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[Session: Transportation and the Supply Chain]

Supply Chain Assessment, Compliance and Corrective Action: Application to Catastrophic Incident Planning and Response

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Good morning; my objective is a little different and actually it's changed with the Katrina event. What I have been asked to discuss is the research findings that we have to date through the Dept. of Homeland Security National Center for Food Protection and Defense project. In addition I have asked to weave in my professional observations in 15 years worth of being on the ground in logistics disaster relief.

I want to be sure that it is clear that even though the pictures here were provided by Red Cross, I am not speaking as an official volunteer with Red Cross. I am speaking for myself as was stated in my introduction. I have been an environmental engineer; I've actually tested weapons of mass destruction with the U.S. Military in a little place called Christmas Island before we had our treaty that didn't allow that. I have personally decontaminated ships, planes and people. I also teach disaster logistics for Red Cross and I am a member of the Red Cross Critical Response Team that responds to commercial air disasters and terrorist events. I've been a supply chain consultant and university instructor for over 25 years.

At Katrina and certainly at the WTC 2001 New York and other major disasters (for example, floods, fires, hurricanes, and so on) all the agencies work very hard but I think there's one thing that we should understand about mass feeding of disaster clients – and I thought this even last night, that is that having control of food does not equal success. Having tons of food in a spot by any agency does not mean we have accomplished our mission. I think FEMA did seem to understand this during the Katrina operations

My agenda will start with a few slides as introduction; I knew that some of the overview of our research has been covered previously by Dr. David Closs of Michigan State Univ.. I'm going to go through the slides and provide my personal perspective. My slides present the agenda, I will try to be careful when I get into observations and recommendations which are based on my personal experience. They are my own personal recommendations, not from any agency. That means I can say what I believe and feel.

In this one all I have added here, and Cargill talked a little bit about this, it's my favorite 5 Vs, for supply chain performance. I guess that comes from being older and reading about the Second World War, V for victory. The fact is that in disaster response and preparedness sometimes we lose sight of the fact that we still have to think about cost-Value. If you don't believe that, look at today's paper and see 42 billion dollars for disaster response. We have variability - lack of consistency

in delivery which relates to lack of quality; we also have to do it faster (velocity). Veridity is a nice word for greenness; we still have to think about Mother Earth and finally we need Visibility which actually is a major issue in these disasters in terms of having on the ground information and of course, we have to worry about Vulnerability.

As it turns out no one agency has been defined as far as I can tell, to say we are guaranteeing that the food you are serving is safe. We kind of like overlook that in a way. Yet we have to consider these and yes, the weights of the performance Vs change when we are in a disaster mode versus a normal commercial mode but they are still there.

The purpose for the reference to the paper by Dr. Robert L. Cook and me from Central Michigan Univ. is to point out that one of the first White papers on disaster logistics was sponsored by the Council of Logistics Management in 2001, and I will give a plug for them. I also teach there and they are nice enough to let me out even though I did fly back yesterday to teach our students. I have the slide in the presentation to point out that if you look at the part of the diagram a supply network continuity measurement process had better be comprehensive, it had better be simple, it should be flexible and it should be tested and revised for changing threats.

Well I'll tell you what my observation is the response agencies missed out on a number of those at Katrina. The continuity plan was not, to me, comprehensive, it certainly didn't look like it had been tested and it didn't appear to me to be very flexible. In our research as Dr. Closs summarized we are looking at, from the National Center's point of view, the areas of standards and incident management and as Dr. Closs has put it yesterday and the day before, we are going to take some of the outcomes and outputs for all the benchmarking and the tool that Michigan State Univ. is developing and try to put it to work in terms of those best practices.

Currently, some of the issues that we see at disaster sites are for example, we do not, on the ground, get adequate information; it is not timely, it is not accurate and in fact, it's conflicting. One of the things that this causes is for example, agencies will buy food – tons of food, millions of bottles of water and stage it even after the disaster occurs and then some agencies who need that food immediately can't get it fast enough, let's put it that way because the controlling agency slows up the process.

Also there are not adequate performance measures that are available. We cannot easily do damage assessment and I'm not saying Red Cross, I'm saying the entire group of people on the ground. When Red

Cross, public health and other agencies have to use to conduct assessments and then you come back and have to key it into a computer that to me is absurd in this day and age. I think we need to correct that. First of all we need to give public health environment a little bit more acceptance and then enable them with tools which they do not have today at least in my opinion. In the DHS Standards Initiative, we are looking at standards and measurement so that we can tell how we're doing against best practices. The research is also looking at collecting field data on the ground at the disaster sites.

We must be able to have a better chance of having accurate field data prior to and once the disaster occurs, we do not have that. Again, this is a collective we. One of the things that occurs as a result of not having the data from the disaster site is that, we don't know whether a kitchen, and there can be anywhere from 20 to 40 mobile kitchens each providing 10,000 to 20,000 meals a day – if you cannot know whether they even got their shipments of food and we get conflicting reports.

The reports from the food preparation sites trickle in—They got the food, they didn't get the food; the truth is probably they got a partial shipment. Then agencies responsible to provide food to the kitchens respond to expedite food – they do exactly what is probably their only choice whether it's Red Cross or FEMA or others. Because they don't know, they order more. And placing these orders from the very same suppliers that are already overtaxed, which is ridiculous but we don't have good information. The more that there is of that, the more issues we are going to have. The process is actually broken.

Looking at the standards development, again, I'm not going to go through this other than to say that the mission of this particular group within the National Center for Food Protection and Defense is to work towards standards. But you know to achieve accepted and implemented standards that could be three years from now, five years from now. It reminds me of when Red Cross recognized that we had to have better training in the weapons of mass destruction a few years ago.

I was asked to be on a team because I was probably the only one that had ever decontaminated anyone from a nuclear weapon that's still around. Our leader then said, we are working on a document that will give us a procedure and I said, Dr. Jones—I won't use his real name—I'd rather have one that's 80% good now than one that's perfect 5 years from now. So you know we need to get with it—the same is true for standards. We need a security food protection, Best Practices Standards Process.

