



RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

# COMBATTING COMPLEXITY UNDERESTIMATION

---

Project Controls Expo, Australia – 26<sup>th</sup> November 2019

Melbourne Cricket Ground, Melbourne

**HK>A**

 **Project Controls**  
**EXPO**  
Melbourne, Australia



Jessica Schilling

*Management Consultant - HKA*

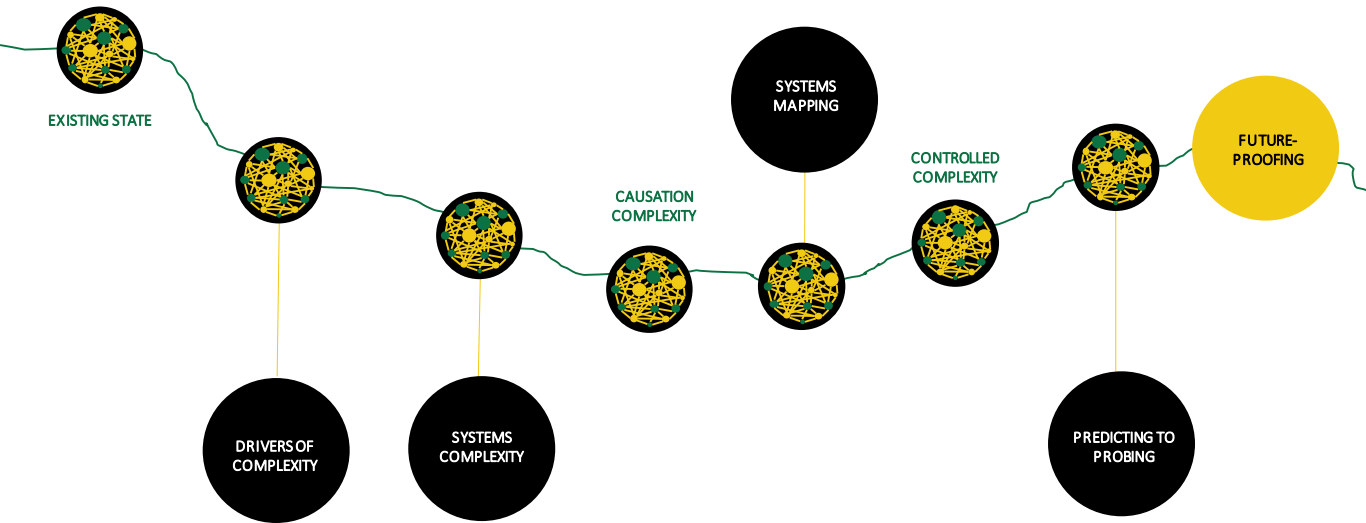
## ABOUT THE SPEAKER

**HK>A**



**Project Controls  
EXPO**  
Melbourne, Australia





WHAT WE SEE

HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

JOURNEY OF REFRAMING



EXISTING STATE

HIGH CERTAINTY

STABLE CONDITIONS

CONSISTENT PROCESSES

"ASSESS-MEASURE-ADJUST"

"IDENTIFY-QUANTIFY-TREAT"

WHAT WE SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS



## PERCEIVED STATE

HIGH CERTAINTY

STABLE CONDITIONS

CONSISTENT PROCESSES

"ASSESS-MEASURE-ADJUST"

"IDENTIFY-QUANTIFY-TREAT"

