

# “More than Information Overload: Supporting Human Attention Allocation”

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# Problem

- **Human attention has become the critical resource for situation awareness (SA) and decision making in complex environments. Providing the right information is necessary but *not sufficient*: people must *attend to it*.**
- **How can we characterize a domain's distinct attentional challenges, then tailor technology support for more agile attention allocation and improved mission performance?**

# Background

Why don't we attend to the “right” information?



Overload



Many Modalities



Multitasking



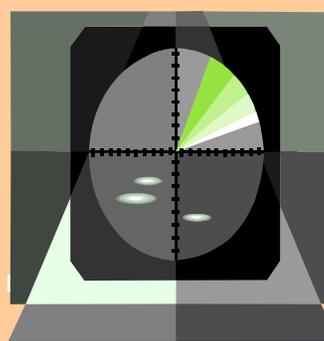
Priority Shifts



Distractions



Interruptions



Monitoring



Lack of Trust

**COMPLEXITY**

# Objective

- **Ensure relevant information is attended to in dynamic, complex environments for improved SA and timely decision making performance**
  - **Understand and characterize attentional demands**
  - **Design support for attentional demands**
  - **Evaluate impact of technology support**

# Highlight

Overload, Distractions (multiple modalities: visual text or graphics, auditory headsets or phones, face to face)

Must proactively scan for unanticipated events...

The screenshot shows a complex software interface with several windows:

- City1 Map:** A map showing various locations like 'NATURAL GAS PLANT', 'POWER TRANSFORMER STATION', 'WATER TREATMENT PLANT', 'LUNDEGROUND RESEVOIR', and 'TEACHING HOSPITAL'.
- Weapons Permission Request Tool:** A dialog box for requesting permissions to use weapons.
- Weapon Status:** A table listing weapons and their status.
- Time-Sensitive Targeting (TST) Checklist:** A checklist for target acquisition.
- Intelligence Field Reports (Email):** A window for handling reports.
- Chat Windows:** Multiple windows showing text-based communication between users.
- System Tray:** A taskbar at the bottom with various system icons and a clock.

Asset Name	Asset Range	Speed	Weapon	Target Range	Altitude	Status	Organization
Special Ops Team #39	1197 miles	18 mph	Silenced PP7 pistols	1 mile	0.1 miles	ACTIVE	Army
Apache Helicopter #38	1331 miles	100 mph	Helifire Missiles	1 mile	0.1 miles	EXPIRED	Air Force
Special Ops Team #20	1197 miles	100 mph	M21 Sniper Rifles	1 mile	0.1 miles	ACTIVE	Army
Apache Helicopter #31	1331 miles	100 mph	Helifire Missiles	1 mile	0.1 miles	ACTIVE	Air Force
Special Ops Team #37	1197 miles	100 mph	DFG 300	1 mile	0.1 miles	ACTIVE	Army
Apache Helicopter #36	1331 miles	100 mph	Helifire Missiles	1 mile	0.1 miles	ACTIVE	Air Force