That's kind of the message we heard yesterday and the day before at this conference. The message is that a standard is necessary at the strategic level – a standard for the overall supply chain food protection security process. In addition, an idea is to take FSIS or equivalent documents and go one more step putting protocols i.e. not only should you have access control and seal control but what do you do with that information once the seal is broken? Do you log it; do you follow it up?

Believe me, there are county agencies in the U.S. who have protocols that are based on what the feeling is of a person that evening. I mean, they are not documented in terms of what do you do if you get X number of calls from customers? I believe that we have the same thing in industry. The standards would also cover the total supply chain at least one up and one down. So my feeling is we need short-term standards that take us one step better and then we need to work on longer-term and really put teeth into that. I'm not saying teeth in the sense of enforcing it by government but letting industry, set standards, their suppliers will follow because that's the way the business works.

In the same way with incident management; this is another one of the tasks that we're working on with Dr. Closs at Michigan State, Georgia Tech and Minnesota. The issue here is that we do not have appropriate technologies; it's so clear to me that we need this to be improved and I will use Katrina as a very good example although I've

seen it all the way back in other lesser disastrous types of relief and that we do not have adequate ways to collect information in the field.

A lack of adequate 2 way communication does impede progress; for example the Red Cross; we use what I call Pony Express. Believe it or not in the first few weeks of a disaster like Katrina, we cannot rely on hard phone lines, we cannot rely on cell phones and we do not have the same equipment necessarily that DOD does and so what do we do? Well we can set up a Pony Express which is vehicles and drivers and they make deliveries of messages once or twice a day if we can find drivers. But if the evacuees say I'm not here, I'm gone; we can't even necessarily find local drivers who are willing to volunteer. So what do we do; well we receive no communications regarding food delivery status or we get these messages that often are difficult to verify that say the kitchens aren't getting the food, the kitchens are getting the food—conflicting information.

So if we don't know we contact Washington and Washington will say we need to push food out there. So again we place more orders or I personally recall placing—needing food over a long week soon after Katrina hit—on Thursday I wanted to find out over the Labor Day weekend, whether we had access to USDA food. So I couldn't directly contact them, I had to go through a group within my organization that has liaison and that they in turn send it to FEMA who in turn goes to USDA – do you know when I got the message back? It was Tuesday and all I wanted to know was is there food available for this weekend because we are short of food from the food distributors. This generated a need to expedite food and order even more from the commercial suppliers. The message came back and said, kind of like, what was your question? Instead of saying yes we have food you can access—it was too late in any case, very frustrating. And it's not a criticism of any organization it's a criticism of the process; it's too complicated.

Now let's switch to specific things and their challenges. First of all I look at this Katrina as an example but unfortunately it's probably a simple example of what a bioterrorism event could be. I'm not relying on my science here even though my graduate degree; first one is Environmental Engineering, so I know a little bit about environmental health. The fact is it was the largest disaster recorded in U.S. history, major evacuation of residents although not equal evacuation because again a plan wasn't tested casualties to the population and property from wind, water and then more water and actually also some criminal action. I'm not counting in that families needing food, I'm talking about real criminal activity.

Also a significant potential public health threat from contamination which interesting because it has impact in terms of when you let people back in. In a normal flood you might say, when the water is gone let them go back in and then Red Cross feeds. But if it's toxic and so on and so forth, somebody else has to be able to say, wait a minute, the water is gone but the danger is not gone. So it is a catastrophic event in my opinion; will there be ones worse, hopefully not but probably. That is why we are here because of that possibility. Just to let you know how the organizations all were working very hard I am going to make a statement about Red Cross. These are their Red Cross numbers and we are allowed to use them. More than 1,000 shelters of all sizes, this was in mid-October, more than 25 million meals, more than 1 million family assistance cases, about 1 million mental health and medical health contacts.

The rule of thumb is for every person who actually gets injured in any way, shape or form about eight times that has a feeling they are injured or have mental issues and so we are still dealing – the Red Cross is still dealing with people from Oklahoma in terms of mental health issues and New York and will be for years So sometimes we forget about that, about 200,000 different Red Cross workers assigned and more than 20 Southern Baptist mobile kitchens – bless those folks, they have these very modern mobile kitchens that are wonderful. But they've got to have food in order to operate.

So again, why are we interested in this as Red Cross, well because we are designated as EFS6 and again that means we are responsible for feeding. That is our primary goal but you know what, if we don't work it out and if other agencies have control of the food I mean we can't necessarily get at it. I've talked to some industry folks here at the conference and here is one comment; I won't mention names but if some federal organization with authority says to a major beverage company, we want all the water that you can get and hold it until we contact you, and then at the same time a another organization on the ground is trying to get the very same water to provide to clients ASAP we have a problem in meeting service expectations.

Or if we are saying we need food and it's not communicated, food can be stockpiled over here but the feeding organizations can't get it to actually do the feeding. So I think to some extent again, having the food is not the same as feeding; that is one step. Research observations; these are preliminary and again I will say that although these have been submitted to Dept. of Homeland Security DHS so they are in our year one report, but they are preliminary – first of all, there are companies like Cargill, Kraft and others who are doing a great job but even they have in recent times recognized that they probably have to extend their focus beyond the supply – beyond their own enterprise into the supply chain.

There is a lack of information; in fact, what information should be collected and when does it make sense to share it, because again companies, corporations for good reasons are not concerned about sharing the cost and the data and the mandated standards because like when environment was a major thing, companies said, wait a minute, if I publish an environmental report I mean, some group, I will make the term “wacko” group that's way out on the extreme can use it against you, so there is a major concern and rightly so.

There are many security guidelines, very good and useful but even talking to those folks who have written these, they are not really accepted standards. Many of them are guidelines but they are not measurable; you can't take them to the field and say what does this mean I'm going to actually measure. To say you have access control and seals, what does it mean, what is the protocol when you have noncompliance? Whether it's internal company or whether it's actually regulated, what do you do with that information is what we don't have standards on? So that may be the first thing we do is move those guidelines to protocols that we recommend to companies. That might be useful.

