

# SWISSED23

Team of teams, system of systems

## *ITHAKA*

*The knowledge journey of a System Engineer  
through a system's life-cycle*

*Its challenges, uncertainties, inner and outer relationships,  
teams, methodologies and tools  
inspired by "Ithaka" the poem of Kostantino Kavafis*

*By*

*Leardi Carlo*

*AISE, INCOSE Italian Chapter, Director of Events*

# SWISSED23

## Team of teams, system of systems

# *Leardi Carlo*

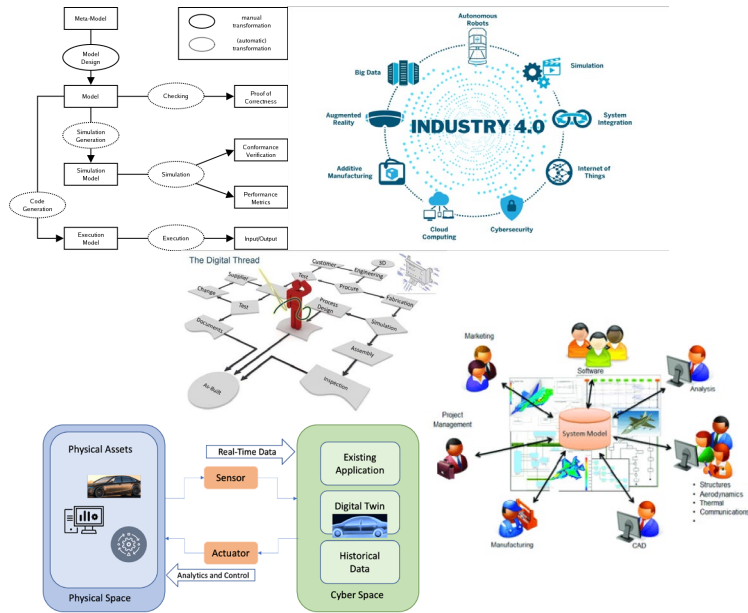
*AISE, INCOSE Italian Chapter, Director of Events*  
*carlo.leardi@incose.net*



**Carlo Leardi**, graduated in electronic engineering in Genova Italy.

His professional background starts with quality assurance responsibility evolving in the last years to full verification, validation and testing commitment within complex systems development deployment projects in the following areas: automotive, freight railways and packaging industry. As a passion before and today as a full job, he is dealing with Quantitative Systems Engineering on a day-to-day application and coaching of a full range of statistical and simulation methodologies supporting the decisional process. He published several articles in Engineering and Systems Engineering journals. He is certified CSEP, one of the founders and past President of the INCOSE Italian Chapter and founder of AISE, the Italian association of Systems Engineering. He taught at the Systems Engineering Master, ForteMare and Strategos. He is serving the Incose Italian Chapter as director of events and coordinator of the Verification, Validation and Operation working group.

# Looking head and believe



Availability to adopt several new methodologies:

Modelling and simulation, MBSE, industry 4.0, digital thread and twins

A few, envisioned stakeholders

A common vision and mission

The idea, needs elicitation

Uncertain SoS scenario evolution

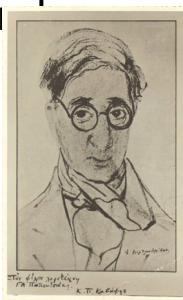
Uncertainty on technologies effectiveness and sustainability

Opportunities and challenges



Secure value for the customer in VUCA times: volatility, uncertainty, complexity and ambiguity.