Frequent Interruptions, Task-Switching

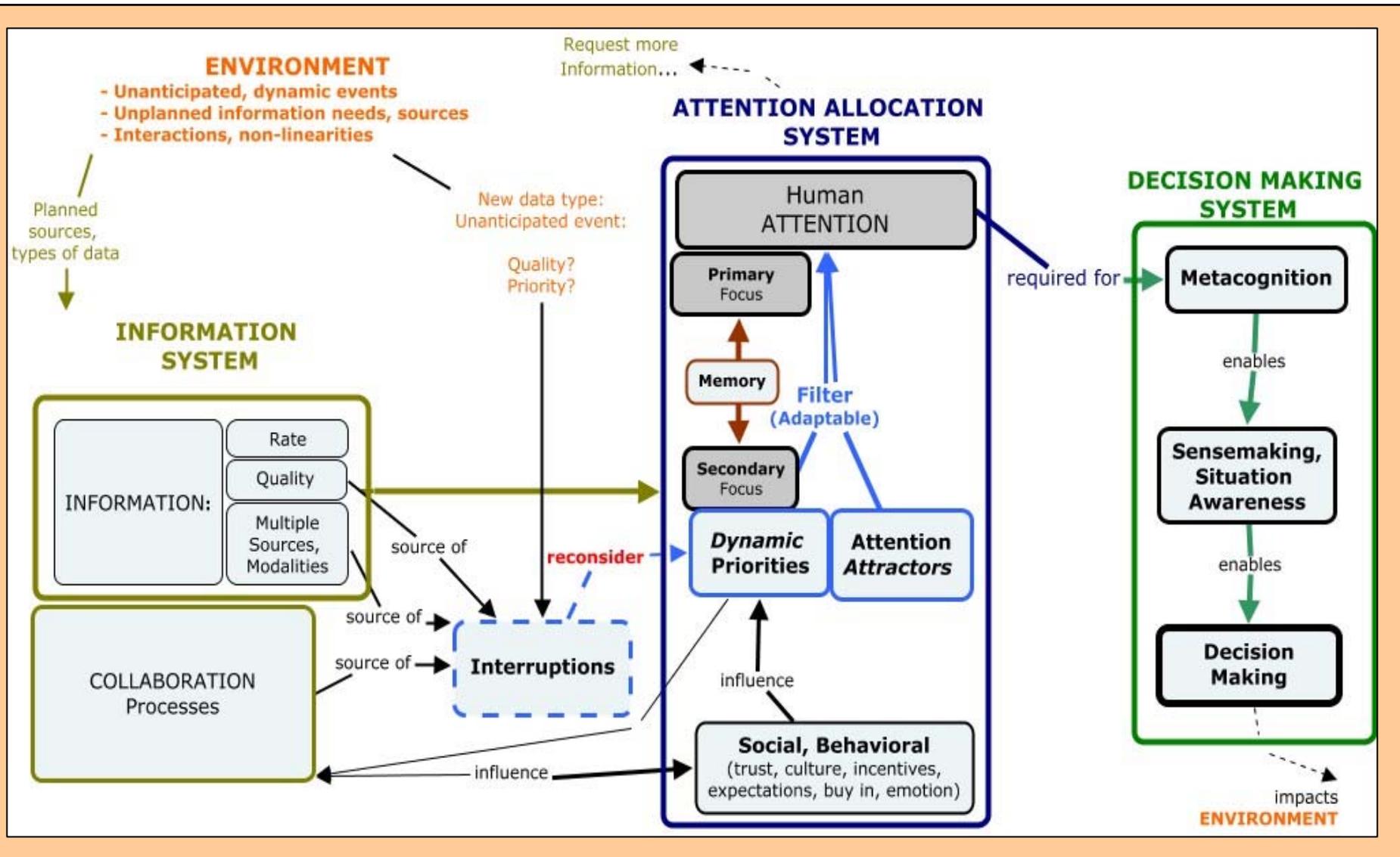
Diverse Information Sources

Have Priorities Shifted?

Collaboration needs!



# Demonstration



# Dynamic Attention Allocation System

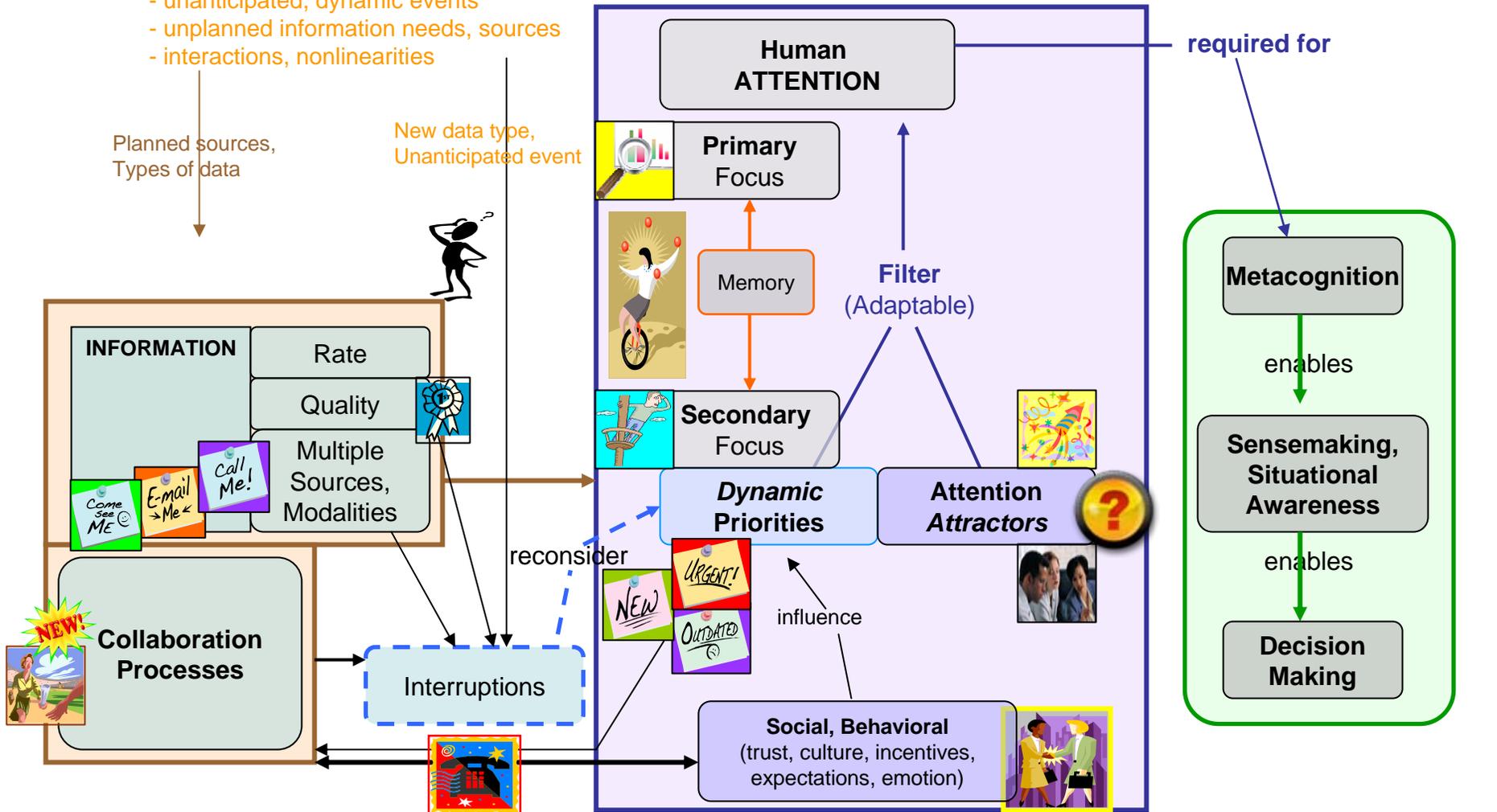
[Boiney]

## ENVIRONMENT

- unanticipated, dynamic events
- unplanned information needs, sources
- interactions, nonlinearities

Planned sources,  
Types of data

New data type,  
Unanticipated event



INFORMATION SYSTEM

ATTENTION ALLOCATION SYSTEM

DECISION MAKING SYSTEM