With regards to the environmental health – this is not my opinion but we have been talking with the Director of NEHA, that's National Environmental Health, Ron Grimes and generally, there is an agreement and we've actually done a survey that's part of our preliminary survey that's part of our National Center for Food Protection and Defense work. Environment health agencies are not fully accepted as a critical response member. Even if they are in some areas, they aren't enabled with the tools and money to do it. It's going to have to be added on top of their safety and quality. Government and commercial must have greater collaboration. I mean to me and I talked with a small sampling of industry folks that provide food even in this conference in the last three days.

The industry professionals agree that it is confusing as heck and these food providers get orders from government and other agencies for stuff and then it sits there and then the company finally might call up and say, do you need it and they are told , oh, no, we don't need it now. How long is industry going to be able to that; the fact is even if there is an equitable settlement the fact is if the food is held in stock by one agency and you can't release it then the folks that need it at food preparation sites aren't getting it.

So there is a need for statements of understanding; there is absolutely poor communications. It does absolutely impeded disaster re-

covery, no question about it. Organizational levels and complexity impedes response effectiveness. Every time you stack another level of decision making along with another dimension of poor communications you are reducing the capability and the effectiveness.

It's just obvious so what we need to work on is perhaps the first 72 h; it has to be simpler. There are 2 more slides some more observations. There is major difference in levels of preparation by region. You saw that in Louisiana; we see that everywhere. Some of the parishes, some of the equivalent of counties are well prepared and that goes true with our Red Cross chapters as well; some are prepared, some are not. Plans did not appear to be – if they did exist they sure didn't seem to be tested. If that was true there would have been a way for the folks that were in the project area that had no vehicles, a better way to help them get out; again, personal observation, not any agency saying that. Statements of understanding, again, same thing; in fact I feel so strongly about this that I've been talking personally to individual companies.

When you get a passion about something, be patient, but don't give up, persevere. Well I'm going to persevere because I believe that we need a meeting between FEMA and FDA and USDA and the key food suppliers, Red Cross, Salvation Army and figure out what is happening, what is not and what should be happening in the first 72 h to 2 wk because it isn't working in my opinion.

Again, environmental public health, talked about that. Public not educated regarding individual accountability and expectations; well, one of the jobs that Red Cross has is an education along with other Citizen Corp and American Corp is get education that says what is it that's your responsibility as an individual? Even if you don't have much the fact is as one of my colleagues, Lloyd Mitchell in Houston and I asked him what he did. He said, well he froze a lot of his food, made it into ice cubes; I said well what about the people that don't have much? He said, well they can put water in a bag and save it.

So again, we don't have the right education for all individuals to know what they should be able to take care of themselves. If they can't – literally can't, then what can we do to help them? The number of agencies and level of decision making needs to be reviewed; in my opinion there are too many levels. I think what should be done is figure out who is supposed to feed and let them do their job.

No agency has a clearly defined role on an operational level to ensure security of the food supply. We kind of go on trust and I mean literally in the past – we don't quite do this anymore but I know that in the past if a local farmer would bring us food or even a beverage distributor and we didn't order it, we would say, we welcome your generosity. Well, should we be doing it or should be have half a mile away from the kitchen a staging area that says nobody gets in here, even close without having it be checked, period. I know that's something that – oh, do we really have to worry about that when we're trying to feed people? Well we've got to think about it because the consequences could be pretty disastrous.

Also in the time of contamination, which steps up and says, Red Cross, Salvation Army, you are allowed to get food from these caterers and you are not allowed to get it from there because it is near a hot zone. Nobody as far as I can see really operationally does that. It may be defined somewhere, I sure don't see it happening.

Another comment is related to the first 72 h of the incident—Red Cross has in the past – and it's been fun for me because I was helpful in the solution research, is that Red Cross has made a very definite change – new paradigm for feeding in the first few hours following a disaster. Findings have identified that it can take five or six days to get 30 or 40 mobile kitchens set up and working at an optimum level because they come from all over the U.S. So in the first 72 h, we are going to have to rely – and we are now, more on MREs and Meals Ready to Heat out of a company in Cincinnati or equivalent. Red Cross

has developed agreements to provide and stock such meals. That is one example; streamline the decision making process so that we can get faster access to government food sources.

There was a time in Katrina where we didn't think we could get food from the commercial because of the confusion and so in that one weekend I was trying to find out can we can we get USDA food. It took the whole weekend and I never did find out. I'm not blaming anyone as much I would blame my own organization or any other it just is – there are too many people involved.

Provide resources for more effective communications; one of the priorities following a major disaster is client feeding. Agencies must provide more effective communication resources and solutions during the first few days for feeding and sheltering. Look at the hierarchy of needs, pretty obvious and yet I don't think we give enough emphasis to how the National Response Plan should deal with mass care feeding specifically.

I think we need much more effort there and the folks that need these communications are the food providers. We can't say, well you can't have it, your agency doesn't have enough money; we've got to figure out a way to solve that so that the agencies responsible for feeding will know whether kitchens got their food or not, we'll know where the food is and it will speed that up. It's essentially better statements of understanding between all major feeding agencies, invite the key ones to the party, share their feeding plans, how is it working, how is it

supposed to work. I don't think it's done very well, again, personally. Develop SOUs and agreements between food service organizations, key food supply sources.

My feeling is that the food – the key food suppliers ought to be in the disaster headquarters, on the ground where the decisions are being made. That is again, a personal observation that I'm going to push on very hard. Sometimes we get pushed back on that, well, why do you need to have it? I'll tell you why, because when stuff happens we need somebody who can get something done.

They know in a – a major food supplier, they need to who to go, we don't. No matter who the "we" is, we don't know so if we can have somebody here at the disaster logistics headquarters near the disaster site the food supplier representative can make things happen in terms of acquiring food. I mean they can get it faster than we can. I think we ought to make that a requirement for anyone that's going to be a major food supplier and then streamline decision making for use of commercial transportation.

This was a major issue in Katrina; some food suppliers didn't have vehicles. So then we have to find them; sometimes we find them but they – literally some of the drivers couldn't speak English. It creates a minor problem, but it's a major problem if a kitchen doesn't have food. So those are some of my observations and so I will close with that. I'm going to just put this up here because this is a plan that we are testing in our research but it's not something I really feel we need to talk about here.

