The Expertool Paradigm

Modeling Cognition and Complex Systems

PREPAREDNESS ANALYSIS COMPLEX THREATS TOOLSET (PACTT)

WWW.EXPERTOOL.COM

PACTT suite of products and services

Enable and support holistic emergency preparedness programs:

◦ Expansion of the risk analysis scope to include non-traditional, high consequence natural and manmade hazards

◦ Expansion of the preparedness planning scope to include cascading failures between Energy, Communications, Transportation, and other infrastructure sectors critical for executing disaster response plans

◦ Integration of existing emergency programs into a holistic and rationalized solution
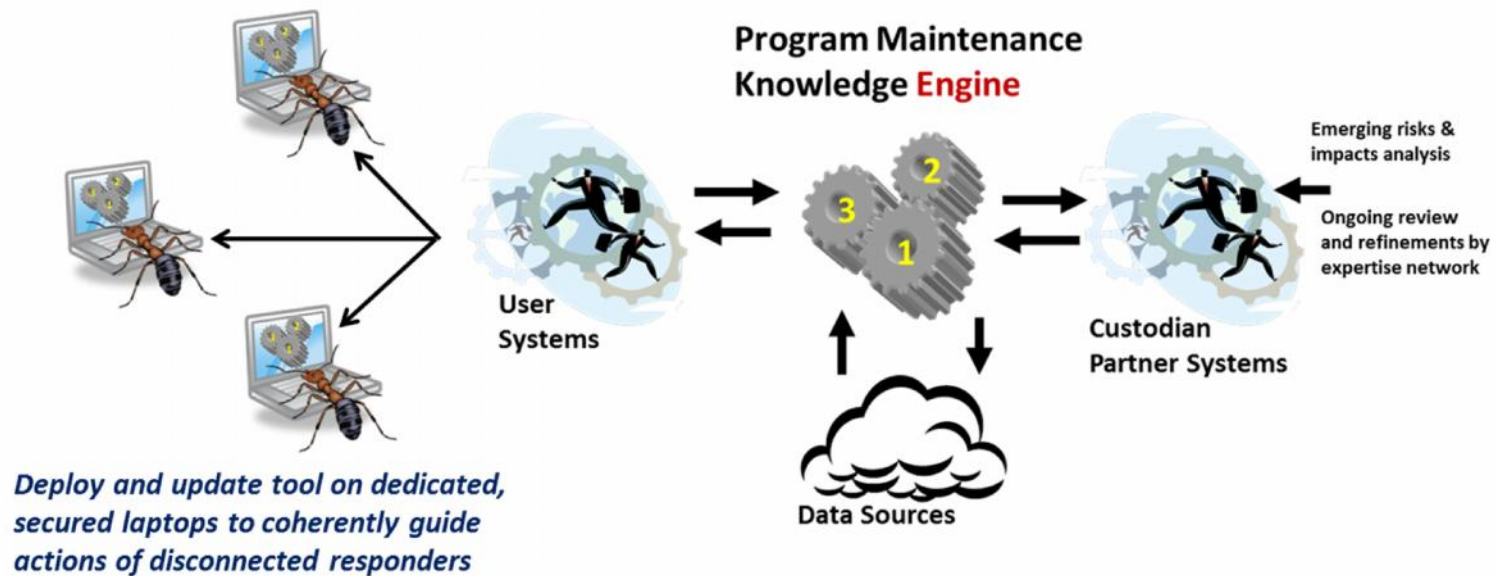
Value Proposition:
◦ Enhances scope of preparedness
◦ Optimizes response effectiveness
◦ Optimizes BCP/DRP maintenance efficiency – now
◦ Minimizes regulatory compliance costs across the programs – now

PACTT Differentiated Approach

"When going into battle, plans are useless but planning is indispensable"
– D.D. Eisenhower

1. **Focus is on enabling people to respond to circumstances for which they cannot be completely prepared**

   ◦ Adapting a RACI structure when key personnel are not available

   ◦ Providing available leaders and professionals with information and guidance needed to expand their roles vertically and horizontally

   ◦ Guiding available responders to priority objectives and critical tasks when there is no power and no communications

2. **Technological solutions that can adapt to the degraded environment in which disaster responders will operate**

   ◦ providing tailored but coherent direction based on circumstances

   ◦ models work on a virtual "ant colony" of independent expert systems when both power and communications are down

