Rethinking the System of Survival for Sudden Cardiac Arrest

April 29, 2011

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But, first, 3 self-serving promotional slides

Organizational Dynamics Graduate Studies

- **34th year**
- **50 faculty, 17 disciplines**
- **420+ adult, mid-career working professionals**
- **Part-time and full-time graduate studies**
- **Individually designed curricula**

Integrated Applied Scholarship

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http://www.organizationaldynamics.upenn.edu/

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Navigate And Lead in Today's Complex World

Learn about how Organizational Dynamics can help you excel in today's environment.

Concentrations | Projects | DYNM-TV

- Global Organization
- Leadership/Management
- Organizational Coaching
- Organizational Consulting and Executive Coaching
- Practitioner/Development and Change
- Projects, Programs, and Portfolios
- School of Nursing Minor in Organizational Dynamics of Healthcare Systems
- Sustainable Development

Dynamics. Applied.

Sudden Cardiac Arrest is a Wicked Problem. It's a Mess.

Why despite the best efforts by everyone from lay person to professional responder do 93% of those who experience Sudden Cardiac Arrest (SCA) in Philadelphia not survive? Read More

REGISTER FOR A SUMMER CLASS NOW!

Open registration for the summer 2011 semester has begun. It runs from March 21st to April 23rd. Choose your courses and register here.

Featured Community Success Stories

See all stories

What's New

MAY GRADUATION IS APPROACHING!

Click here for more information.

DYNAMICS STUDENT HONORED AS DEAN'S SCHOLAR

From the 2286 students in the Graduate Division nominated, 1 Professional Master's student – Inam Ur-Rahman, MSOD candidate - won the award. Read more.

CALENDAR OF IMPORTANT EVENTS, 2011

For a list of important events see the new Bulletin Page.

start | Inbox - Mozilla Thund... | Meeting Maker Calen... | SCA Event April 2011 | Skype™ [1] - larryms... | braslowa | Microsoft PowerPoint ... | Welcome | Organizati...

1:30 PM
Wednesday
4/27/2011

Integrated Applied Scholarship

Organizational Dynamics concerns *multi-disciplinary and integrated organizational education* to navigate, lead and sustain in the continuously changing, increasingly complex and diverse global environment.

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17 Domains of Organizational Dynamics
Faculty and Scholars

Anthropology, Economics, Education, Engineering, English, Design and Planning, Health Care, Humanities and Languages, Human Resources, Law, Management, Philosophy, Political Science, Politics, Psychology, Organizational Science, and Sociology

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Rethinking the System of Survival for Sudden Cardiac Arrest

April 29, 2011 Meeting

Innovation in SCA Survival: Design and Research

AM: "Systems and Design Thinking" about a system (such as a Health System): Organizational Dynamics

PM: "Analytic Evidence-Based Research Thinking" about a system (such as a Health System): Center for Resuscitation Science

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Ways to Think and Know about our World

- **Narrative** – present stories, personal experiences and anecdotes in conversation, training, via film, literature.
- **Research/Analytic** – conduct controlled studies where knowledge is reality/use evidence-based criteria.
- **Design/Systemic** – produce what does not yet exist/create something new based on what is desired.

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Research/Analytic Evidence-Based Thinking

"Analyze" means to break into parts so this type of thinking seeks to deconstruct a problem and to search for and determine (root) causes, states and effects. Appropriate in complicated problems.

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Research/Analytic Evidence-Based Thinking

AHA Science Advisory

Hands-Only (Compression-Only) Cardiopulmonary Resuscitation: A Call to Action for Bystander Response to Adults Who Experience Out-of-Hospital Sudden Cardiac Arrest

A Science Advisory for the Public From the American Heart Association Emergency Cardiovascular Care Committee

Michael R. Sayre, MD; Robert A. Berg, MD, FAHA; Diana M. Cave, RN, MSN; Richard L. Page, MD, FAHA; Jerald Potts, PhD, FAHA; Roger D. White, MD

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Research/Analytic Evidence-Based Thinking

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Current Way We Think about SCA Survival

Survival rate = 67% − 2.3% per minute to CPR − 1.1% per minute to defibrillation − 2.1% per minute to ACLS,

Predicting survival from out-of-hospital cardiac arrest: A graphic model
Larsen, Eisenberg, Cummins, & Hallstrom (1993)

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Current Way We Think

With a **linear chain** model, the links are **additive** so each can be improved and strengthened. If each link is independently made stronger then the whole chain and survival will be improved.

In a **linear chain** model we can benchmark – use the best practices of other cities, of science and medical research – and apply these locally expecting the results will be positive.

