

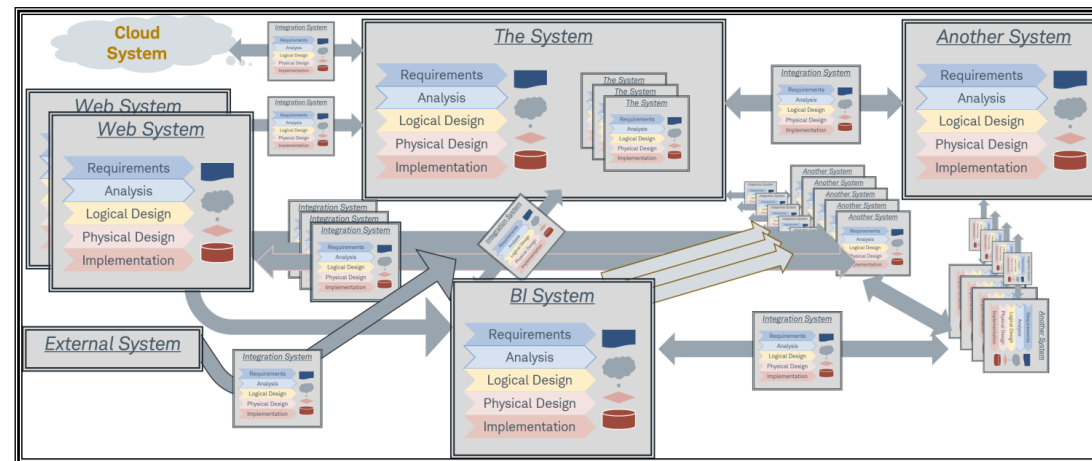
System of Systems Design

White Space Between
Systems



Managing the system of systems

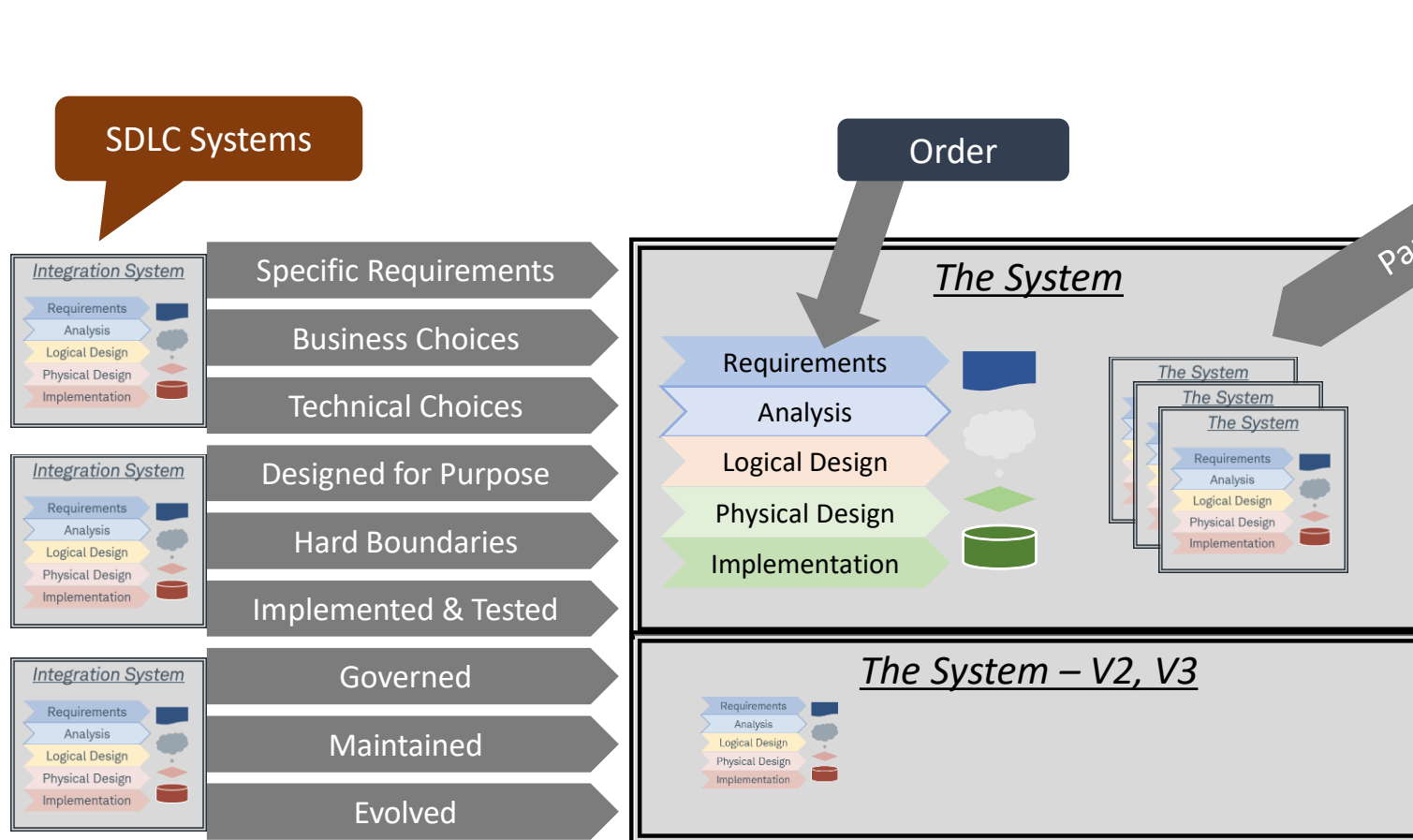
System of systems (SoS) is the viewing of multiple, dispersed, independent **systems** in context as part of a larger, more complex **system**. A **system** is a group of interacting, interrelated and interdependent components that form a complex and unified whole



