



# **Coupling Up: An Exploratory Study of Mapping Loosely Coupled Systems in Higher Education - Mapping Systemic Issues**

By: Gillian (Jill) D. Ellern & Laura Cruz

## **Abstract**

This presentation makes the case that systems mapping can be used as an analytical tool for advancing research on loosely coupled systems, with particular emphasis on universities. We present two case studies of participatory systems mapping initiatives (one on undergraduate research, the other on library systems) as examples to illustrate the potential of the linkage between systems tools and organizational theory in higher education.

Ellern, G.D., & Cruz, L. (2021, November 5). *Coupling Up: An Exploratory Study of Mapping Loosely Coupled Systems in Higher Education - Mapping Systemic Issues* [Roundtable]. 46th Annual Conference of the Association of the Study of Higher Education, San Juan, Puerto Rico.

Archived version from NC DOCKS available at: <http://libres.uncg.edu/ir/wcu/listing.aspx?id=37389>.





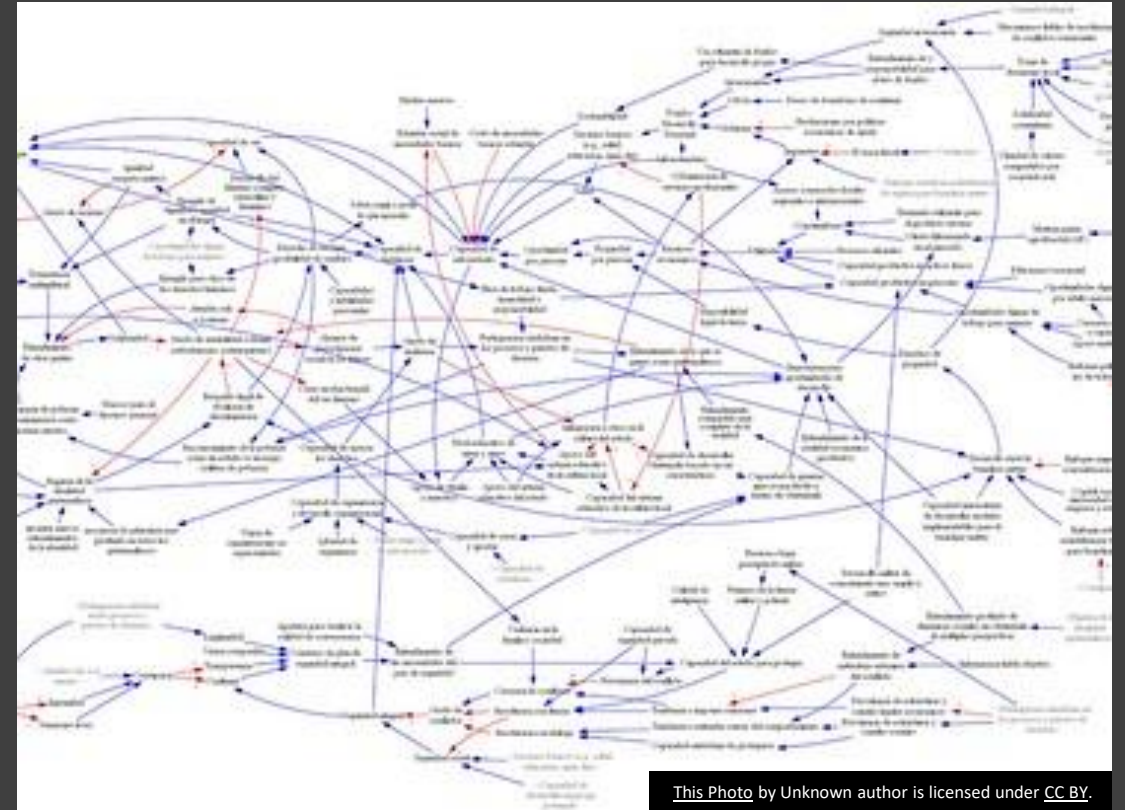
# COUPLING UP

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**An Exploratory Study of Mapping Loosely  
Coupled Systems in Higher Education**

