

# **Compound Identity Measure:** A New Concept for IA

**Dr. Rahim Choudhary**

SI International, Reston, VA 20190.

Rahim.Choudhary@si-intl.com

**703-234-6961**

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# *What is involved*

1. The **ID** of the User (A human, a machine, an AI agent, or a program).
2. The operational **Context**
  - In which the user conducts its activity.
  - The relative priority or importance of the user's Task in the larger context of the Mission.
3. **Models** for the context and the priority
4. Examples of computing a **numeric measure**
5. Use of the computed measure in making **Policy Based Decisions** (e.g. for Access Control).

# Model

$$UI = g(u, s, k, p, c, o, h, t)$$

User Name (**u**)  
Security Clearance (**s**)  
Secret Keys (**k**)  
Public Keys (**p**)  
Certification Authority (**c**)  
User's Organization (**o**)  
Position in Hierarchy (**h**)  
Security Token (**t**)

$$CI = f(UI, CS)$$

$$CS = h(O, M, T)$$

Owner (**O**)  
Mission (**M**)  
Task (**T**)

$$m(E) = \frac{\sum_1^n w(x)m(x)}{\sum_1^n M(x)}$$

# Computation: $CI = f(UI, CS)$

$$CS = h(O, M, T)$$

- Owner (**O**) (not used)
- Mission (**M**) (=100/100)
- Task (**T**) (=50/100)

CS=3/4

**Sub Missions:** •human resources (50/100), •financials (50/100), •product development (75/100 tech challenge), •manufacturing (75/100 global competition), •marketing (50/100), •business development (50/100), and •research and development (100/100 differentiator)

**Sub Tasks:** •planning and scheduling (50/100), •delivery (75/100 end to end impact), and •customer satisfaction (100/100).

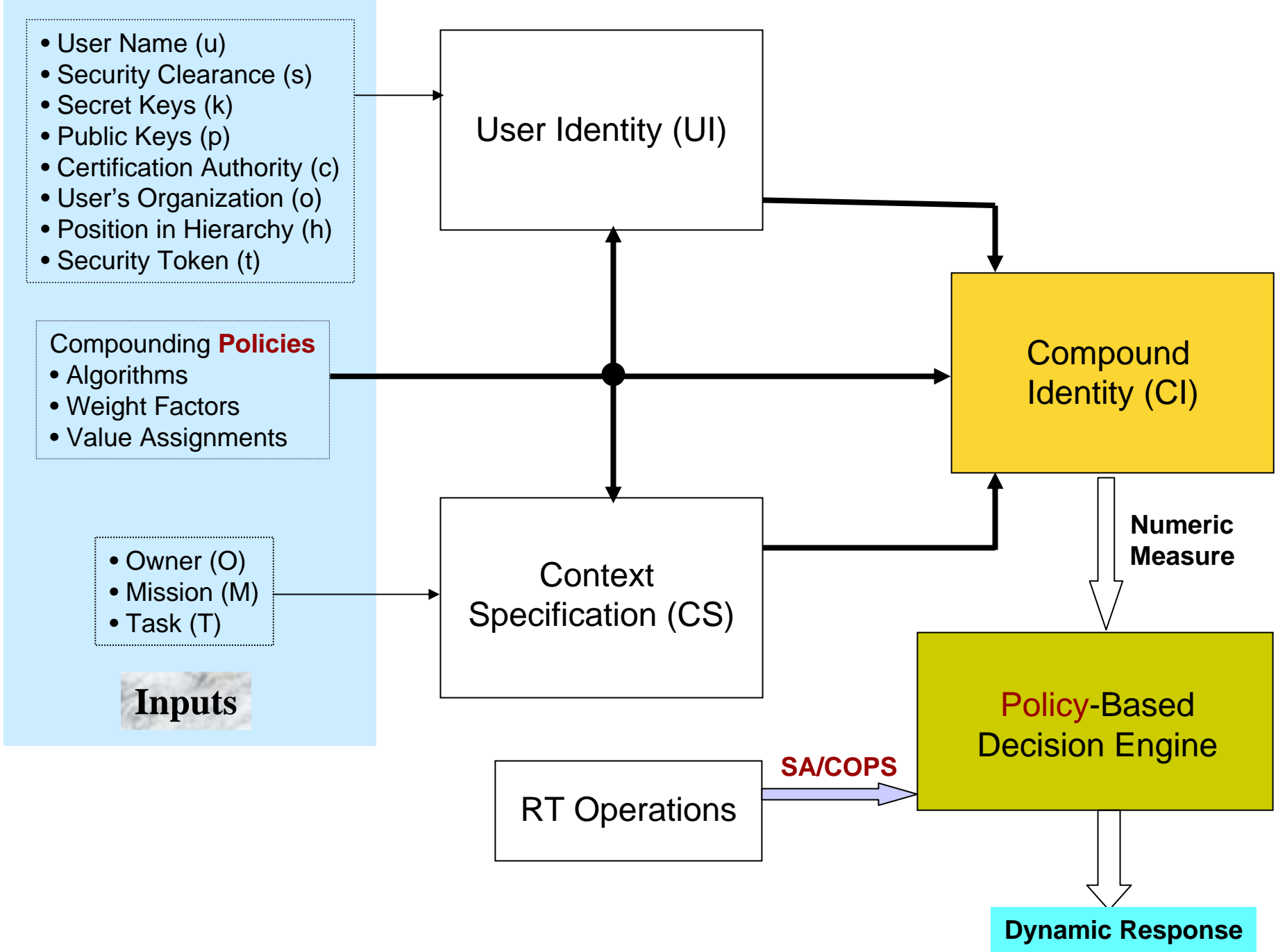
$$UI = g(u, s, k, p, c, o, h, t)$$

- User Name (**u = 50/100**) (temp/part time/contractor)
- Security Clearance (**s**) (not used)
- Secret Keys (**k = 100/100**) (uses security token and pwd)
- Public Keys (**p**) (not used)
- Certification Authority (**c**) (not used)
- User's Organization (**o = 50/100**) (R&D not an exec)
- Position in Hierarchy (**h**) (not used)
- Security Token (**t** (not used in this enterprise))

UI=2/3

$$m(E) = \frac{\sum_1^n w(x)m(x)}{\sum_1^n M(x)}$$

CI=17/24



## Conclusions

- We can model the **Compound Identity** in terms of the **User Identity** and the **Context Specification**.
- The model facilitates practical computations to evaluate the **Numeric Measure** for the **Compound Identity**.
- The **Compound Identity Measure** serves as a **Policy** parameter for dynamic **Access Control** decisions.
- The technique applies equally to other **Policy Based Decisions** like traffic engineering and SLA enforcement.