Converging **Clean Architecture** with **Normalized Systems** Theorems

Gerco Koks

Antwerpen Management School, Alumni

gerco.koks@outlook.com

Antwerp Management School

Gerco Koks

gerco.koks@outlook.com

Gerco Koks received an executive master's degree at Antwerp 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."

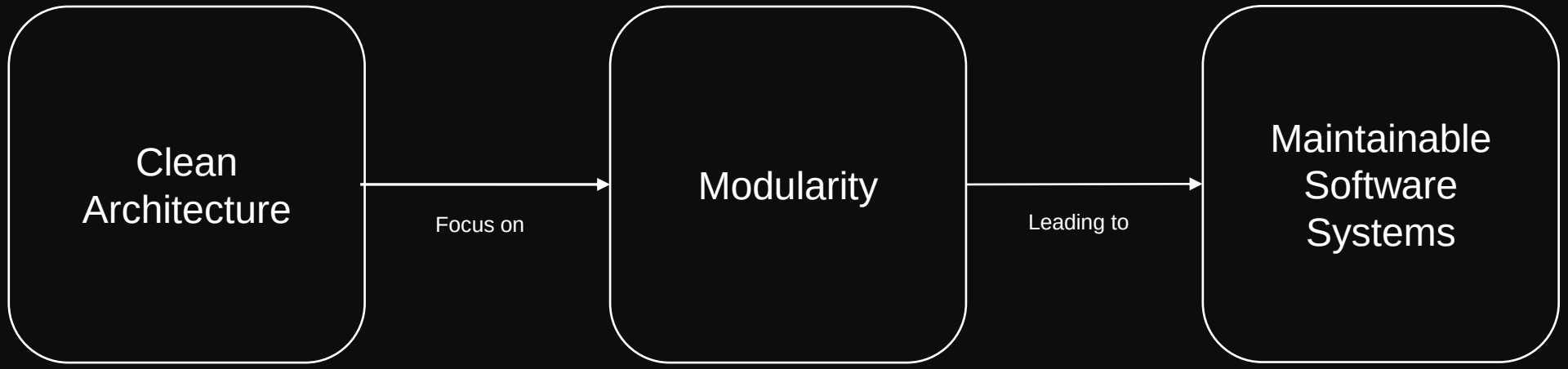
Antwerp Management School

If I have seen further.
It is by standing
ON THE SHOULDERS
OF GIANTS
- Sir Isaac Newton

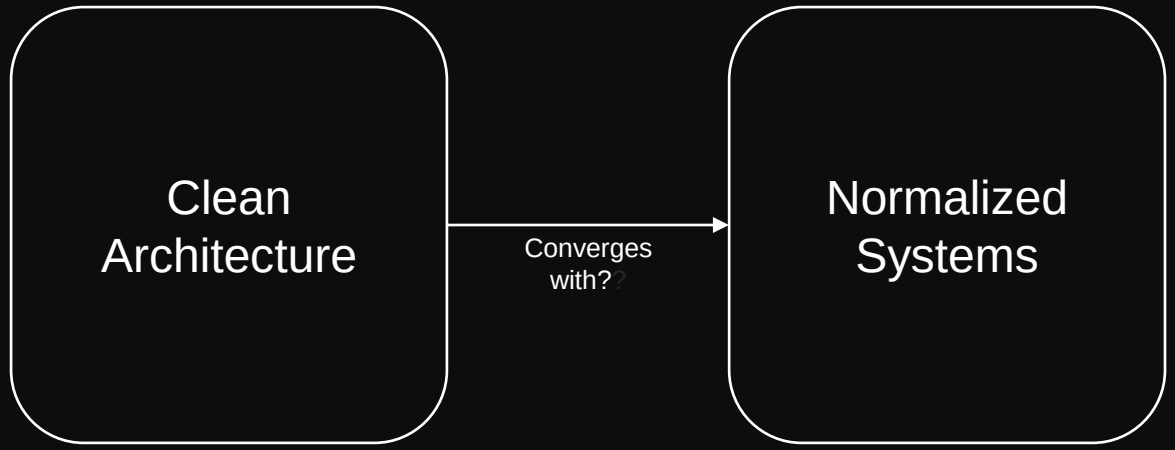
E. Dijkstra
D.Parnas
Robert C. Martin
Herwig Mannaert
Jan Verelst