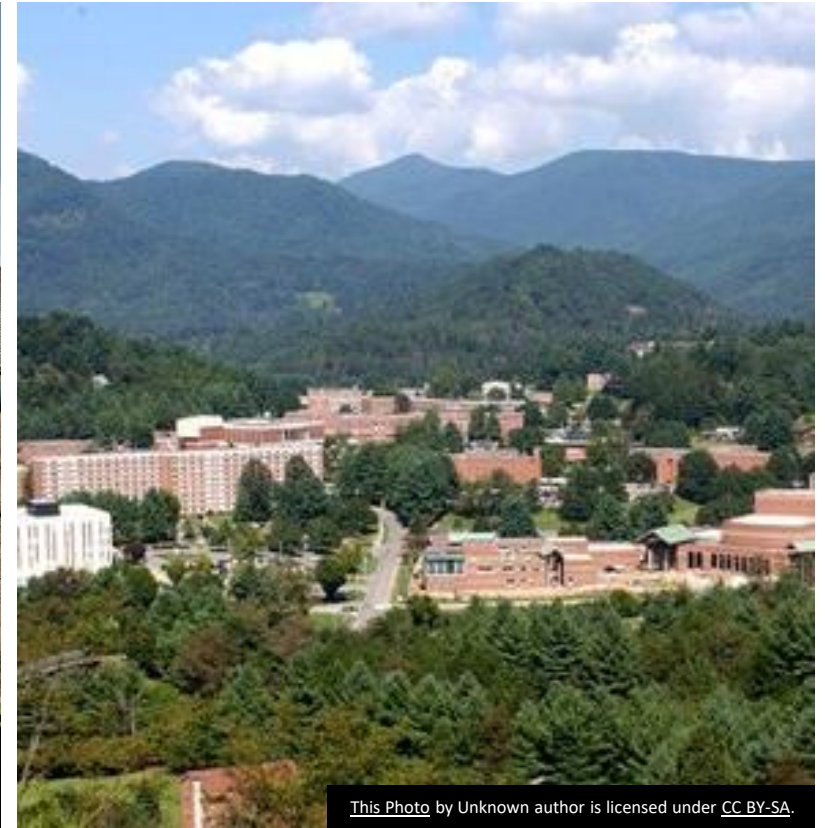
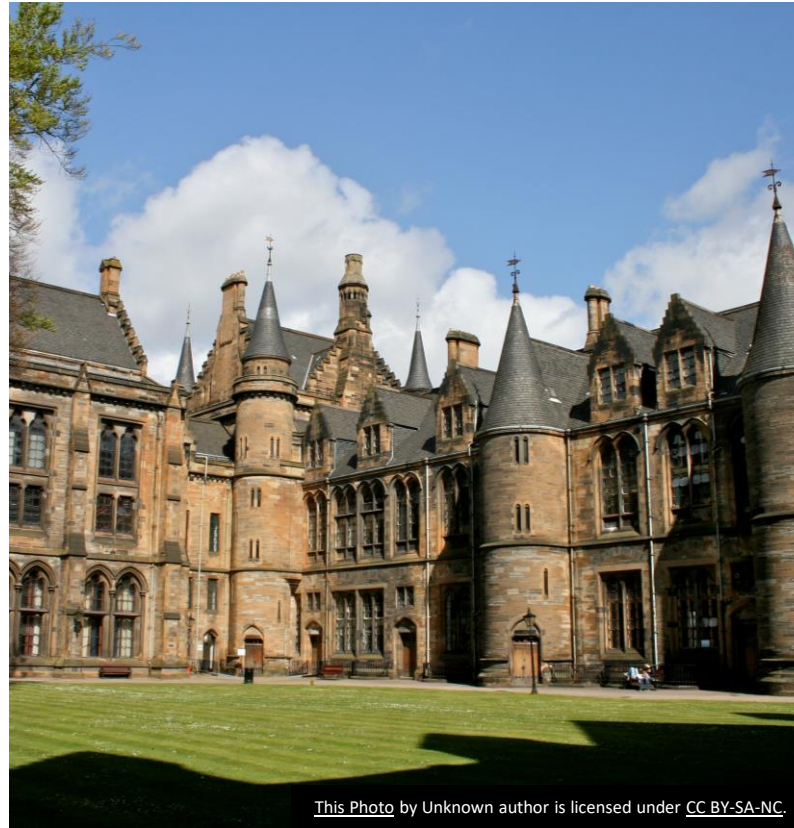


# Is there a relationship between LOOSE COUPLING and SYSTEMS THINKING?



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**Loose coupling is characteristic of higher education as an organizational type.**

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# What's the Problem?

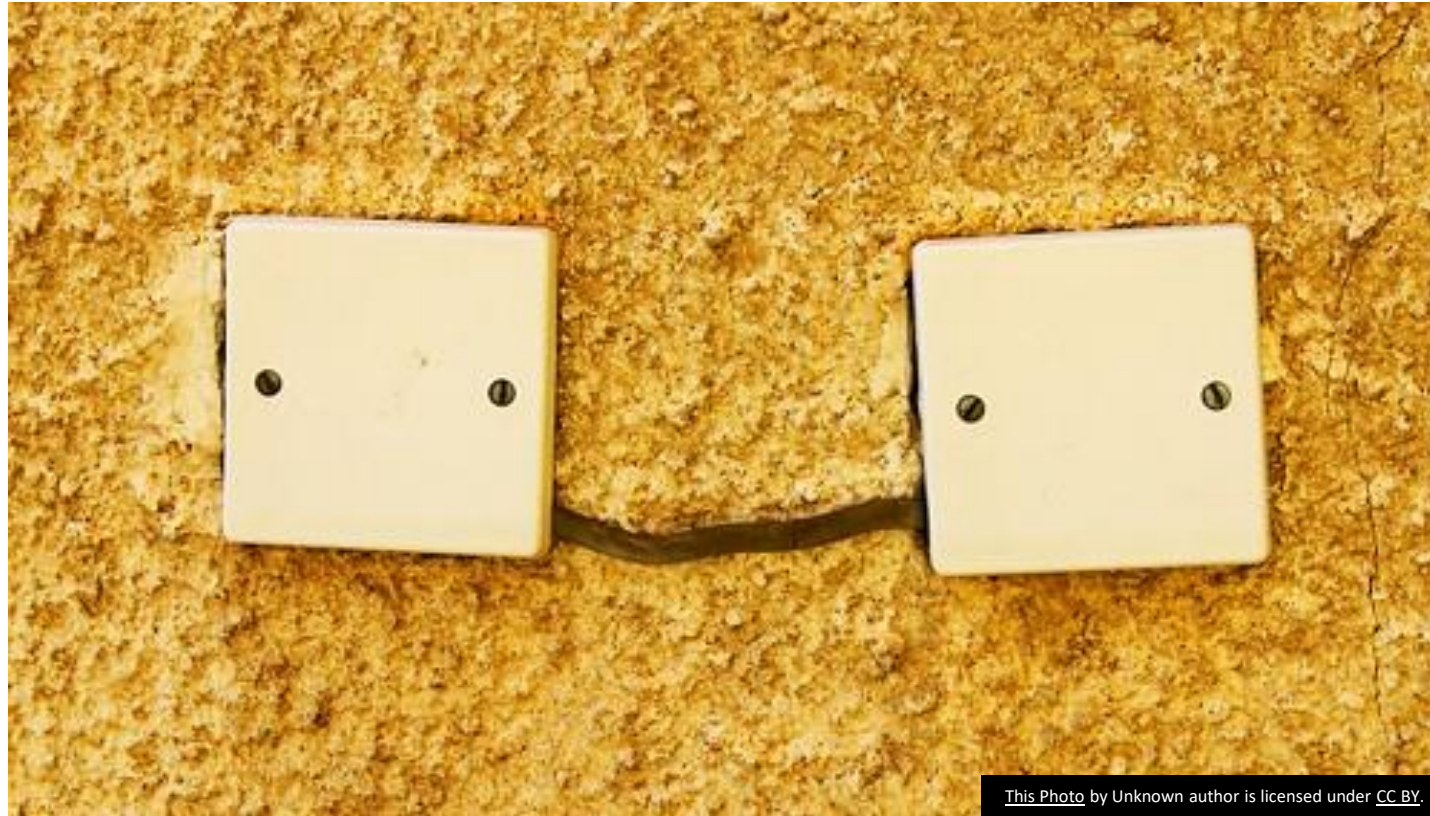
## Functions

- Persistence of Units
- Sensitive sensing mechanism
- Localized adaptation
- Cultural insurance
- Isolate problematic units
- Self-determination of actors
- Coordination is inexpensive