Program Overview

Program Maintenance Knowledge Engine

Emerging risks & impacts analysis

Ongoing review and refinements by expertise network

User Systems

Custodian Partner Systems

Data Sources

Deploy and update tool on dedicated, secured laptops to coherently guide actions of disconnected responders

1. Model non-traditional risks & cascading/compounding impacts across energy, communications & civil infrastructure
2. Model a Response Framework including federal standards, structure of impacted organizations and RACI dynamics
3. Develop a expert-custodian network for maintenance

Before Expertool
Information Silos complicate Preparedness and Response

Emergency Replacement Power

- **Vendor**
  - Equipment
  - Transportation
  - Services
- **Risks**
  - Natural phenomena
  - Man-caused disasters
- **Dependencies**
  - Utility Workers
  - Communications
  - Roads & Bridges
  - Drivers
  - Labor
  - Equipment
- Utility Workers
  - Communications
  - Roads & Bridges
  - Drivers
  - Labor
  - Equipment

Communications

- **Third Party**
  - Cellular
  - Satellite
  - Other
- **Risks**
  - Natural phenomena
  - Man-caused
  - Disasters
  - Cyber Attacks
  - Random Failure
- **Dependencies**
  - Equipment
  - Software
  - Power

Resources

- **Utility Internal**
  - Management
  - Workers
  - Linemen
  - Other
- **Risks**
  - Natural phenomena
  - Man-caused
  - Disasters
  - Health
- **Dependencies**
  - Communications
  - Roads & Bridges
  - Vehicles
  - IT
  - Procedures

Equipment

- **Utility Internal**
  - Transformers
  - Switches
  - Lines
  - Other
- **Risks**
  - Natural phenomena
  - Man-caused
  - Disasters
  - Cyber Attack
  - Random Failure
- **Dependencies**
  - Equipment
  - Software
  - IT
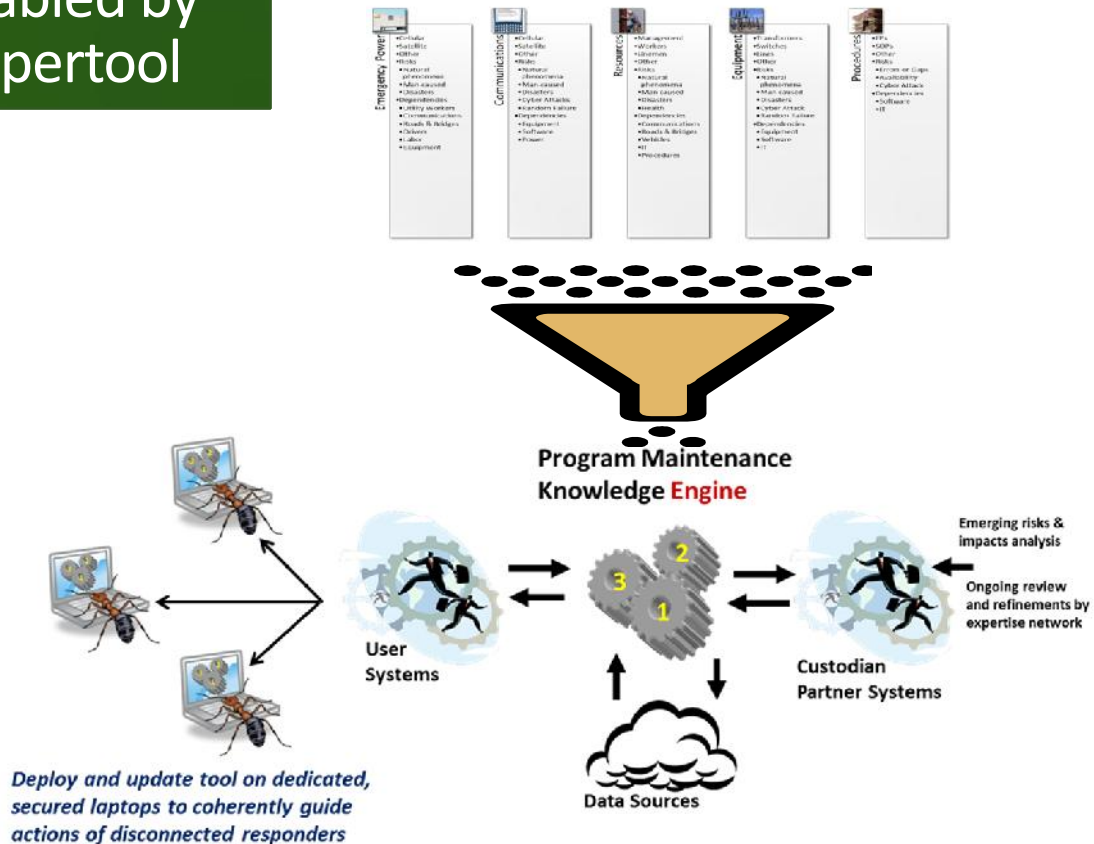
Procedures