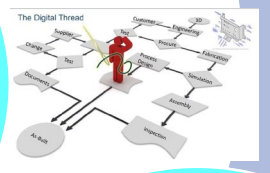
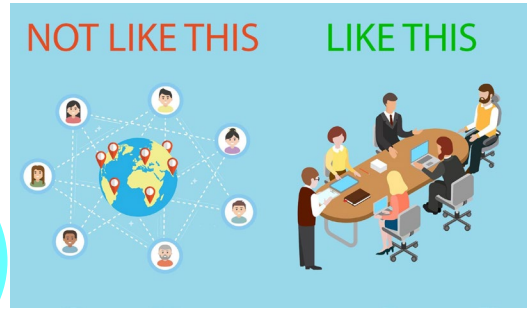
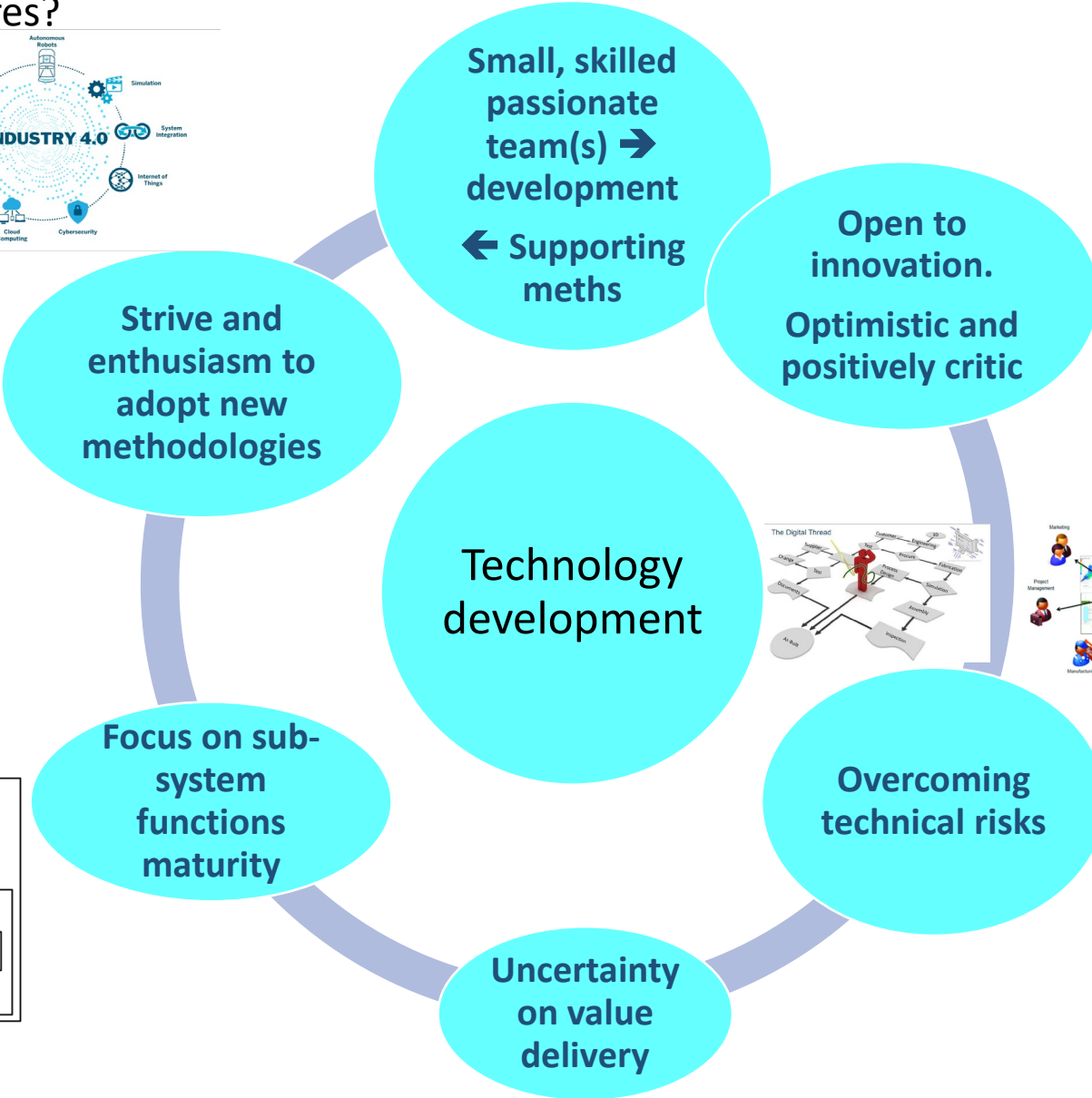
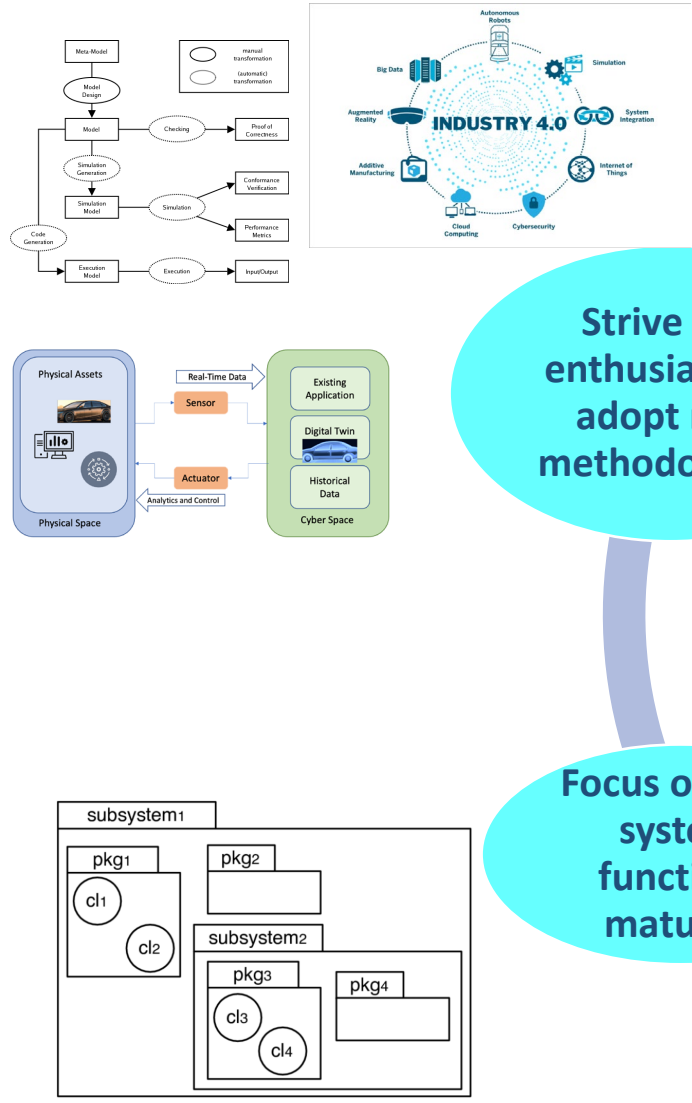
Increasing complexity



