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Future of Regulation in the Age of the Internet

Mark Fell

Managing Director, Carré & Strauss

Global Forum, Geneva - 17 November 2014



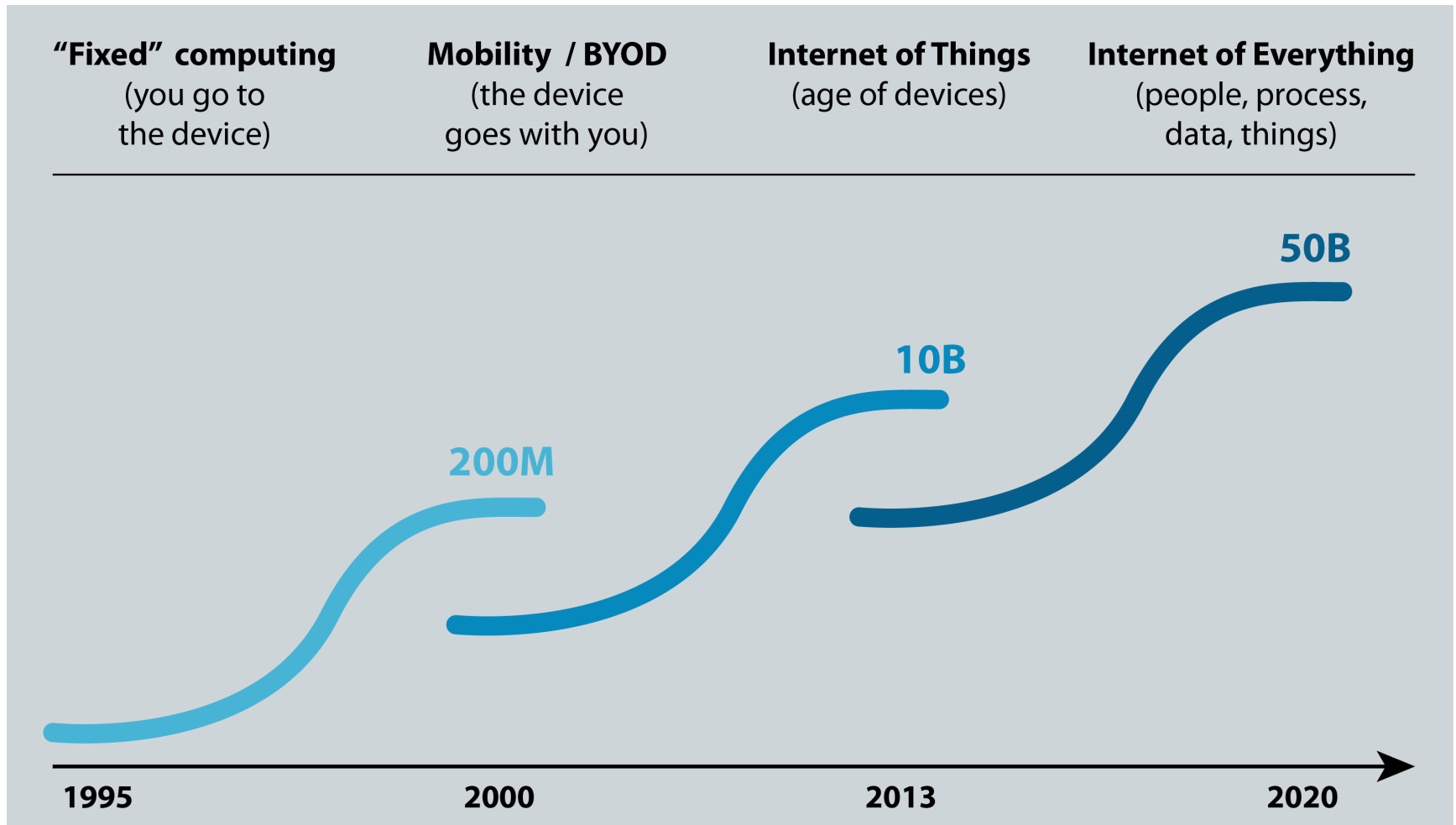
Agenda

1. Emerging Age of IoT
2. From Regulation to Governance
3. Towards Smarter Intervention in IoT

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Emerging Age of IoT/E



Joseph Bradley, Joel Barbier, Doug Handler – Cisco White Paper

IoT Defined

Physical Object
+
Controller, Sensors, and Actuators
+
Internet
=
Internet of Things