Supply Chain Assessment, Compliance and Corrective Action



Supply Chain and Information Management

Application to Catastrophic Incident Planning and Response

Dr. Omar Keith Helferich

IFT Food Protection and Defense Conference 2005

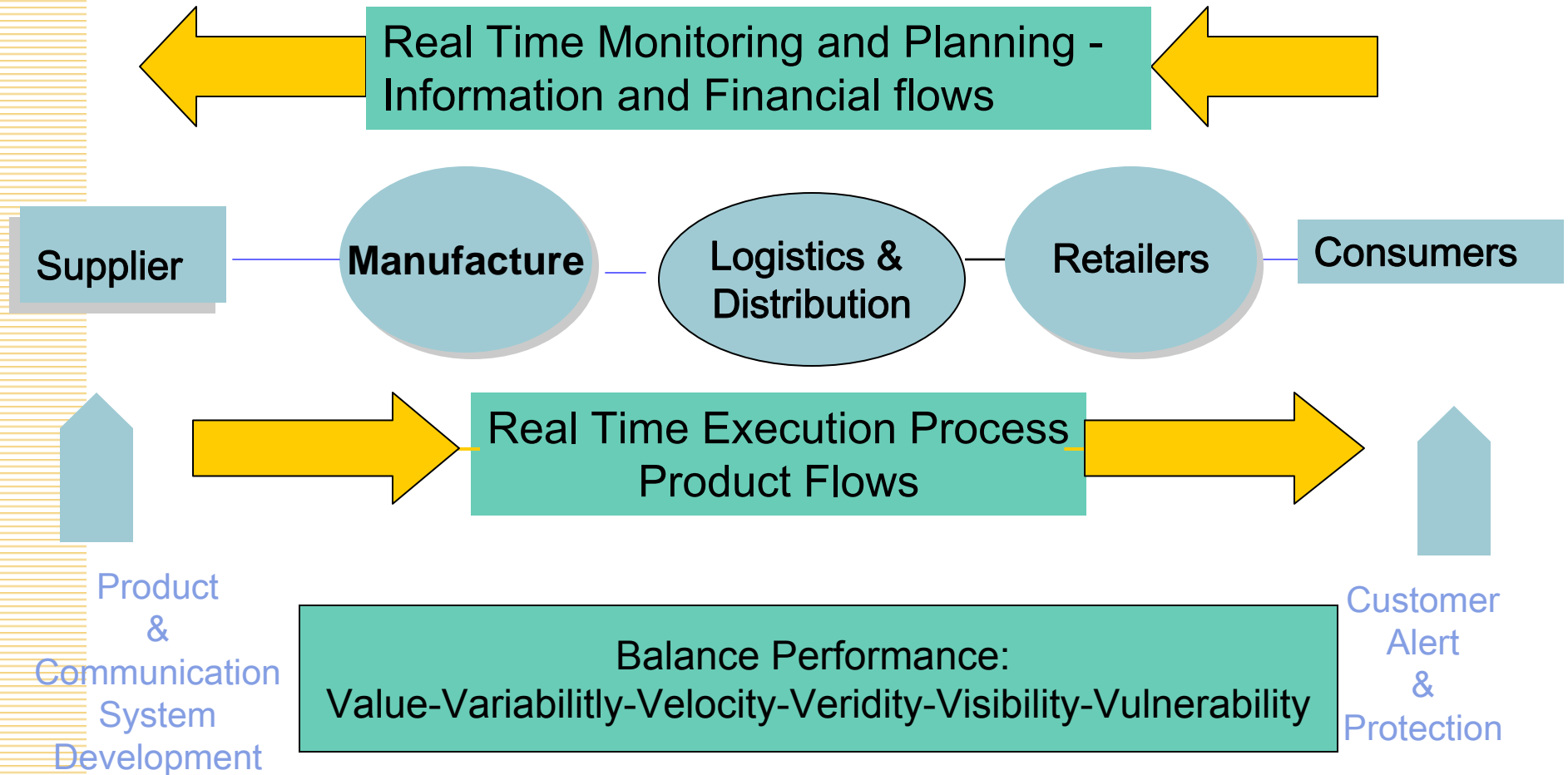
Agenda

- Introduction
 - Balancing Supply Chain Performance
 - Incident Management Process
- National Center for Food Protection and Defense Research
 - Overview Supply Chain and Information Management Initiatives
 - Supply Chain Standards and Incident Management System
- Incident Challenges
 - Research Observations
 - Incident Response
 - Recommendations
- Courses of Action

