

INTERNAL MEMORANDUM

Date: April 29, 2004
To: CIFM Root Cause Mapping Workshop Participants
From: Aleco Christakis, and Diane Conaway
Subject: Root Cause Mapping (RCM) Workshop Products

The Facilitation Team would like to thank all of the CIFM Design Team participants for their extremely hard work, perseverance and good humor during the Root Cause Mapping Workshop of March 18 & 19, 2004. The purpose of this memorandum is:

- To review the products of the Workshop;
- To reflect on our collective and individual learning;
- To assess the implications of the Workshop findings in terms of the implementation of the CIFM in the field.

Background

The CIFM Design Team conducted a root cause analysis workshop with the engagement of thirty stakeholders. The participants to the workshop were representatives from the community of practitioners in the field of Continuous Improvement Focused Monitoring (CIFM). The participants were initially engaged in a series of workshops for the purpose of designing the CIFM process, which they will then have to implement in the field with school districts throughout the state of Michigan.

After the Design Team completed the design of the CIFM process, it was decided to conduct a “root cause analysis workshop” with the engagement of the CIFM designers as workshop participants. The purpose of this particular workshop was to try to anticipate any factors that might inhibit the successful implementation of the CIFM process in the field. The intention was to conduct an anticipatory root cause analysis before the launching of the CIFM, as opposed to the traditional root cause analysis, which usually focuses on identifying the root causes of existing system problem(s).

In reviewing the findings of this CIFM group work it is important to draw a distinction between “observer-independent” and “observer-dependent” root cause analyses.

Observer-Independent Root Cause Analysis

Generally speaking, observer-independent root cause analysis is a databased procedure for ascertaining and “analyzing” the causes of problems in an effort to determine what can be done to solve or prevent them. The goal of root cause analysis goes beyond merely “fixing” the problem. It seeks to actually prevent it from happening again.

What Root Cause Analysis Needs to Include

Over 30 years of research and development teach us that effective and reliable root cause analysis must provide three essential qualities:

1. The process in addition to facts must take advantage of people’s knowledge while preventing the biases of experts from controlling the direction of the investigation.

Methods which allow or even encourage the specialists/analysts themselves to choose which aspects of a problem to focus their search for solutions run a strong risk of failing to identify the best solutions. Traditionally management and/or knowledgeable stakeholders are better equipped to determine which solutions are the best, so it is desirable for them to have visibility of all of the available avenues toward prevention.

A process for identifying all factors contributing to a problem so that management can consider all possible avenues toward prevention is an important feature of the observer-independent root cause analysis methods.

2. The process must depict the facts of the case so that the causal relationships are clear and the causal relevance of those facts can be verified.

Root cause analysis needs a process which validates our thinking so that we can be sure we have included all of the relevant facts, and at the same time, only the relevant facts. It is the strong dependency on facts or data that makes this form of root cause analysis observer-independent, namely it minimizes dependence on “subjectivity” in favor of “objectivity.”

3. The process must also help us understand what actions must be taken to implement potential solutions and who in the organization needs to take those actions.

Once every possible avenue toward prevention is identified, the root cause analyst must understand what specific actions need to be taken. Is a new policy needed? If a policy already exists, then why wasn’t it effective, and what steps do we need to take to make it effective in the future? And who in our organization needs to take those steps? These issues are part of the process of identifying preventative measures and must be integrated into the root cause analysis system.

Observer-Dependent Root Cause Mapping

In the case of the CIFM root cause analysis, it was recognized from the outset that this particular root cause analysis, in addition to being anticipatory, it also had to be “observer-dependent” and not “observer-independent.” The distinction between observer-dependent and observer-independent is founded in the context of the evolution of science from first phase science, e.g., Newtonian physics, to second phase, e.g., quantum physics, to third phase, e.g., second order cybernetics.