CAUSE-EFFECT RELATIONSHIPS

## REALITY

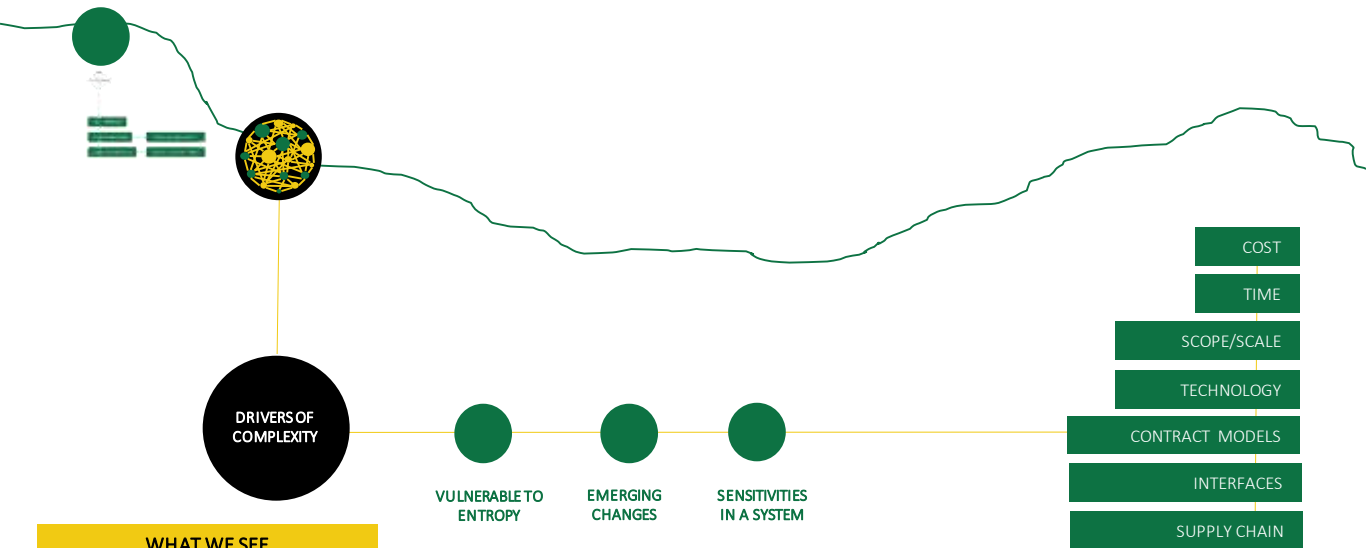
UNCERTAINTY

EMERGENT PRACTICE

UNORDERED, UNEXPECTED

CAUSATION COMPLEXITY

INTERCONNECTED SYSTEM



RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

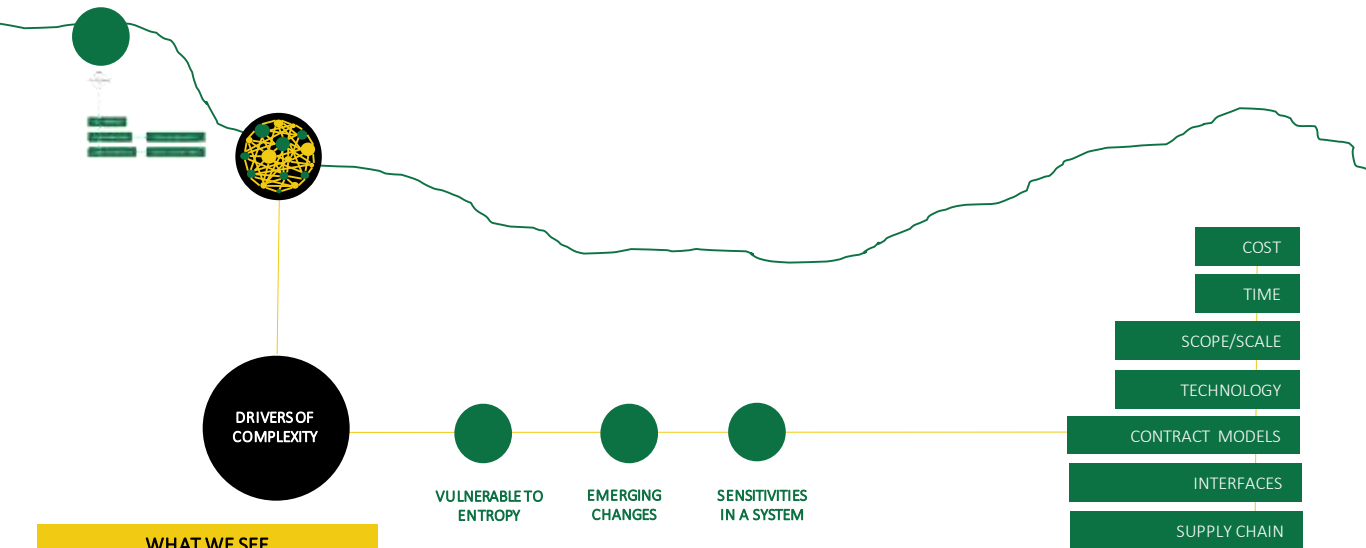
Project Controls  
EXPO  
Melbourne, Australia



