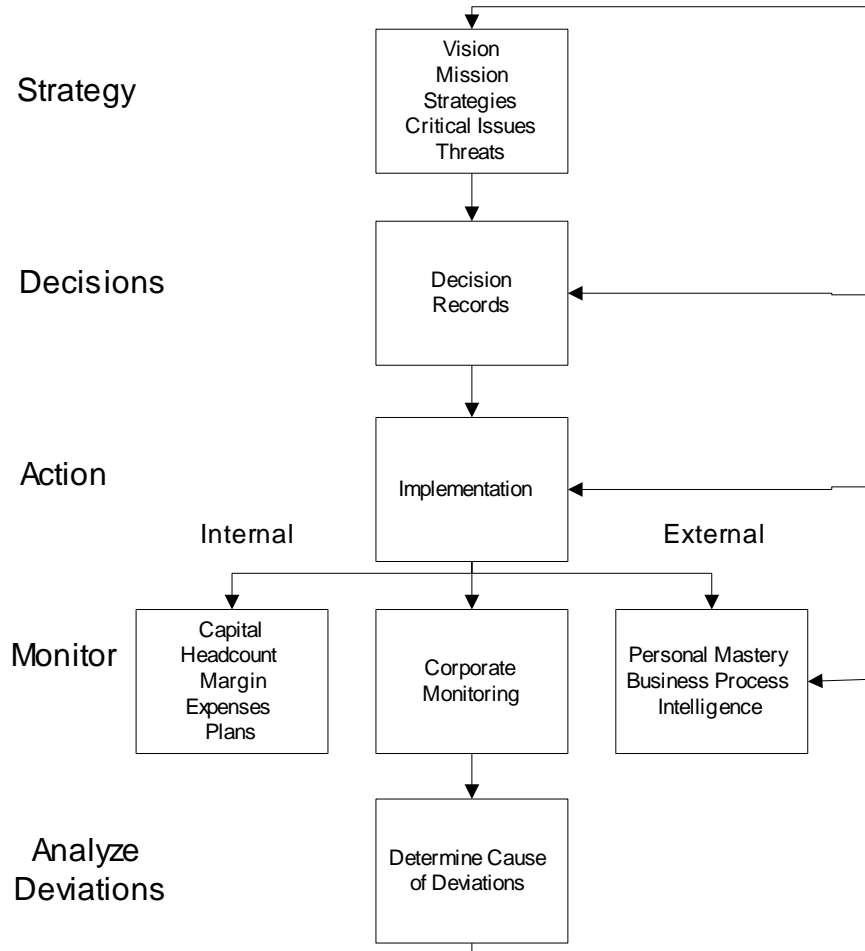
"It has been my experience that such systems (1) are relatively easy to design and install, (2) are easy to sell to managers and induce them to use, (3) can be initiated using hand operations, debugged in this stage, and later converted to computer operation, and (4) are generally seen by managers as the most useful support systems with which they have ever been provided.

"Moreover, once these decision control systems are operating and paying off, information and knowledge systems can be built which augment them.  Control systems provide criteria of relevance which make it possible to design information systems that minimize the amount of irrelevant information and mazimie the amount of relevant information they produce.  In addition, they clearly reveal where knowledge systems can be used effectively and how they can be controlled.

"Decision control systems are in use in many companies, including several divisions and departments of Kodak, Armco's Latin American Division, Metropolitan Life's Personal Insurance Division, and the marketing department of Anheuser-Busch.

The following diagram illustrates where a decision management system fits in the overall management information process:

# The Management Information Process

| Strategy | Vision / Mission / Strategies / Critical Issues / Threats |
| Decisions | Decision Records |
| Action | Implementation |
| Monitor | Capital / Headcount / Margin / Expenses / Plans — Corporate Monitoring — Personal Mastery / Business Process / Intelligence |
| Analyze Deviations | Determine Cause of Deviations |

Internal — External

The following decision record in the Kodak context gives an example:

### *KAD General Manager Decision Record*

**Decision**

> Eliminate time clocks at KAD.

**Description of Decision**

> Time clocks will not be used to maintain time on-the-job for all KAD employees, effective approximately June 15, 1987.  All time clock hardware will be removed.

**Goals & Objectives Addressed**

- Provide a work environment that recognizes each individual's increasing responsibilities and allows everyone the greatest opportunity to contribute to the success of our operations.
- To improve productivity through employee involvement.  To obtain this involvement by treating people like important, valued, responsible human beings.
- Save money.

**Specific Results Expected, and When**
- Implementation of new process for reporting exceptions to an established work schedule will begin approximately June 15, 1987.
- Time records will be disconnected and removed from site by approximately June 30, 1987.
- Site savings of $150,000 annually ($75,000 expected last half 1987) due to elimination of rental and maintenance agreements on hardware and telephone lines.
- Noticeable improvement observed in related opinion trend survey responses (specific methodology to be addressed by Roether, Eldridge, Blumenau).

**Key Information and Sources**
- What other companies, other countries, other EK divisions are doing.
- Thrust toward employee participation from quality programs, Ackoff Interactive Planning.
- Systems impact of no time clocks.
- Current KOTS survey results re: KAD (Roether, Eldridge).
- $150,000 annual site savings (Loehr).

**Key Assumptions**
- Employees will perceive this as an advantage; perceive management treating them as equals.
- Employees will not adversely take advantage of new system.
- Information systems can make necessary changes, on time and they will work (especially not jeopardize payroll).

**Alternatives Considered**
- Time clocks for everyone.
- Retain current system.
- Eliminate time clocks.

*Decision Rationale (Why Alternative Chosen)*
- Consistent with management philosophy. Works other places. Pushes responsibility to proper level – the workers themselves and First Line Supervision.
- Anticipated positive effect on employee morale.
- Expected dollar savings.

| Decision Maker(s) | Review Dates for Decision | Recorded by: |
|---|---|---|
| F. Zaffino, Board of Directors | 5/4/87, 6/15/87, 6/30/87, 10/20/87 | Blumenau |

Guiding assumption for the fast pace and complexity of startup businesses in the Information Age:

**No one person knows, but the group does.**