The enterprise is powered by a complex system of systems

Designing and managing a system of systems is different than classical system design

Classical Systems Lifecycle

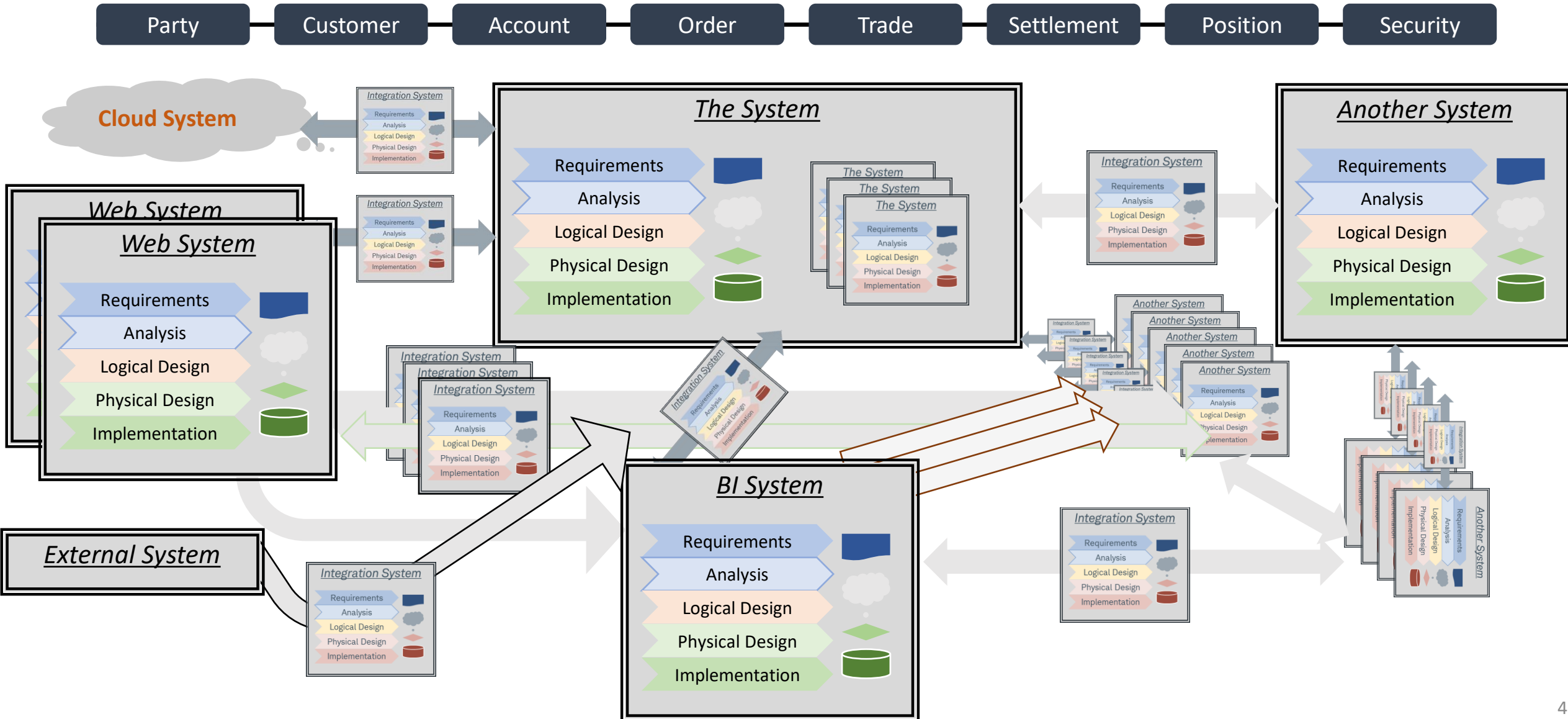


The “hard problem” to be solved in the 60’s
Through the 90’s: *How to design, build and maintain reliable, scalable systems that solved specific problems.*

