



# Combat Scrum: From Iraq to the Research Triangle Park

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# Learning Objectives

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- Scrum framework, principles, and values transcend software
- U.S. Army adopted similar framework to evolve Boyd's OODA Loop for combat operations: Find, Fix, Finish, Exploit, Analyze (F3EAD)
- Combat veterans have soft skills needed to fill gaps as Scrum Masters, Product Owners, and Program Managers

- 2000 B.S., Economics / Systems Engineering, United States Military Academy at West Point, NY.
- Iraq
  - 2002-04 Tank Platoon Leader, “Agile Product Owner”
  - 2005 Combined Joint Special Operations Task Force- Arabian Peninsula, “Agile Enterprise PMO” / “Team of Teams”
  - 2006-07. Recon Company Commander, “Agile Coach / Chief Product Owner”
- 2008-09 Naval Postgraduate School, “Wicked Problems”
- 2014-16. Agile Coach @ Arca

# Follow the Whanau

- Whānau (Māori pronunciation: ['fa:natʰ]) is a Māori-language word for extended family.



## 'The First XV' 15 ALL BLACK PRINCIPLES

By James Kerr, Legacy, 2015



**1. Sweep the Sheds**  
Never be too big to do the small things that need to be done

Before leaving the dressing room at the end of a game, all the players stop and tidy up. They literally and figuratively 'sweep the sheds', an example of personal humility, a cardinal All Blacks value



**3. Play with Purpose** Ask 'Why?'  
Better people make better All Blacks is a core belief, and understanding Why? identifies the purpose of being an All Black. The power of purpose galvanises individuals in an organisation, what's the purpose of yours?

**2. Go for the Gap**  
When you're on top of your game, change your game

The philosophy and focus on continual improvement and continuous learning leaves no room for complacency



**4. Pass the Ball**  
Leaders create leaders

Shared responsibility means shared ownership, a sense of inclusion unites individuals, and collaboration means advancement as a team



**5. Create a Learning Environment**  
Leaders are teachers

For the All Blacks, leaders are learners, are teachers, as Jack Hobbs, former captain said: Get up everyday and be the best you can be. Never let the music die in you

**6. No Dickheads**  
Follow the whanau

The All Blacks select on character over talent, which means some promising players never pull on the black jersey – because they don't have the right character

### NO ONE IS BIGGER THAN THE TEAM THE TEAM ALWAYS COMES FIRST

**7. Embrace Expectations**  
Aim for the highest cloud

A culture of expectation enables the asking and re-asking fundamental questions: how can we do better? Taking risks and responsibilities is one of the skills you learn from rugby, a contest of strength, skill and intelligence



**8. Train to Win**  
Practice under pressure

The philosophy means finding ways to do more by preparation and practice. There's a Maori saying: the way the sapling is shaped determines how the tree grows

**9. Keep a Blue Head**  
Control your attention

One minute can decide the outcome of a game, as it can the outcome of a business situation. Avoiding poor decision making under pressure is vital

**10. Know Thyself** Keep it real  
Honesty drives better performance, attributed to Socrates, the phrase know thy self, is a key tenet of All Blacks philosophy, believing that development of the authentic self is essential to performance

**11. Invent your own language** Sing your world into existence  
It is a system of meaning that everyone understands, a language and vocabulary, a set of beliefs that bind the group.

**12. Sacrifice** Find something you would die for and give your life to it  
Don't be a good All Black, be a great All Black. Give everything you have – then a little bit more

### HUMILITY RESPECT excellence

**13. Ritualise to Actualise** Create a culture  
Rituals reflect, remind and reinforce the belief system to reignite their collective identity and purpose

**AU, AU, AUE BA! – IT'S OUR TIME! IT'S OUR MOMENT!  
THE FINAL LINE OF THE HAKA**

**14. Be a Good Ancestor** Plant trees you'll never see  
As the sun shines on you for this moment, this is your time, it's your obligation and responsibility to add to the legacy – to leave the jersey in a better place. The legacy is more intimidating than any opposition

**15. Write Your Legacy** This is your time  
When a player makes the All Blacks, they're given a small black book. The first page shows a jersey from the 1905 Originals, the first tour. On the next page is another jersey, that of the 1924 Invincibles, and thereafter, pages of other jerseys until the present day. The rest of the pages are blank, waiting to be filled, by the player himself