2 out of 10 rail megaprojects  
are UNDERESTIMATED

FLYVBJERG, BRUZELIUS & ROTHENGATTER 2003:14



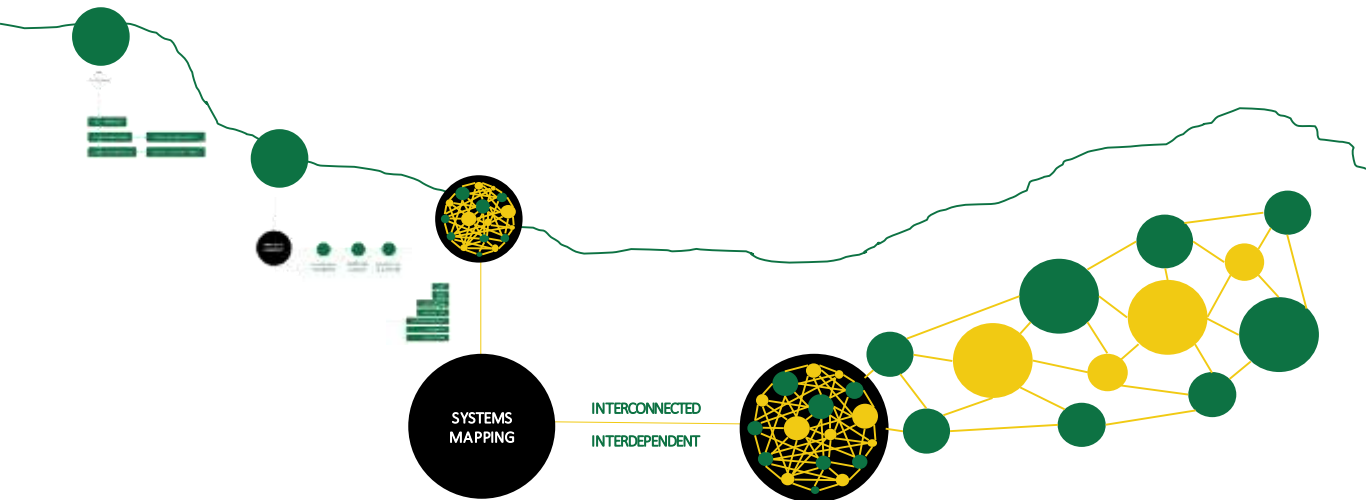


WHAT WE SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia

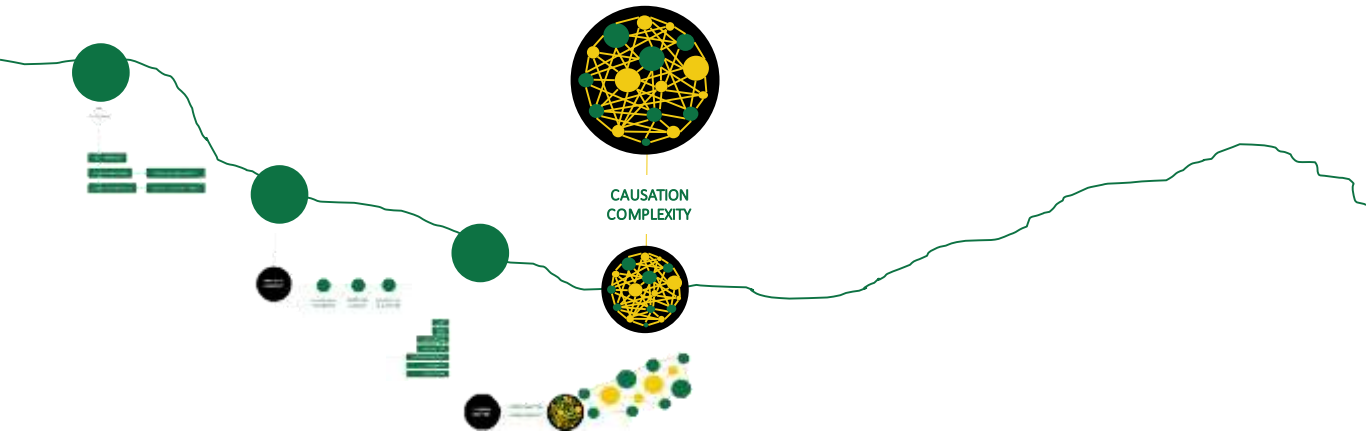


HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia

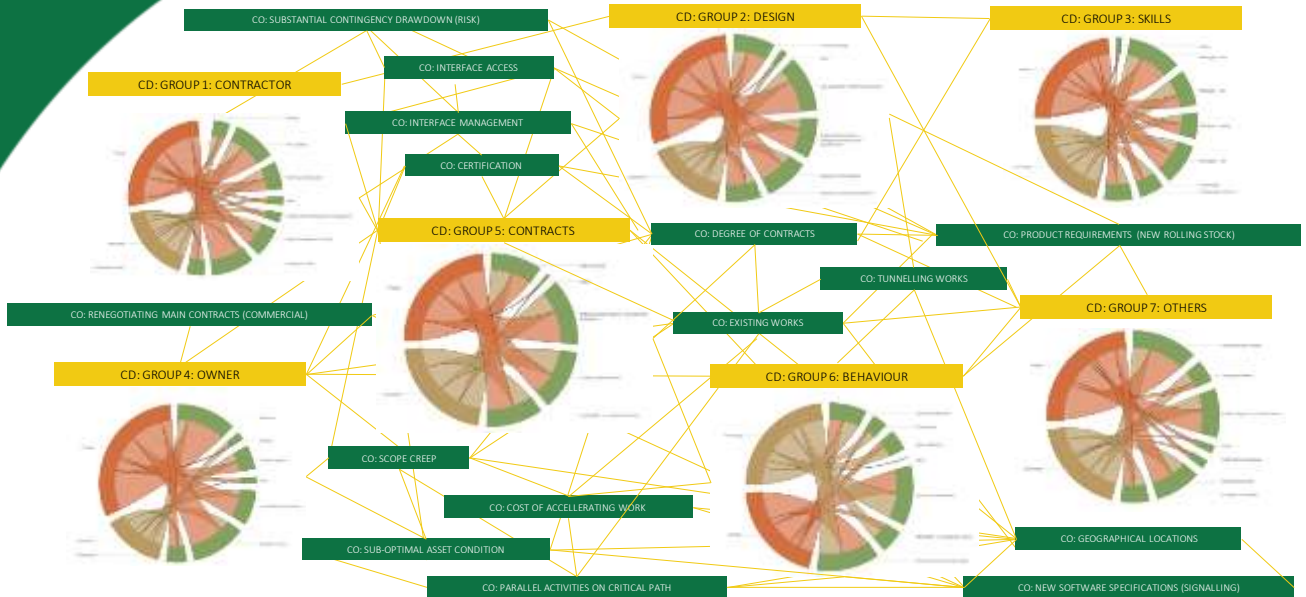


HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

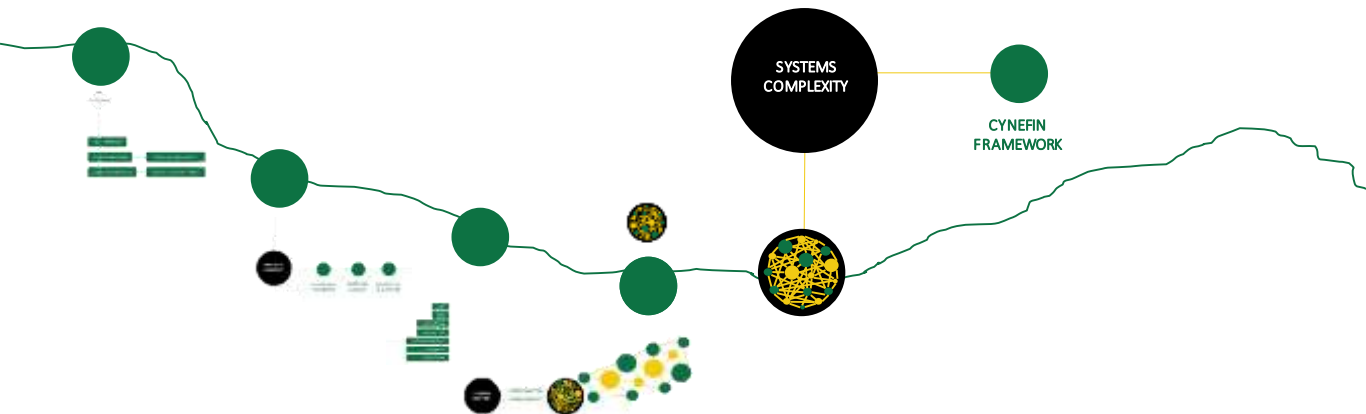
Project Controls  
EXPO  
Melbourne, Australia





The more  
**CONNECTIONS** or **LINKS**  
there are in a system,  
the **GREATER**  
the chance of **VARIABILITY**  
or even of  
**SYSTEM BREAKDOWN.**

DETTMER 2011



HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia

## CYNEFIN FRAMEWORK

PROBE, SENSE, RESPOND

COMPLEX SYSTEM

SENSE, ANALYSE, RESPOND

COMPLICATED SYSTEM

UNORDERED

CHAOTIC SYSTEM

ACT, SENSE, RESPOND

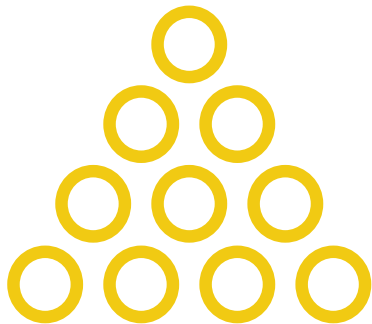
ORDERED

SIMPLE SYSTEM

SENSE, CATEGORISE, RESPOND

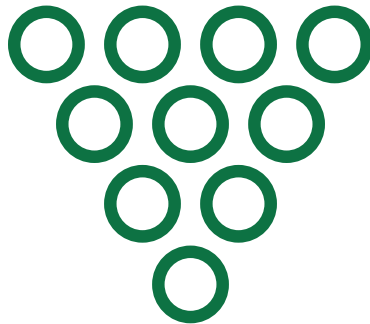
RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS



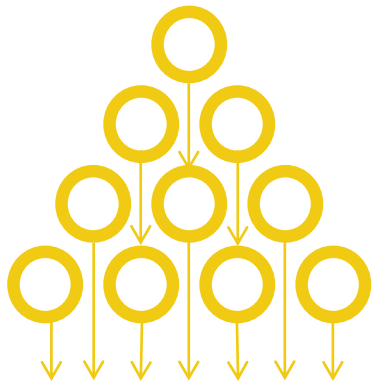


ANALYSIS

SYNTHESIS

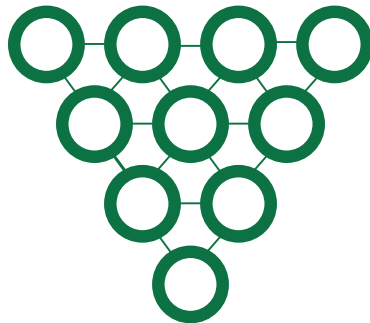


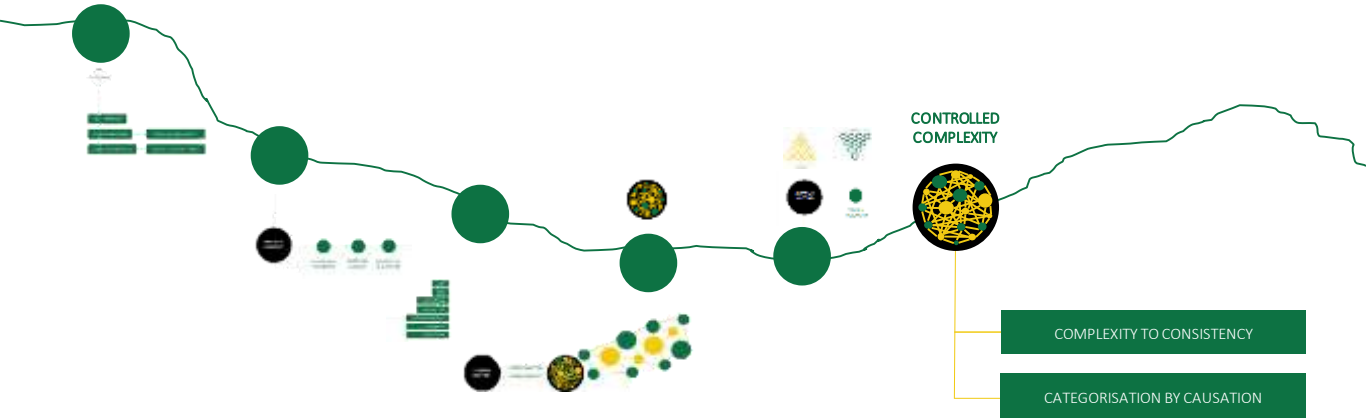




CONCLUSIONS

CONNECTIONS



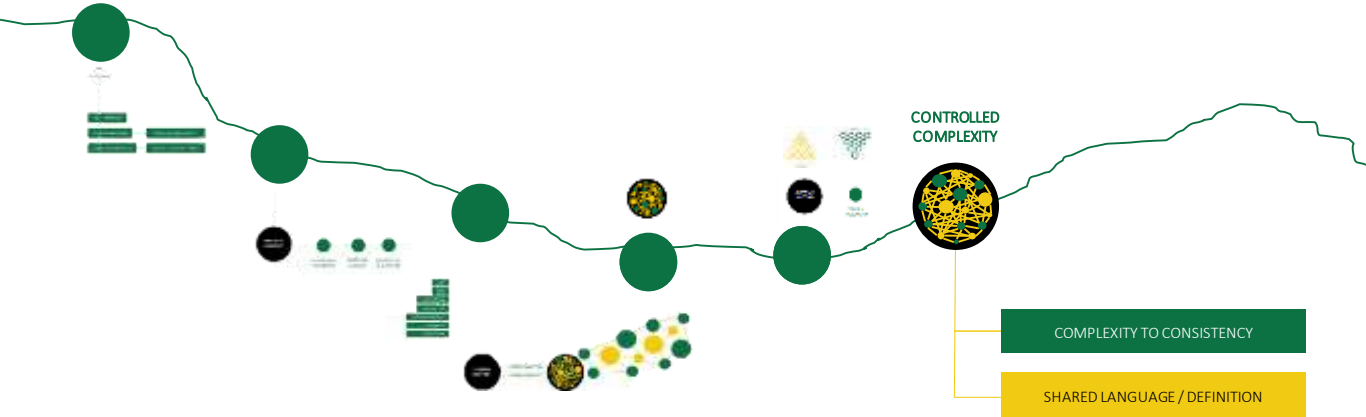


HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia

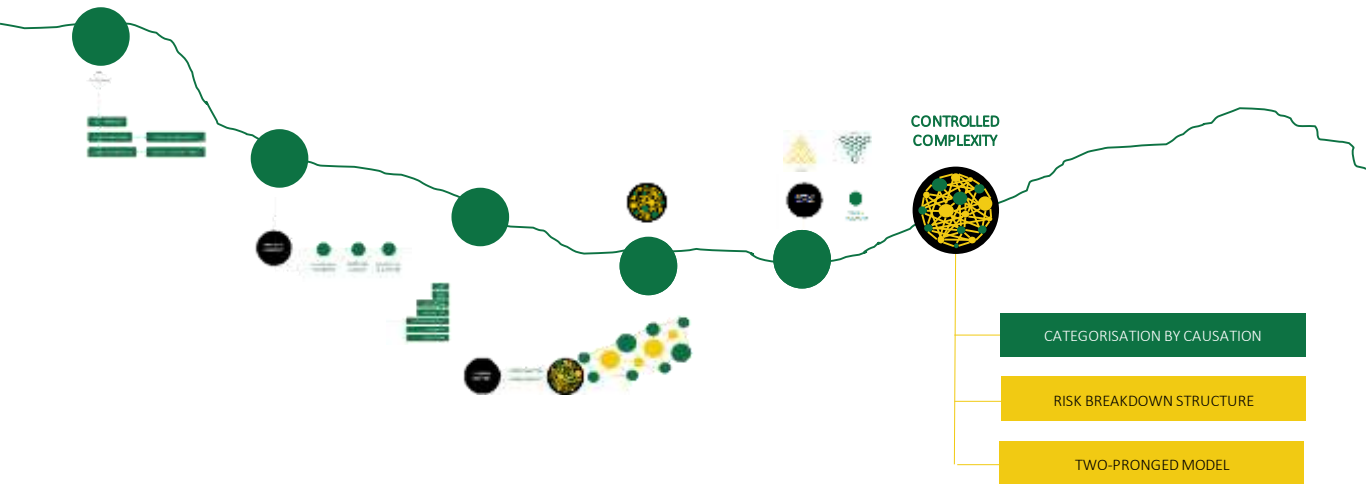


HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

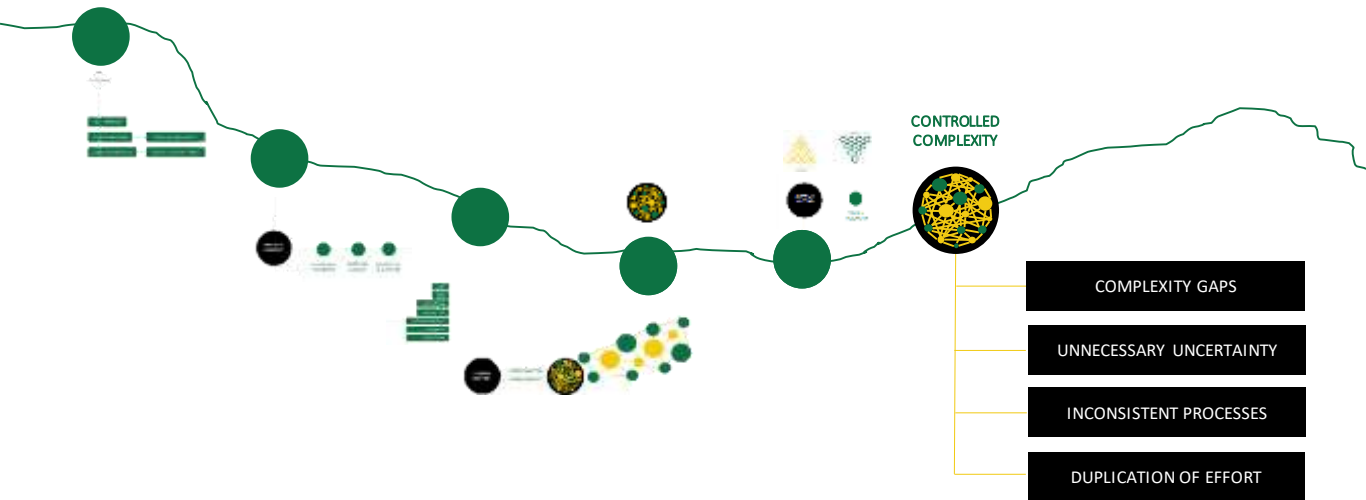