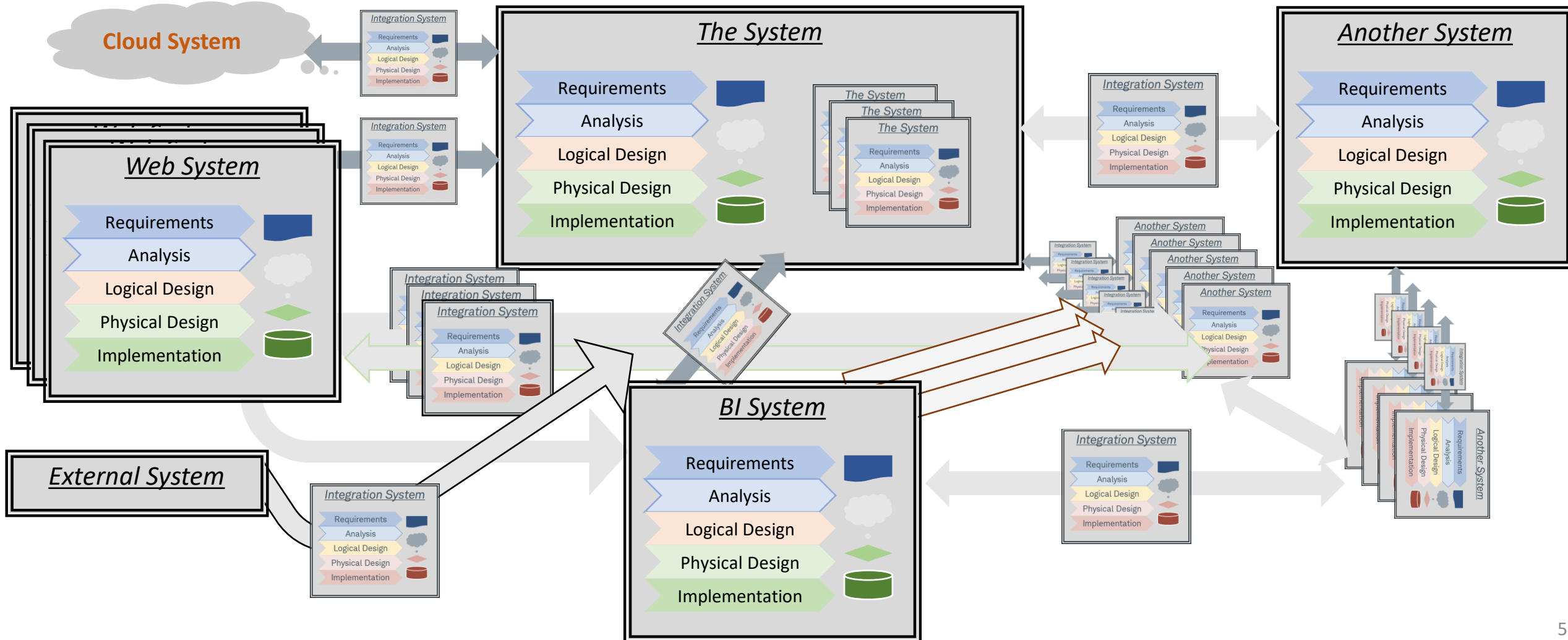
We designed our methodologies, processes, tools, organizations and cultures to solve this hard problem.

We, (like many organizations), has done a good job at this – systems work!

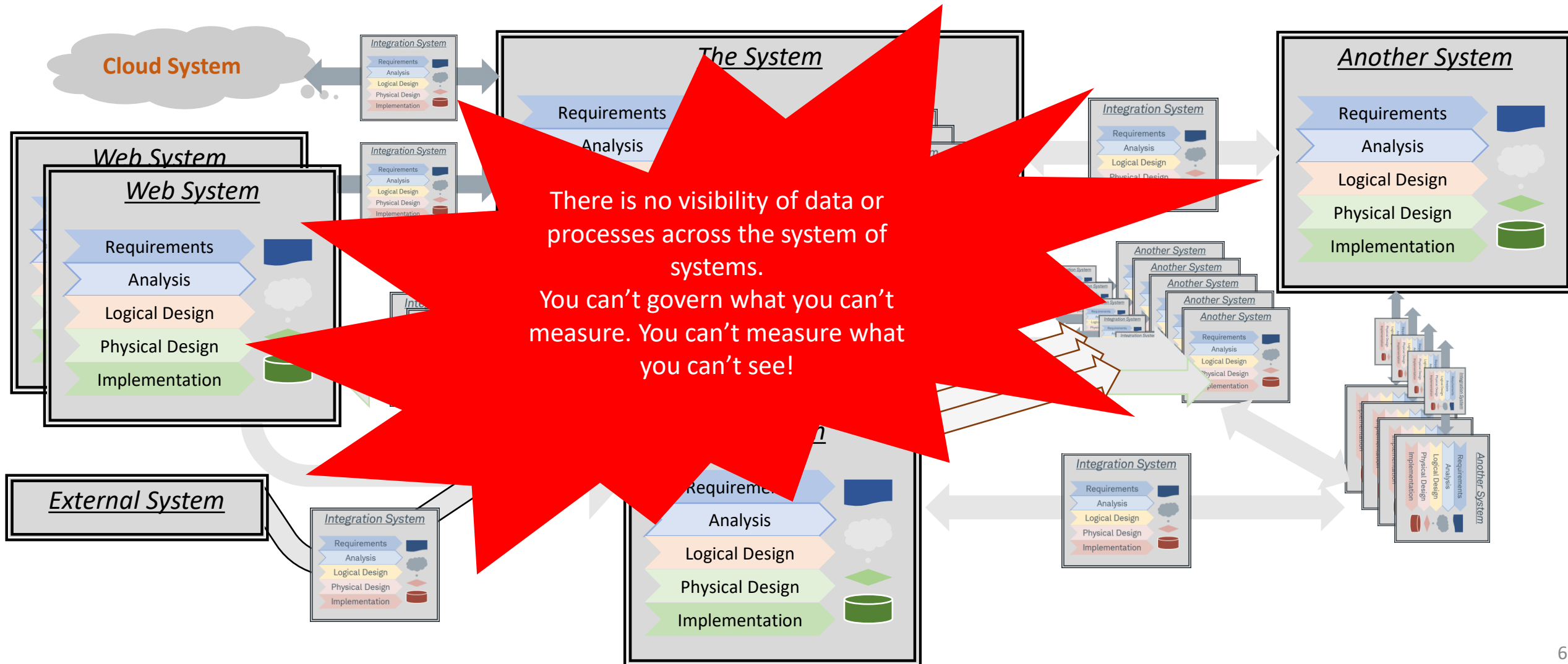
But then ... Extreme System of Systems Happened!



