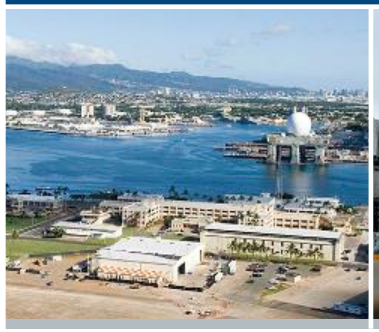
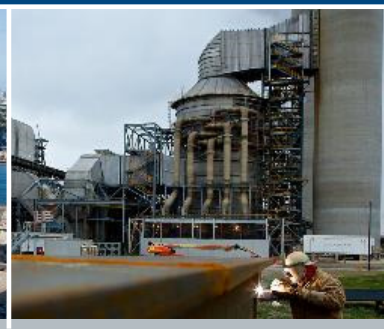
Agile & TVD+ : A practical review of Similarities and Differences – in five dimensions

ENERGY
SOLUTIONS

URBAN
SOLUTIONS

MISSION
SOLUTIONS





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Introduction

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Objectives

Compare and Contrast Fluor's adoption/benchmark of TDS (Lean Product and Process Development) in our Industrial Construction Design (TVD+) to Agile on five dimensions:

1. **Definition**
2. **Success Factors**
3. **Values**
4. **Principles**
5. **Systems/ Methods**

TVD *stands for Target Value Design*

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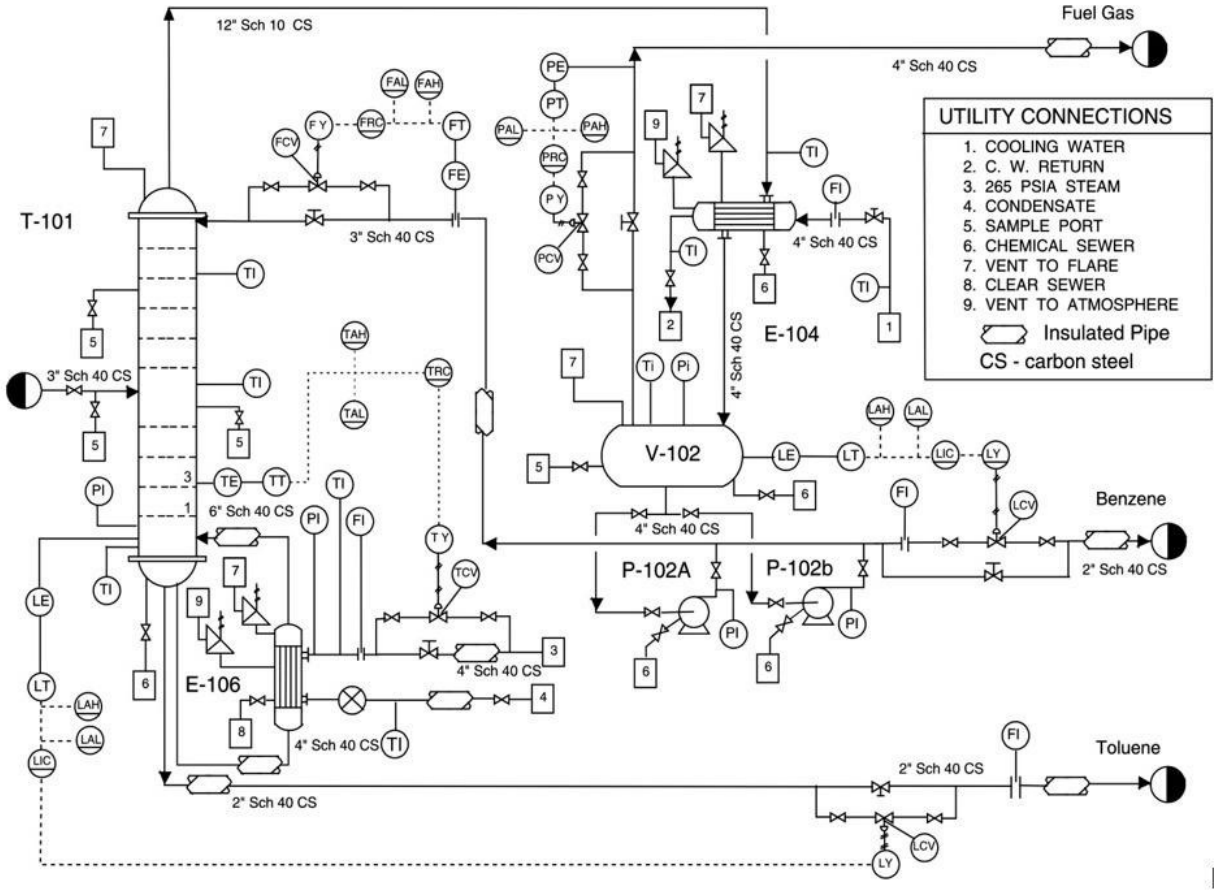
What does our Fluor's development look like?