Adrian McEwen, Hakim Cassimally, Designing the IoT

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Regulation Defined

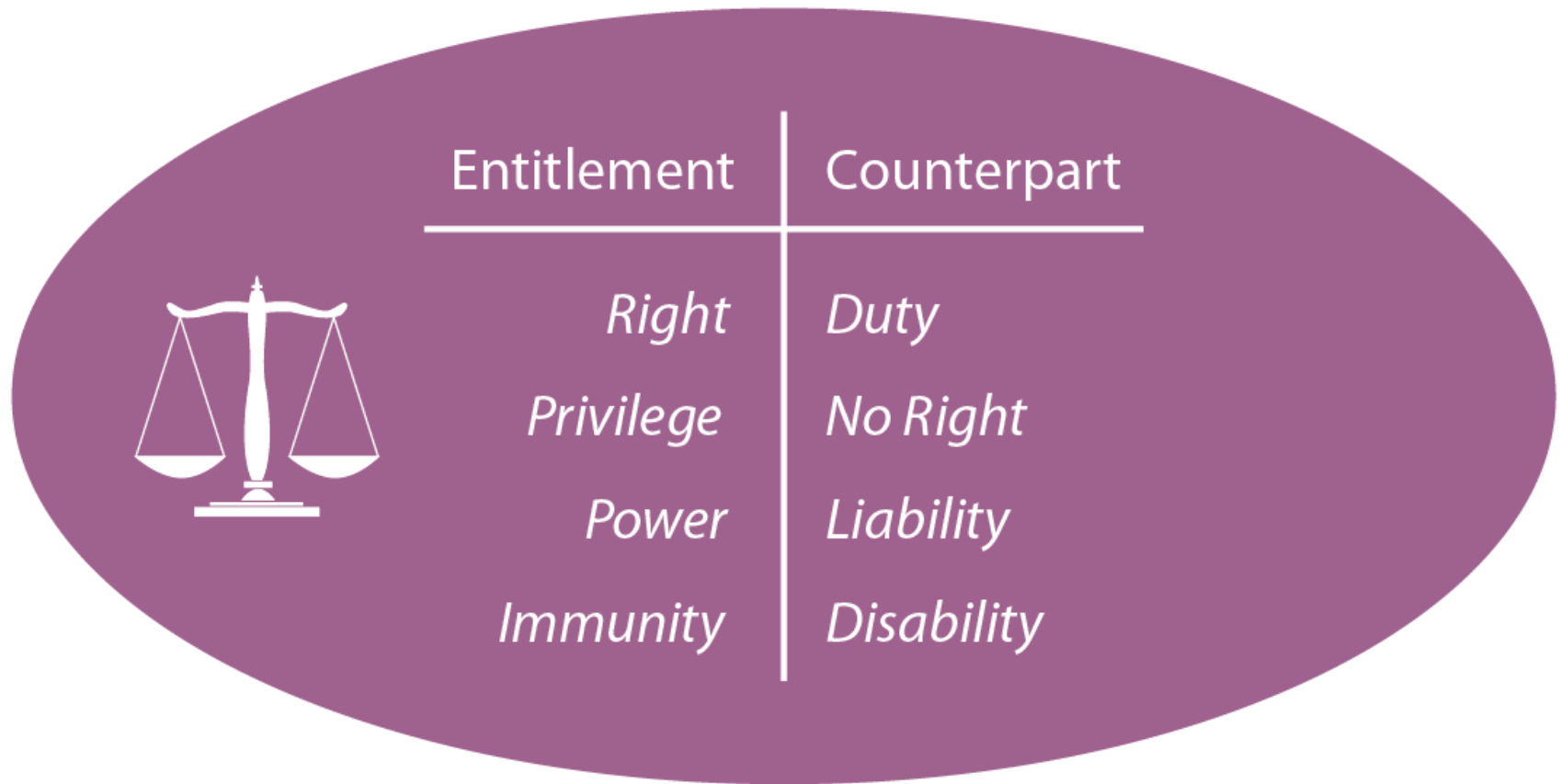
*“State intervention in the private domain,
which is a byproduct of our imperfect
reality and human limitations”*