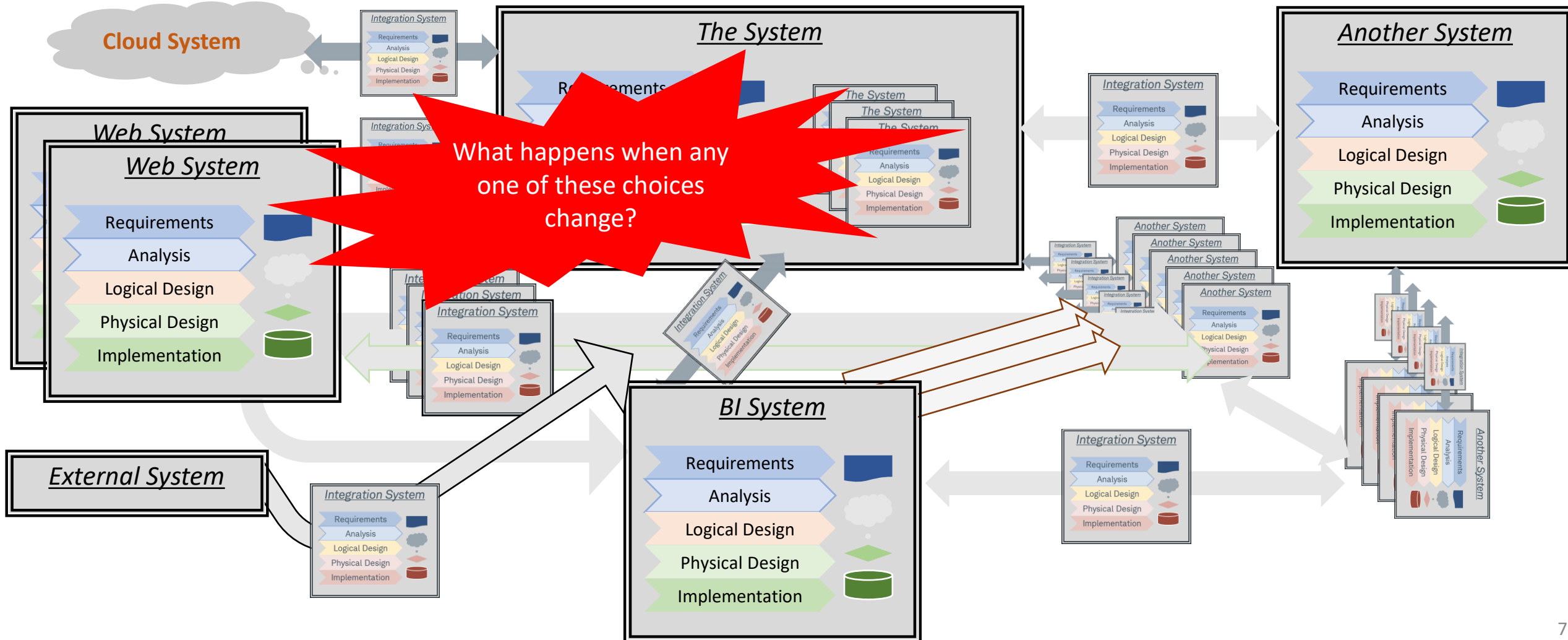
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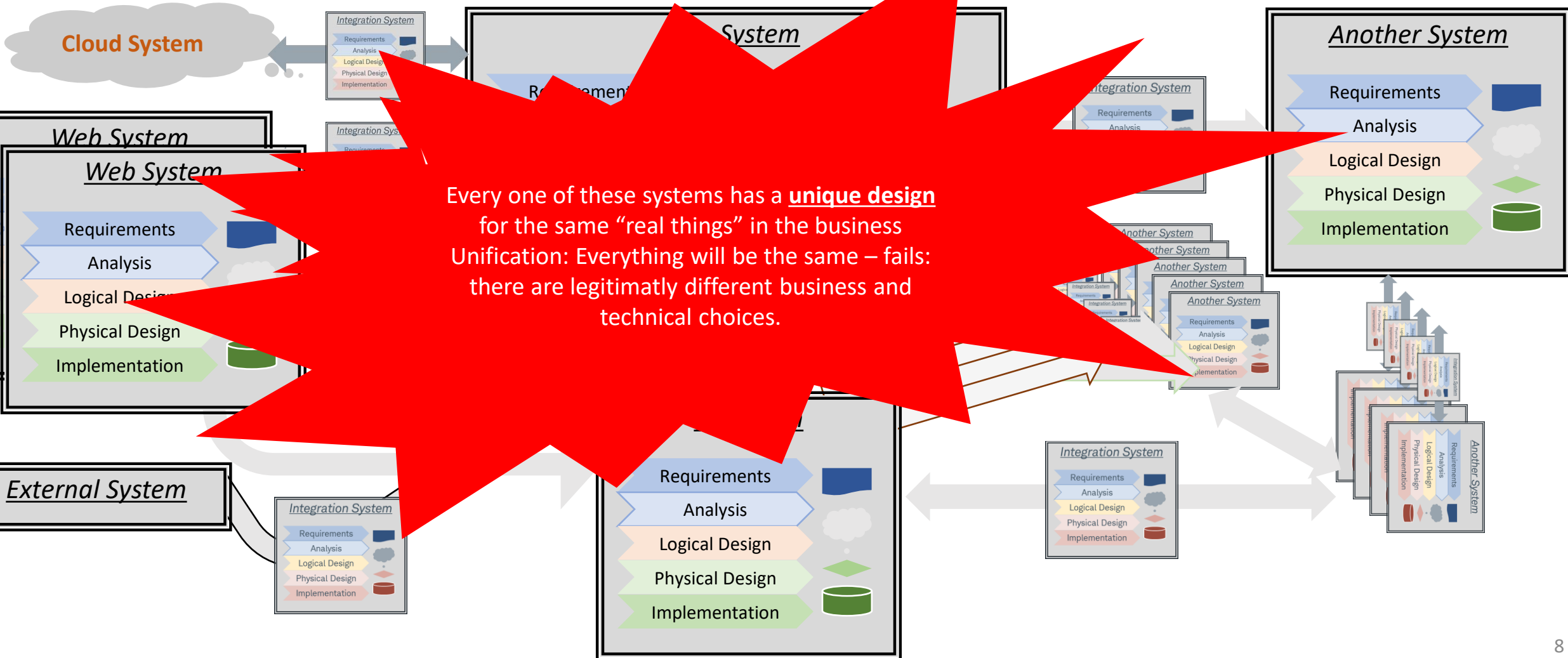
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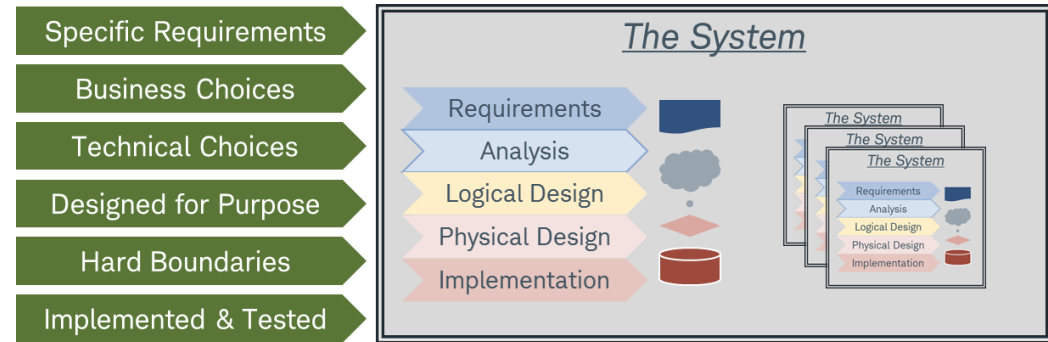


