

Converging Clean Architecture with Normalized Systems Theorems



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Gerco Koks received a master's degree at Antwerpen Management School on the track of Enterprise IT Architecture. **Gerco** is currently the Chief Architect of Centric Public Sector Solutions.

“His journey as a software engineer has been driven by a quest for creating software that stands the test of time and adapts to change, from laying the first lines of maintainable code to architecting robust, portfolio-wide software ecosystems in his current endeavors.”

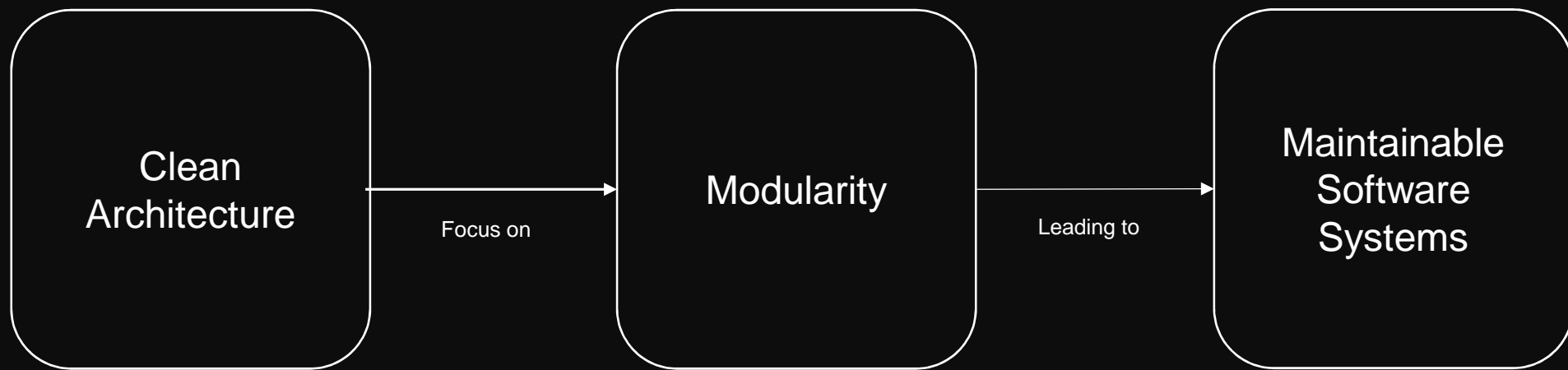


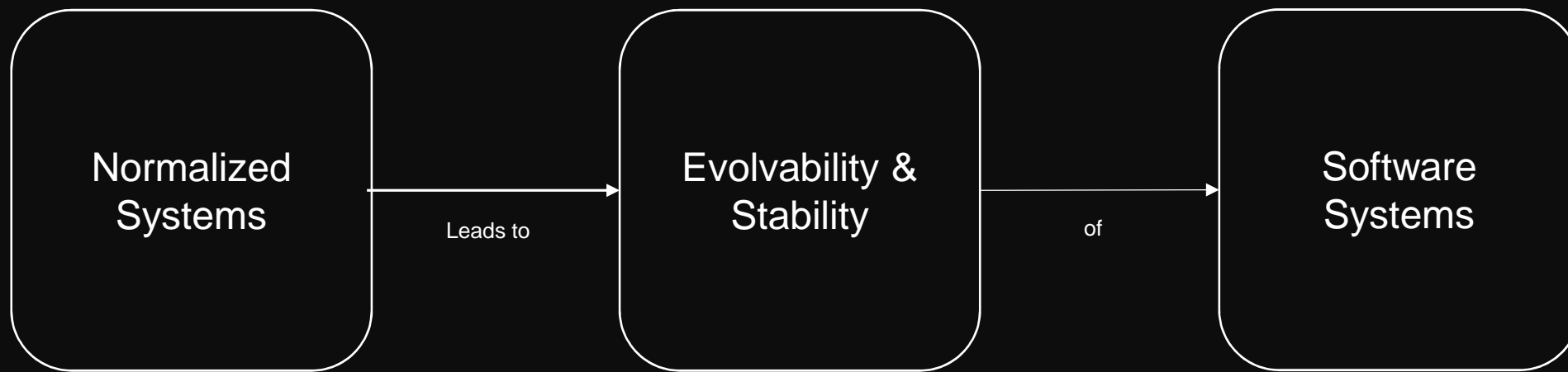
If I have seen further.
It is by standing
ON THE SHOULDERS
OF GIANTS