Newtonian physics was deliberately constructed in the 17th century to be observer-independent, and to be invariant in terms of space and time. For example, an observer seeing in 2000 an apple falling in London from a British tree, and a different observer seeing in 2004 an apple falling in Los Angeles from an American tree, will report the same phenomenon. However, in the arena of education, where the CIFM process is meant to be applied, observers/stakeholders are observing different phenomena in terms of school performance indicators at different locations at different times, all of which are equally valid in the context of their particular situation. The challenge for the

conduct of observer-dependent root cause analyses in the field of education **is to enable the observers/stakeholders to construct high quality observations collectively, collaboratively, and systemically.** This is exactly what was accomplished in the CIFM Workshop

It appears that this very fundamental distinction between first and third phase science is ignored in a number of root cause analyses dealing with phenomena in the educational systems design arena, leading to erroneous results. In order to distinguish this third phase science form of root cause analysis from the traditional one founded solely on objectivity and facts, we have named it Root Cause Mapping (RCM).

Root Cause Mapping for the CIFM

In the case of the CIFM application of the RCM, the stakeholders were first engaged in a generative dialogue in response to the following triggering question:

“What factors do we anticipate will emerge as inhibitors to the successful implementation by OSE/EIS of the CIFM cycle of activities in its field applications?”

In response to the above question the stakeholders identified forty-six inhibitors (**red ideas**). After voting individually and subjectively on the inhibitors of higher relative importance, the participants constructed, through a strategic dialogue focusing on the relationships between pairs of inhibitors, a Root Cause Map (see Attached Figure 1). This figure displays graphically the four inhibitors that were located at the roots of a tree-like pattern. This group work was completed during the first day of the Workshop.

On the second day of the Workshop, the stakeholders engaged again in a generative dialogue in response to a different triggering question, namely:

“What are Action Options for overcoming the Inhibitors by focusing at the roots of the Root Cause Map?”

They proposed over forty preventative action options (**blue ideas**) for addressing the inhibitors. Voting individually and subjectively on the relative importance of these preventative measures, they identified fifteen that received three or more votes, with thirty people voting (See Attached Table 6). Ten of the fifteen important preventative actions were subsequently superimposed onto the Root Cause Map, by engaging the group in a strategic dialogue of relational voting in order to discover the effectiveness of the actions in addressing the root causes of the Map.

The deeper a preventative action is located in the superposition map of actions onto inhibitors, the stronger is its effectiveness in overcoming the inhibitors to the successful implementation of the CIFM process. On the basis of supermajority voting, it was discovered that only four of the important preventative actions exerted strong leverage in overcoming the root cause inhibitors. The stakeholders must give preferential consideration in implementing those four effective preventative actions (See Attached Figure 2).

Figure 1: Amended Root Cause Map of Inhibitors to the Successful Implementation of CIFM