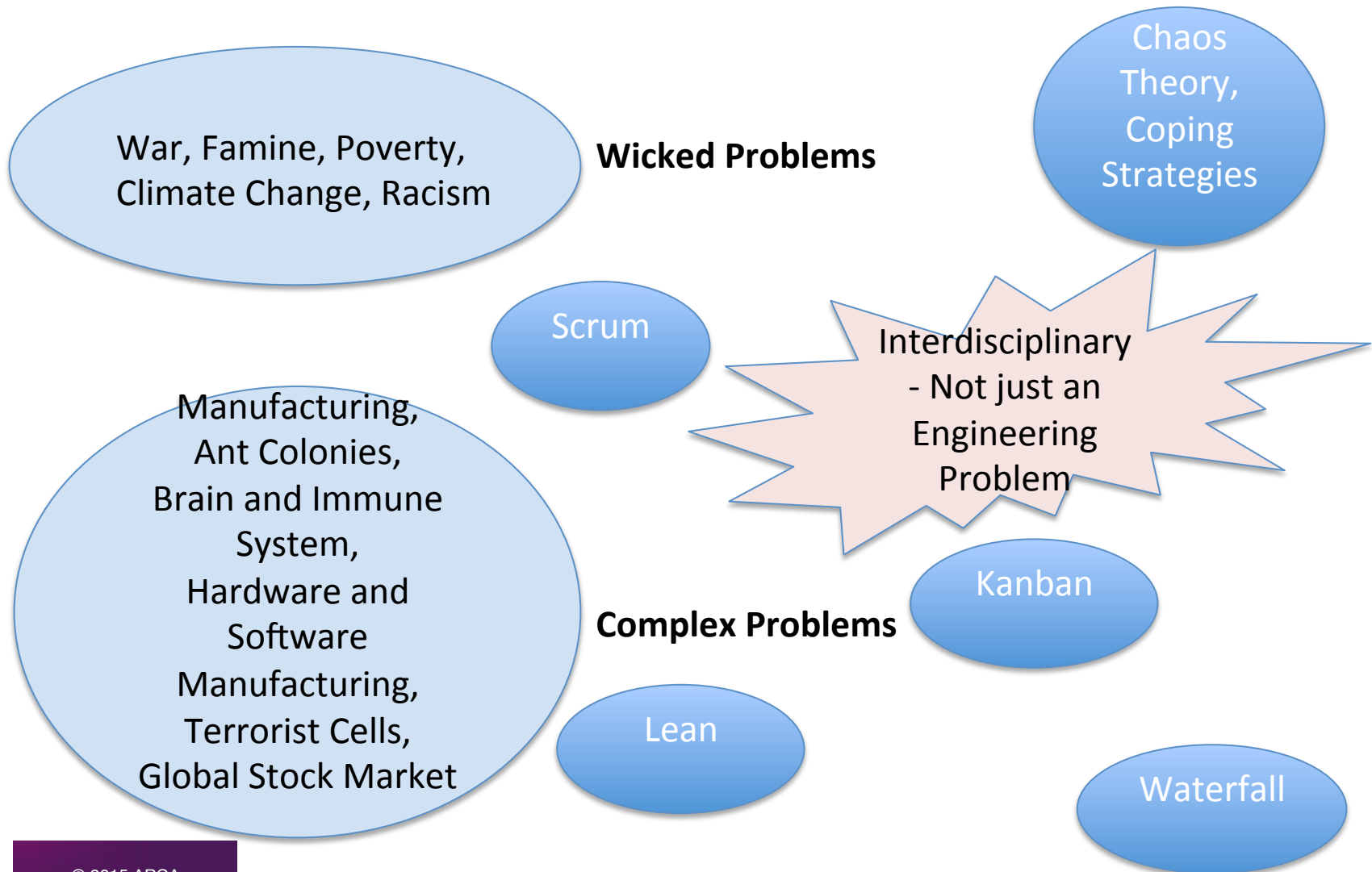


**MANY OF US ARE MORE CAPABLE THAN SOME OF US, BUT NONE OF US IS AS CAPABLE AS ALL OF US. THE ALL BLACKS SHOW IT IN EVERY GAME. MAKE SURE YOUR BUSINESS HAS THIS HEART BEAT TOO**