*As you set out for Ithaka  
hope your road is a long one,  
full of adventure, full of discovery.*

Low hanging fruits  
What available? Gap analysis.  
Sustainable architectures?

# Time for enthusiasm and sweat



*Laistrygonians, Cyclops,  
angry Poseidon don't be afraid of them:  
you'll never find things like that on your way.*

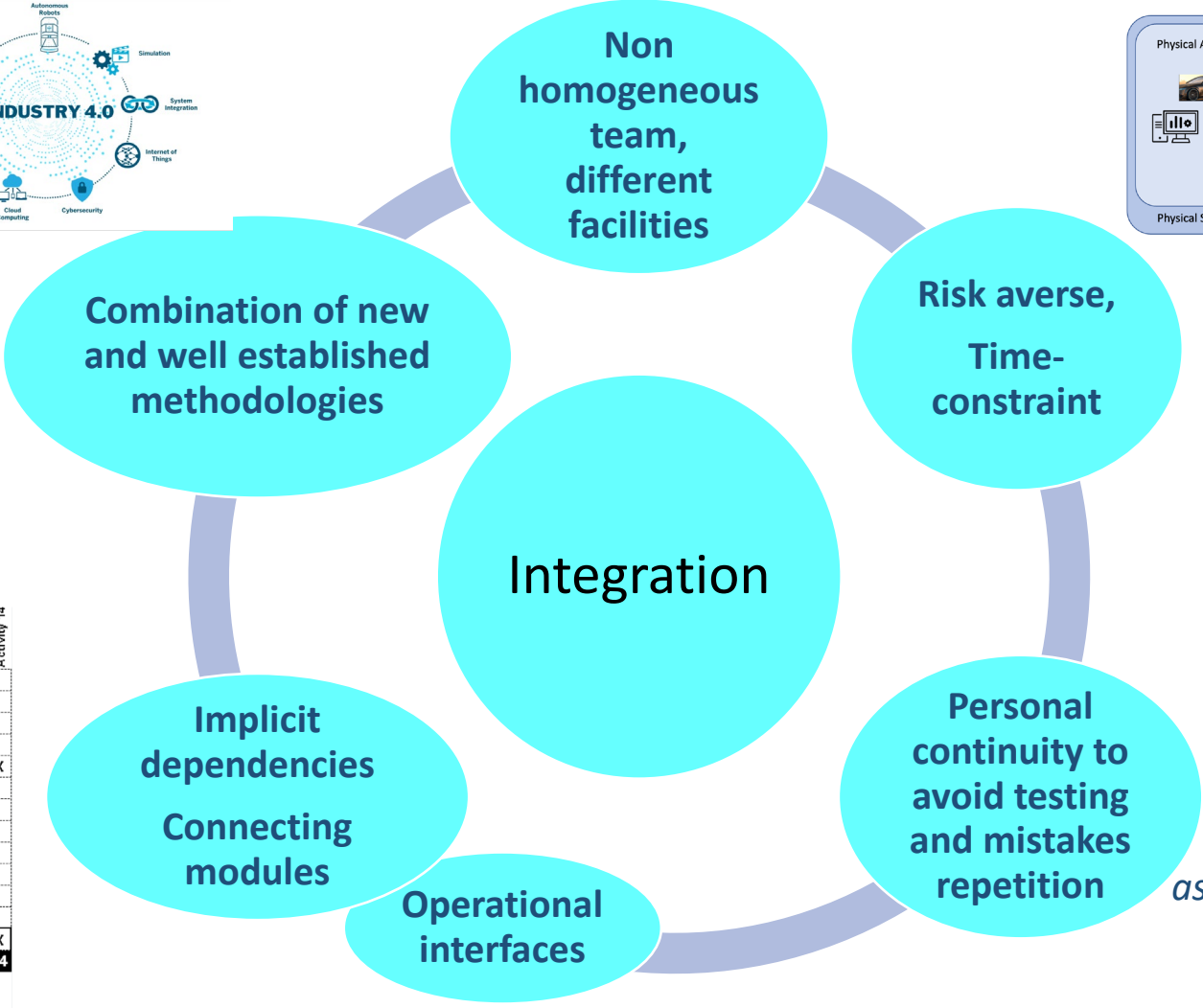
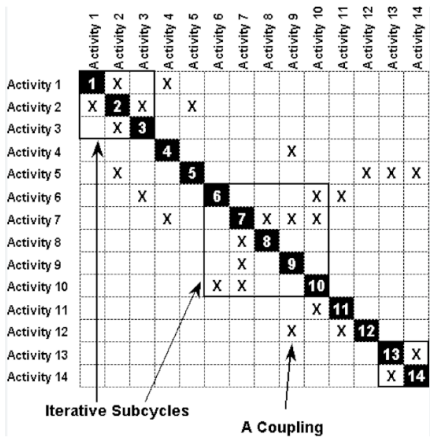
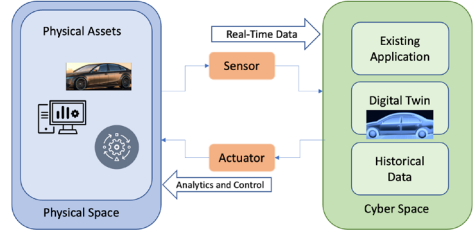
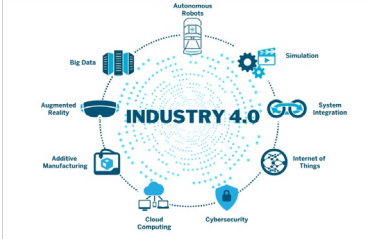
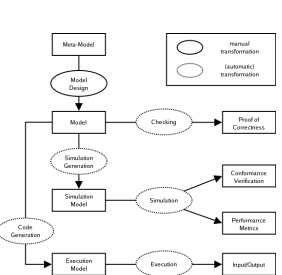
Optimize info/effort cost

Integrate Models!