But then ... Extreme System of Systems Happened



The System of Systems Problem

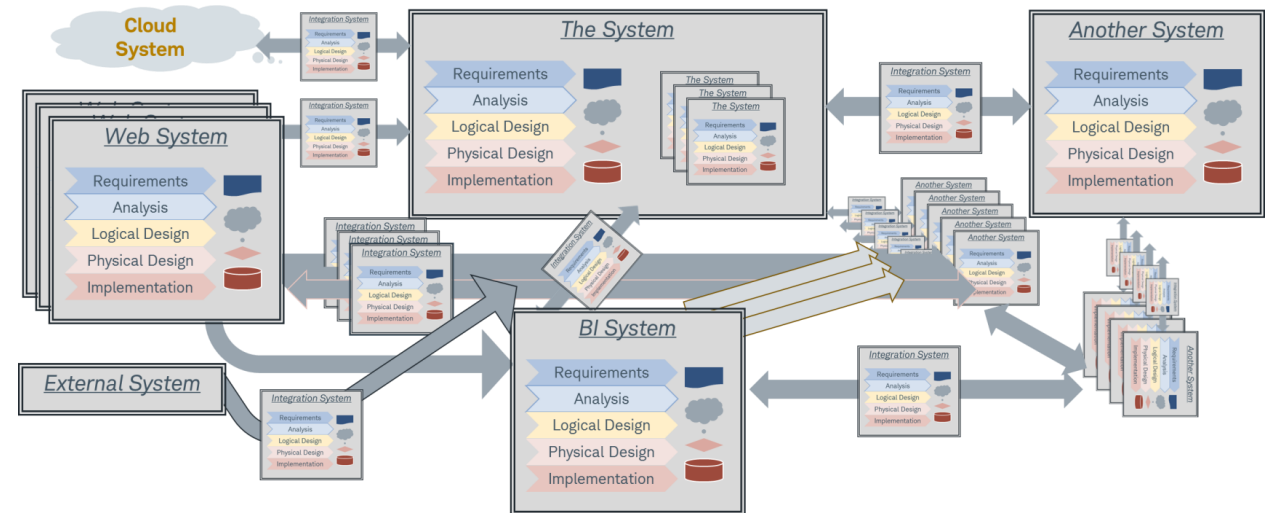
Some of the methods and culture designed for this



Break down in the face of this, because it is not a single system with a unified design

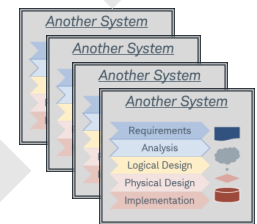
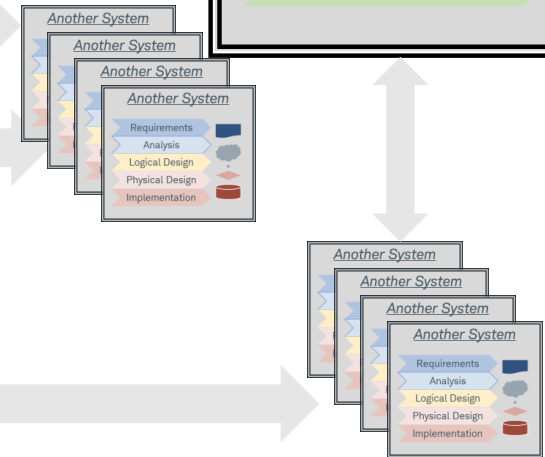
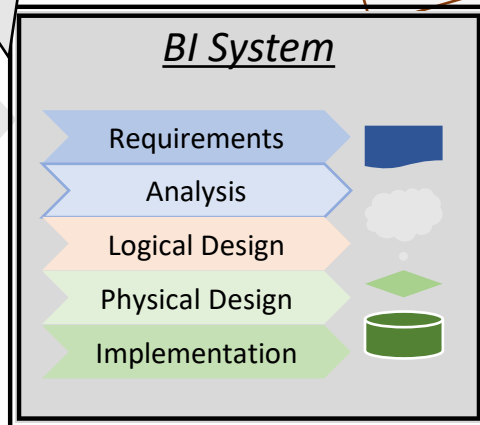
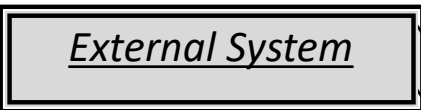
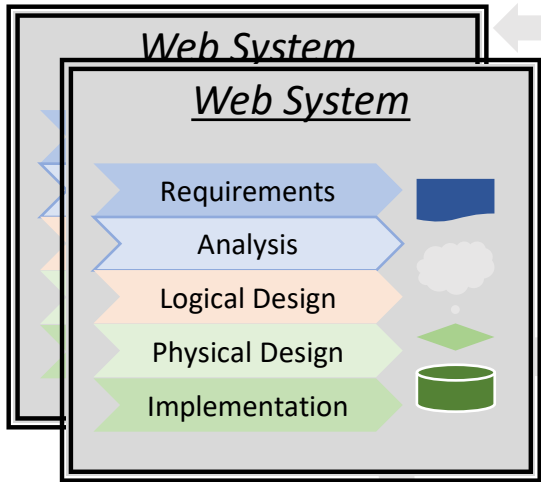
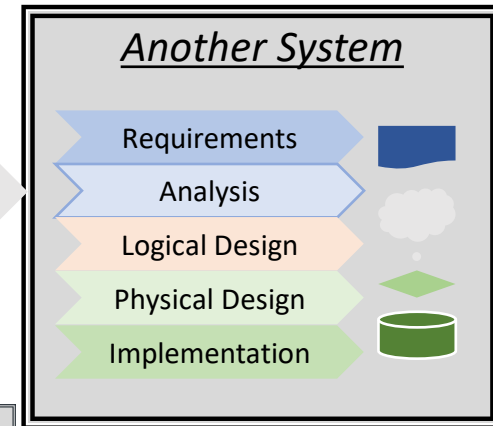
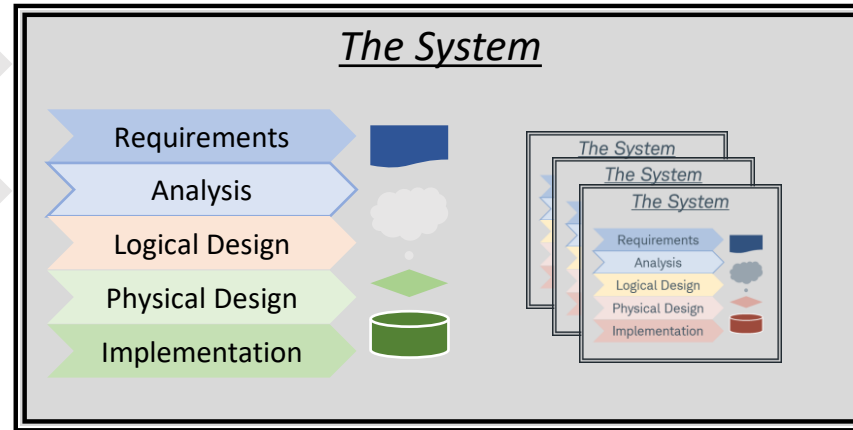
The problem has become “the **white space between the systems**”, more than the individual systems