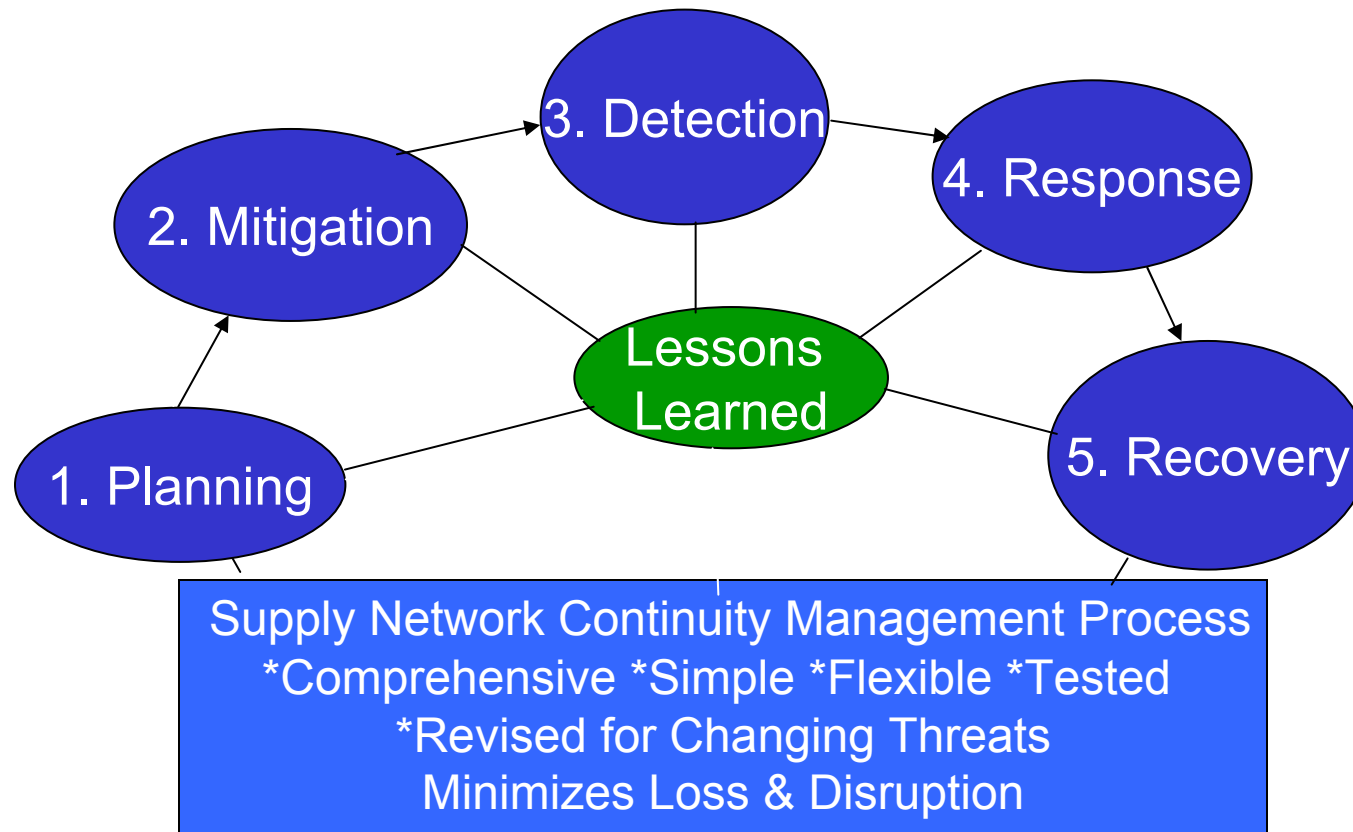


Introduction: Supply Chain Network

Public Health and Brand Protection



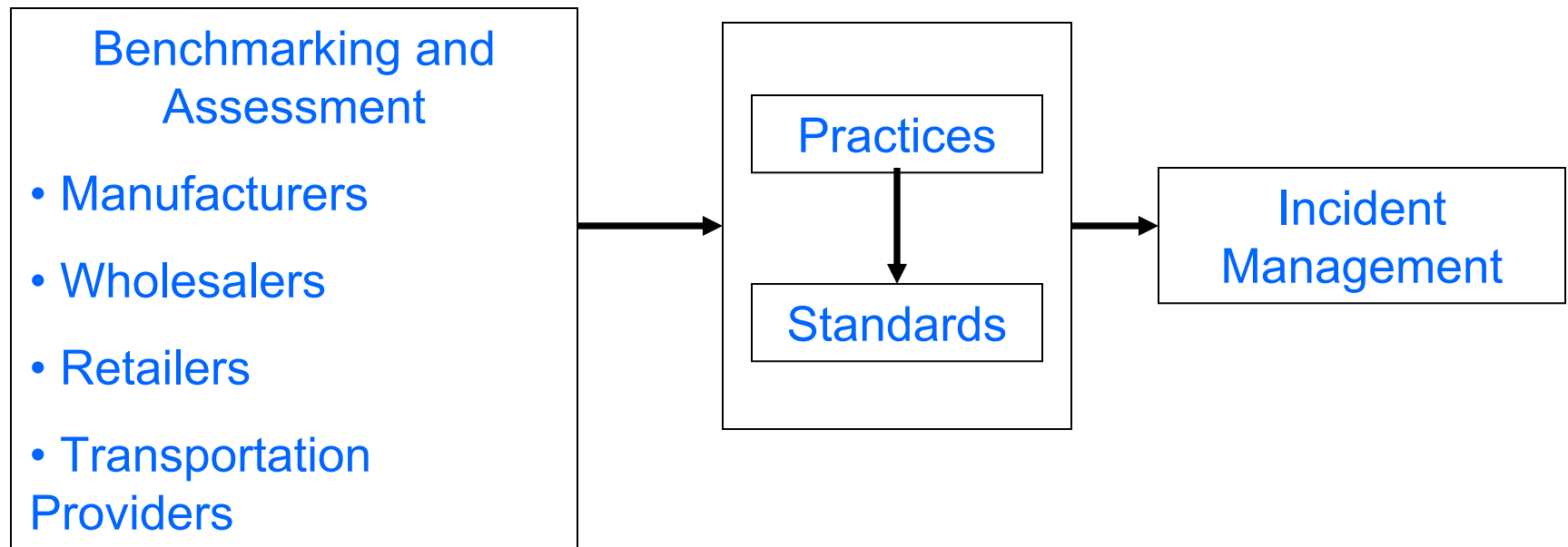
Introduction: Incident Management Process(*)



