Retrospective (in)Coherence – informal thoughts.

> *Retrospective Coherence is an attempt to provide a scientific approach to understanding previous events. With it practitioners within the "knowledge community" are formalizing concepts that historically fit under the rubric of "20 / 20 hindsight."*
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> *I've been trying to better understand Retrospective Coherence (or possibly Retrospective Incoherence) as it is an important tool for knowledge work. Since I am by nature a taxonomist my initial approach to understanding this subject is an attempt to classify it.*
>
> *Carl A. Singer*

Retrospective Coherence can initially be viewed as a scientific discipline or an engineering approach to understanding a prior event. The purpose is to gain knowledge about the dynamics of a prior event for future use. Although one could use retrospective coherence to understand a positive or fortuitous event such as Fleming discovering penicillin, or a team coalescing into a "winner", the "search for answers" is often associated with an unexpected negative or catastrophic event. September 11th (a date which now commonly denotes an event) is the critical example here.

The avowed "scientific" purpose is to build understanding – perhaps "useful, actionable understanding." There may, however, be additional legal, social or political purposes associated with our "need to understand." Likely these focus on blame or liability. Clearly when such issues come into play the "scientific" approach may be distorted, constrained or corrupted.

Note: To simplify discussion, we will focus only on "negative" events and preventing same.

[Taxonomy #1] I believe that an associated event complexity hierarchy is called for:

1. Physical (systems) domain
2. Complex systems domain with people in the loop and with decision making
3. Competitive systems where there may be agents working to cause an event that other agents would consider adverse.

1. In the physical domain we have a seemingly static situation disrupted by a sudden, unexpected event. Examples might include a landslide or a building collapse.

   With the landslide there may have been no apparent human intervention or there may have been long-term issues associated with foresting, over development, etc.

   When we speak of a building collapse, decisions were involved in the design and construction of the building, but we normally focus on the static resultant (pre-failure) structure and situation, and then the dynamics of the failure including (unexpected?) forces that acted upon this "as built" structure.

   In this domain we determine and document the status quo ante, then we determine what took place proximate to the event, and finally attempt to build causal links.

2. In the complex systems domain we might focus on "accidents", for example the two shuttle disasters. In addition to the dynamic pre-failure state we have an interest in decisions made during the event.

3. Competitive systems is a domain of intense interest in the Post-September 11th era.

   This broad category ranges from games (chess, football) where there are defined boundaries (or rules) to what I'll term "hostile" systems, where no boundaries or rules of engagement exist.

[Taxonomy #2] The second relevant categorization is frequency:

1. Multiply occurring events
2. Unique / infrequent events.

1. Multiply occurring events let us build a knowledge base of information learned from examining these events. This takes us away from the domain of "retrospective coherence" to the domains of knowledge management and forecasting.
   - We gain a finer understanding of multiple events building our knowledge base as events continue to occur. If these events are identical we continuously gain additional understanding. If the events are similar we may learn to categorize the events, perhaps differentiating among the seemingly similar events. In either scenario, the scientific purpose is to gain actionable knowledge about an event – either to prevent a negative event or mitigate its impact.
2. Unique / infrequent events are the focus of retrospective coherence.
   - This is the "pure" domain of retrospective coherence. We have but the single event and need to learn how a recurrence might have been prevented

Areas of Interest

I've tried to categorize the related areas of interest.

1. **Data / Information**

   1.1. Data Availability – Is all of the pertinent data available, accessible, visible and extracted as useful information? Is it available in a timely manner?

   1.2. Data Quality – Is the data accurate, valid, useful, unbiased, etc.

   1.3. Data Coherence and usability – What if there is too much data or conflicting data?

2. **Model**

   2.1. Can we build a useful model of the system? Does "useful" imply analytic and / or predictive?

   2.2. What happens if our model is wrong or leads to inaccurate analysis or predictions? *(Retrospective incoherence!)*

3. **Competitive Systems**

   3.1. Is this approach fundamentally useful for competitive systems – for "hostile" systems?

   3.2. What extensions are needed, especially in the case of "hostile" systems?

4. **Legal and Political issues**

   4.1. Applying retrospective coherence when legal or political issues are in play introduces several complex issues. – How do these issues perturb our "scientific" approach?

   4.2. In an altruistic world the purpose of retrospective coherence is only to gain knowledge. There are no detractive issues such as blame avoidance. – Is this statement true or is it only a matter of degree?

Although I've simplified by presenting these as apparently independent areas of interest, they are all interrelated. Consider, for example, how a legal issue might impact data availability.

Where to from here – these few pages are a bare framework and the beginnings of a problem statement.

As a process-oriented person I see two additional avenues to assuage my curiosity:

- What process framework could be built to implement the orderly application of retrospective coherence in model building? That is how do we go about using this stuff?
- How can retrospective coherence be used as a tool in building processes, possibly in the Software domain, but likely also in other domains?
  (see http://www.research.ibm.com/journal/sj/423/singer.pdf)

You just don't get it – do you!

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