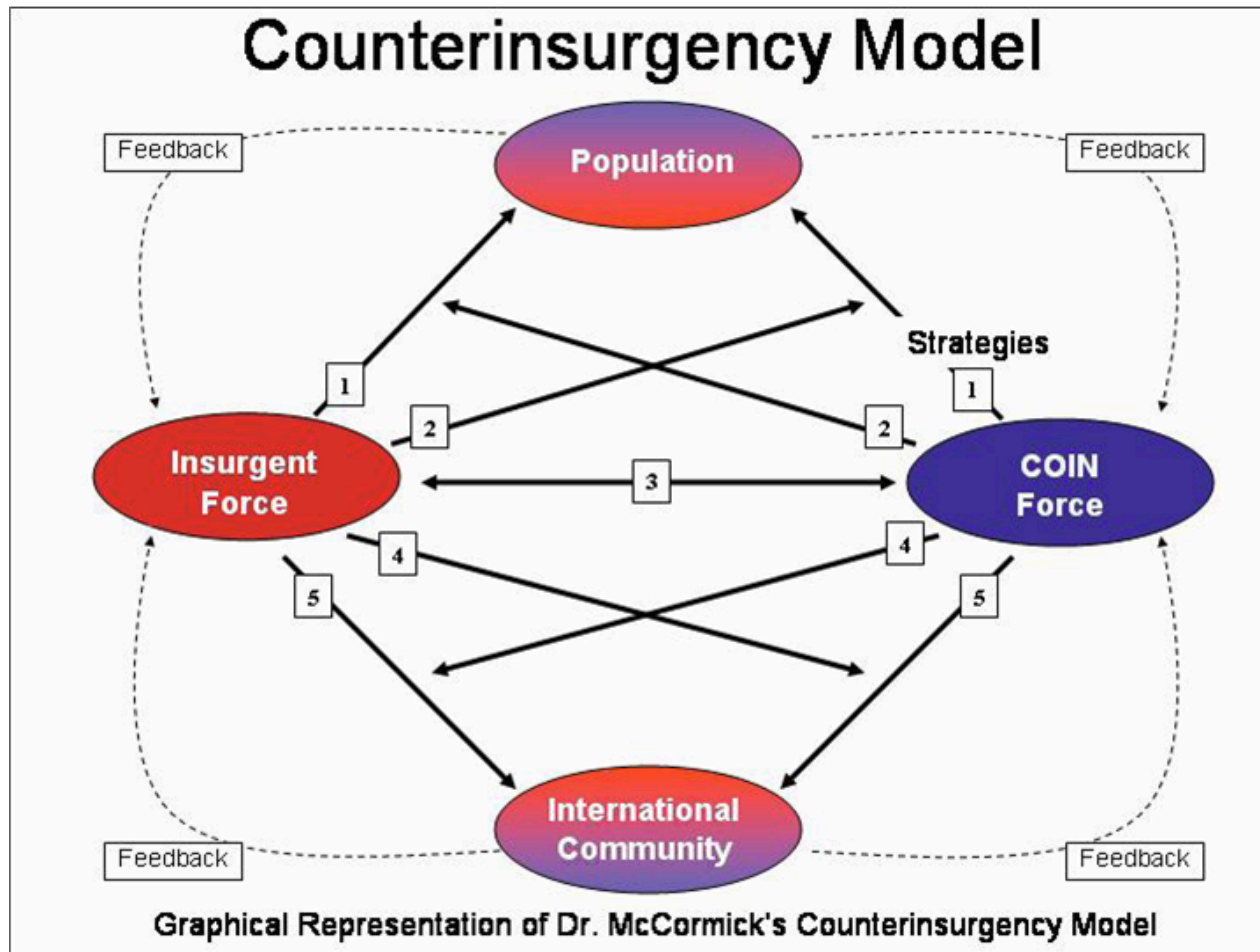
# Theory

# Complex Adaptive Systems

Living, Open Systems with Dynamic Networked Interactions



# A Systems Model of Counterinsurgency

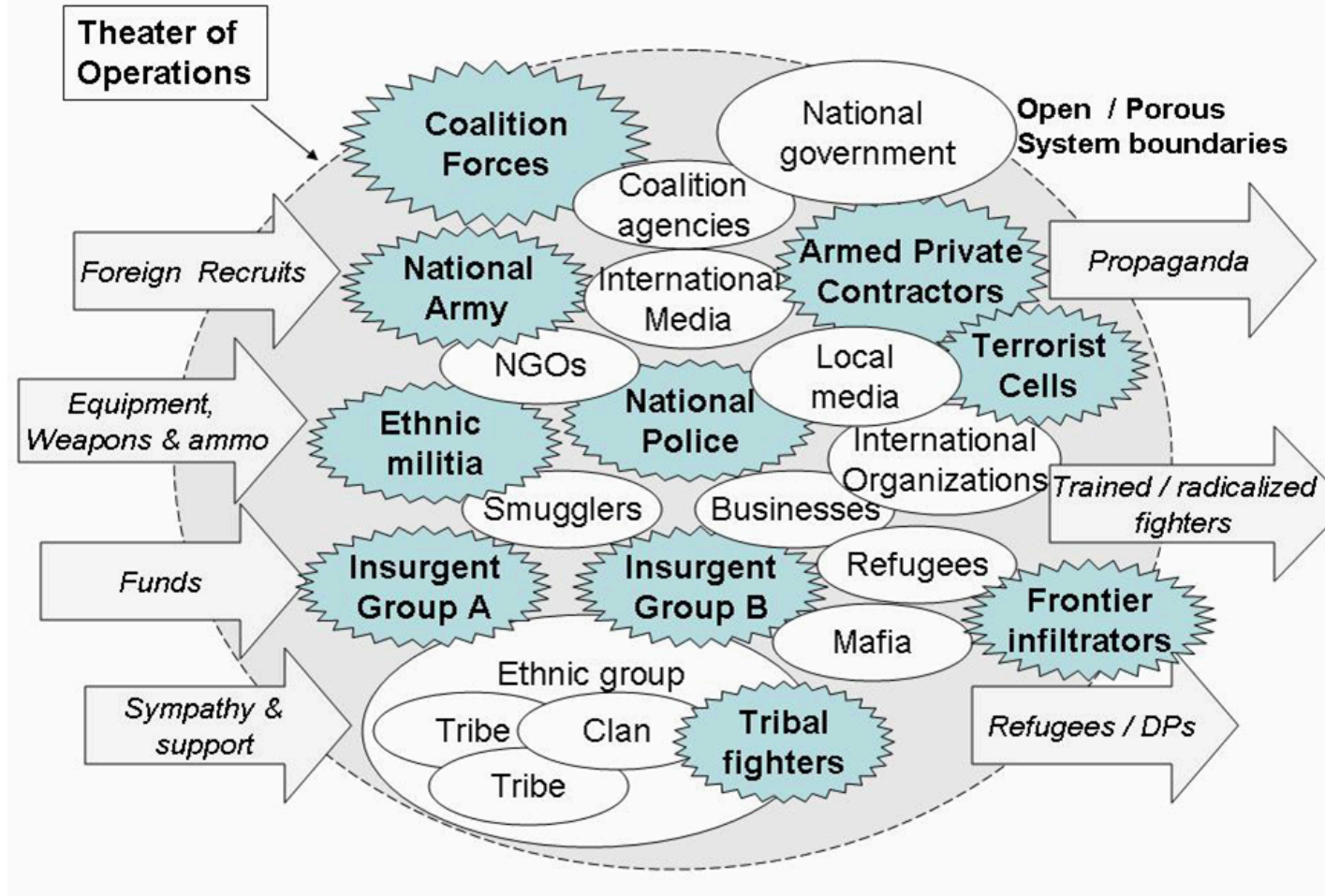


1. Gaining Support of the Population
2. Disrupt Opponent's Control Over the Population
3. Direct Action Against Opponent
4. Disrupt Opponent's Relations with the International Community
5. Establish Relationships with the International Community

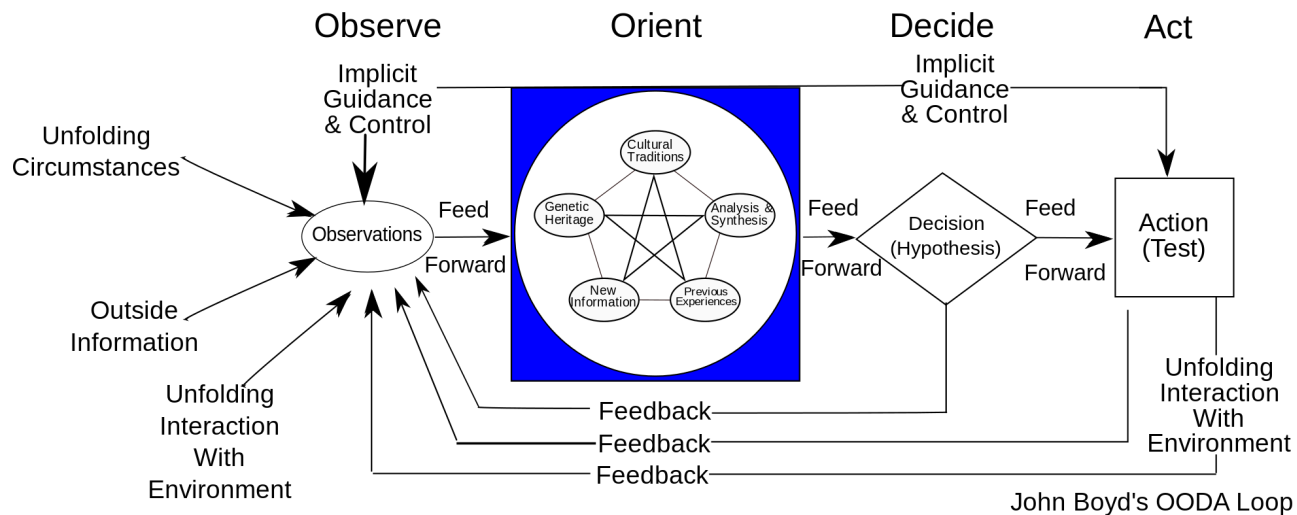


# Kilcullen's Conflict Ecosystem

Figure 1 – the Conflict Ecosystem



# F3EAD (Boyd OODA Tactical)



## Theme for vitality and growth

### Unifying vision

- A grand ideal, overarching theme, or noble philosophy that represents a coherent paradigm within which individuals as well as societies can shape and adapt to unfolding circumstances—yet offers a way to expose flaws of competing or adversary systems.