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However, after 40 years, the Problem Remains

Less than 1/3 of out-of-hospital sudden cardiac arrest victims receive bystander CPR.

If a person has a cardiac arrest at home or on the streets of Philadelphia, the survival rate is 7%.

Overall average survival rate in the US is under 8%.

Some cities, such as Seattle, have a remarkably higher rate – nearly 40% - but only if the victim experiences ventricular fibrillation, and replication has been difficult.

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However, the Problem Remains

If what we are doing is acceptable then we should continue.

If not then we should think about another way.

We cannot solve our problems with the same thinking we used when we created them.

Albert Einstein

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Why is Survival so Low?

Hypothesis 1:

The problem is a very difficult and complicated medical problem.

We need to continue as in the past but work harder, smarter. We need more resources, more improvement, more research, more science so that the experts in health care can use analytic/research methods to solve this problem.

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Why is Survival so Low?

Hypothesis 2:

This is NOT a complicated medical problem.

It is a medical problem, a resource problem, a regulatory and policy problem, a technology problem, a communication problem, an education problem, a culture problem, a leadership problem, a multi-stakeholder organizational problem, and more.

This is a "mess" also referred to as a wicked or a complex problem. This type of problem requires a different mindset and different methodology tools.

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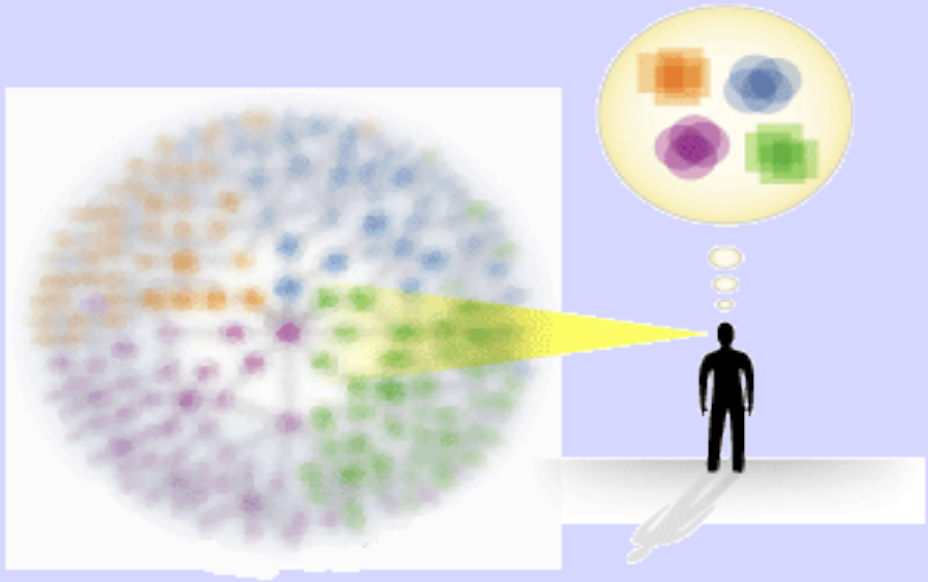
Another Way to Think

Systems and Design Thinking



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Systems and Design Thinking

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Systems and Design Thinking

- Systems thinking does not break down or deconstruct a topic or problem into parts either to understand it or to intervene.

- Systems thinking focuses on forces in the environment and on relationships, interests and purposes among the parts rather than on the parts themselves.

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Systems and Design Thinking

Complex organizational systems – in which there are many people, groups, organizations each with their own interests and purposes - are best understood and managed with complex organizational thinking, models, and methodologies.

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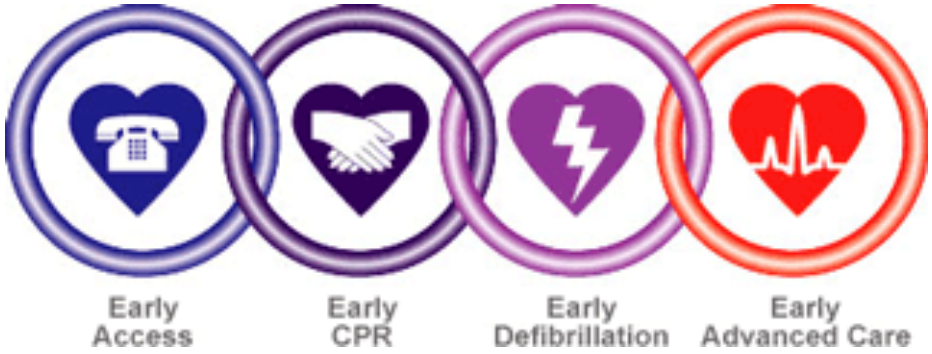
SCA Survival as Linear but Complicated