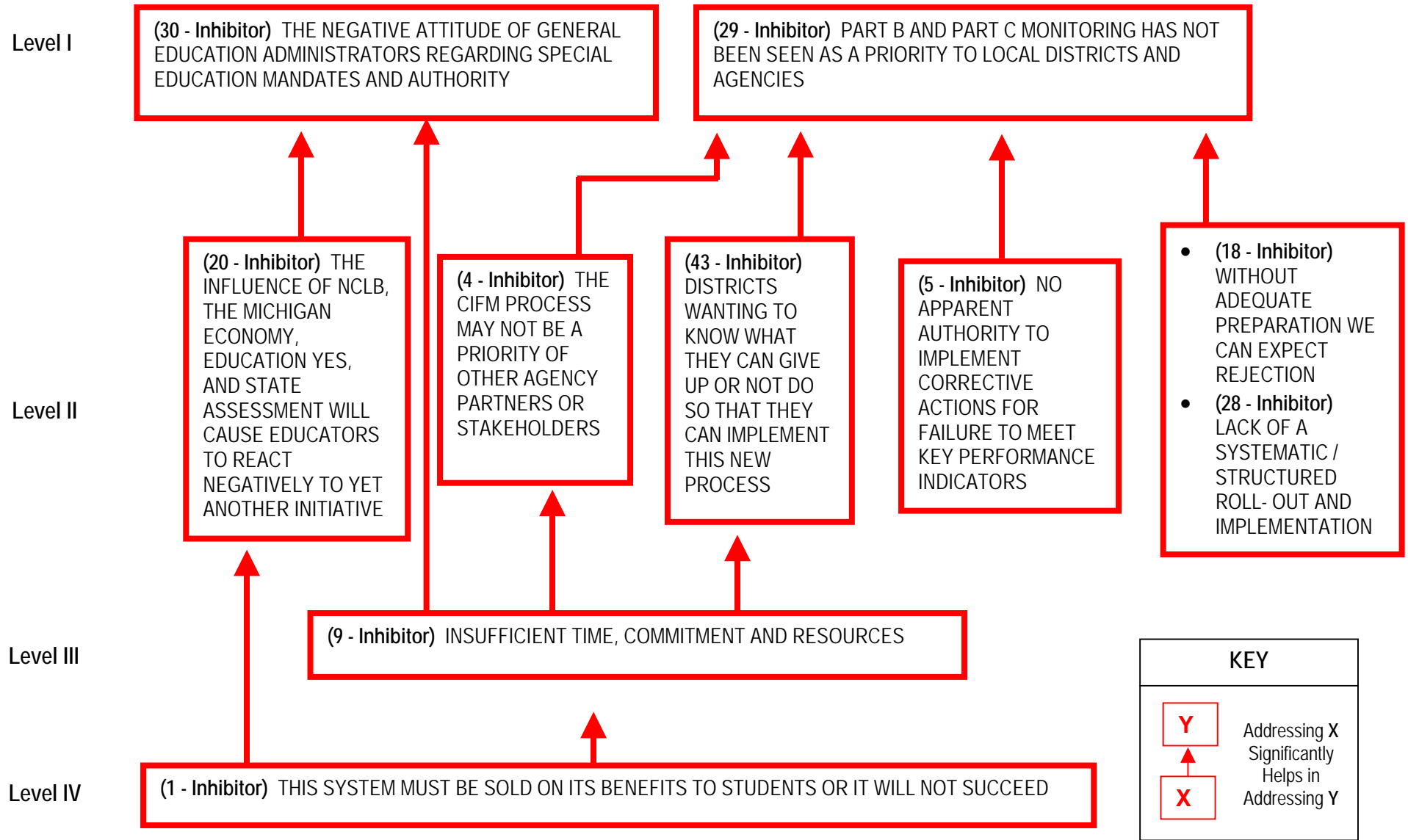


Table 6: Voting Results of Action Options for the Successful Implementation of CIFM

Triggering Question:

"What are Action Options for overcoming the Inhibitors by focusing at the roots of the Root Cause Map?"