Barak Orbach

Professor of Law, University of Arizona

“What is Regulation” – Yale Journal of Regulation

Regulation as Legal Relationships



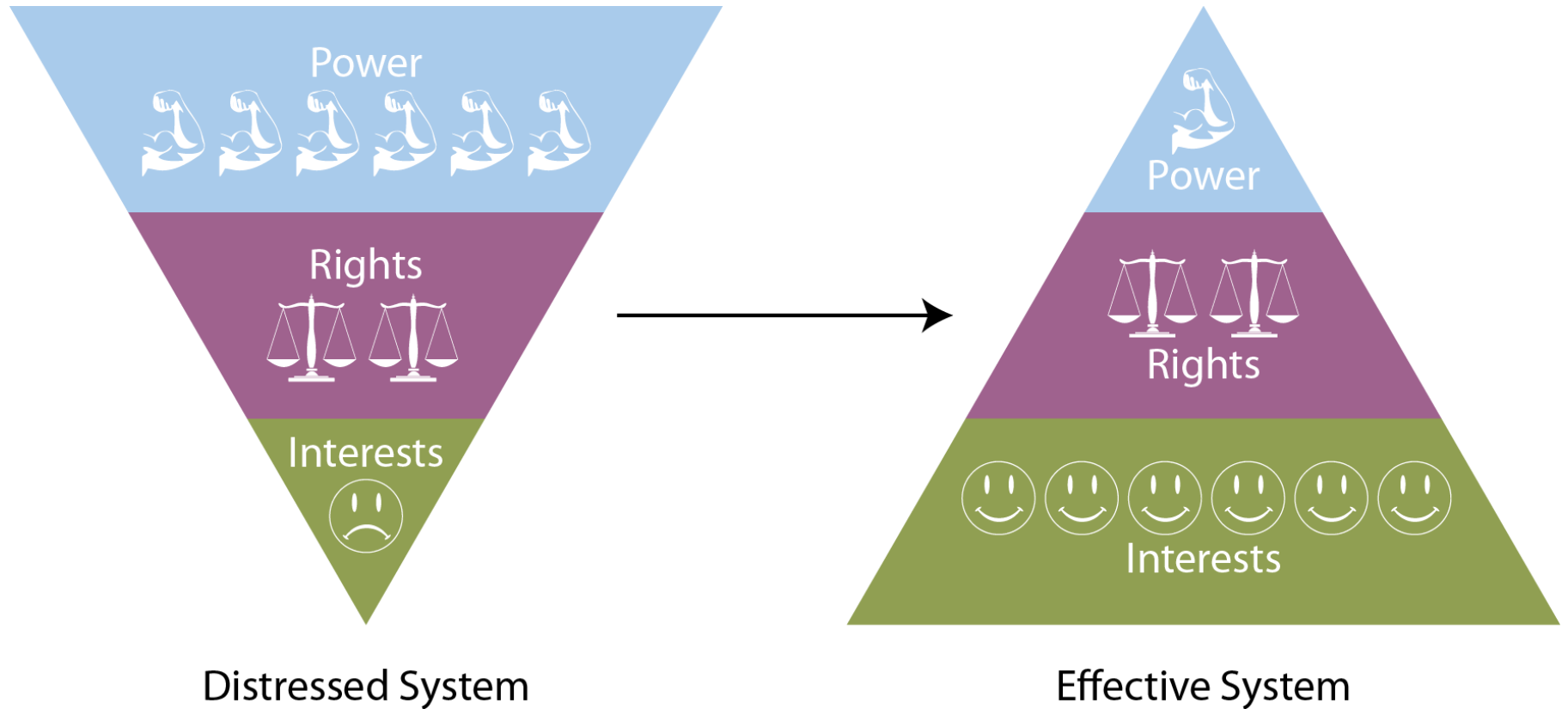
Professor Wesley Newcomb Hohfeld

Governance – Broader Approach

“The collection of intervention mechanisms that a society adopts to prevent or dissuade potentially self interested stakeholders from engaging in activities detrimental to the welfare of other stakeholders”