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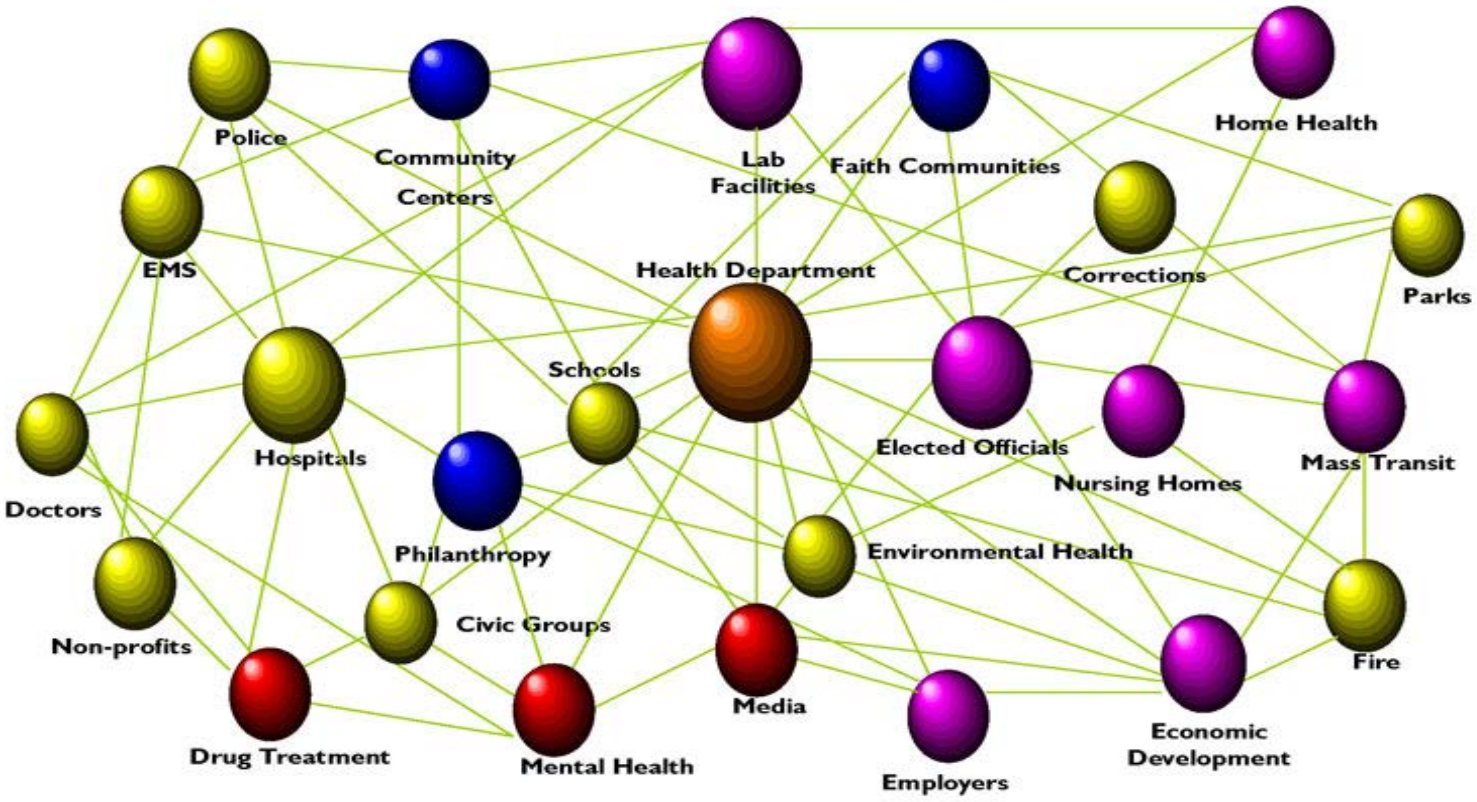
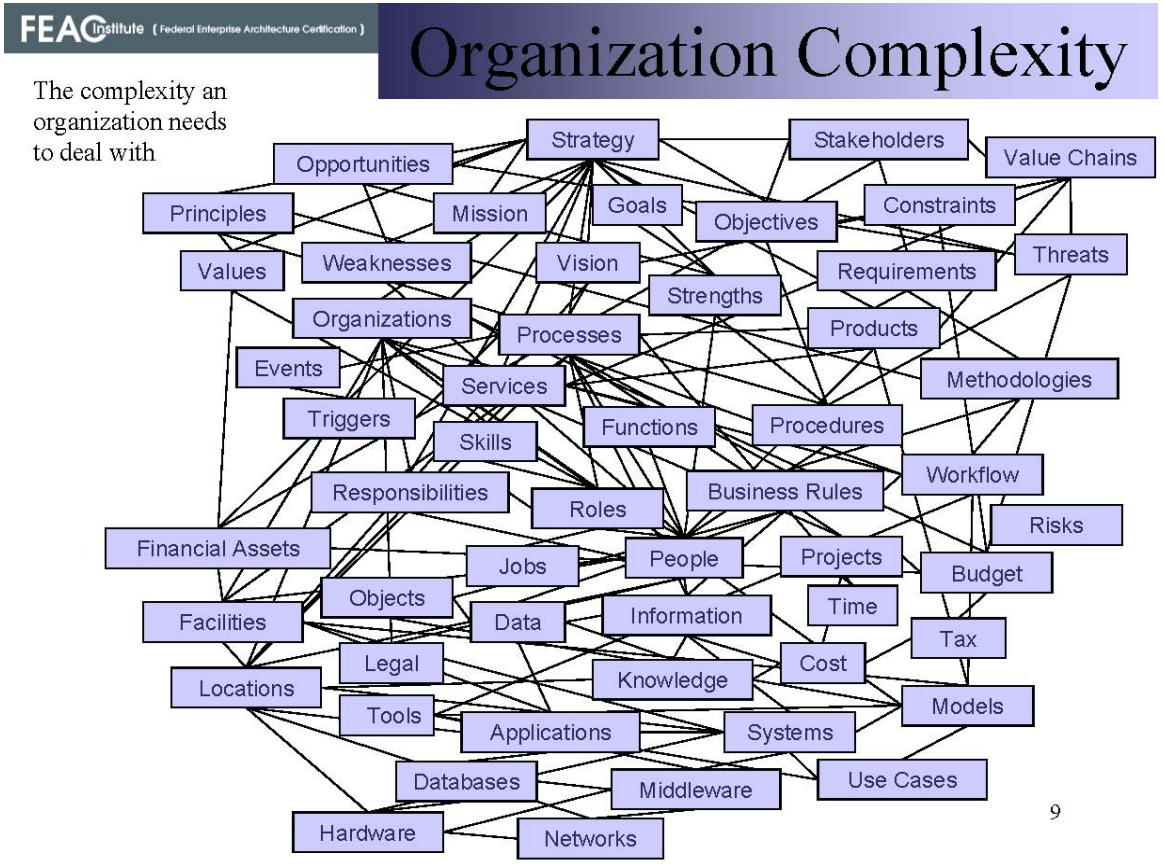
SCA Survival as a Complex System