### Aim

Improve fitness as an organic whole to shape and expand influence or power over the course of events in the world

### Ingredients needed to pursue vision

- **Insight**  
Ability to peer into and discern the inner nature or workings of things.
- **Initiative**  
Internal drive to think and take action without being urged.
- **Adaptability**  
Power to adjust or change in order to cope with new or unforeseen circumstances.
- **Harmony**  
Power to perceive or create interaction of apparently disconnected events or entities in a connected way.

Editors' note: In later versions, Boyd listed the ingredients as "IOHAI": insight, orientation, harmony, agility, and initiative. "Agility" means to operate inside an opponent's OODA loop. For "orientation," see pages 12-17 of *Organic Design*.

## Wrap-up

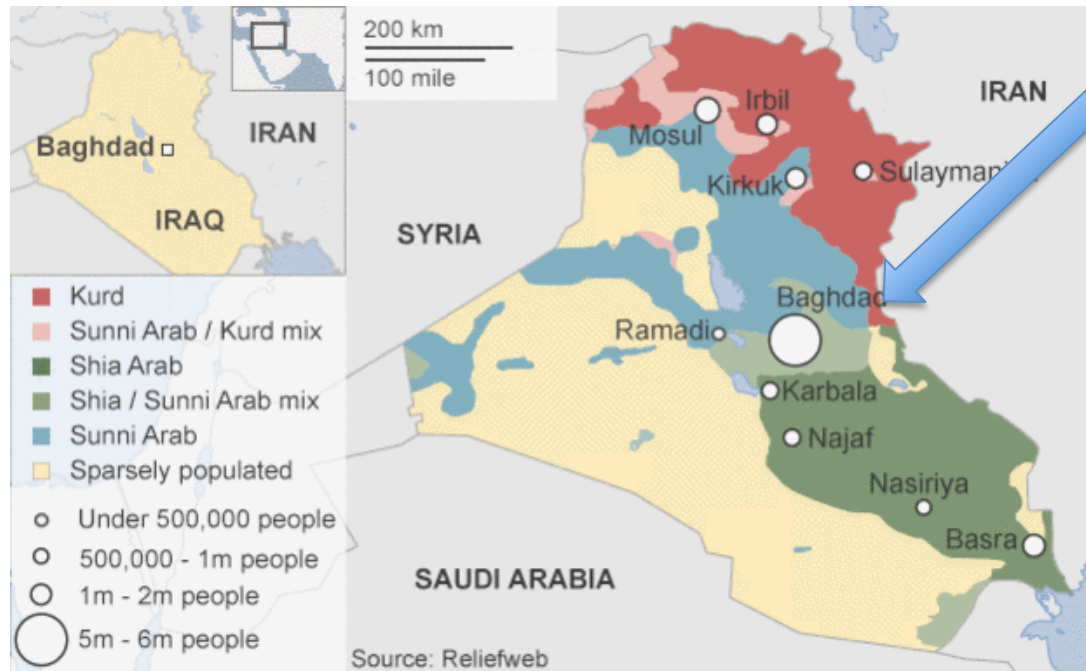
### Implications

- In a **tactical sense**, these multi-dimensional interactions suggest a **spontaneous, synthetic/creative, and flowing** action/counteraction operation, rather than a **step-by-step, analytical/logical, and discrete** move/countermove game.
  - In accepting this idea we must admit that increased unit complexity (with magnified mental and physical task loadings) does not enhance the spontaneous synthetic/creative operation. Rather, it constrains the opportunity for these timely actions/counteractions.  
or put another way
  - Complexity (technical, organizational, operational, etc.) causes commanders and subordinates alike to be captured by their own internal dynamics or interactions—hence they cannot adapt to rapidly changing external (or even internal) circumstances.
- In a **strategic sense**, these interactions suggest we need a **variety** of possibilities as well as the **rapidity** to implement and shift among them. Why?
  - Ability to **simultaneously** and **sequentially** generate **many different** possibilities as well as **rapidly** implement and shift among them permits one to repeatedly generate mismatches between events/efforts adversary observes or imagines and those he must respond to (to survive).
  - Without a **variety** of possibilities, adversary is given the opportunity to read as well as adapt to events and efforts as they unfold.

# Combat Scrum



# The Operating Environment



# Networked Organization

- 90 Paratroopers / 4 Platoons
  - Six Scrum Teams, One Headquarters Team
- 150,000 Civilians in Diyala River Valley
  - Sunni, Shia, Kurd
  - Thirty Tribes
  - Three competing Insurgent Groups
- 200 Iraqi Army Soldiers
  - Two Companies

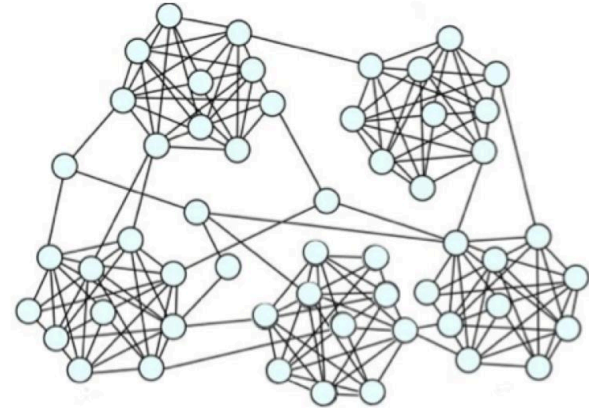
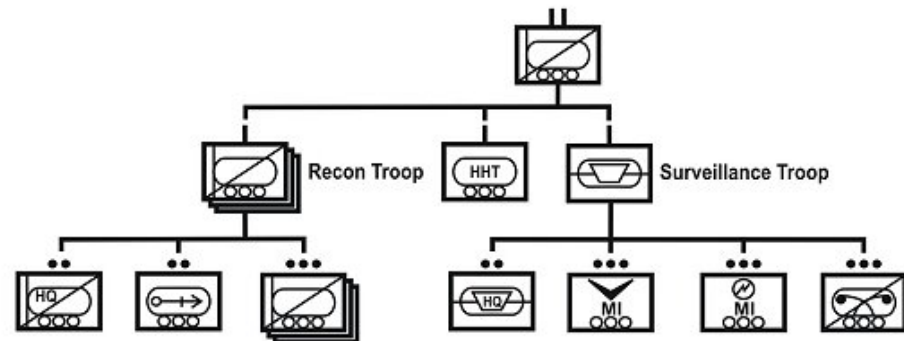