Typical Effort : 100-500K hours
Task Force: 40 to 500
Design Once & Build Once

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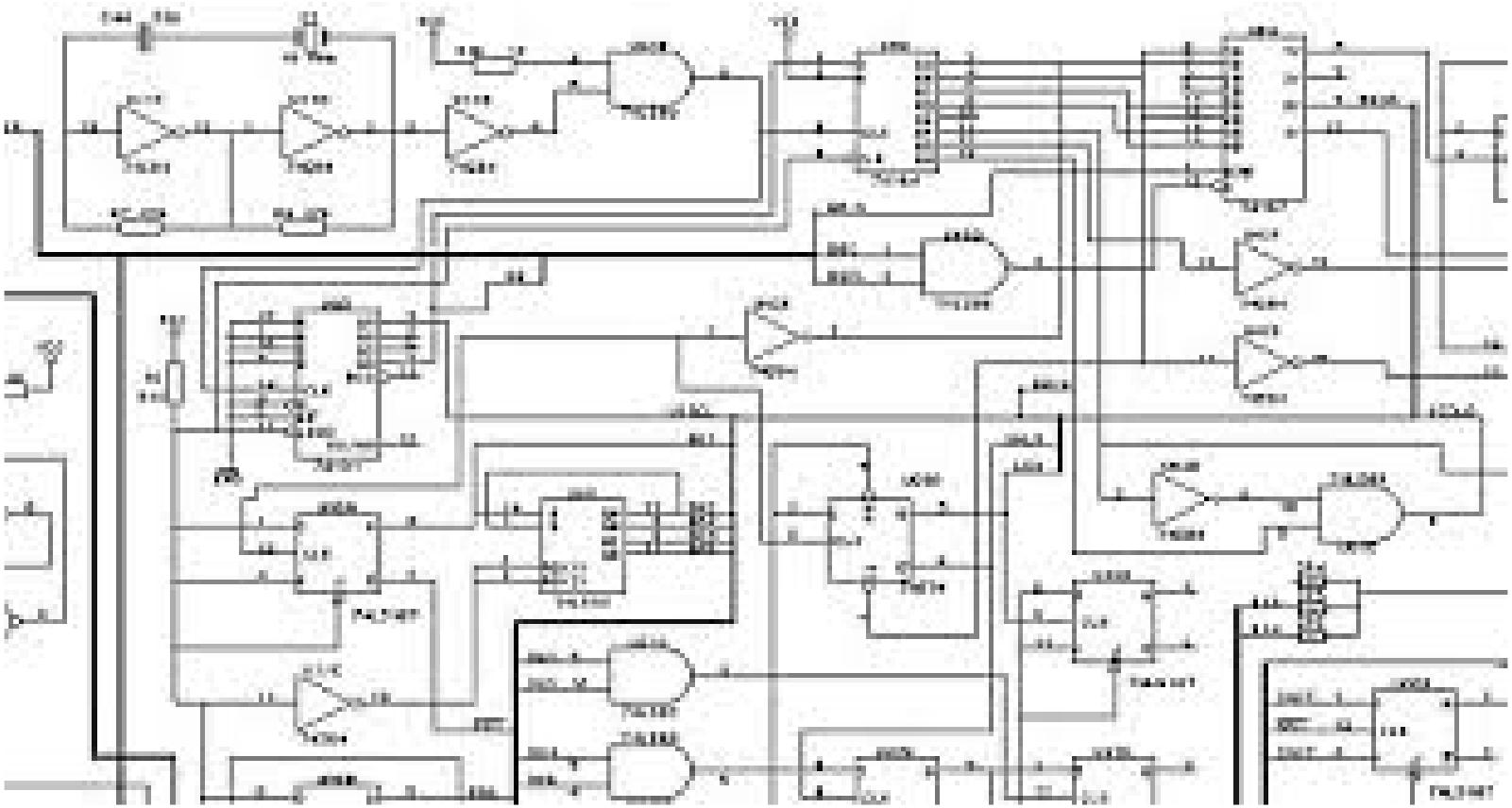
What does it resemble ?



