# Learning from ONE event

## A structured organizational learning process to inquire and learn the right lessons from a single event

## Master Class Workshop

**Presented By: Eli Schragenheim**

**Date: June 3rd, 2013**

# A very embarrassing event:



- TopSecurity develops top security innovative devices
- Two months ago 200 potential clients were invited to an official launch of the Wise-Cameras System that automatically identifies any attempt to approach a protected building
  - No need for guards watching the screens
- The test group, used for demonstrating the system in the event, succeeded to trick the cameras by approaching the building by rolling on the ground
- Sam, the CEO of TopSecurity, immediately announced his resignation due to the catastrophic failure
- But, he also demanded to inquire what went wrong!
- How do YOU suggest to proceed?

# A general perspective



- TOC has dealt so far with **planning and execution methods**
- SWOT analysis outlines four critical areas for every manager
  - **Strengths, Weaknesses, Opportunities and Threats**
  - TOC looks mainly into **weaknesses** and lately, through the search for a 'decisive competitive edge', into **Strengths**
  - **Signals originating externally to the organization are not considered**
- This particular methodology is focused on identifying certain type of threats
  - Usually caused by inertia, which follows certain paradigms even when they do not reflect the reality anymore
  - The corrective actions are based on the first time a signal that something is wrong is observed

# About learning from experience



- Learning means **updating our understanding** of the cause and effect of a certain knowledge area
  - The focus is on updating our own awareness of the cause and effect
  - Using our own, or other people, actual experience to re-build the causality
- How do we know we don't know?
  - We get a signal from reality that looks **strange**
  - Then we ask: what caused the signal to look so strange to us?
  - Can we ensure better understanding and response in the future?
- Are we always ready to read the signals pointing to certain flawed paradigms that impact our behavior?
  - The signals are all there
  - Many times the signals FORCE us to react – but this doesn't mean we have learned the lesson

# On the term "paradigm"



- A paradigm is a pattern of thought
  - A small cause and effect tree **that is treated as true!**
    - For instance, [*if I explain to X what needs to be done*] and [*X does not ask any questions*] then [*X knows what needs to be done*]
    - Is it ALWAYS true?
      - We usually behave according to it
- When Goldratt talked about the difficulty in accepting a "paradigm shift" he referred to a significant paradigm
- An observation: the same flawed paradigm is many times shared by many people within the organization
  - For instance, many organizations think their customers are very satisfied from the service they get

# Insight no. 1: the need to learn the RIGHT lesson



- There are TWO obstacles to learning:
  1. The **fear of learning** invoked by fear of being blamed and punished
     - It is partially personal due to one's ego, but mainly organizational
  2. The difficulty of learning the **RIGHT** lesson
     - Not just the opposite of what was done
     - Not necessarily the first explanation of what went wrong!
  - Eventually we need LOGIC and FOCUS to truly identify the right cause and the right practical lesson
- Sam has nominated **a team** to inquire the case and recommend what to do in the future
  - The team members consisted of people **who were not involve in the case**
  - Is it the right move?

# Insight no. 2: A mixed team



- Why a team?
  - Handling the risk of sticking to the first plausible explanation of the event
    - Every person has strong paradigms, not always in line with reality, which impact his/her reactions
  - Because having to convince other members of the team provides good opportunity to use **LOGICAL** cause and effect arguments
- Who should be in such a team?
  - We need people **who were involved** in the event!
    - They have the most relevant knowledge and intuition
    - By involving them we declare there is no intention to blame
      - But, we do insist on correcting what is wrong
  - We also need people external to the case – to pull the team from misconceptions
  - A team of five seems right

# Insight no. 3: the trigger and the focus for learning



- A **flawed paradigm** sometimes causes a **gap between prior expectations and actual outcomes**
- In other words: **a surprise!**
- The opposite statement is also true:

  **Any significant gap between prior expectations and reality is caused by a certain flawed paradigm**

- Hence, the **trigger** for initiating a process of learning is being **surprised**
  - The surprise is the **first evidence** of the existence of a **flawed paradigm**
- The first task of the team is to define the gap between the prior expectations and the actual outcome
  - And that gap determines the focus of the learning!