What is needed are things that are common across systems, that are consistent over time



But requirements, technologies, systems, data, organizations and even processes **change**

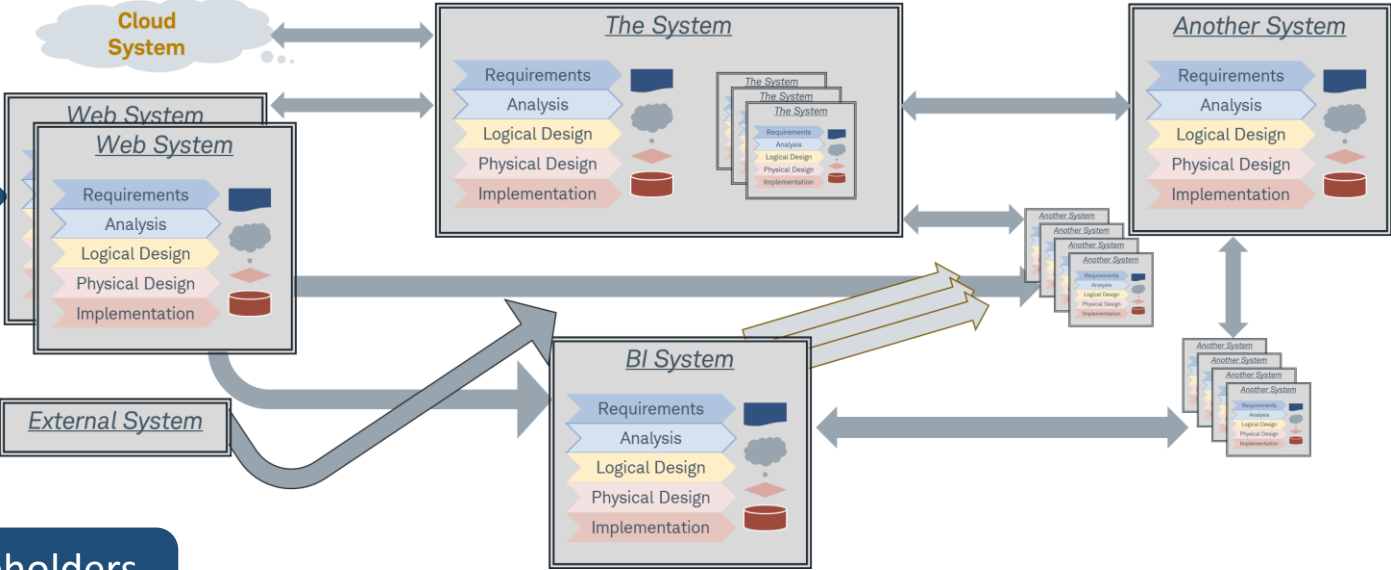
At least: take the custom design out of the white space