	Action Option	Vote
21	BUILD AND FORMALIZE SYSTEM LINKAGES WITH OTHER INITIATIVES TO BUILD ALIGNMENT	14*
41	IDENTIFY AND ALIGN THE CORRELATION BETWEEN THE FIMS PROCESS AND OTHER MANDATES TO SHOW THE INTERRELATIONSHIPS	14*
17	DEVELOP A COMMUNICATION MARKETING PLAN WHICH CLEARLY DESCRIBES CIFM BENEFITS TO CHILDREN, YOUTH AND FAMILIES	12
5	KEEP THE MONITORING MODEL FREE OF DETAILS AND ACTIVITIES NOT RELATED TO STUDENT / CHILD OUTCOMES	11
11	EMPHASIZE AND PRECISELY COMMUNICATE THE RESEARCH BASED BENEFITS TO CHILDREN AND THEIR FAMILIES	8
38	DELAY COMPLETE IMPLEMENTATION UNTIL ADEQUATE GROUNDWORK IS LAID	8
6	USE LANGUAGE THAT SHOWS AND SELLS HOW IMPROVEMENTS IN A GIVEN PRIORITY AREA HELP STUDENTS, FAMILIES, COMMUNITY, NCLB, ETC.	6*
8	ROLL- OUT THIS PROCESS AS A PART OF A LARGER EFFORT (EDUCATION YES, ETC.) NOT AN ISOLATED ENDEAVOR	6*
18	DEVELOP A GRAPHIC THAT ILLUSTRATES THE RELATIONSHIP OF ROOT CAUSE TO PRACTICE TO BENEFITS	6*
14	PILOT THE PROCESS IN A DISTRICT / SA OF A DESIGN TEAM PARTICIPANT	4
24	AVOID APPROVAL OR DISAPPROVAL OF DISTRICT / COMMUNITY IMPROVEMENTS PLANS	4
1	OSE/EIS SHOULD WORK WITH MULTIPURPOSE COLLABORATIVE BODIES TO CONVEY THE COMMUNITY BENEFITS TO ACHIEVING IDEA OUTCOMES	*3
2	CONDUCT REGIONAL MEETINGS WITH PERTINENT LOCAL ADMINISTRATORS EMPHASIZING OUR VALUE IN INTRODUCING THE PROCESS TO THEIR COMMUNITY	*3
15	INVOLVE THE GOVERNORS OFFICE AND OTHER EXECUTIVE BRANCH MEMBERS TO RAISE THE IMPORTANCE OF FOCUSED MONITORING AMONG OTHER STATE LEVEL AGENCY PARTNERS	3
30	SEEK CLARIFICATION AND POLICY GUIDANCE FROM OSEP OR THE STATE BOARD OF EDUCATION ON AUTHORITY TO IMPLEMENT INCENTIVES AND SANCTIONS	3
26	ISD/SA MONITORS THROUGHOUT THE STATE MUST BE TRAINED IN THE FIMS MODEL BE GIVEN AN OPPORTUNITY TO PROVIDE INPUT AS TO SPECIFICS AT THE LOCAL AND BE GIVEN THE TA AND TOOLS TO PROMOTE AND INSTILL VERSIONS OF THE MODEL THAT WILL "FIT" THE ISD/SA LEVEL	2
37	STRUCTURE REGIONAL TECHNICAL ASSISTANCE THAT IS HIGHLY ACCESSIBLE AND CONSUMER FRIENDLY	2
40	CREATE A CULTURE WHERE THE PUBLIC HAS THE CAPACITY TO INQUIRE AND HAVE EXPECTATIONS ABOUT THE AREAS WE ARE FOCUSING ON	2
42	RENAME THE PROCESS CHILD OUTCOME MONITORING	2
16	COMMIT STAFF WITHIN AND WITHOUT OSE/EIS THAT ARE GIFTED AMBASSADORS FOR PART C AND PART B FOR FMT, LM AND KC	1
22	HIGHLIGHT PLACES OF PRIDE WHERE SUCCESSFUL PERFORMERS IN HIGHLY RANKED PRIORITY AREAS HAVE ALREADY AFFECTED STUDENTS, FAMILIES AND COMMUNITIES	1
23	REALIGN HUMAN AND FINANCIAL RESOURCES AT OSE/EIS AROUND FIMS AS A PRIORITY	1
25	MAKE IT SO OUTRAGEOUSLY COMMON SENSE BASED THAT LOCAL DISTRICTS WILL WANT IT AND ASK FOR IT	1

Table 6: Voting Results of Action Options for the Successful Implementation of CIFM