# The gap in the case



- The team has identified **two different gaps** in this case:

1. Prior expectations: The potential clients, would be grossly impressed by the performance of the Wise-Cameras
   - Actual outcome: Huge failure, leading to inferior reputation and low perception of the system and of TopSecurity as a reliable and innovative supplier
2. Prior expectations: The system is capable of tracing even the most sophisticated breaking into a protected building
   - Actual outcome: The system can be bypassed by a clever team

- What is the key difference between the two? Which one to choose?

# Where should the learning focus on?



- Points to discussion:
- If Gap 1 is chosen then what is the focus?
  - The main point is to deal with the **planning of an event** that ended in failure
    - Was the planning for the event flawed?
    - If the system can be tricked then what kind of a marketing event should have been planned?
- If Gap 2 is chosen then what is the focus?
  - How come a monumental project failed to achieve its expectations?
  - How come management were not aware that the project deviated from its initial objectives?
- What is your choice?  What are your reasons?
- In the case itself the choice of the team was:  Gap 2
- What should the team do now?

# The unguided search after meaningful information



- The common practice in inquiring “unfortunate” events is to look for **every fact** that looks somewhat relevant
  - Speak with **everyone** who seems to have information
  - Reading many documents that are connected to the case
  - In other words: **looking everywhere** for meaningful information!
  - This is definitely **a very lengthy process**
- The amount of data often causes **confusion**
  - It is difficult to see a clear pattern
  - So, more data is collected
  - And the vicious cycle continues

# Insight no 4: Hypotheses lead the inquiry

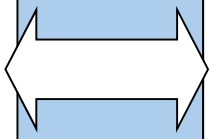


- The proposed way is first to generate enough **hypotheses**, possible explanations, regarding what happened and why
  - Hypotheses are first made just from the very basic facts
    - Some wild guesses on what could have caused the gap are raised
  - The team leader should press the team to come up with **as many possible explanations** of what happened
- Each such hypothesis/guess is then logically checked that is gives a **full possible explanation**
  - Usually people come up with potential causes that are not sufficient
- Only then every hypothesis is checked whether it truly happened
  - The hypothesis itself directs the inquirer to the necessary facts
  - The objective is to save time by being focused on the most likely causes that could explain the gap

# Representing the gap



**Expectations:** The system is capable of tracing even the most sophisticated breaking into a protected building



**Outcome:** The system can be bypassed by a clever group

- The mission is to explain, through effect-cause-effect, the above effect of the gap
- There are three obvious categories of hypotheses:
  1. **Flawed expectations**
     - We should not have expected that
  2. **Flawed execution**
     - Somebody made a mistake
  3. **A rare statistical fluke**

# The initial hypotheses raised



- Hypotheses 1: The expectations were not realistic to start with – there is no way a building can be fully protected by cameras
- Hypothesis 2: The project people developed what they knew to develop. What seemed to be impossible was not developed. Management was not aware of the features that were not developed
- Hypothesis 3: The project people decided against adding features that might cause frequent false alarms. Top management and/or marketing and/or clients were not involved with those decisions
- Hypothesis 4: There were no clear and detailed specifications, approved by top management, of what the Wise-Cameras should do
- Hypothesis 5: There were not enough involvement of highly professional security people in the development and testing of the system
- Hypothesis 6: The project team did not have all the skills required for such a mission, and they tried to conceal this from top management