…and many more

Antwerp Management School


Clean Architecture
Focus on
Modularity
Leading to
Maintainable Software Systems

Antwerp Management School



Antwerp Management School

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 Transparancy

Action Version Transparancy

Separation of State

Building blocks

Data Element

Task Element

Workflow Element

Connector Element

Trigger Element

Antwerp Management School

Analysis of Principles

Strong Convergence ++

Supports Convergence +

No or weak convergence –

Clean Architecture	NormalizedSystems	Separation of Concerns		Data version Transparency	Action version Transparency	Separation of State
Single Responsibility		++		+	+	–
Open / Closed		++		–	++	–
Liskov Substitution		++		–	+	–
Dependency Inversion		++		–	+	–

Antwerp Management School

Analysis of Elements

Strong Convergence ++

Supports Convergence +

No or weak convergence –

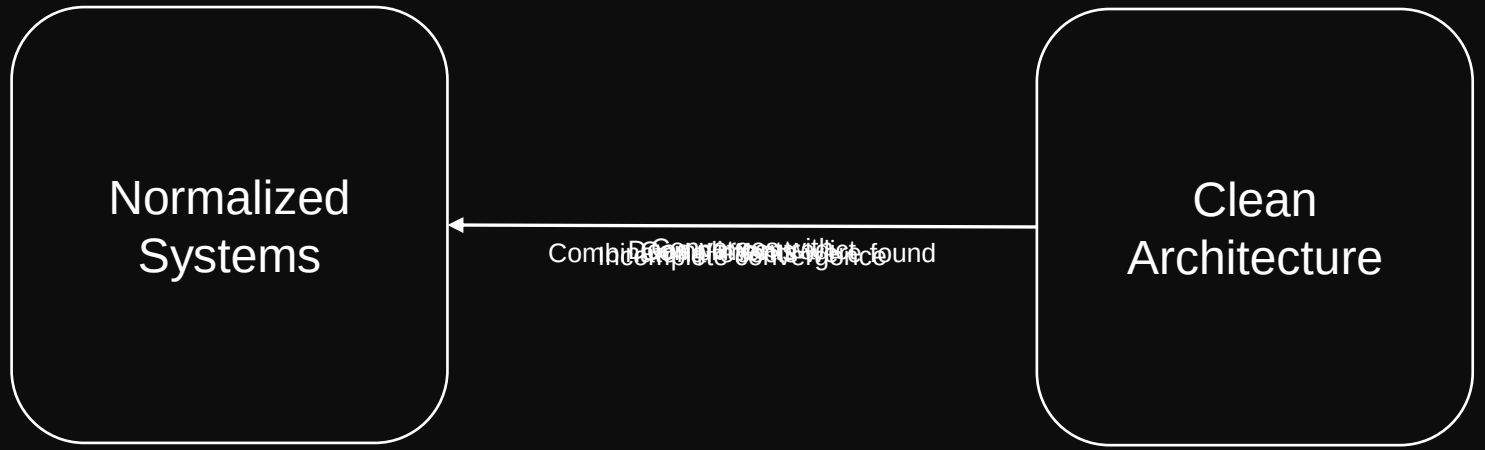
Clean Architecture	NormalizedSystems	Data Elements	Task Element	Flow Element	Connector Element	Trigger Element
Entity Element		++	–	–	–	–
Interactor Element		–	++	++	–	–
RequestModel Element		++	–	–	–	–
ResponseModel Element		++	–	–	–	–
ViewModel Element		++	–	–	–	–
Controller Element		–	–	–	+	+
Gateway Element		–	–	–	++	–
Presenter Element		–	+	+	–	–
Boundary Element		–	–	–	++	–

Antwerp Management School

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

Conclusions



Antwerp Management School

Converging **Clean Architecture** with **Normalized Systems** Theorems

Gerco Koks

Antwerpen Management School, Alumni

gerco.koks@outlook.com

Antwerp Management School