- **Utility Internal**
  - EPs
  - SOPs
  - DTIs
  - Other
- **Risks**
  - Errors or Gaps
  - Availability
  - Cyber Attack
- **Dependencies**
  - Software
  - IT

Objectives, Policy, Regulations & Compliance

- **Utility Internal**
  - Policies
  - Metrics
  - Regulations
  - Voluntary goals
  - Other
- **Risks**
  - Errors or Gaps
  - Availability
  - Cyber Attack
- **Dependencies**
  - Software
  - IT

With **PACTT** enabled by Expertool

Solution Approach
- Cognitive methods
- Biomimetic engineering
- System Dynamics
- Modeling information dependencies
- Modeling logical dependencies*****
- Emerging research

* See Appendix

Expertool Knowledge Engineering Platform
Leading Disruptive Innovation on two fronts

1. Consulting Tool to Discover Insights across Complex Data

Harvard Business Review

**Consulting on the Cusp of Disruption**   Sep 2013

by Clayton M. Christensen, Dina Wang, and Derek van Bever

"the steady invasion of hard analytics and technology is a certainty"

- we evolved our platform in the "real-world lab" of client engagements
- won $5+ million in projects at Chase and Pfizer competing with the big 4

2. Vertical Products that Automate Complex Knowledge Work
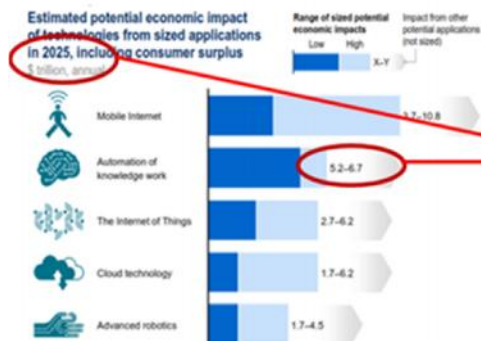
Knowledge work automation will have a global economic impact second only to mobile tech – **$6 trillion by 2025** according to McKinsey

We enable focused, tailored automation of complex knowledge work *without writing code*

Estimated potential economic impact of technologies from sized applications in 2025, including consumer surplus ($ trillion, annual)

Technology	Range
Mobile Internet	3.7–10.8
Automation of knowledge work	5.2–6.7
The Internet of Things	2.7–6.2
Cloud technology	1.7–6.2
Advanced robotics	1.7–4.5

Leading Edge Applied AI

Universal Knowledge Modeling Platform
- Anything described in words or expressions can be modeled
- Software and Methodology evolved since 1996 while architecting large, complex solutions

Biomimetic Information Architecture
- Neural networks scale content and interaction capacity
- Cognitive methods capture human expertise

Code-free Construction
- Highly agile iterative process
- Minimizes interdisciplinary ambiguity and miscommunication

	IBM Watson	Expertool	LarKC	Wolfram Alpha
Computes	Answer	Relevance	Selected process outputs	Answer
Approach	- Statistical match - Computing power (85,000 watts)	- Contextual parsing - Concept quantification - Relationship discovery	-Massive, distributed and incomplete reasoning lab	- Linguistic parsing - Curating computable knowledge