Figure 2

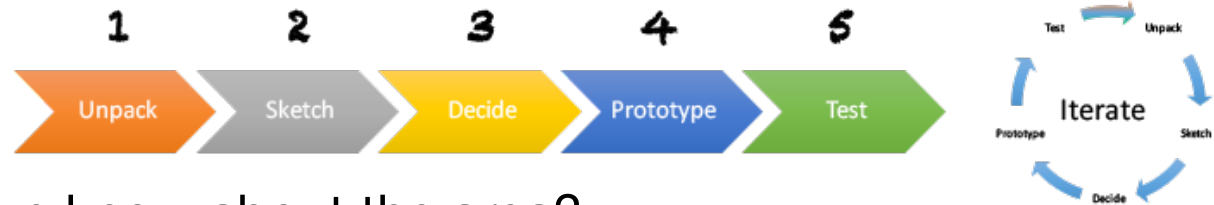


- Incremental, iterative operations to accomplish mission, just like sprints
- Routine, deliberate adaptive planning meetings to identify and prioritize goals, just like backlogs
- Decentralized execution with absolute collaboration at the team level
- Post-operation inspection of results followed by debriefs to adapt and restart planning



# Sprint Zero: Fighting for Intelligence to Overcome the Information Gap

## Google Design Sprint



- What do we think we know about the area?
- How permissive is the environment?
- What is really going on in the area?
- What information are we missing?

*Preliminary reconnaissance of over three hundred reconnaissance patrols was completed from August through October 2006 by Alpha Troop. Over the course of three weeks in early March 2007, Alpha and Charlie Troop would serve as the eyes and ears of the squadron conducting over one hundred reconnaissance patrols*

# Forms of Reconnaissance

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**(1) Map Reconnaissance.** Initially, we would study all existing maps and satellite imagery to gain an understanding of the physical terrain. Simultaneously, we would read previous intelligence reports to learn from those who had worked in this area before us.

**(2) Aerial Reconnaissance.** After intelligence briefings and prior to initial entry, key leaders would conduct an aerial reconnaissance over the new area of operations in order to see the area from a different perspective whenever possible. This process served as another approach to learning the area. In August 2006, squad leaders and above from Alpha Troop conducted aerial reconnaissance via Blackhawk helicopters. Flying near treetop level, my scouts were able to grasp a broader understanding of the restrictive terrain that they were about to encounter.

**(3) Ground Reconnaissance.** From area and zone reconnaissance to visual tracking and hunting, this form of reconnaissance required our paratroopers to covertly infiltrate on foot under the cover of darkness to —take a look around and see whats really going on These patrols allowed us to confirm or deny intelligence reports and observe the enemy actions when he thought that he was safe.

As a Ground Commander, I need to dismantle the IED Network in order to stop the violence.

- AC1. All Primary and Secondary Roads in Zone identified
- AC2. All known obstacles and bypasses identified
- AC3. Enemy routes understood
- AC4. Bomb Maker Neutralized
- AC5. Known IEDs Dismantled

As an Iraqi Citizen, I need help to make peace with my neighbors in order to stop the violence.

- AC1. Key Leaders Identified
- AC2. Influence Strategies Identified
- AC3. Initial Meetings Scheduled

- Brief what we did today, what we're doing tomorrow, and where we are blocked
- Review our short-term objectives (2-4 week),
- Provide an overall assessment based on what we had learned
- Provide any deconfliction needed across teams.
- Platoon, Company, and Squadron Levels

- Monthly replanning session
- Define Goal for Next Milestone
- Executive Briefing after Second Release

# Practice

## Version 1.0 Dismantle ISIS Training Camp

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## Version 3.0 Negotiate the Peace

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# Arca Agile Transformation

## **“Italian Agile Solution”**

### **Background**

- 500 employees in NC, Italy, France, and the UK
- Global Cash Automation Industry

### **Operating Environment**

- Olivetti Typewriter
- Welfare State in Italy / Women’s Movement
- Holacracy and Lean-Agile Start-up
- Global Hardware, Firmware, and Software Teams



"La fabbrica non può guardare solo all'indice dei profitti. Deve distribuire ricchezza, cultura, servizi, democrazia. Io penso la fabbrica per l'uomo, non l'uomo per la fabbrica"  
Adriano Olivetti

**"THE FACTORY CANNOT CONSIDER ONLY PROFITS. IT HAS TO DISTRIBUTE RICHNESS, LEARNING, SERVICES, DEMOCRACY. I THINK THE FACTORY FOR THE MAN, NOT THE MAN FOR THE FACTORY."**

- Modern Agile Mindset to help tackle uncertainty in complex environments and maximize ROI
- Networked Teams over Process Maps and Siloed Functions
- Nesting Sales and Marketing Operational Plans into Adaptive Roadmaps