System view and operations

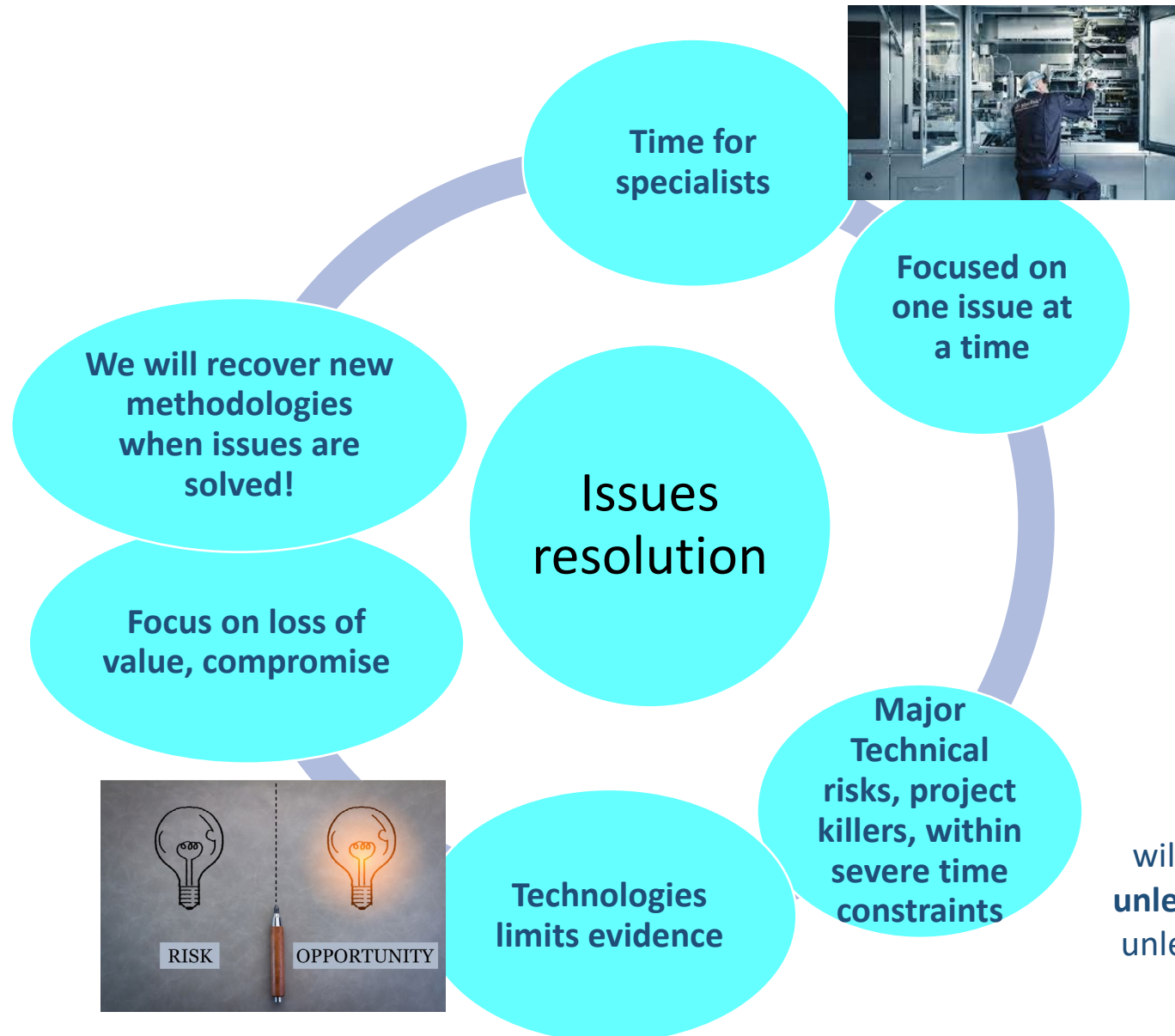
“New” systemic methodologies and tools

# Put together, if you can...



*as long as you keep your thoughts raised high,  
as long as a rare excitement  
stirs your spirit and your body.*