## Disfunctions

- Perpetuation not selective
- Faddish responses
- Low benefits of standardization
- Low spread of effective approaches
- Problematic units hard to repair
- Chain of consequences shortened
- Hard to modify resource allocation





# Why is loose coupling difficult to study?





# Systems Thinking

## TOOLS OF A SYSTEM THINKER



DISCONNECTION



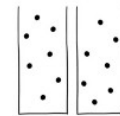
INTERCONNECTEDNESS



LINEAR



CIRCULAR



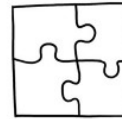
SILOS



EMERGENCE



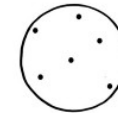
PARTS



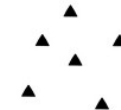
WHOLES



ANALYSIS



SYNTHESIS



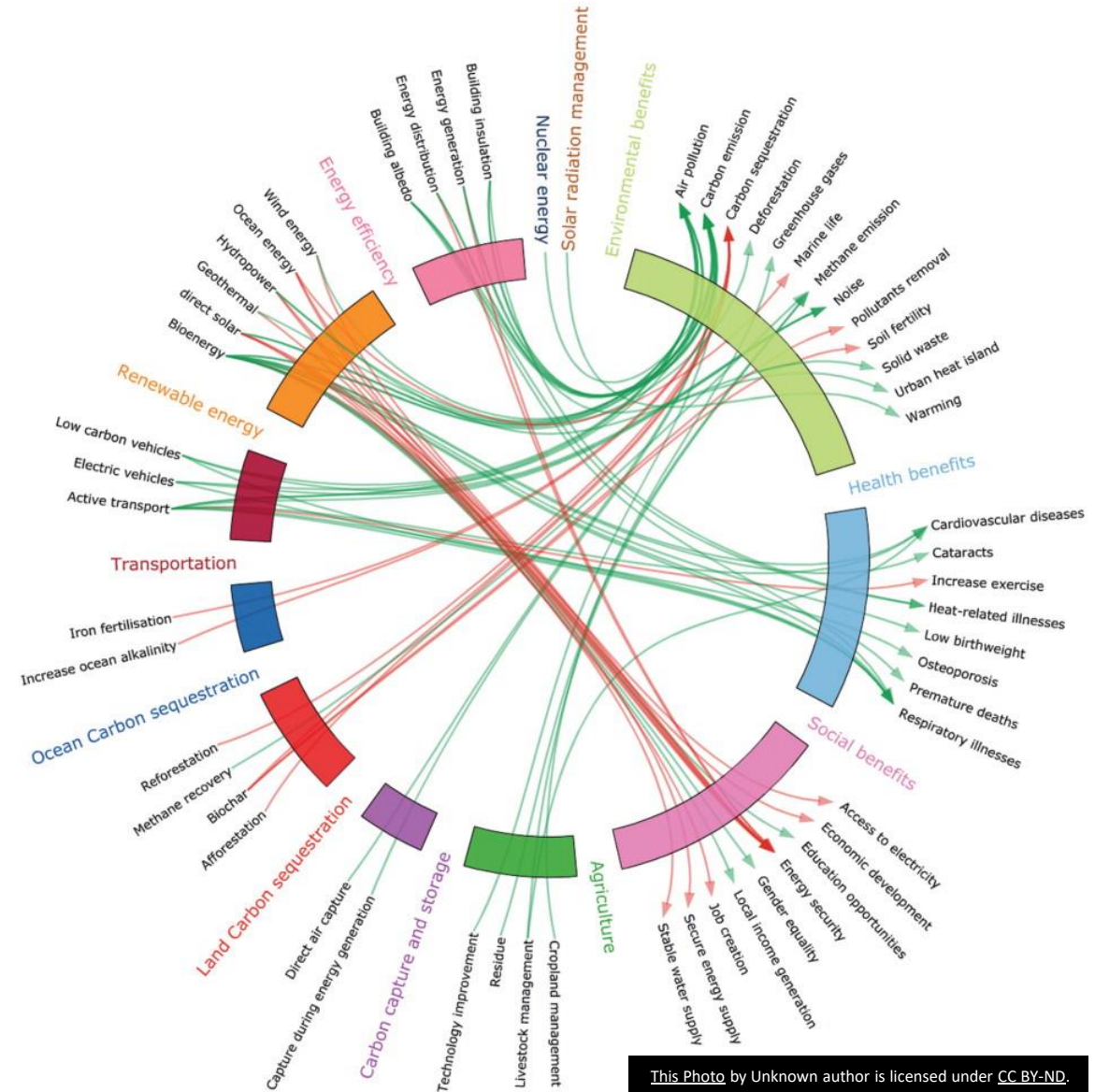
ISOLATION



RELATIONSHIPS



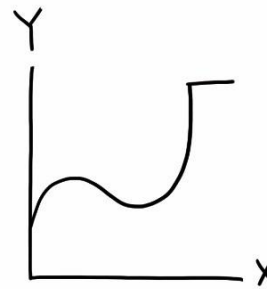
# University as System



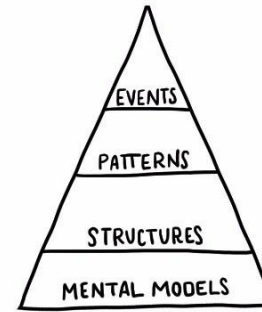


# Systems Mapping

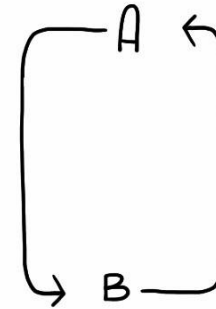
## TYPES OF SYSTEM MAPPING



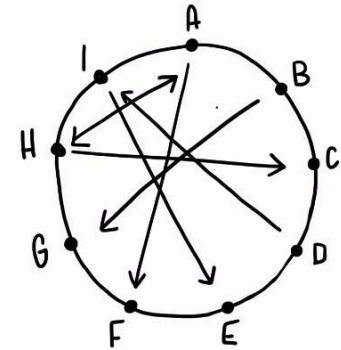