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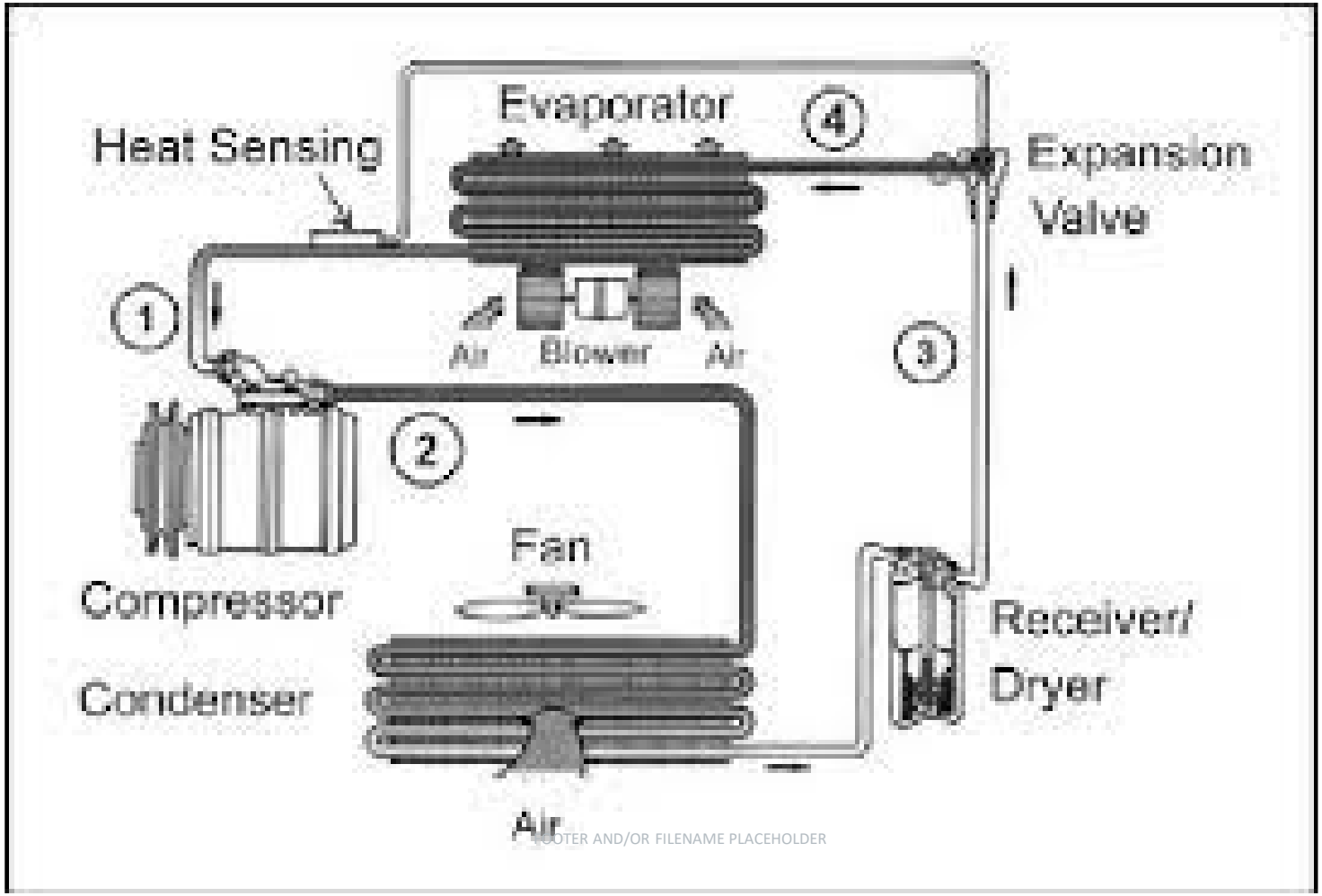
A comparison with the cooling system in an automobile