34	OSE/EIS MUST IDENTIFY THE MARKETING OPPORTUNITIES TO PROMOTE FIMS	1
3	SEND A PROMOTIONAL LETTER TO ISD's/SA's OFFERING AN SEA TEAM TO ASSIST IN A DEVELOPMENT OF AN ALTERNATIVE TO COMPLIANCE MONITORING	0
4	DESIGN A LOCAL MONITORING MODEL AND RESPONSIBILITIES THAT IMPACTS THE REQUIREMENTS OF EDUCATION YES AND NCLB	0
7	CREATE AND DISSEMINATE ONE CLEAR CONCISE MESSAGE FROM MDE	0
9	ASK "WHO" FOR EVERY INHIBITOR BOX AND ENGAGE THEM IMMEDIATELY TO CLARIFY PERCEPTION VS REALITY	0
10	BUILD IN METHODS OF GROUP DIALOGUE AT THE AGENCY AND/OR DISTRICT LEVEL TO ASSIST STAKEHOLDERS IN ELICITING AND IDENTIFYING SPECIFIC LEVELS OF COMMITMENT	0
12	DEVELOP A METHOD AND STRATEGY OF DISSEMINATING INFORMATION TO LOCAL ISDs/SAs	0
13	BUILD IN TO IMPROVEMENT PLANNING THE QUESTION "ARE THERE ACTIVITIES IN THIS DISTRICT / SERVICE AREA THAT DON'T CONTRIBUTE TO CHILD OUTCOMES THAT CAN BE DROPPED SO WE CAN REALLOCATE RESOURCES"	0
19	OSE/EIS SHOULD WORK WITH OTHERS TO IDENTIFY THE COMMON GOALS IN MULTIPLE INITIATIVES (E.G. GREAT START, READY TO SUCCEED, ETC.)	0
27	PROVIDE DETAILED STEPS FOR PREPARATION / PROCESS AND LEVELS OF ONGOING SUPPORT	0
28	HAVE THE DEPARTMENT RESERVE SPECIFIC FUNDS FOR INCENTIVES TO IMPLEMENT CHANGES PROPOSED FROM THE MONITORING PROCESS	0
29	PROVIDE RUMOR CONTROL	0
31	CONNECT WITH SICC / STATE PAC / SEAC AS PART OF A PROMOTION AND SOLUTION GROUP	0
32	IDENTIFY (PROVIDE EXAMPLES) OF HOW TIME AND RESOURCES CAN BE RECOMMITTED	0
33	UTILIZE A DISCOVERY METHODOLOGY (E.G. COGNISCOPE) THAT SUPPORTS LOCAL IDEAS AND QUESTIONS THAT LEADS TO AN INNER UNDERSTANDING OF THE FIMS PROCESS	0
35	FOCUS OUR EFFORTS ON OUR FRIENDS TO HELP THEM DO BETTER WHAT THEY ARE TRYING THEIR BEST TO DO	0
36	PROMOTE THIS PROCESS AS EVOLVING, CHILD CENTERED AND IN NEED OF WILLING PARTICIPANTS TO DEVELOP THE FINAL FIMS PRODUCT	0
39	CLEARLY DEFINE THE PRIORITY AREA AND DEMONSTRATE ITS VALUE TO CHILDREN	0
43	ESTABLISH THE RELATIONSHIP OF SPECIFIC INITIATIVES TO CHILD BENEFITS / OUTCOMES AND HOW THAT BECOMES A PART OF PRACTICE	0
20	IDENTIFY AND ALIGN WITH GENERAL EDUCATION AND COMMUNITY ACTIVITIES THAT HAVE A CONGRUENT PURPOSE (*DELETE*)	

*Note: Certain Action Options were put together due to their similarity. The combined vote was then assigned to one Action Option.

Those Action Options are:

#18 & #6 = Action Option 18 was used during the Superposition (see Figure 2).

#1 & #2 = Action Option 1 was used during the Superposition (see Figure 2).

#41, #21 & #8 = Action Option #21 was used during the Superposition (see Figure 2).

Figure 2: Superposition of Action Option onto the Root Cause Map of Inhibitors to the Successful Implementation of CIFM