BEHAVIOUR OVER  
TIME GRAPHS



ICEBERG  
MODEL



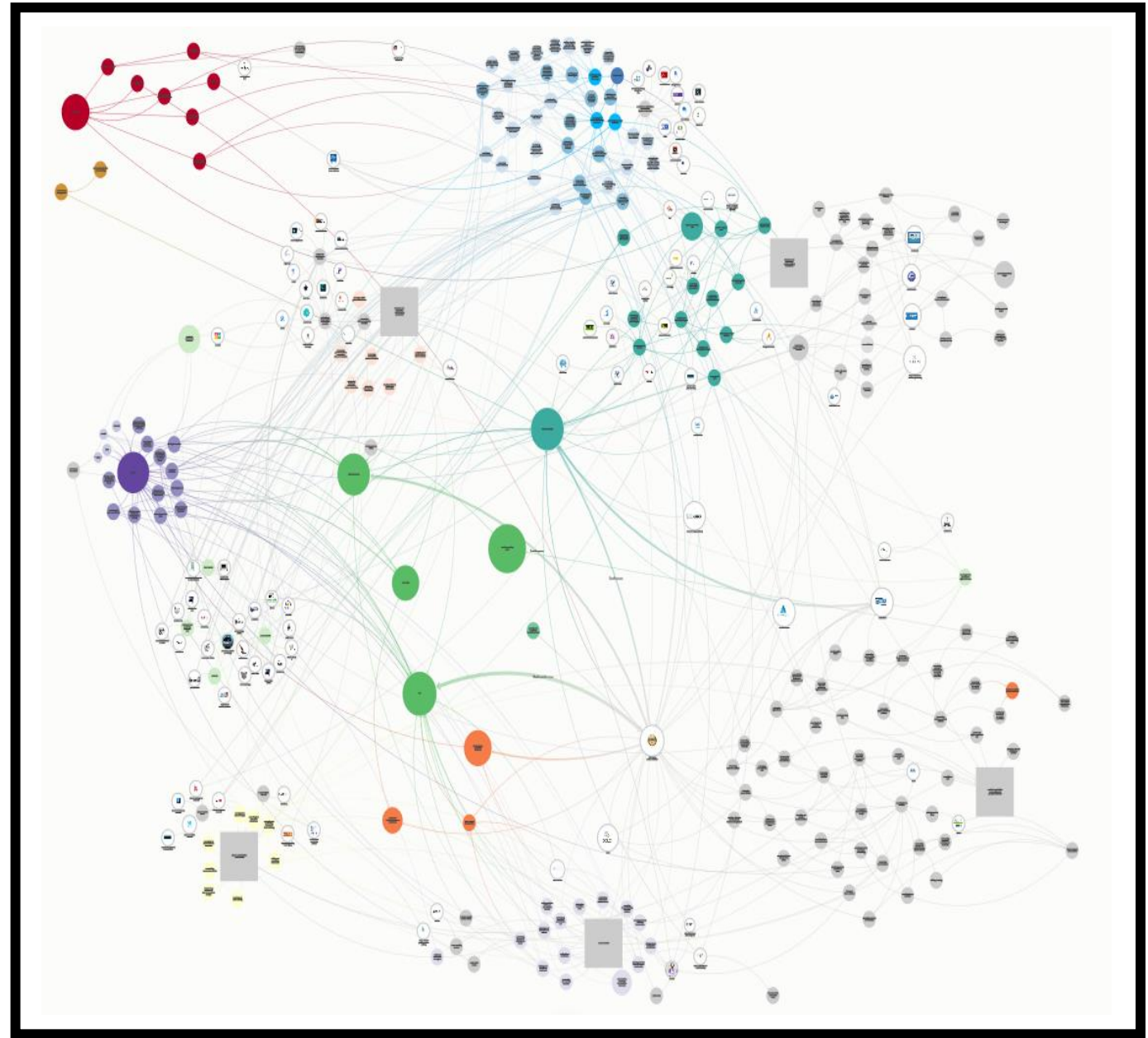
CAUSAL LOOP  
DIAGRAMS



CONNECTED  
CIRCLES

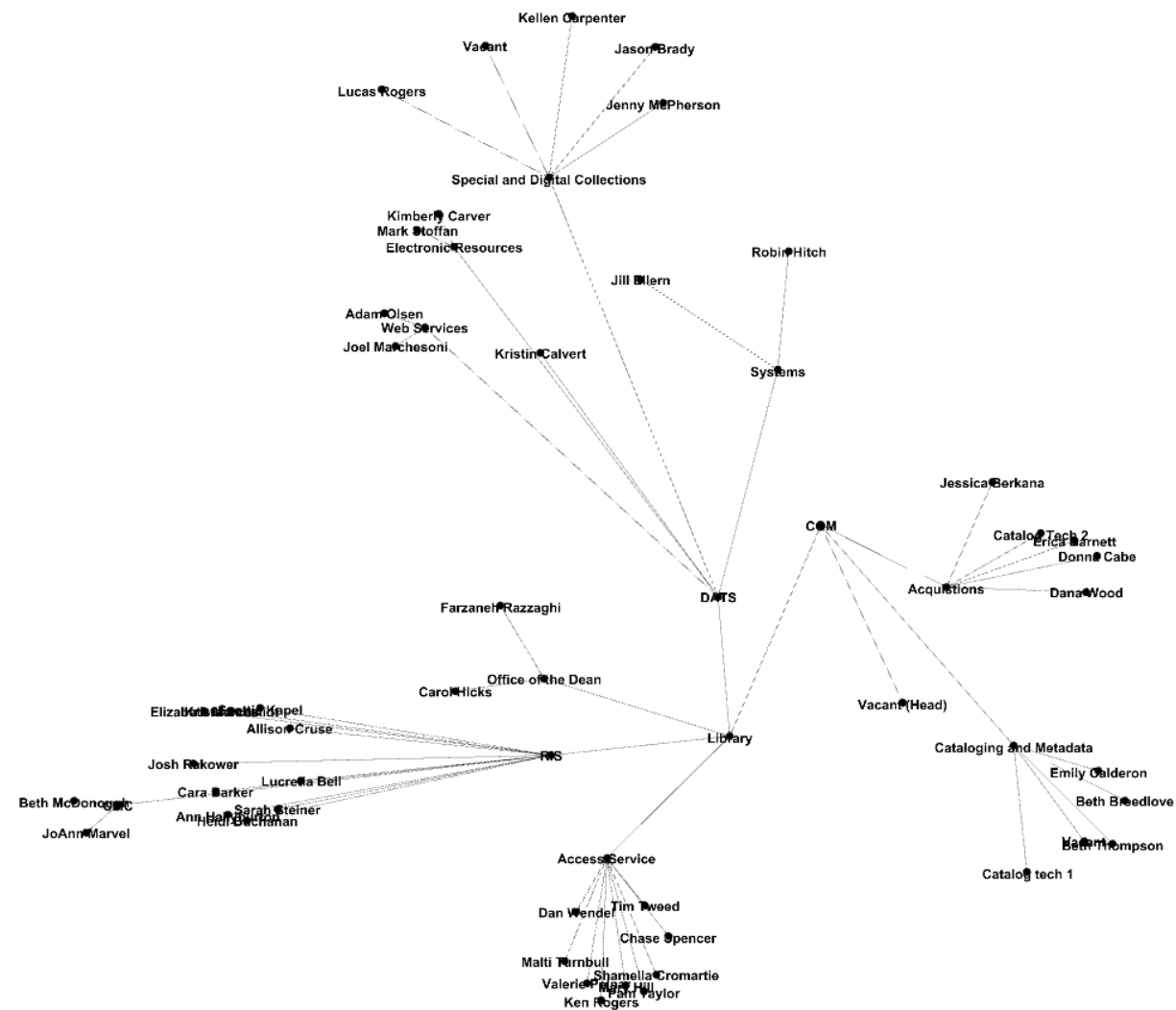


# Library as System





# Mapping the Library as System

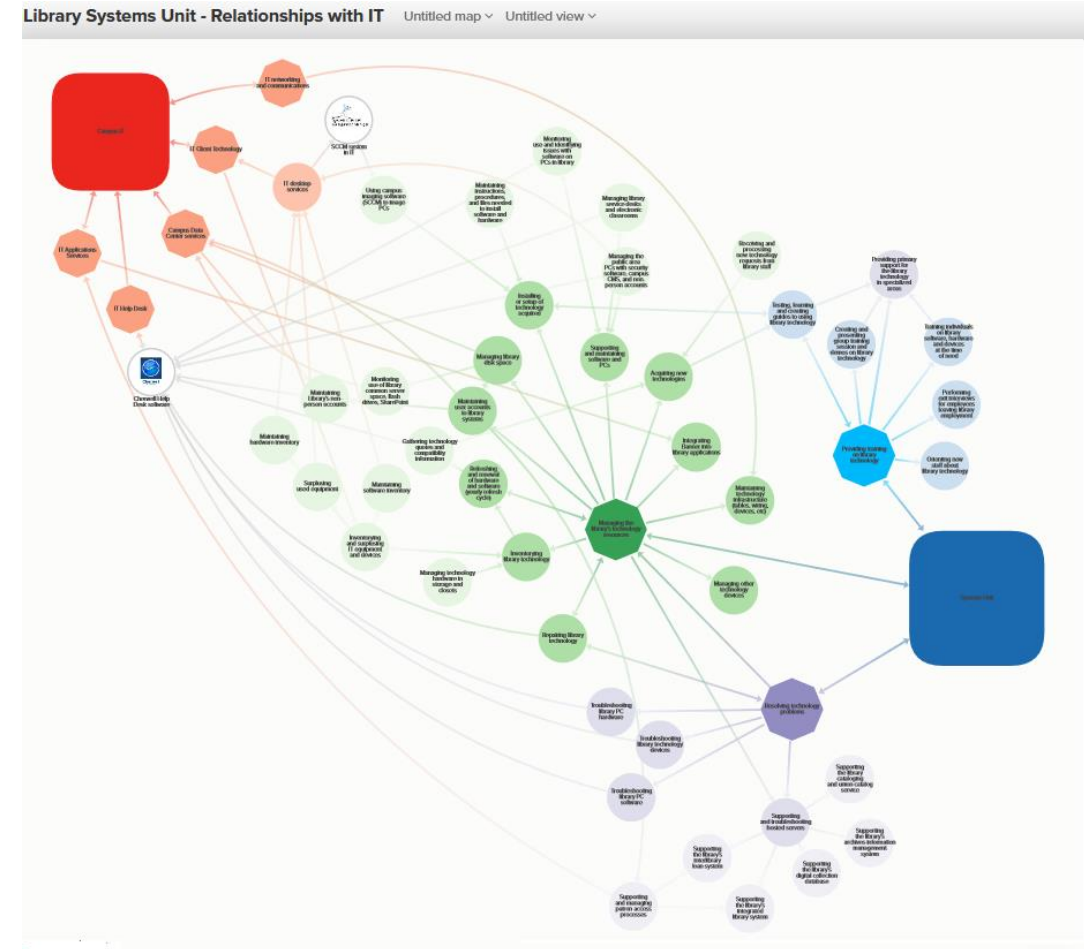


Gephi

<https://youtu.be/bDCh5uID6Bs>



# Mapping the Library as System



Kumu.io

<https://youtu.be/wlDVv4eKcQc>

[https://youtu.be/DP\\_t-ybZVnMt](https://youtu.be/DP_t-ybZVnMt)