Appendix

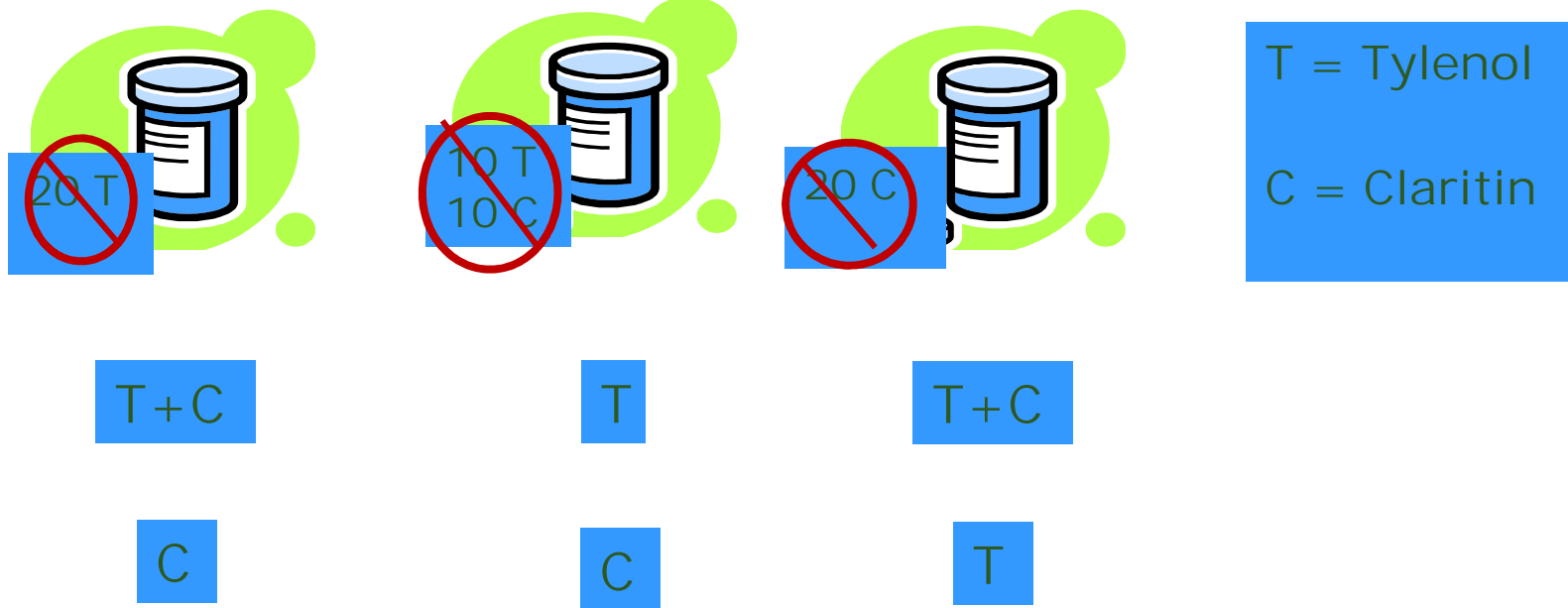DYNAMICS OF INFORMATION SILOS PUZZLE

The Dynamics of Information Silos

20 T

10 T
10 C

20 C

T = Tylenol

C = Claritin
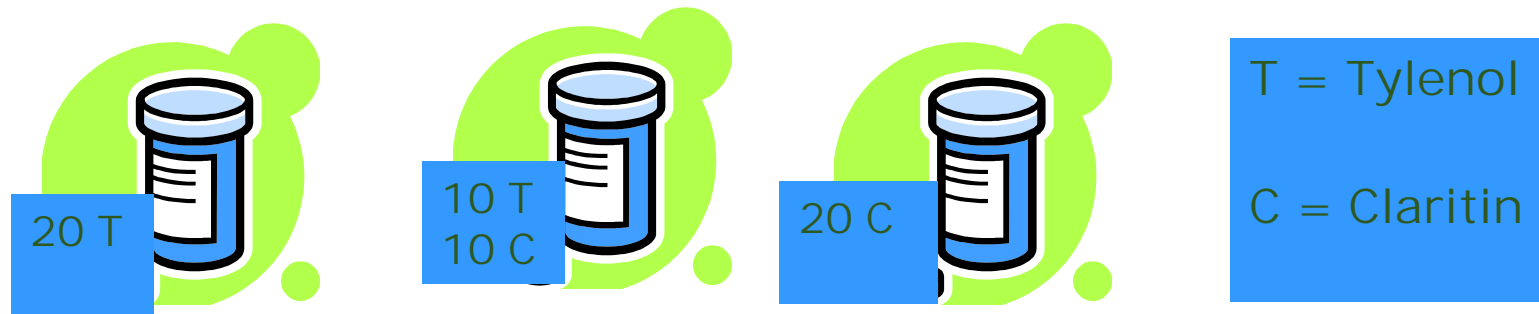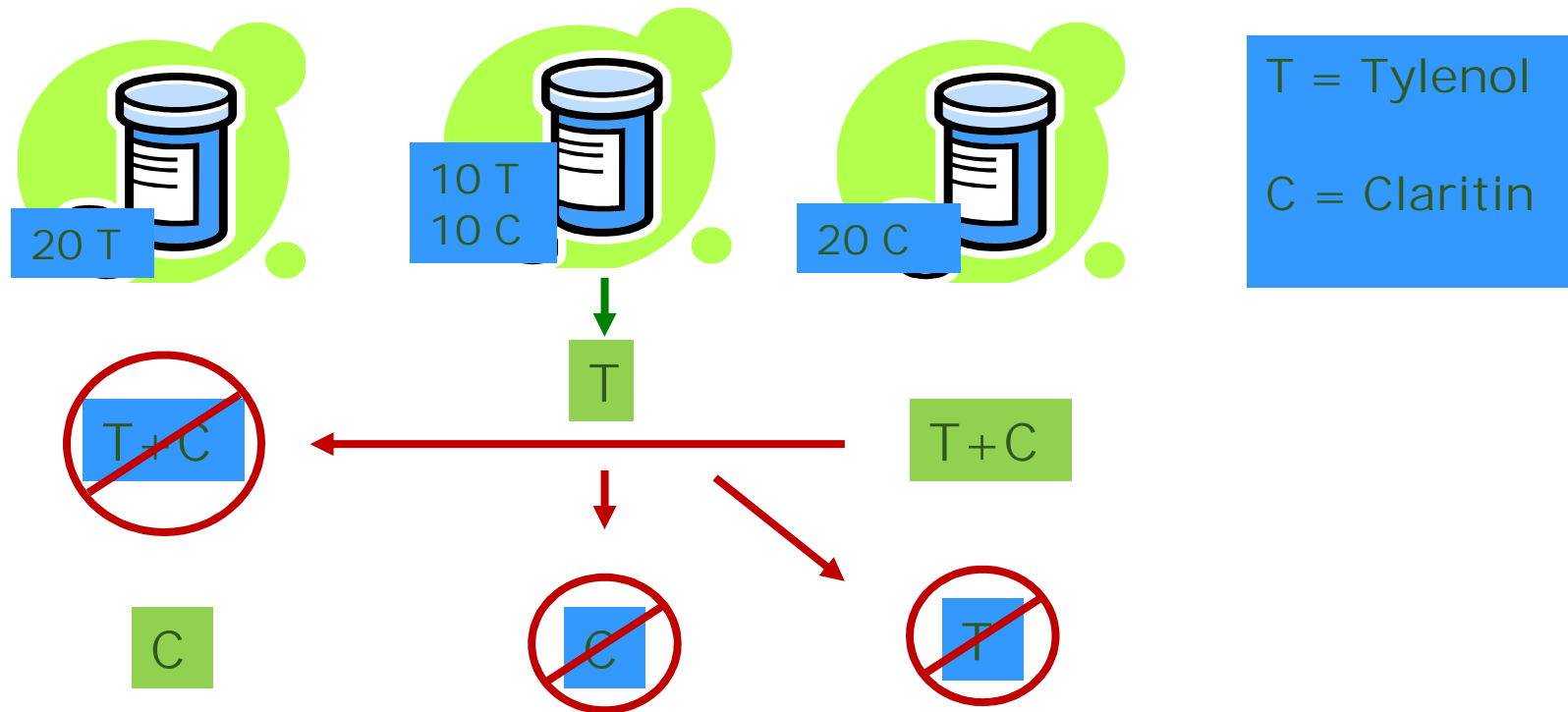
ALL THREE LABELS ARE WRONG!

What is the minimum number of bottles we need to open
and the minimum number of pills to remove to correctly label
all the bottles?

Model known alternatives

T = Tylenol

C = Claritin

20 T → T+C / C

10 T 10 C → T / C

20 C → T+C / T

- First, we model what we know – the labels are wrong!
- We know the possible alternatives for each bottle

Answer: *one* pill from the mixed bottle

What if each bottle was an information silo, such as "People", "Process" and "Technology"?

Contact:
Joe Glick, Founder
joeglick@expertool.com