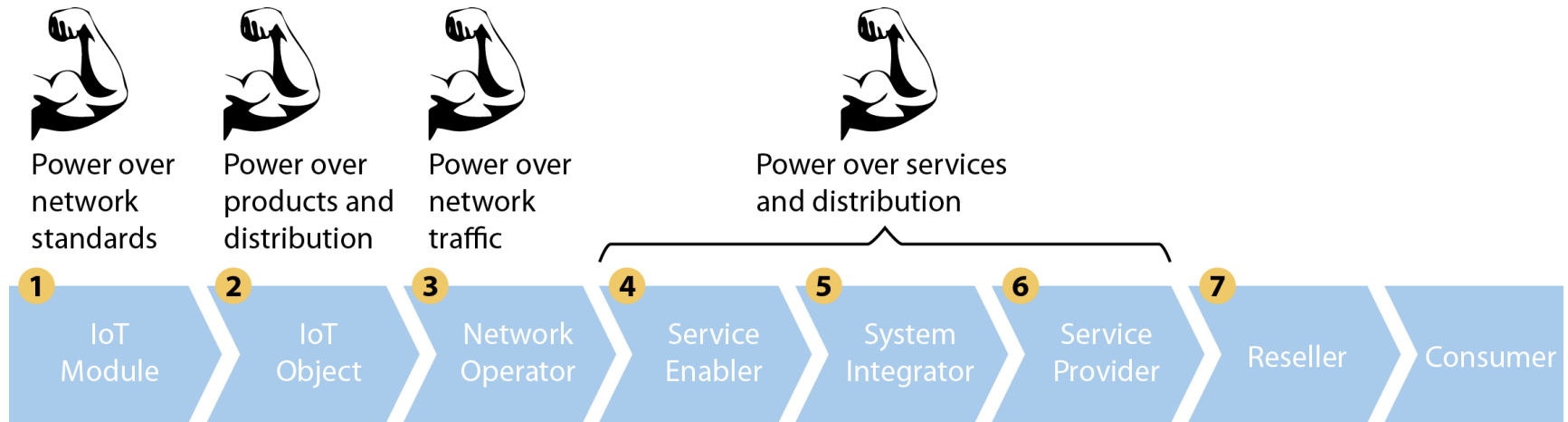
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Carré & Strauss

Effective Governance



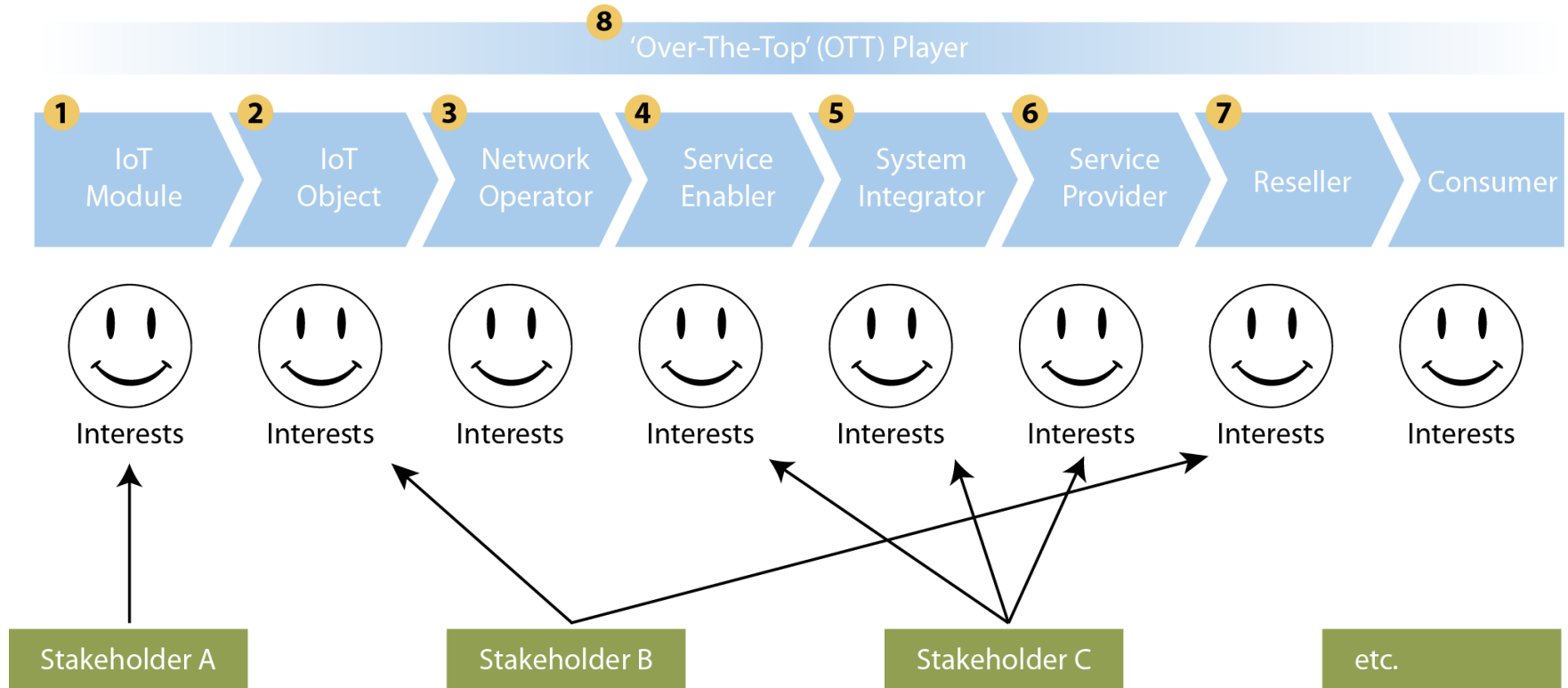
William L. Ury, Jeanne M. Brett, Stephen B. Goldberg – Harvard Law School