## ***Loose Coupling***

### ***ASHE - 46th Annual Conference In-Person Roundtable***

Sheraton Puerto Rico Hotel & Casino  
San Juan, Puerto Rico

Fri, November 5, 2021 at 10:15am to 11:00am

**Laura Cruz, Penn State**  
**Gillian (Jill) D. Ellern, Western Carolina University**



# **ASHE**

ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION

**Looking at Kumu.io using the library hierarchy**



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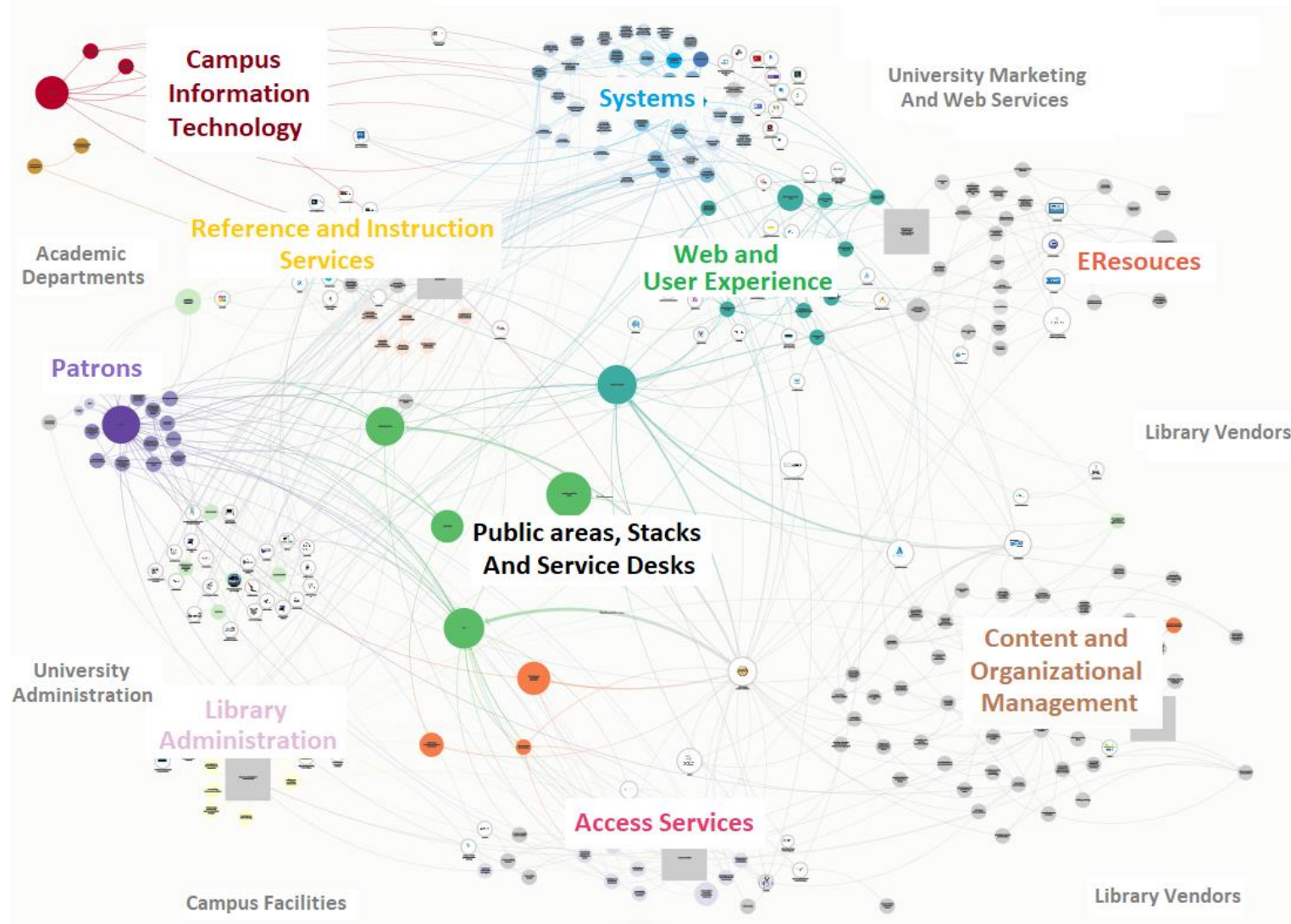