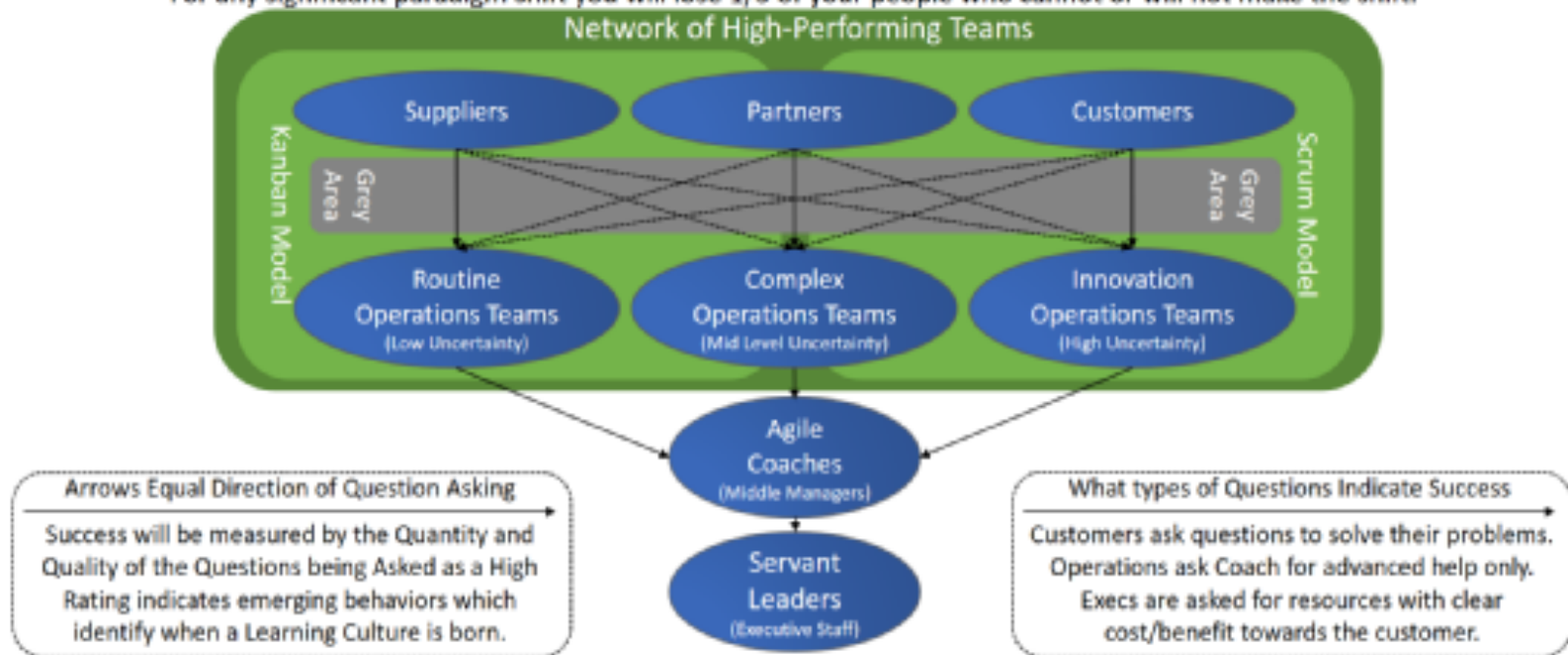
# Agile Transformation Expectations

Build this, Ship it, Learn (Inspect & Adapt), Repeat

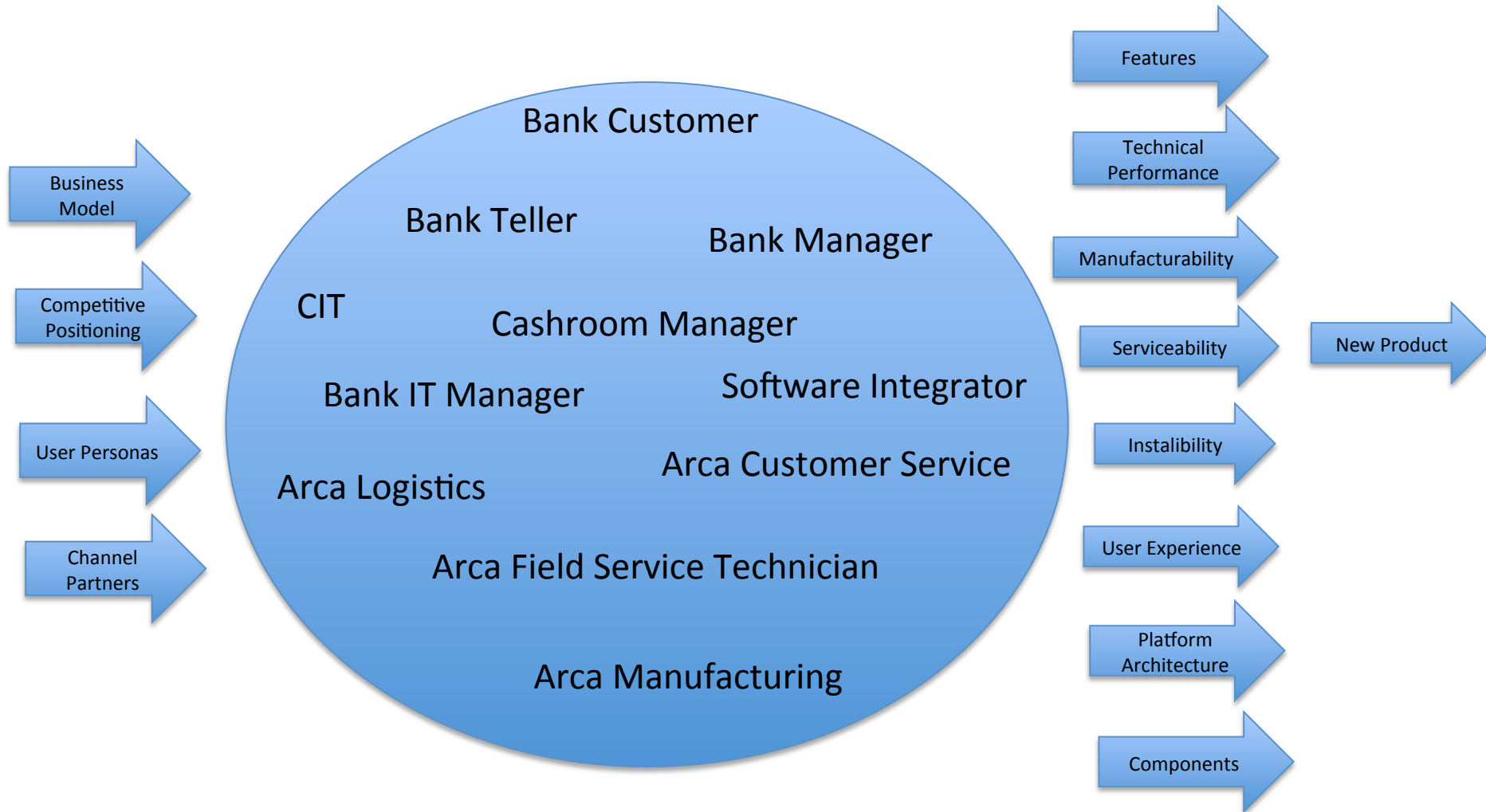
Teams need the same shared mental models and taxonomies to clearly understand where they are going and why.