# The use of TP to identify the cause

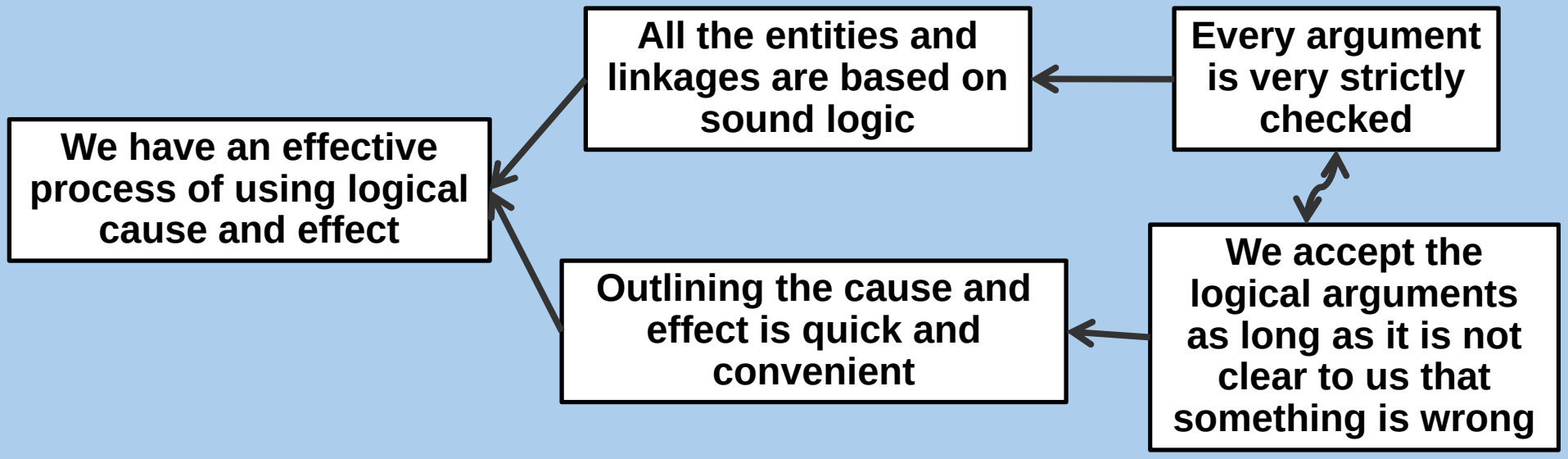


- Usually we express cause-and-effect in the present tense
  - If X then Y
- Here we refer to the past:
  - If X existed at the time then **it could have caused** Y
    - We can never be certain that X **always** causes Y
      - Because of uncertainty in relatively rare cases
      - For instance, if (M thought X was the best person for the job) and (X was a candidate for the job) and (M had voting power) then (M voted for X)
- Validating entity existence in the past:
  - Sometimes we can get direct information that validate the cause
  - Or we use the structure of effect-cause-effect:
    - If X caused Y then we should also see Z
  - Dive deeper in the tree:  identifying what could have caused X

# The conflict of how strict logical arguments have to be



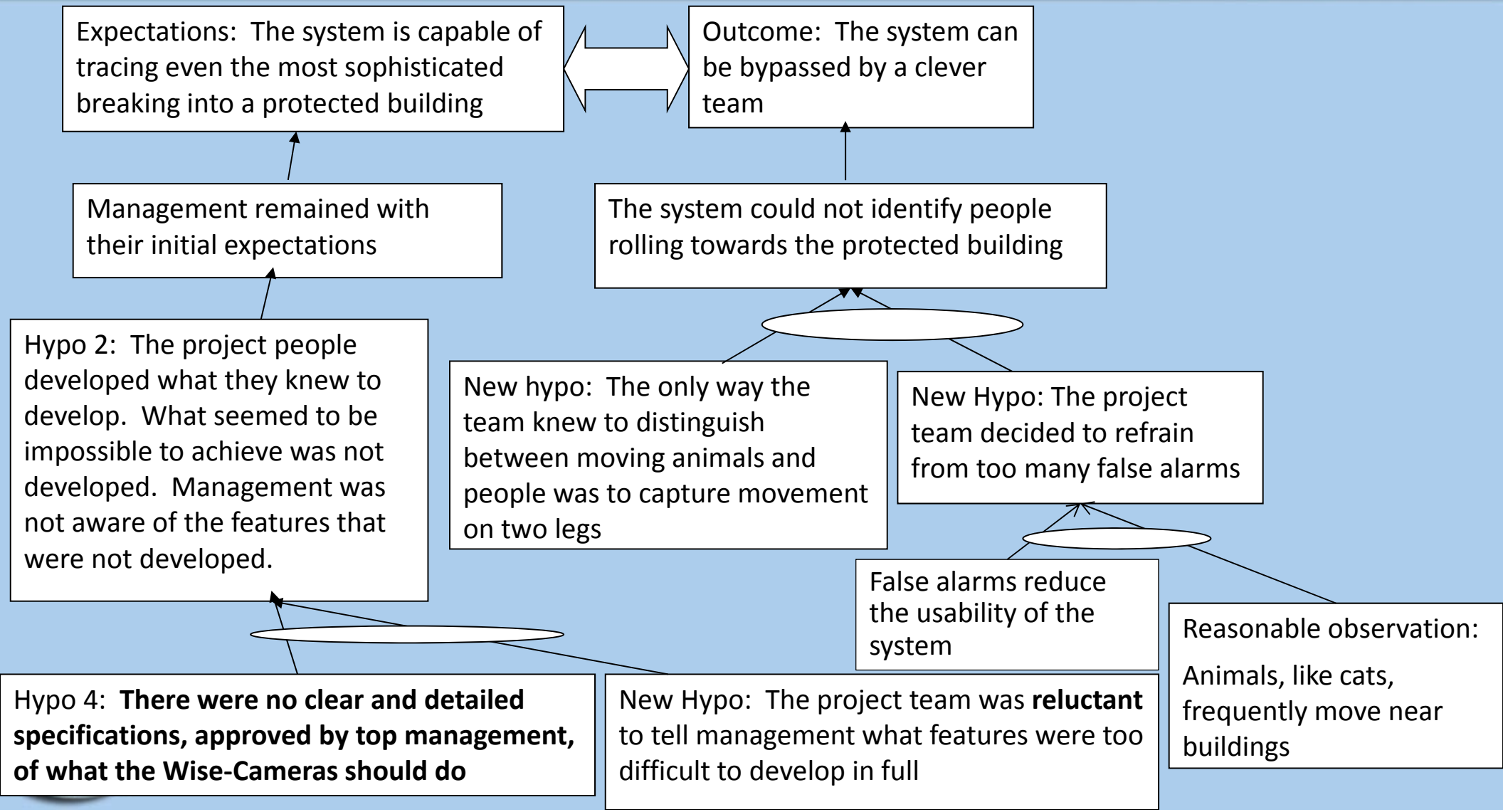
- The TOC-TP provides us with the structure to verbalize logical statement and open the arguments for reservations
- Question: how strict you need to be in judging logical statements?