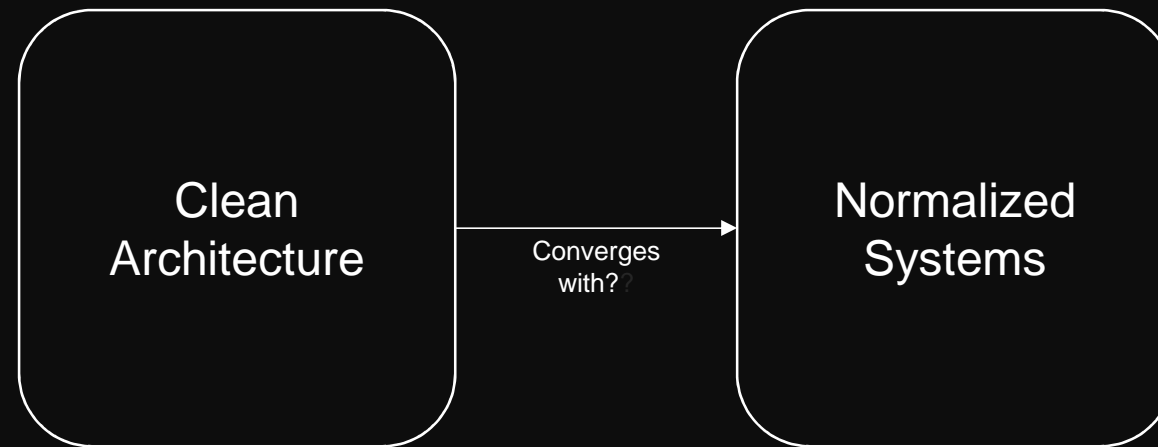
- Sir Isaac Newton

E. Dijkstra
D.Parnas
Robert C. Martin
Herwig Mannaert
Jan Verelst

...and many more







Clean Architecture

Principles

Single Responsibility Principle

Open/Closed Principle

Liskov Substitution Principle

Interface Segregation Principle

Dependency Inversion Principle

Building blocks

Entities

Interactor

RequestModels

ViewModels

Controllers

Presenters

Gateways

Boundaries

Normalized Systems

Principles

Separation Of Concerns

Data Version Transparency

Action Version Transparency

Separation of State

Building blocks

Data Element

Task Element

Workflow Element

Connector Element

Trigger Element

Analysis of Principles

Strong Convergence ++

Supports Convergence +

No or weak convergence -

| | Normalized Systems | | | | |
|-----------------------|------------------------|--|---------------------------|-----------------------------|---------------------|
| Clean Architecture | Separation of Concerns | | Data version Transparency | Action version Transparency | Separation of State |
| Single Responsibility | ++ | | + | + | - |
| Open / Closed | ++ | | - | ++ | - |
| Liskov Substitution | ++ | | - | + | - |
| Dependency Inversion | ++ | | - | + | - |

Analysis of Elements

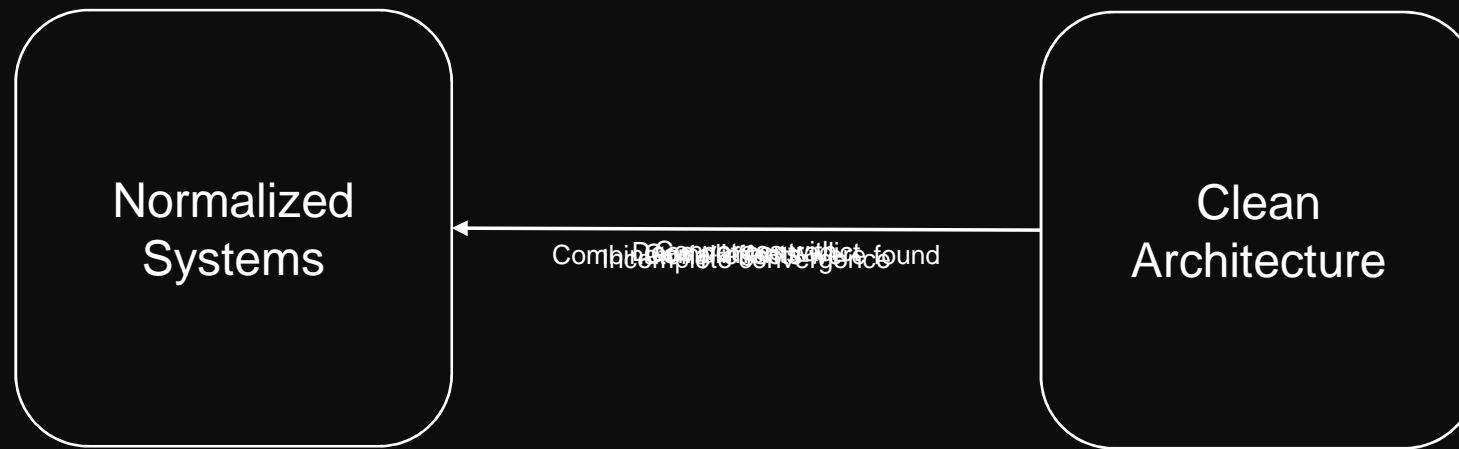
- Strong Convergence ++
- Supports Convergence +
- No or weak convergence -

| Clean Architecture | Normalized Systems | Data Elements | Task Element | Flow Element | Connector Element | Trigger Element |
|-----------------------|--------------------|---------------|--------------|--------------|-------------------|-----------------|
| Entity Element | ++ | - | - | - | - | - |
| Interactor Element | - | ++ | ++ | - | - | - |
| RequestModel Element | ++ | - | - | - | - | - |
| ResponseModel Element | ++ | - | - | - | - | - |
| ViewModel Element | ++ | - | - | - | - | - |
| Controller Element | - | - | - | - | + | + |
| Gateway Element | - | - | - | - | ++ | - |
| Presenter Element | - | + | + | - | - | - |
| Boundary Element | - | - | - | - | ++ | - |

Summary

- Shared emphasis on Modularity
- Data version Transparency is underrepresented in Clean Architecture
- Clean Architecture lacks a strong foundation for receiving external triggers
- Clean Architecture does not explicitly address State Management.
- Clean Architecture has a strong emphasis on Dependency Management
- The complexity has shifted towards the generated artifact.

Conclusions



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