Basis for Comparison

TVD+

- Current benchmark for Fluor's Lean in Design based on enhancements to TVD (2016)

Agile/SCRUM

- Presenter's experience of using Agile/SCRUM in Software Development.

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Definition: TVD+ and Agile

A disciplined System of Design

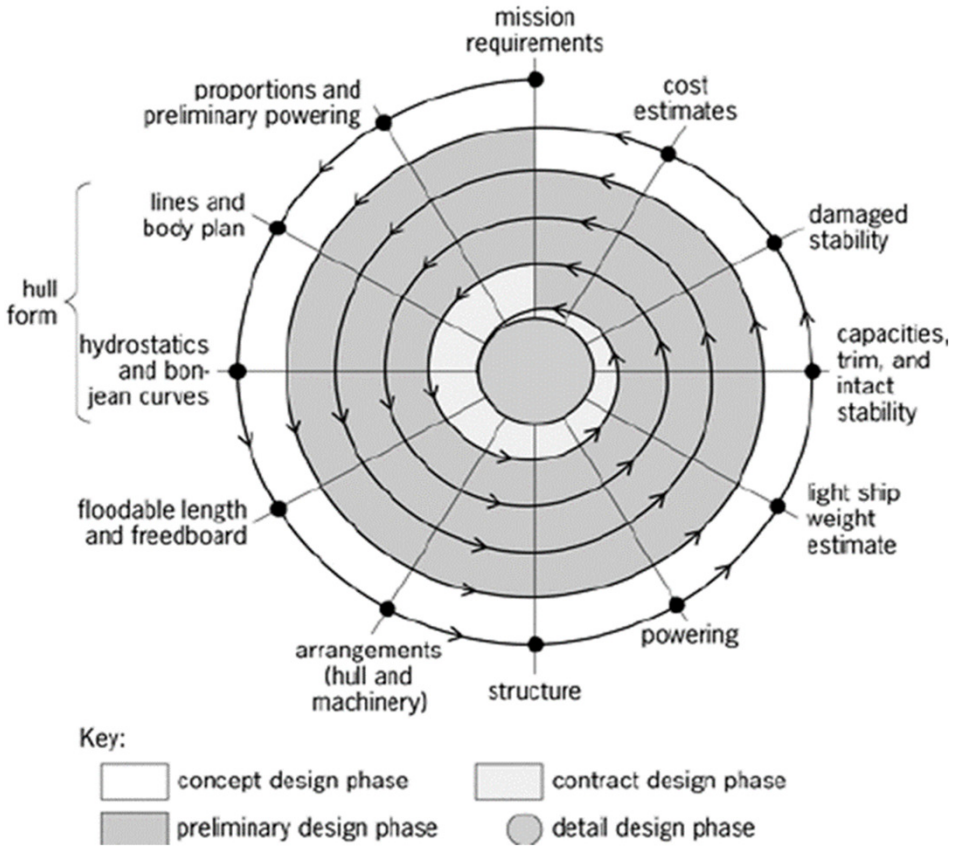
- ✓ "Minimize the waste produced by the design-estimate-redesign cycle(s) of the traditional value engineering approach" (LCI).
- ✓ Fluor's TVD+ : TDS methods (Trade-Off Analysis/Curves , Design Clusters, Design Cycles and the role of the Entrepreneurial System Designer (ESD). Techniques such as Measles Charting
- ✓ Embed the values, principles, problem solving techniques and smart counter-intuitive methods used in TDS
- ✓ It is also partly inspired by the Iterative Design approach proposed first by Evans in 1959 (See picture below) and implemented by Naval Architects and Engineers