Diffuse Power in IoT = Challenge



Adaptation of Arthur D Little's Value Chain for Smart Solutions

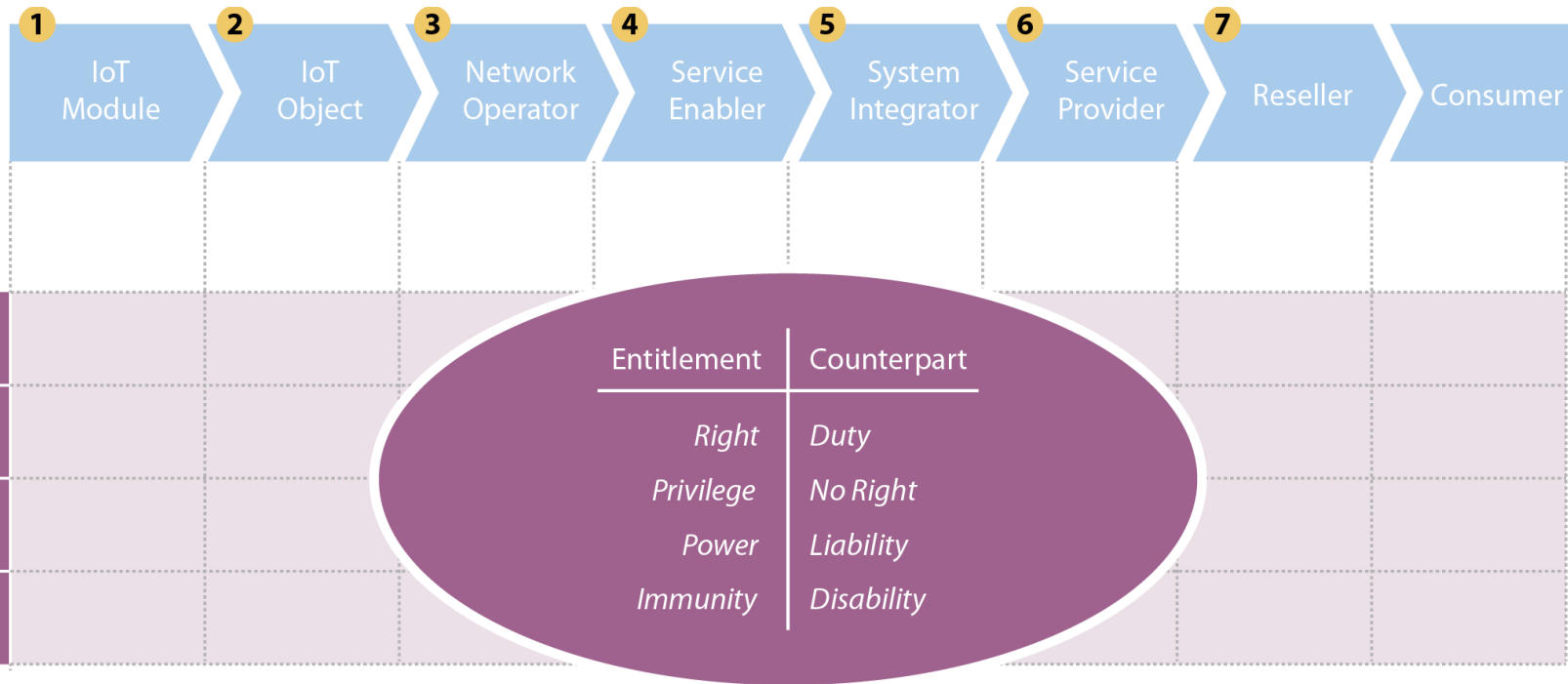
Complex Interests in IoT = Challenge



Range of Issues in IoT = Challenge



Legally
Enforceable
Relationships



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Revisit 'Intervention Mindset' for IoT