HK>A

Project Controls  
EXPO  
Melbourne, Australia



HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS



HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia





EXAMPLE OF ADAPTIVE RISK MANAGEMENT

OPERATING  
RAILWAY



AGILITY IN COMPLEXITY

IGNORANCE-MAPPING

“PROBE-SENSE-RESPOND”

DESIGN-THINKING WORKSHOPS

VISUALISATION/DIGITISATION

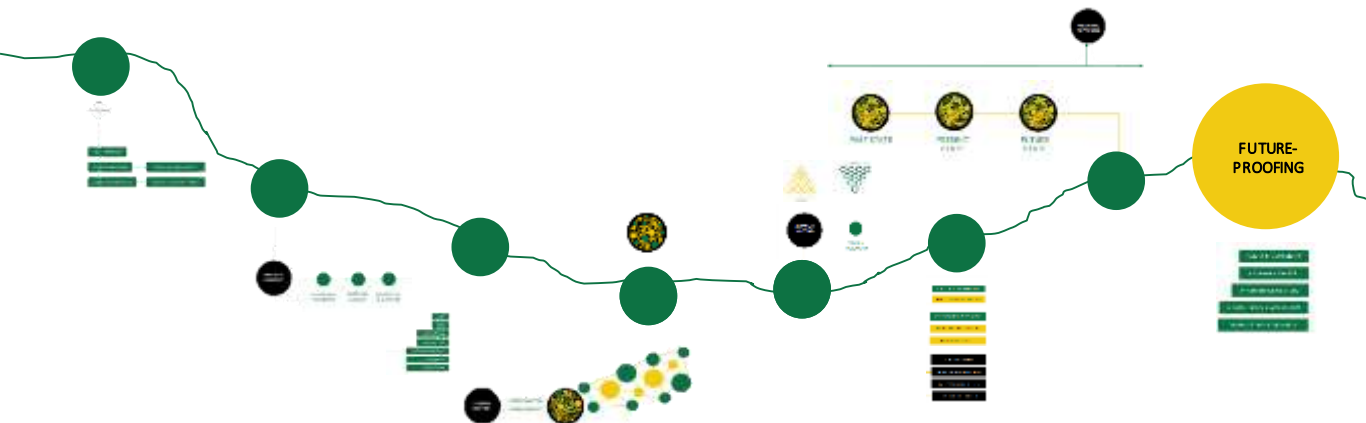
HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia





WHAT WE SEE

HOW WE NEED TO SEE

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

HK>A

Project Controls  
EXPO  
Melbourne, Australia

# COMBATting COMPLEXITY UNDERESTIMATION

THANK YOU FOR LISTENING

QUESTIONS?



FUTURE-  
PROOFING

Jessica Schilling

Management Consultant, HKA

RISK MANAGEMENT ON INFRASTRUCTURE MEGAPROJECTS