It is critical that the measures of success be based on human behavioral changes versus any synthetic measures.

For any significant paradigm shift you will lose 1/3 of your people who cannot or will not make the shift.

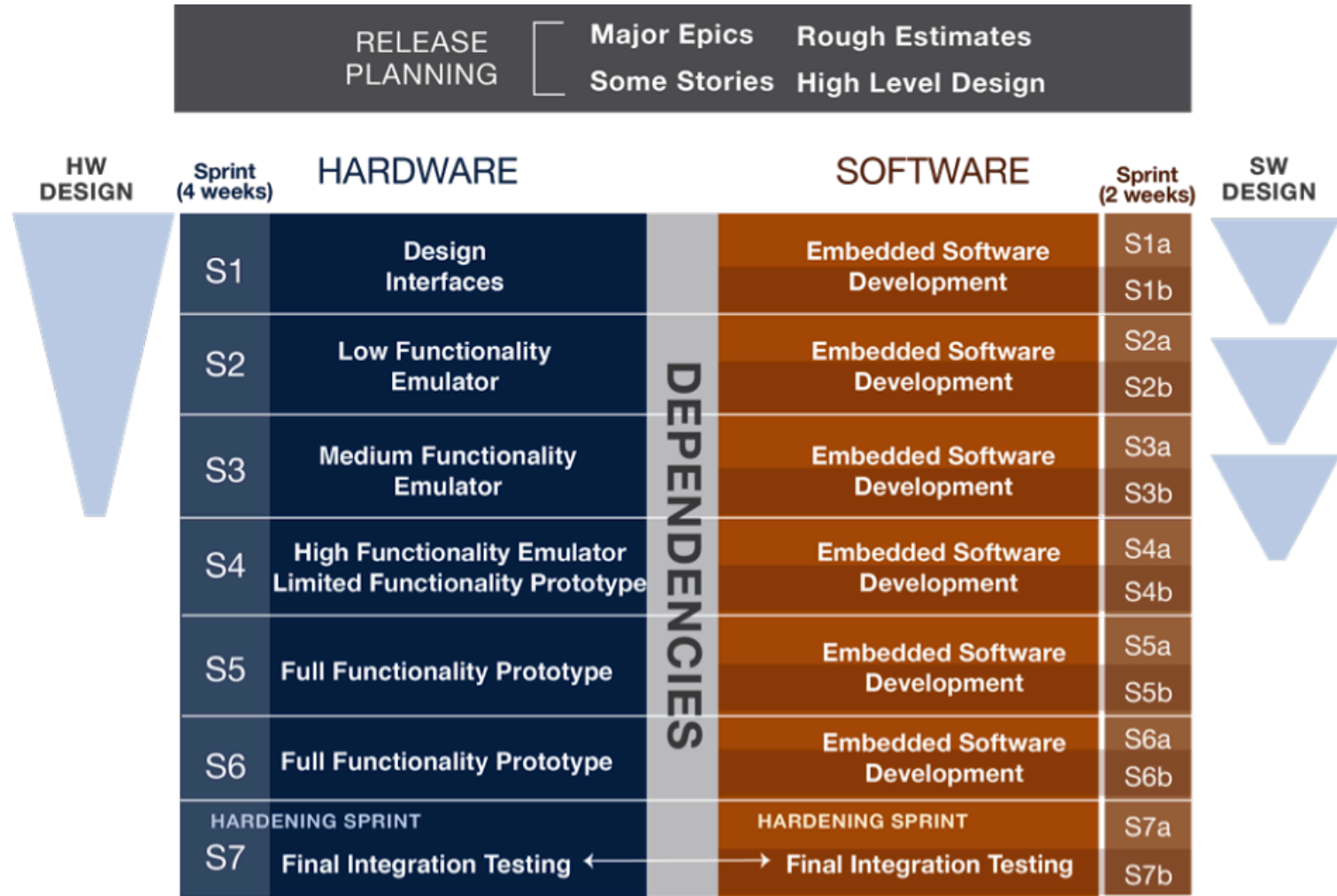


# User Story Mapping as a System



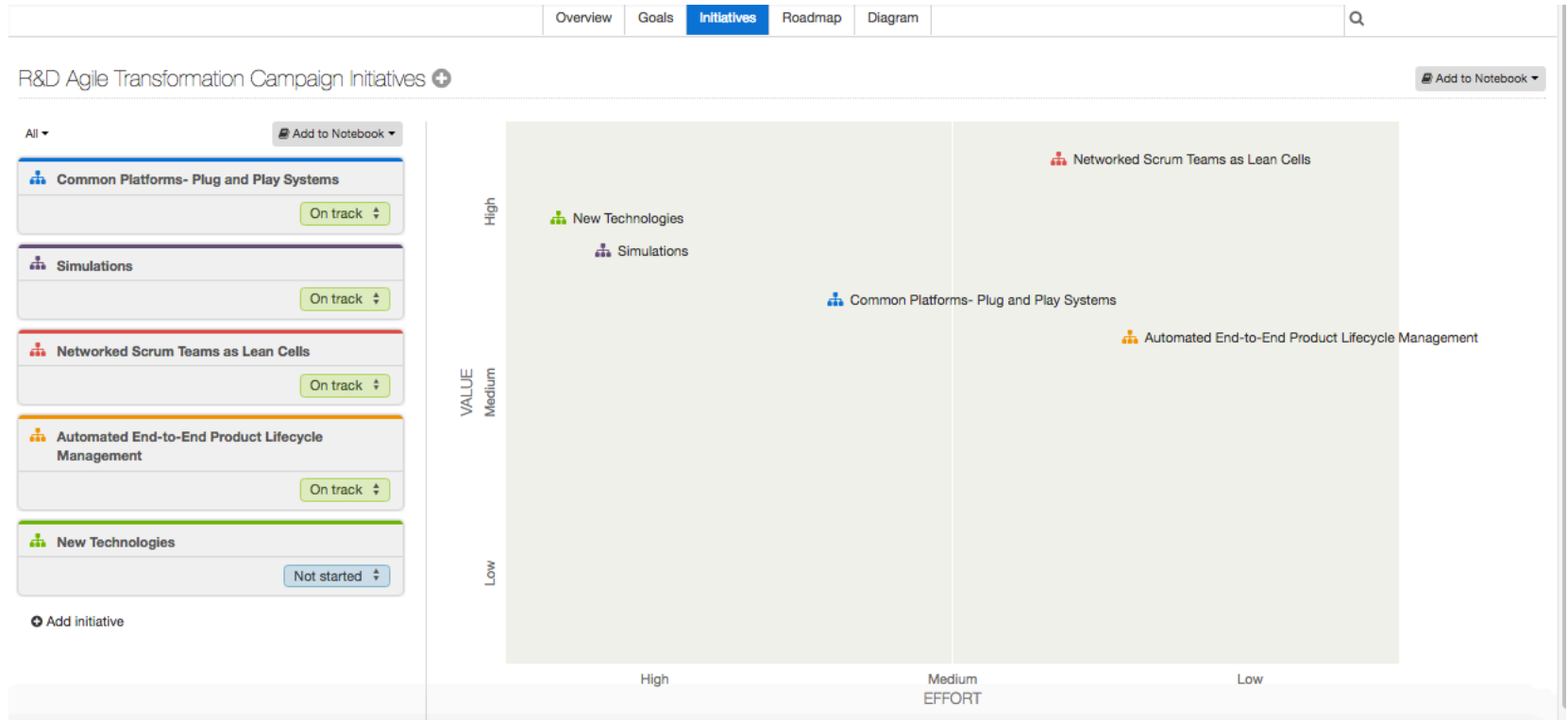


# New, New Product Development Process

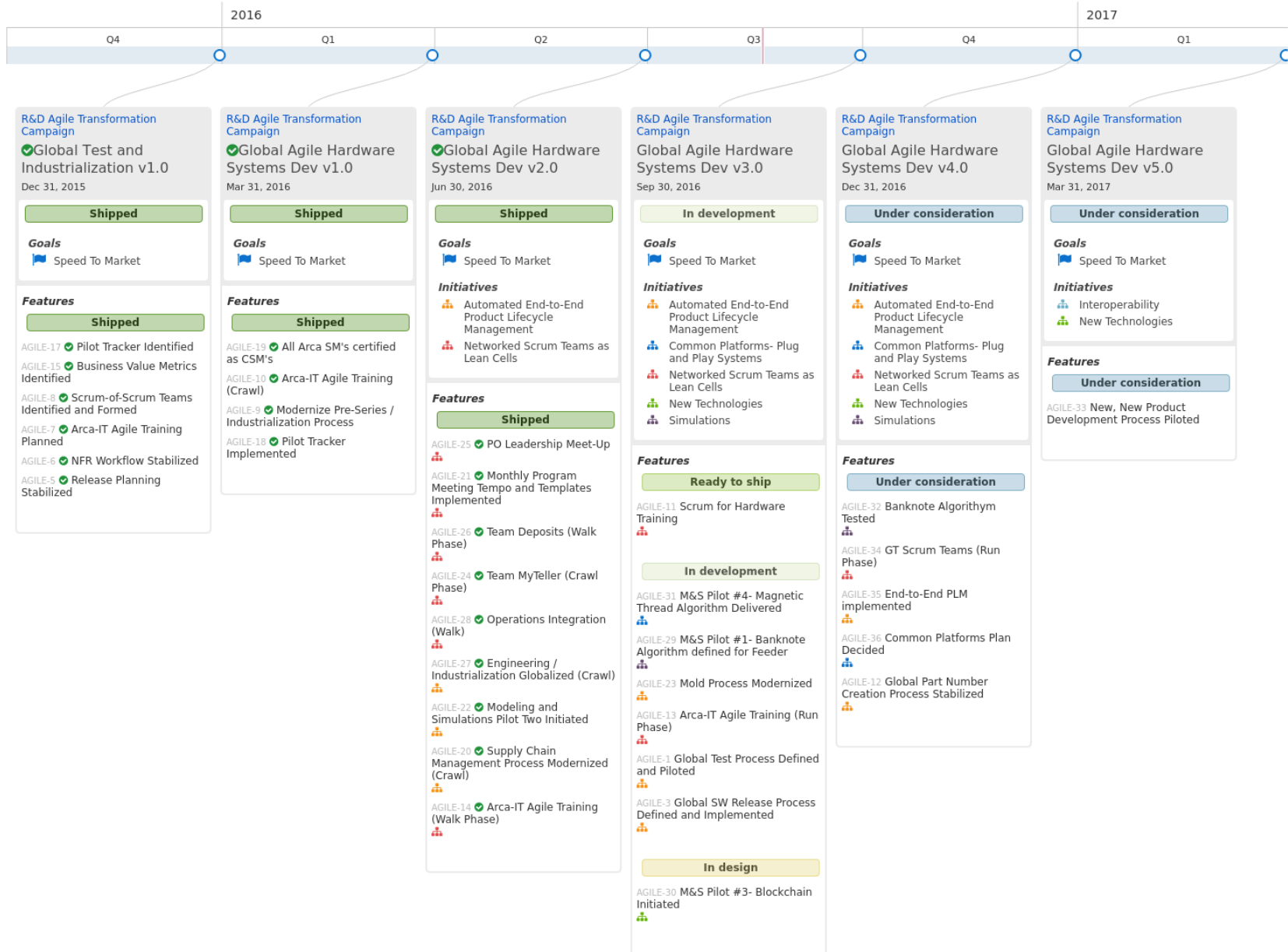




# Strategic Transformation Initiatives



# Arca Transformation Plan



Team Recycler  
Scrum of Scrums

Chief Product Owner

Chief Scrum Master

Ext Reps- Prod Support, Quality, TS/PS

Daily Scrum of Scrums has this team AND PO's and Tech Leads

-In practice yesterday, Italians said this was amazing and could cut down many problems

- We have paper airplane game and car game to train all teams

Team  
Feeder /  
Upper  
Transport

Team  
Reader

Team CDF

Team  
Safe /  
Lower  
Transport

Each Scrum Team has

- PO
  - SM
  - Electrical
  - Firmware
  - Systems Engineer
  - Mechanical
  - Mechatronic
- Build Modular Platforms
  - Interoperability / Connection Points Designed in Sprint Zero
  - Iterative Technical Design Review
  - CTS did this 20 years ago. Daria's husband was there.
  - Test as you go.
  - Object Oriented Design. Every part can be plug and play.

# Questions?