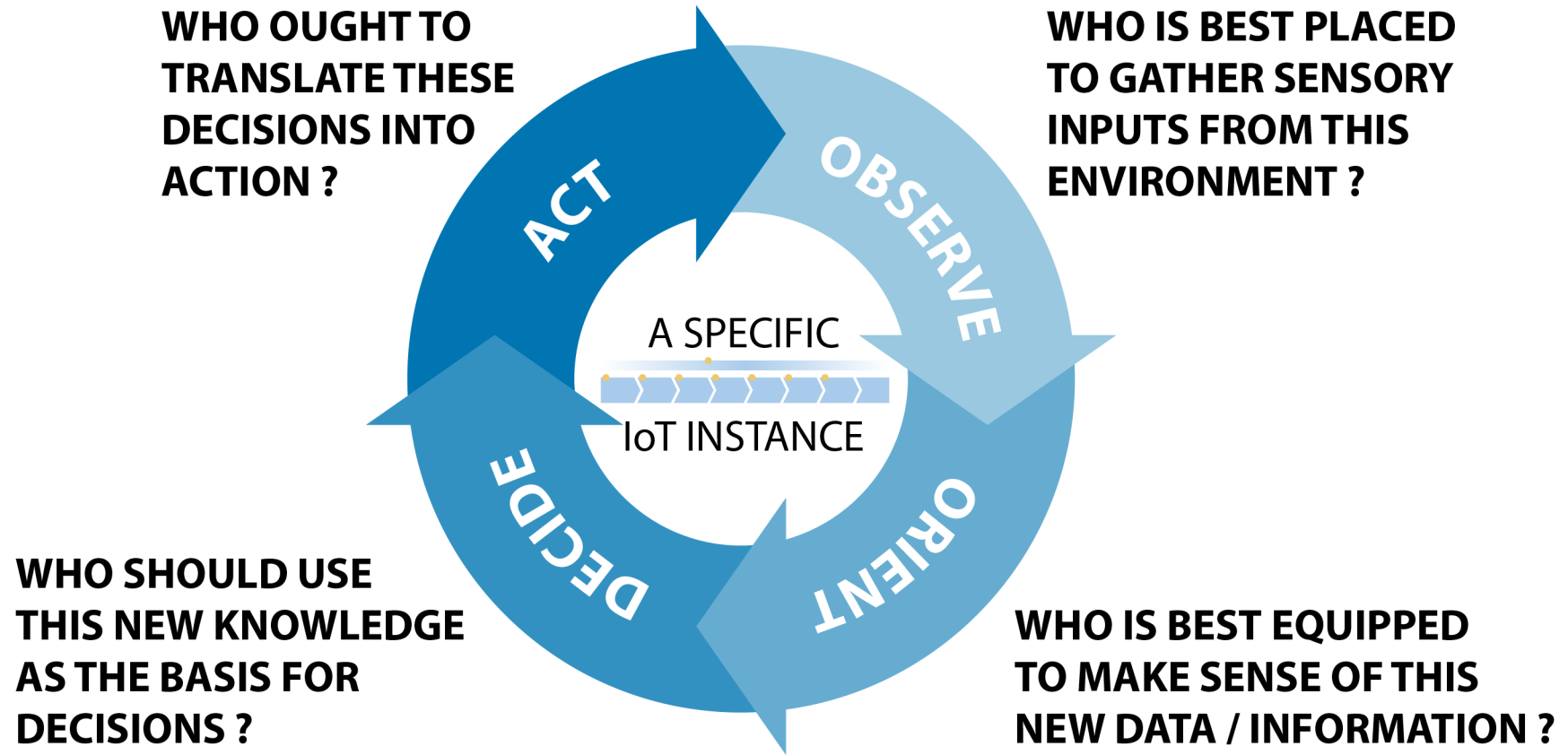
**INTERVENTION
MINDSET**

'PREDICT
&
CONTROL'