# Make and re-make

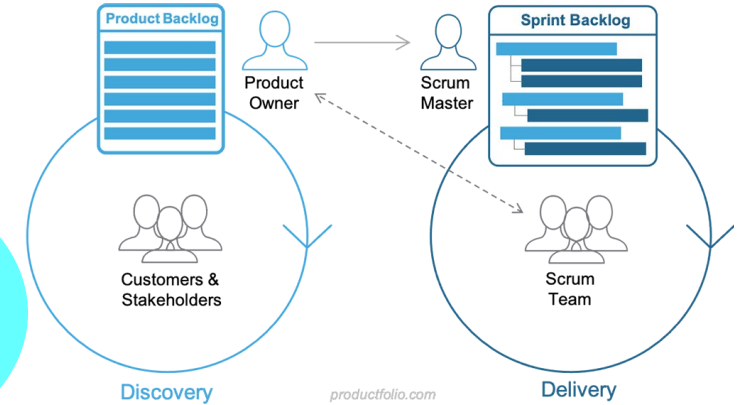


Laistrygonians, Cyclops, wild Poseidon—**you won't encounter them unless you bring them along inside your soul, unless your soul sets them up in front of you.**



# Trial by fire

Specify ConOps while envisioning  
What can be transferred to customers of the  
implemented methodologies?



## MVP

New team.  
Strict  
cooperation  
with local  
market  
department

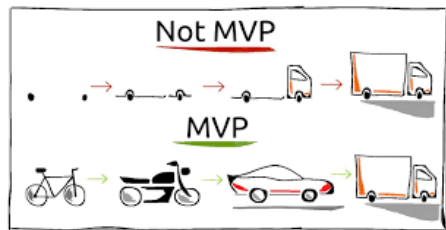
Every attack  
starts from a  
good defence.