Single Organization Complexity



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DYNM 645: Applied Systems and Design Thinking

Consider 3 increasingly complex organizational problems

1. **International House of Philadelphia** - a multicultural residential center that welcomes scholars from around the world and offers international arts and humanities programs.

2. **Foreign Policy Research Institute** - a "think-tank" devoted to bringing the insights of scholarship to bear on the development of policies that advance U.S. national interests.

3. **Penn Neurosciences** - a community of hundreds of people, groups, programs, centers, institutes, departments, crossing 12 schools.

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DYNM 645: Applied Systems and Design Thinking

Consider 3 increasingly complex organizational problems

1. **What did the client describe as the presenting problem and/ solution?**
2. **How was the presenting problem understood by system and design thinkers?**
3. **What system diagnosis was conducted? How was it accomplished and by whom?**
4. **What design methodology is being applied and by whom?**

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BREAK

Take a break.

Return in 10 minutes for the Bill and Melinda Gates Design Challenge.

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Bill and Melinda Gates Challenge

Suppose the Gates Foundation offered unlimited resources to the best design for the ideal system that would enable survival from out-of- hospital sudden cardiac arrest in a community of 1 million people.

- **What elements or characteristics would be needed?**
- **What would you like – your wishes – to be in place for this to occur today?**

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Bill and Melinda Gates
Challenge Design Rules

- You are designing from “nothing”
- There is nothing in place at present and so nothing to improve
- Focus on what you want – your ideal
- Do not focus on what is not needed
- If you disagree offer an alternative
- One conversation at a time
- Stay focused on the task
- Encourage wild ideas
- Go for quantity
- Be visual
- Defer judgment
- Build on the ideas of others
- Do not worry about resources
- Do not worry about implementation

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