Evaporating (updated) assumption: *It is good enough when the cause and effect logic is valid for the vast majority of the cases*

# The full logical explanation of Hypo 4





# Establishing the facts behind the hypotheses



- Every hypothesis is now checked for its facts
  - Did the assumed fact truly existed at the time?
  - Did it cause the resulting effects?
- The important validated hypotheses in the case:
  - Management did not clearly specify in writing that the system would eliminate the need for guards to watch the screens
    - But, management did assume the system was fully automated
  - The professionals were all of the highest degree and high motivation
  - While the project people did not agree that they were reluctant to report what they were unable to achieve there were enough evidence for that
  - The main technical problem was to distinguish between people and animals
    - Thus, they based the solution on identifying movement on two legs
  - Another unsolved problem was very bad weather conditions

# All fact are known – what do we learn???



- What should be the next step?
- When an undesired effect (UDE) regularly happens we are able to construct the conflict that prevents the natural solution
  - Based on the conflict diagram we raise hidden assumptions (paradigms) and look whether we can challenge them
    - Meaning identifying the flawed paradigm behind the conflict
- However, when such a failure happens for the very first time it is not clear whether the people are in any conflict between two lines of actions
  - Or, they were simply following the inertia of well-established paradigms
- The idea is inquire **how come the operational cause happened?**