*** Drs. Helferich and Cook: 2002 CLM Research**



NCFPD Research: Supply Chain Study Components

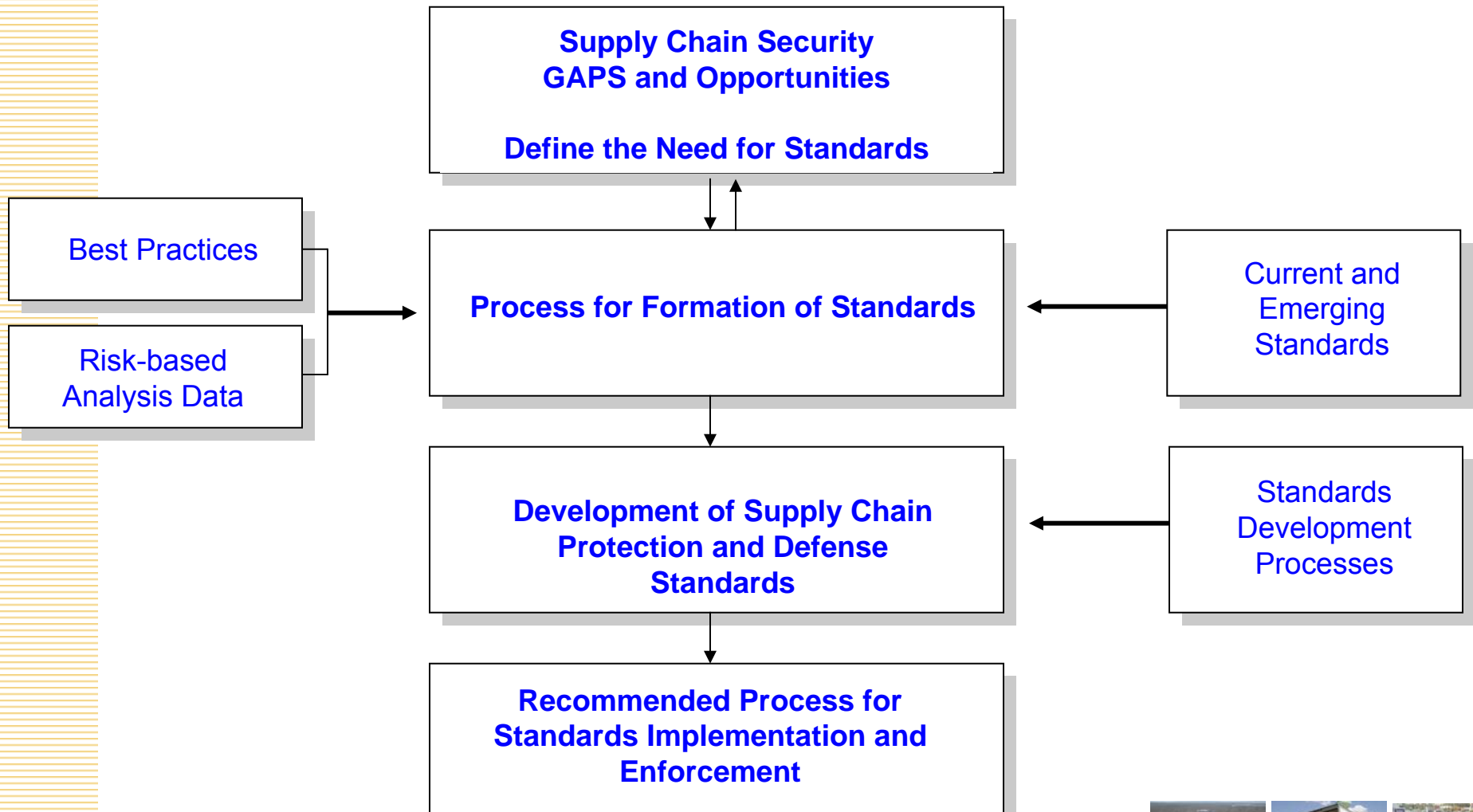


NCFPD: Standards and IMS Project Vision

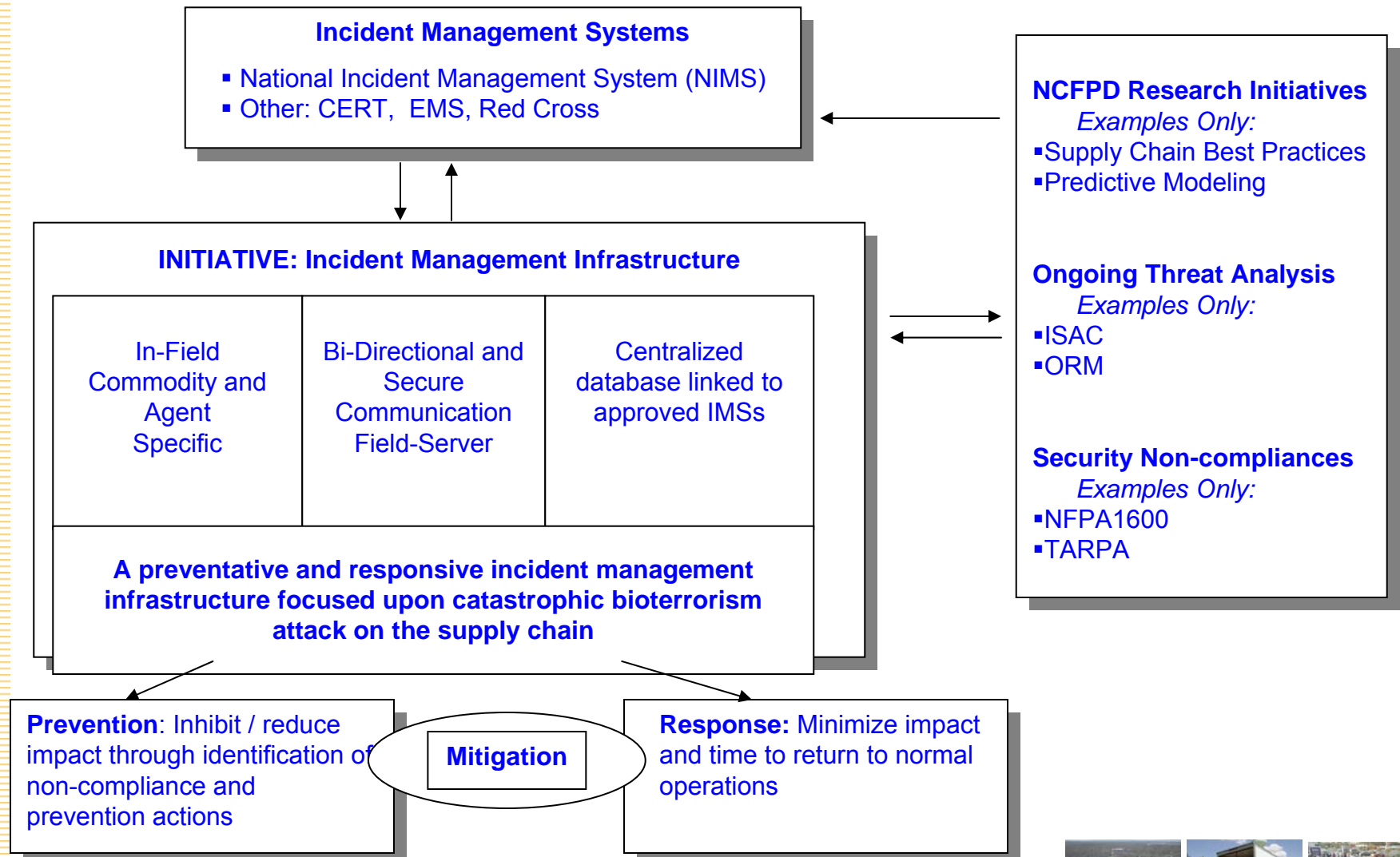
- The Vision
 - Propose workable solutions that will help improve our collective ability to prevent and, if necessary, respond to an act of bio-terrorism against our food supply chain
- Our Tasks
 - Propose standards for food supply chain security with recommendations on an approach to implement those standards
 - Develop and prototype information system solutions that could improve private and governmental prevention and response capabilities... in a manner that can concurrently improve effectiveness and add value