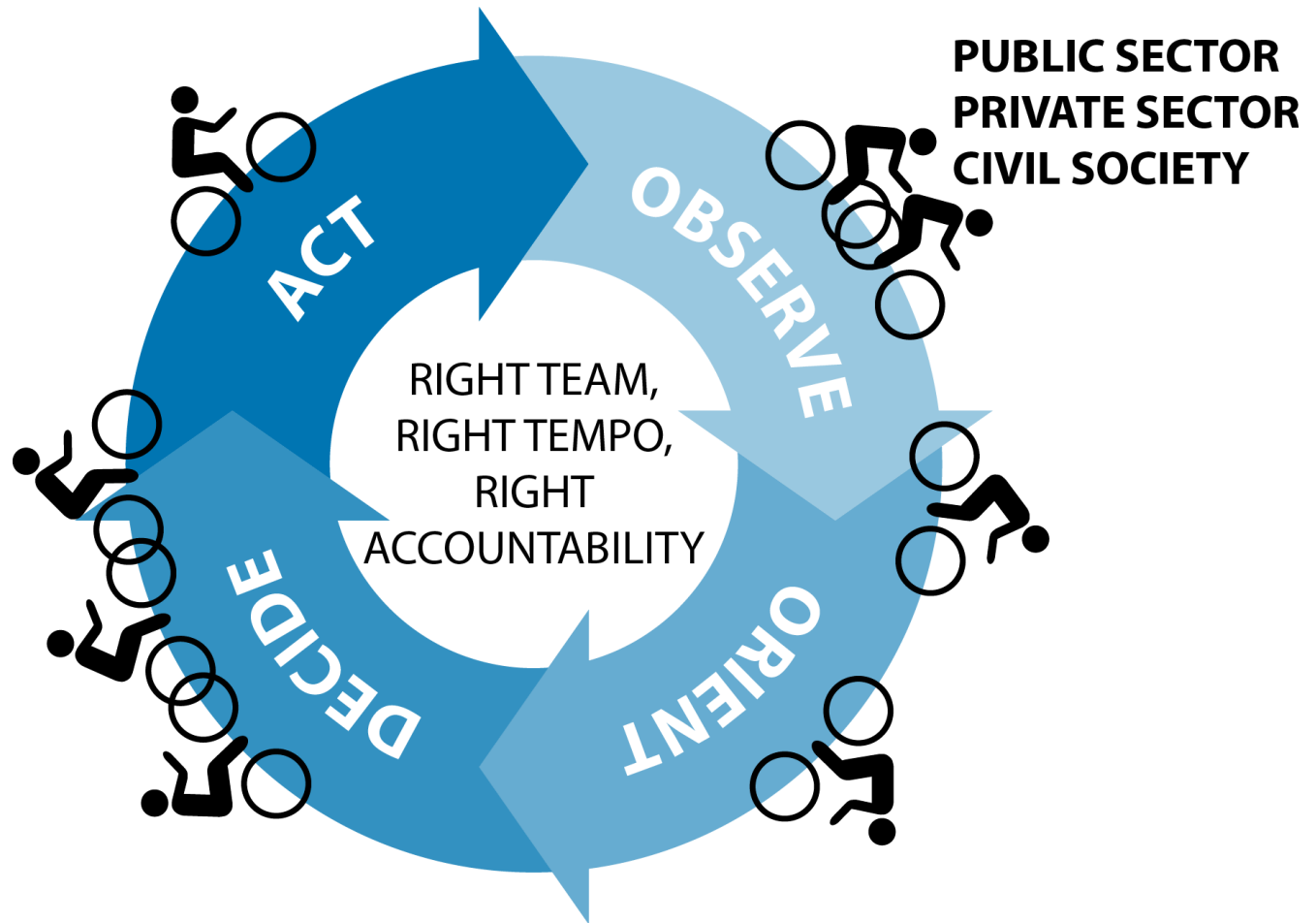


'TRIAL
&
ERROR'




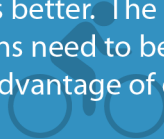


Employ New 'Intervention Mechanism'