Unifying Concepts – E.G. Semantics



The things that the business actually deals with are the unifying concepts

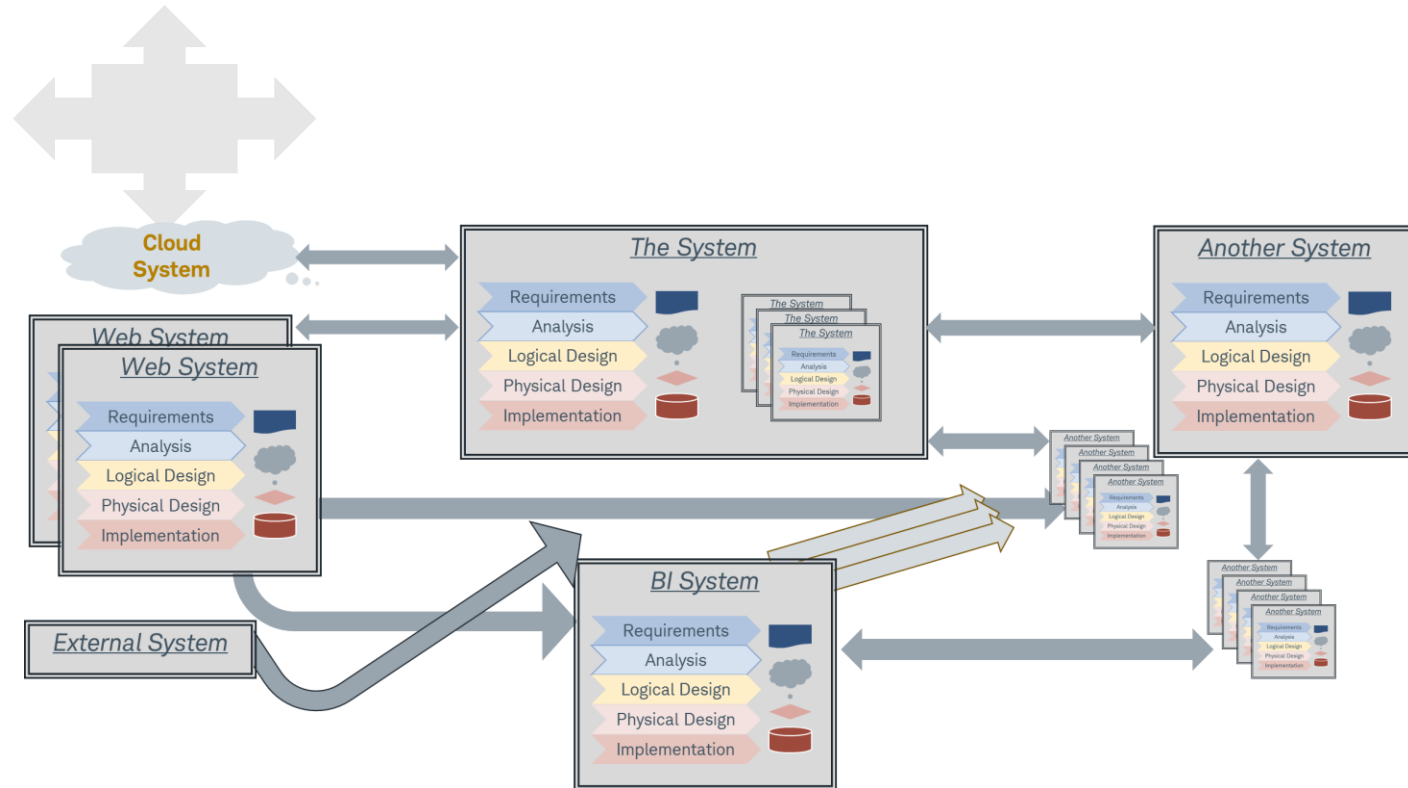
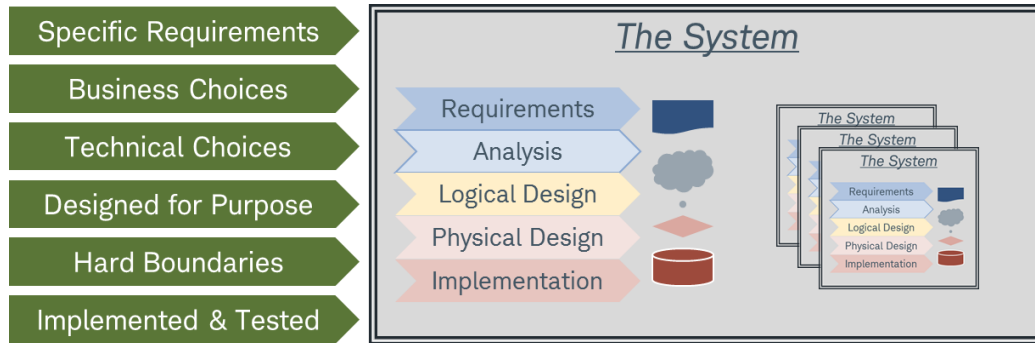


Not data about them, the real things business stakeholders deal with and regulations cover

This is what we model as the “glue” between the systems and the governed business facets

There are the **Business Concepts**

Systems in context



Good systems design doesn't go away

It has more context and consistency

and a way to connect the dots

for implementation and governance

The Non-Obvious Conclusion

To have interoperable, governable data

Don't start with the data

Start with the business

Model the business concepts

Use the business concepts to define, govern and integrate the data

Use these concepts as the basis for an enterprise knowledge graph