NCFPD: Security Standards Development



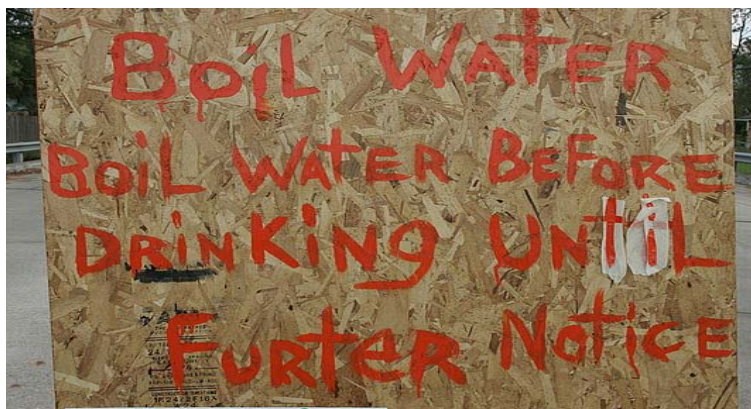
NCFD: Incident Management System Development



Incident Challenges: Katrina Catastrophic Impact

- Largest disaster recorded w/ US
- Major evacuation of residents
- Casualties to population and property from wind, water, criminal action
- Significant potential public health threat from contamination

A Test at all Levels of National Response Plan



Incident Challenges: American Red Cross-Katrina/Rita

Combined Operations with involved:

- More than 1,000 shelters
- More than 25 million meals
- More than one million family assistance cases
- About one million mental health and medical health contacts
- About 200,000 different ARC workers assigned
- More than 20 Southern Baptist Mobile Kitchens



Incident Challenges: Research Observations

- Food Extended Supply Chain not high priority
- Lack of information impedes security focus
- Corporations concerned about cost, sharing data, and mandated standards
- Many security guidelines, yet no accepted standards
- Environmental health is not accepted as critical response member
- Government and commercial must have greater collaboration with SOUs
- Poor communications to/from field impedes disaster recovery
- Organizational levels and complexity impedes response effectiveness



Incident Challenges: Response Observations

•General

- Major difference in levels of preparation by region
- Plans are not exercised and tested
- SOUs for collaboration between agency and private sector are inadequate
- Environmental and public health role not fully accepted
- Public not educated regarding individual accountability and expectations
- Number of agencies and levels of decision making/reviews impedes effective service
- No agency has clearly defined role with operational process to ensure security of the food supply provided during a major incident