Cycle Loop as a Team in IoT



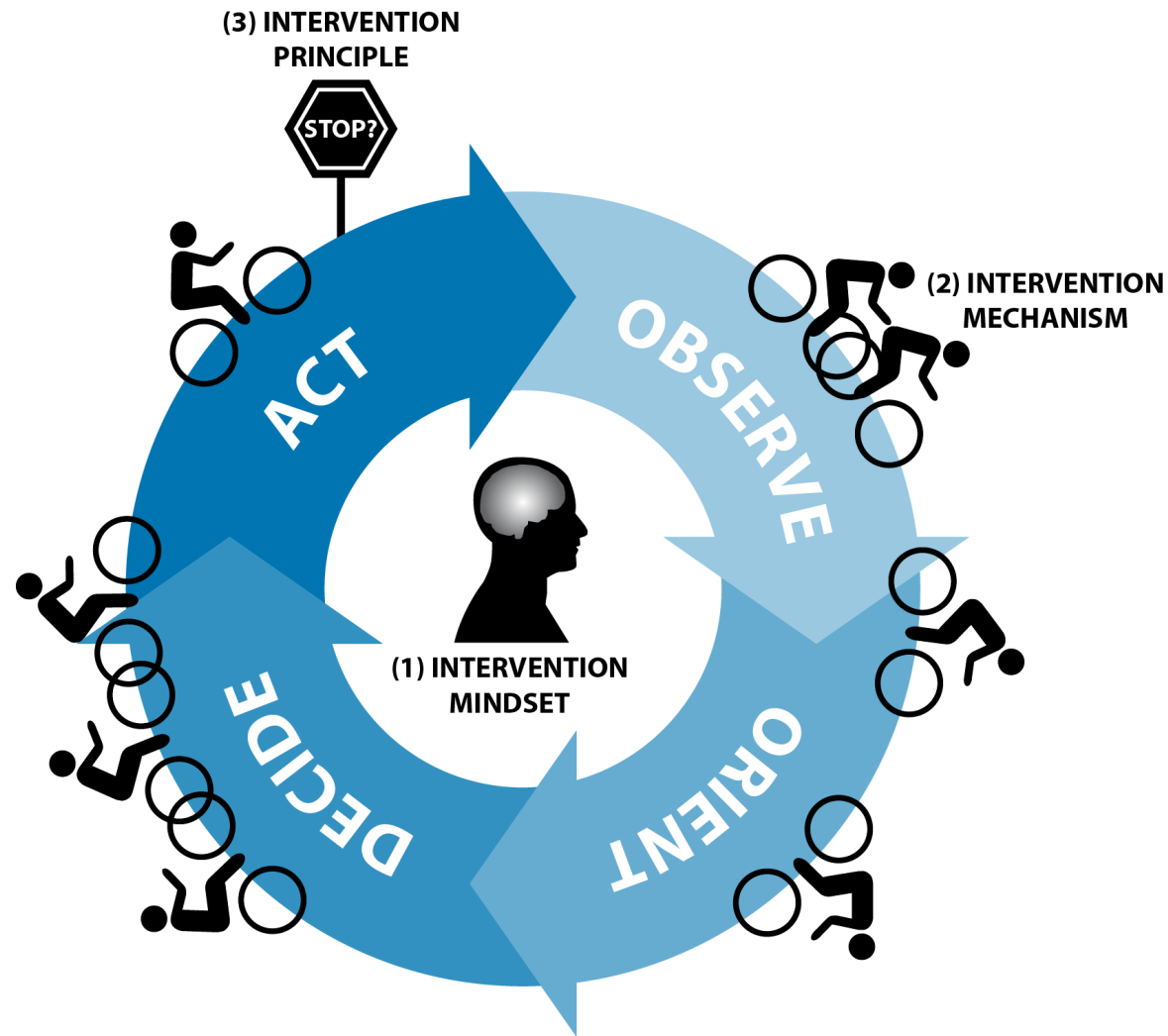
Cycle Loop Intelligently in IoT

		AGENT TYPE		
		Non-Expert	Expert	Algorithm
AGENT CONFIGURATION	Individual	<p>People have 'common sense' - in more formal terms, 'sensitivity to context' - computers do not. This is also the domain of 'personal choice.'</p> 	<p>Experts come into their own in the area between 'rote rule following' and 'probabilistic prediction' - an area in which a combination of knowledge and initiative is required.</p> 	<p>People can be replaced by computers when it comes to making certain types of 'rule-based decisions' if the requisite hardware, software and data exists and it makes economic sense to do so.</p> 
	Crowd	<p>To figure out the value of something it's best to take an average of a group's answers. For choosing the right answer from a small number of possible alternatives majority opinion serves us better. The right conditions need to be in place to take advantage of either method.</p> 	<p>Groups of experts will outperform most, if not all, individual experts.</p> 	<p>Machine-to-Machine (M2M) communication is resulting in the abrupt rise of new behavioural regimes that are beyond human response times. Researchers are at the early stages of understanding this new machine ecology.</p> 

Use ‘Intervention Principle’ in IoT

“An intervention agent is to intervene in the Observe-Orient-Decide-Act (OODA) loop only if, and in so far as, it is reasonably foreseeable that the objectives of the proposed intervention cannot better be achieved by the system running itself or in default of this, by another agent”

Smarter Intervention in IoT = 3 Tenets



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