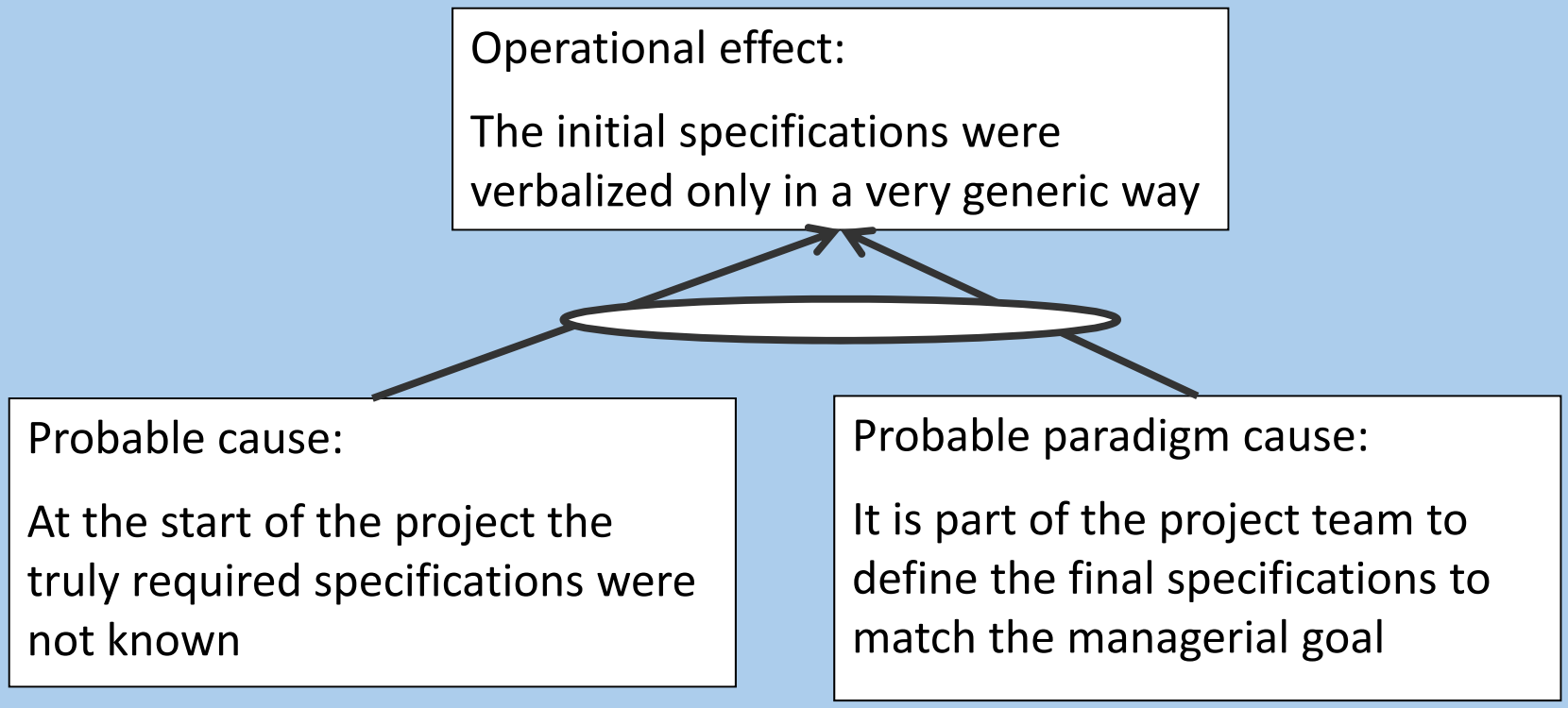
# Insight no. 5: “How come” key questions initiating the search for the flawed paradigm



- The critical insight is to distinguish between the operational cause(s) and the flawed paradigm that lies behind the operational cause
- So, we proceed from the operational causes and ask: **how come?**
- The most important operational core-causes:
- 1. **How come** the initial specifications were verbalized only in a very generic way?
- 2. **How come** the project team did not update the management with the “holes” in the system?