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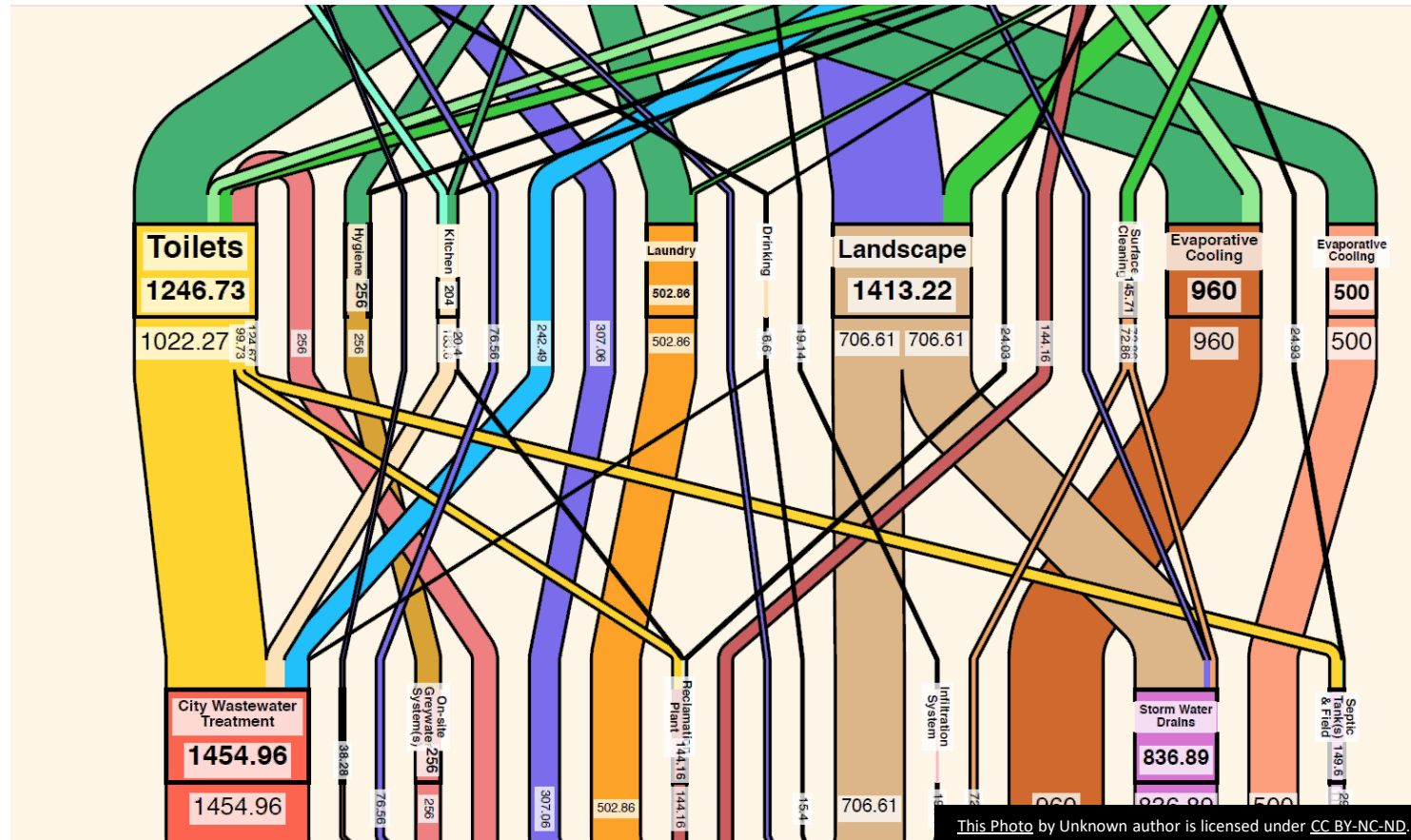






# Participatory Systems Mapping

Change management strategy in higher education



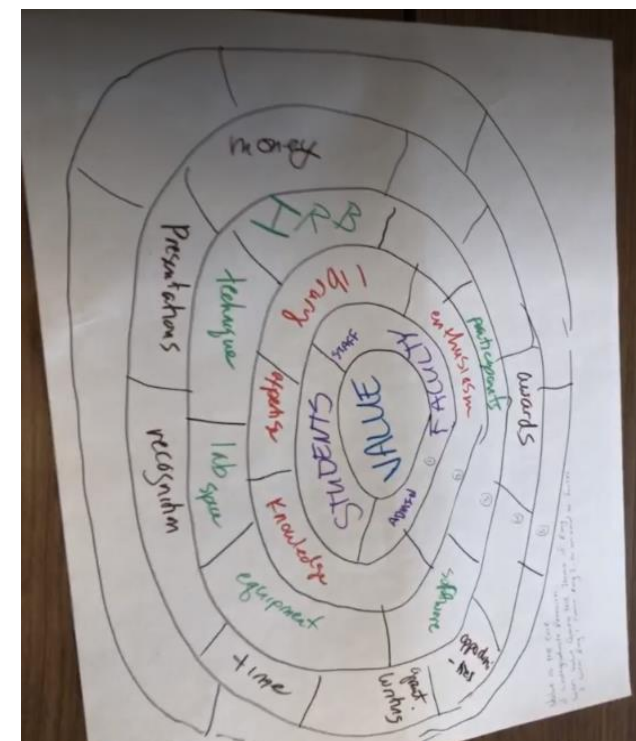
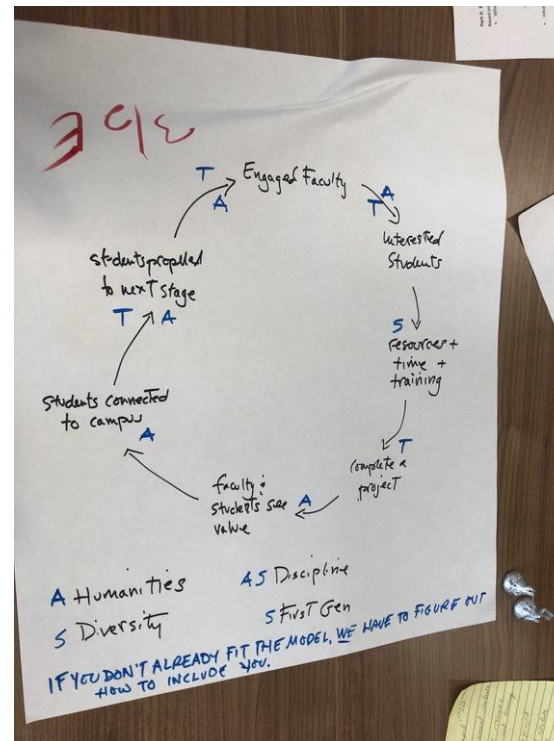
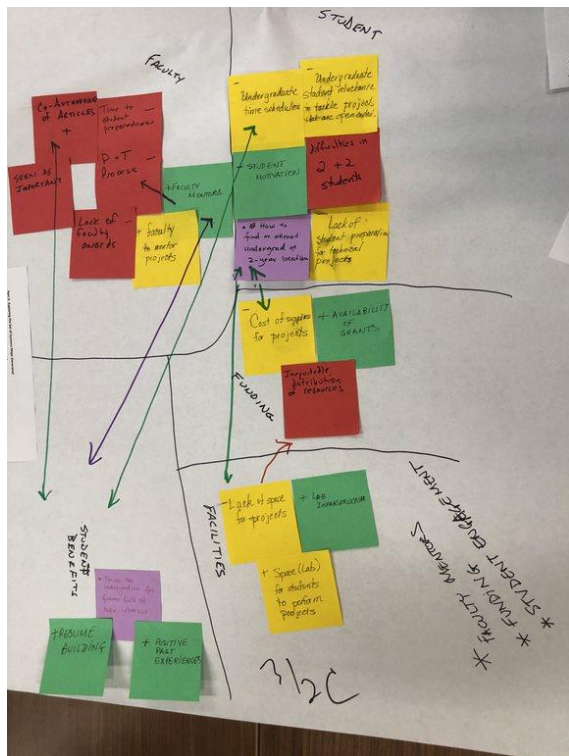