Agile Manifesto: Values and Principles

- ❑ A statement of values for successful software development. (2001)

Preceded by SCRUM, Followed by Kanban (Frameworks that comply to the Agile Manifesto)

Spiral Design (Evens, 1959 – The earliest)



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Success Factors : TVD+ and Agile

- ✓ Development is Incremental, based on prediction of smooth design Progression to Target Values
- ✓ Frequent Testing & Inspection
- ✓ Embrace changes throughout development while minimizing Scope creep
- ✓ Focus on the Objects and the Process of development

- ❑ Development is Incremental , prioritized based on Value
  - ❑ Deploy higher priority functionality & features first
- ❑ Frequent Testing.
- ❑ Embrace changes throughout development
- ❑ Focus on the Product and Process of development

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Values : TVD+ & Agile

- **Individuals and interfaces** is emphasised over requirements and systems
- **Meeting Target Values** is emphasised instead of documentation
- **Client Participation (ex. Joint Design Reviews)** instead of hand-offs
- **Responding to changing requirements and circumstances (empirical)** over following a plan

"We are uncovering better ways of developing software by doing it and helping others do it."

Through this work, they have come to value:

- **Individuals and interactions** over process and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

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Principles : Agile and TVD+

1. Customer satisfaction through early and continuous software delivery
2. Accommodate changing requirements throughout the development process
3. Frequent delivery of working software
4. Collaboration between the business stakeholders and developers throughout the project
5. Support, trust, and motivate the people involved
6. Enable face-to-face interactions
7. Working software is the primary measure of progress
8. Agile processes to support a consistent development pace
9. Attention to technical detail and design enhances agility
10. Simplicity – Develop just enough to get the job done for now
11. Self-organizing teams encourage great architectures, requirements, and designs.
12. Regular reflections on how to become more effective

1. Incremental “small batch” Delivery of design aimed at reducing backtracking and defects. Continuous flow of IFC, IFP, IFF and IFP (Ifx) deliverables.
2. Delay design-engineering decisions and iFx to the Last Responsible Moment to accommodate changing requirements. Be quick to respond to change.
3. Deliver to Path of Construction. Deliverables aligned to Target Values (Design Objectives)
4. Focus on the things that internal /external Customers value through out the development cycle; use of codesign and other collaborative methods supported by Collaborative Contracts (Commercials)
5. Self organizing teams lead by an ESD.
6. Co-location; efficient ways of designers and engineers working together face to face. The Obeya System for Design
7. Development that meets Design Objectives and mutually agreed Conditions of Satisfaction (rather than completion of artifacts such as PFDs, P&IDs & Gas.
8. Working to a demand cadence and dates determined by IFC, IFF, IFP and IFF.
9. Technical Integrity and ability to react to “surprises”
10. No overproduction or over processing in design
11. Self-organize and design their own work methods to work smoothly and produce better outcomes internal and external customers
12. Reflection and Inquiry (Hansei) built into design cycles and events

Methods: TVD+ and the SCRUM framework

- ✓ Velocity (Lead Time)
- ✓ Set Based
- ✓ Choosing by Advantages
- ✓ Focus on Target Values

- ❑ Time Boxed
- ❑ Set Based (lite)
- ❑ Traditional Advantages and Disadvantages
- ❑ Focus on working software

Pictorial Review of the application of TVD+ in Fluor

- ✓ Velocity (Lead Time)
- ✓ Set Based
- ✓ Choosing by Advantages
- ✓ Focus on Target Values

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