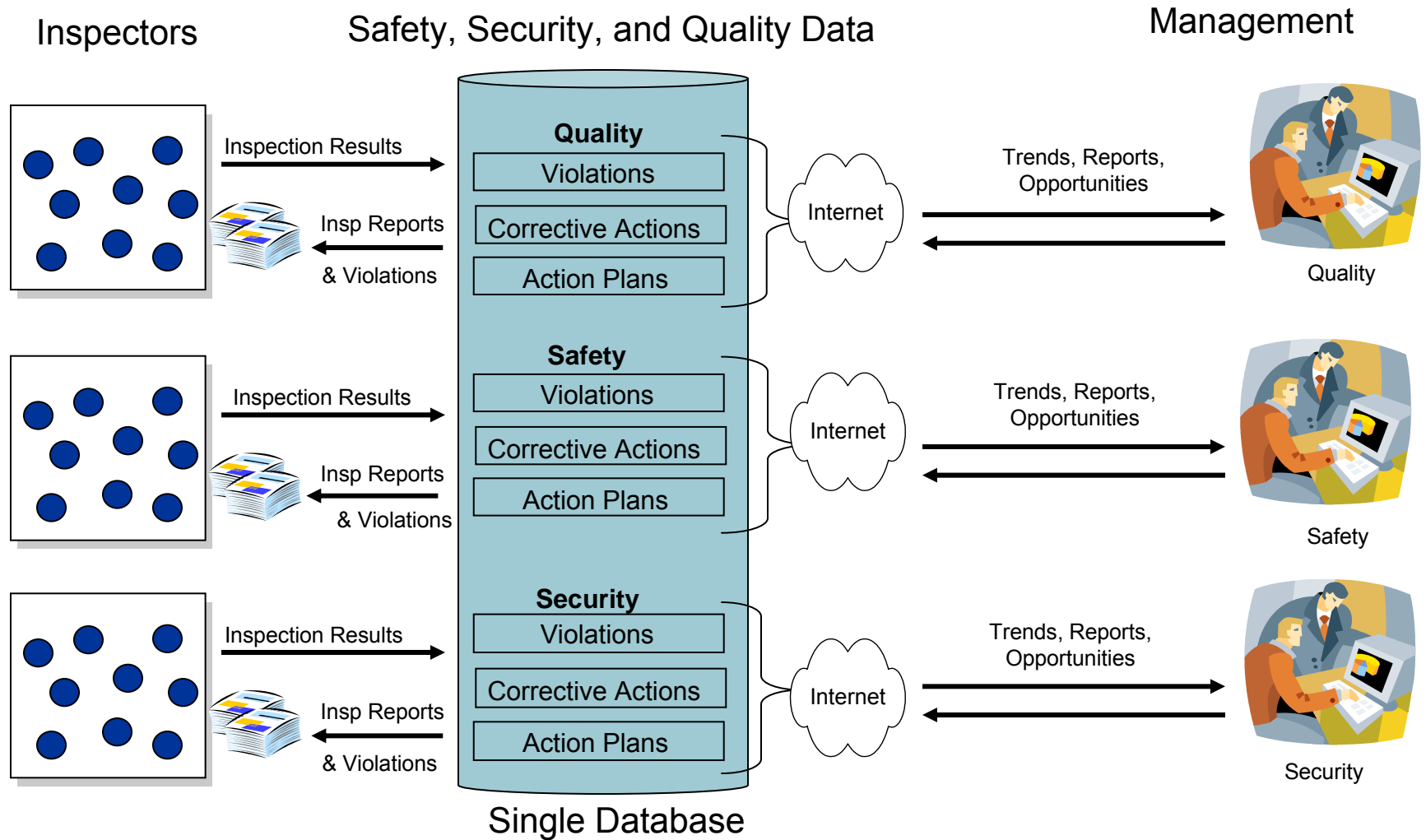


Incident Challenges: Response Observations (Continued)

- **Recommendations Initial Incident Response- 72 hours**
 - Continue to implement and test advanced paradigm shifts (use of MRE and commercial equivalent)
 - Streamline decision making for faster access to government food sources
 - Provide resources for more effective communications between food providers, mobile kitchens, shelters, food warehouse, key food supplier and feeding support management
 - Develop SOUs between all major feeding agencies (ARC, Salvation Army, etc.) with effective communication with shared feeding plans
 - Develop SOUs and/or agreements between food service organizations and key food supply sources
 - Request that critical food supplier management be represented at location of food acquisition decisions
 - Streamline decision making for use of commercial transportation for food delivery

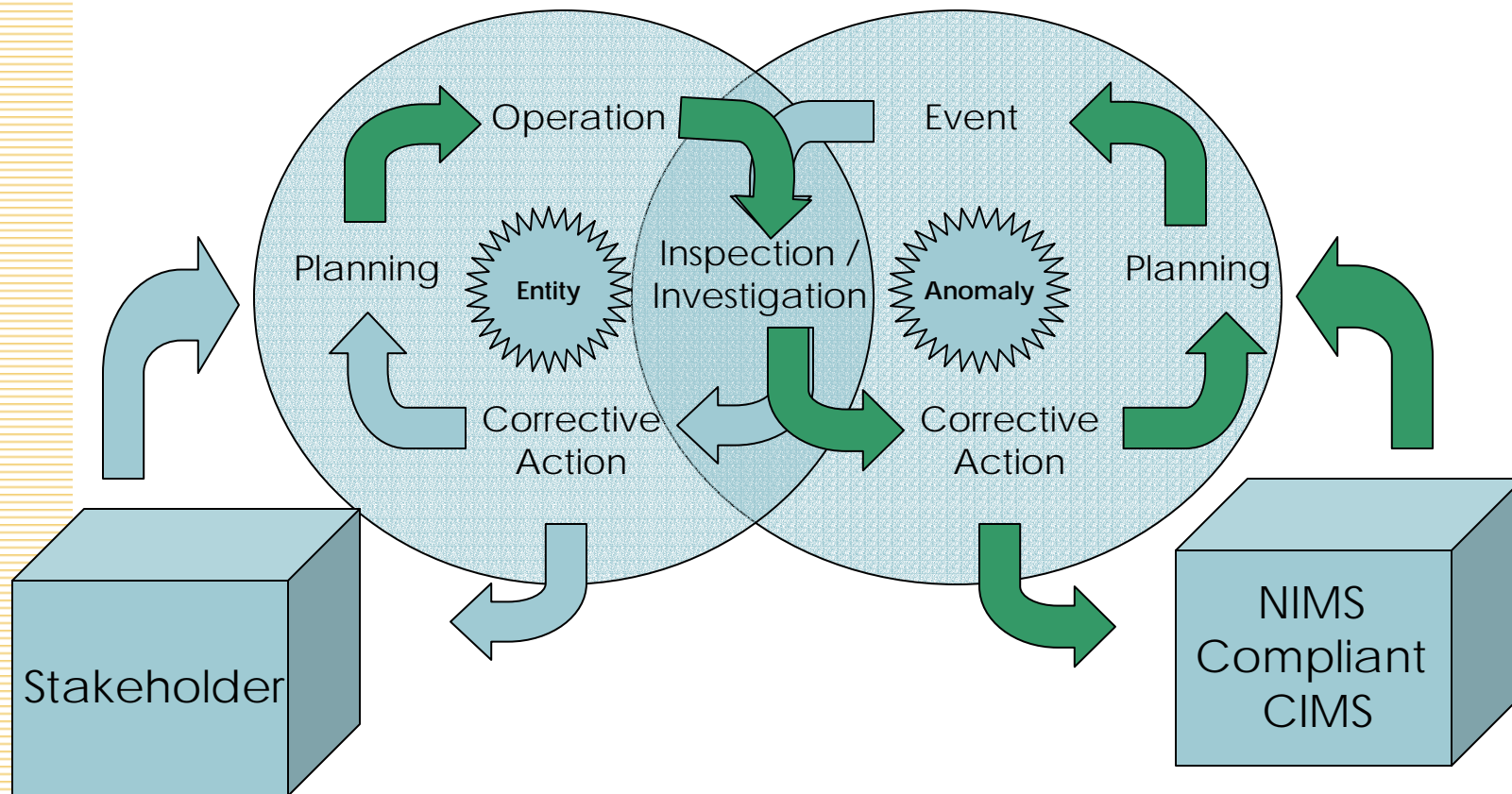


Prototypes: A Focus on Data Availability



Routine Finds an Anomaly

- In some cases, the routine monitoring of the entity will discover an anomaly that must be handled as a potential incident... the system will naturally handle this situation.



Courses of Action



Boil Water
Boil Water Before
Drinking Until
Further Notice