## The PUR Project

- 150+ Faculty, staff, students, and senior administrators
- Focus: Undergraduate Research



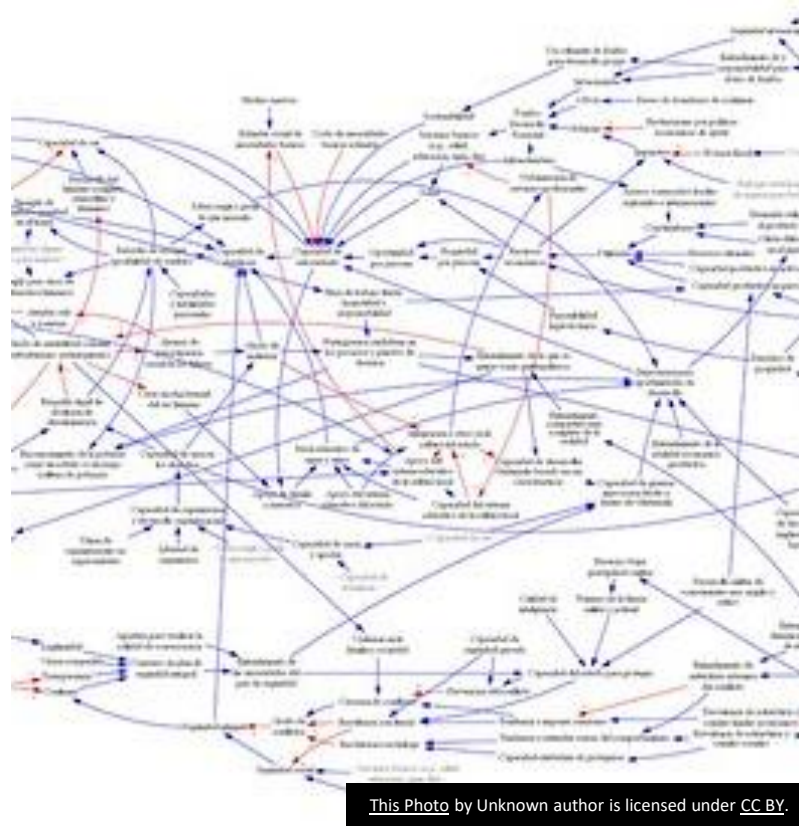


# The PUR Project

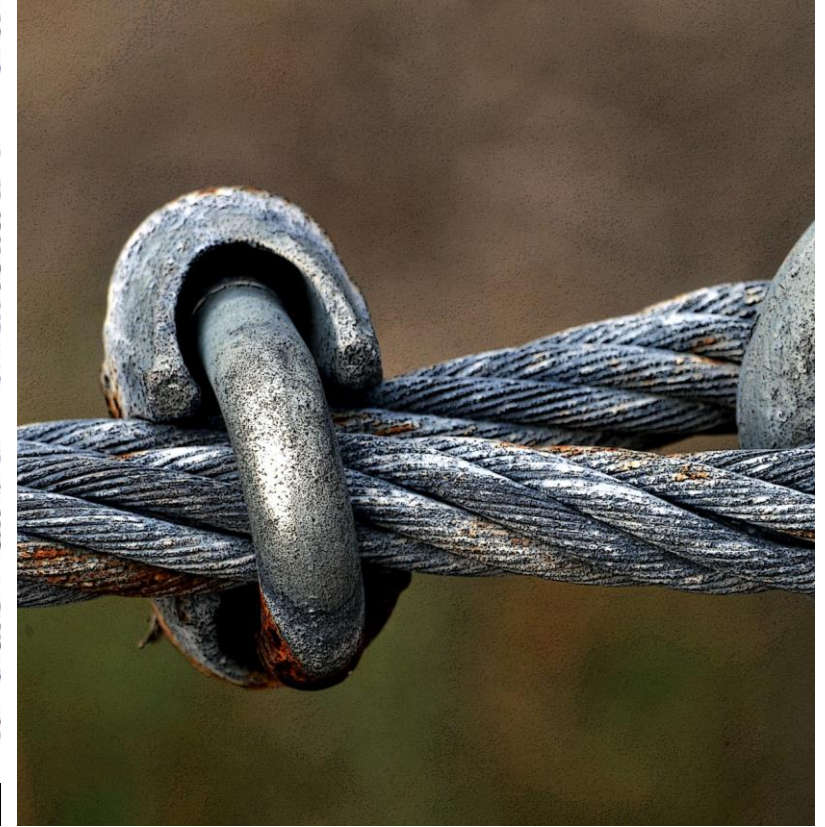




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What could the *relationships* between LOOSE COUPLING and SYSTEMS THINKING be?

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