# The paradigm behind the first operational cause



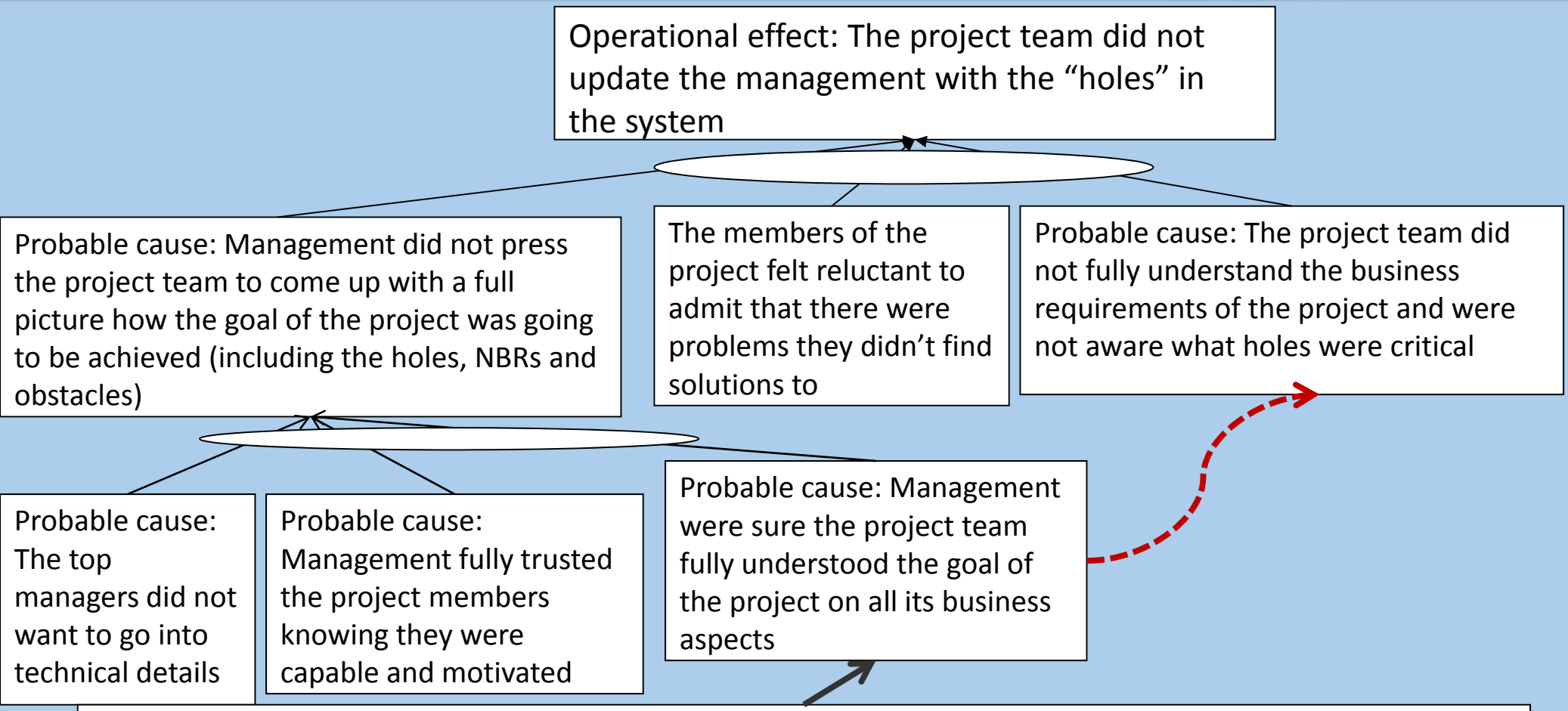



Is the above paradigm flawed?

We better check the other operational cause “how come?” question

# Identifying the flawed paradigm






**Probable flawed paradigm that caused the critical operational effect:**

**When we explain the business issues to very good intelligent technicians and engineers they fully understand all the ramifications of the business case on the technological requirements**

# Insight no 6: Coming up with the updated paradigm



- Identifying the flawed paradigm and how it caused the operational cause that caused the gap leads us to update the paradigm
  - Special care should be given not to change the original **more than absolutely necessary!**
  - Note that there is a tendency to use the opposite of the original flawed paradigm as the new one
    - And this is WRONG!!!
- The flawed paradigm in the case is verbalized as

**When we explain the business issues to very good intelligent technicians and engineers they fully understand all the ramifications of the business case on the technological requirements**

- How would YOU update the paradigm?

# My choice for the updated paradigm



***Technicians, scientists and engineers understand the technology, but, many times they do not have good understanding of the way it should be utilized by the users, the necessary marketing messages and other business aspects.***

- Is the learning process completed?
- What additional steps we MUST take?

# Insight no 7: Inquiring the immediate ramifications of the change in the paradigm



- The scope of impact of the flawed part of the original paradigm is usually much **wider** than the exact conditions where the learning efforts were focusing on
  - So, to avoid the other undesired effects that might result from the flawed paradigm some changes in other procedures might be called for
  - The newly updated paradigm should dictate the changes
  - Sometimes new opportunities are opened due to the new understanding of the paradigm
- The relevant TP tool to use in order to evaluate the ramification is the future-reality-tree (FRT) based on the change in paradigm
- Like all FRTs the potential negative branches of any change in process should be verbalized and eliminated

# The immediate ramifications for the case

**A superior process to be detailed and implemented:**

**Project managers must have deep understanding of the business case of the project and be responsible for the business case**

**Management must clearly define the business/marketing objectives**

**Periodical status meeting be focused both on the progress through time AND on meeting the business objectives**

**Potential negative branch**:

Sometimes there could be clashes between the technology project manager and the associate business development manager

**Potential resulting process**: Every technological internal project would have an associate project manager that is familiar with the business and its marketing needs

**Potential resulting process**: All the marketing and business objectives, including intermediate objectives, of any technological initiative, would be clearly verbalized in writing

We now recognize that:

***Technicians, scientists and engineers understand the technology, but, many times they do not have good understanding of the way it should be utilized by the users, the necessary marketing messages and other business aspects.***

# Insight no 8: Generalizing the change in the paradigm to widen the scope of impact



- The common tendency is to learn only the **immediate lessons** that are deduced from an unfortunate event
- However, attempts should be done to **generalize** the change in the original paradigm to cover much wider scope
- There are two different ways to expand the scope of the change in the paradigm:
    1. Look for the impact of the old and new paradigms for different types of events and conditions than those of the original event
    2. Expand the verbalization of the paradigm itself
- Any such expansion would require following with the appropriate future-reality-tree

# Demonstrating the generalization step in the case



1. The first attempt should be looking beyond the area of managing the existing projects
   - For instance, what is the current process of raising ideas for new products?
   - How do we create a productive collaboration between those who understand the market and its needs and the technology people who understand what does it take to develop the answers?
2. The old and the new paradigms speak about “Technicians, scientists and engineers”
   - **What about other professionals?** Do they fully understand the business case? If not, do they make mistakes due to that?
   - The need to fully understand the business case of a company, its strategy, the messages to the various market segments applies to variety of people

# Insight no 9: spreading the learning



- What does it take to make all the organization's members, now and in the future, be aware of the lesson learned?
  - We don't want that only the people involved in the event and those involved in the learning itself would understand the lesson
  - Just by changing policies the real lesson is NOT delivered!
  - We must be careful not to overload people with too many lessons!
  - Thus, we have to focus only on lessons that are very substantial
  - And then show only the kernel of the event and the main logical arguments that led the way from the old paradigm to the new
  - And the main ramifications that were deduced by the change in the paradigm
- It is recommended to have a not-too-big database where the brief descriptions of key lessons learned be open to all employees

# The main points to keep from key lessons learned



- 1. A good summary of the story
- 2. The definition of the gap
- 3. The summary of the operational facts that have caused the gap
- 4. A short summary of the logical tree identifying the flawed paradigm and how it caused the gap
- 5. The verbalization of the new paradigm
- 6. A summary of the future-reality-tree, including the important negative branches, leading to the brief description for new policies and processes

# The full learning process cycle



- Step 1: **Identifying surprises**, evaluating the possible benefits of the structured learning and nominating the learning team
- Step 2: The team verbalizes the **gap between expectations and outcomes**
- Step 3: Identifying the **flawed paradigm(s)**
  - This analysis includes brainstorming for hypotheses, validating the existence of possible causes and diving down until the identification of the flawed paradigm
- Step 4: **Update the flawed paradigm**
  - The updated paradigm must express the right cause and effect for the reality as we see it then

# The full learning process cycle



- Step 5: Predicting **the future ramifications**, put special emphasis to cover **all the possible outcomes**, especially the negative branches
  - Every negative branch should be addressed with a solution
- Step 6: Develop all the new procedures that stem from the updated paradigm
- Step 7: Write down **a document** stating how the **new understanding is based on the specific event**
  - The purpose is to **spread the new understanding of the cause and effect within the organization** and institute the culture of learning without pain

# Summary



- Mistakes are opportunities for updating our paradigms
- A **surprise** is a signal that we might learn from it
- The focus of learning from a single case is a **gap between prior expectations and actual outcomes**
- A team of people with a lot of intuition and outsiders is a good vehicle to carry the learning
- The search for information should be based on hypotheses and the need to validate or invalidate them
- The “operational cause”, meaning the facts leading to the gap is **not the end of the analysis!**

# Summary



- Behind the operational cause there is **a flawed paradigm**
- Identifying the flawed paradigm should be the mission for the first part of the learning
- **Re-verbalize the paradigm** requires special care not to simply adopt the opposite
- **Generalize the updated paradigm as much as possible** to represent the wider aspects of the new understanding, is a formidable challenge
- Changing the policies and procedures is not enough to institute the learning within all the organization's members now and in the future

# About the presenters



Eli Schragenheim

## *About Eli Schragenheim:*

- **Eli used to be a TV director**
- **He supports TOC implementations worldwide through emails and Skype**
- **He is serious about developing the knowledge on how to deal with common and expected uncertainty**
- **Also developing the Business Intelligence in the TOC Way**
- **And mainly: how to improve the capability of any manager in the world who is ready to learn**