TTM, before  
everything

Opportunities,  
first evidences  
and projections

Involvement of  
customer in  
methodologies

Focus on  
immediate  
value

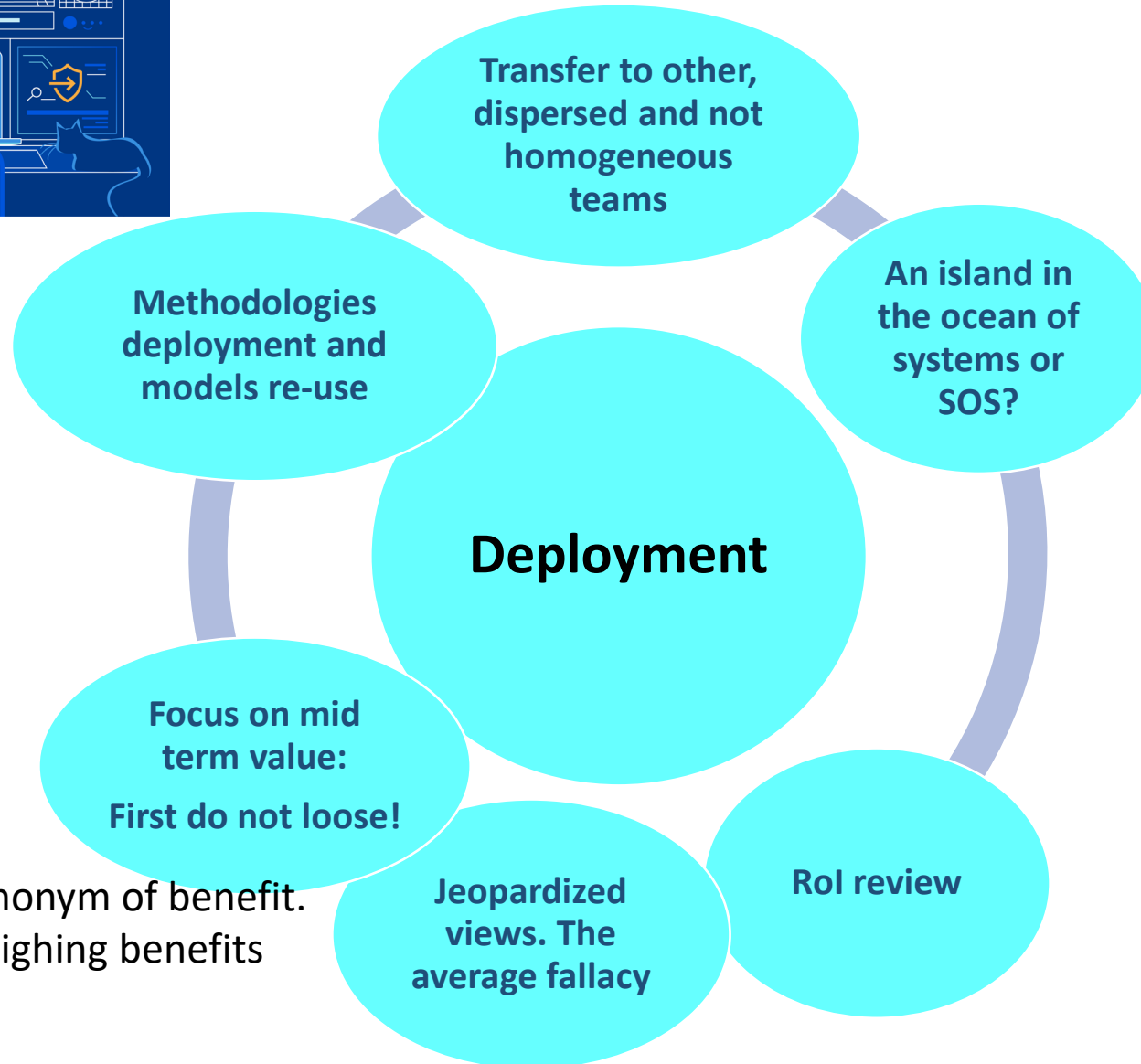
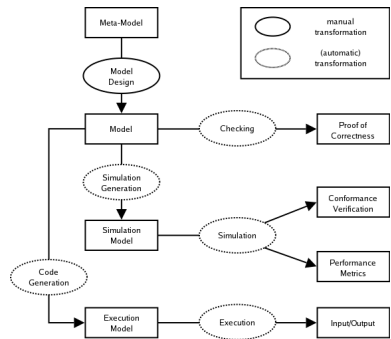


*Hope your road is a long one.  
May there be many summer mornings when,  
with what pleasure, what joy,  
you enter harbors you're seeing for the first time;  
may you stop at Phoenician trading stations  
to **buy fine things**,  
mother of pearl and coral, amber and ebony,  
sensual perfume of every kind—  
as many sensual perfumes as you can;  
and may you visit many Egyptian cities  
to **learn and go on learning from their scholars**.*





# Hide and seek



Value is not a synonym of benefit.  
 It arises from weighing benefits and sacrifices.

*Keep **Ithaka** always in your mind.  
 Arriving there is what you're destined for.  
 But **don't hurry the journey at all.**  
 Better if it lasts for years,  
 so you're old by the time you reach the island,  
 wealthy with all you've gained on the way,  
 not expecting Ithaka to make you rich.*



# What remains?

Original team  
of teams, if  
feasible.

Time for  
reflection

Methodologies and  
models info/effort  
ratio

Value/effort  
ratio

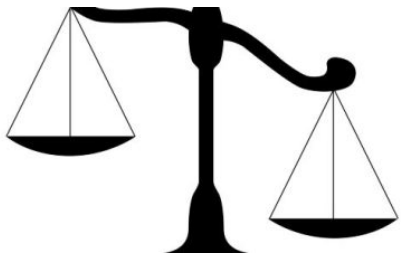
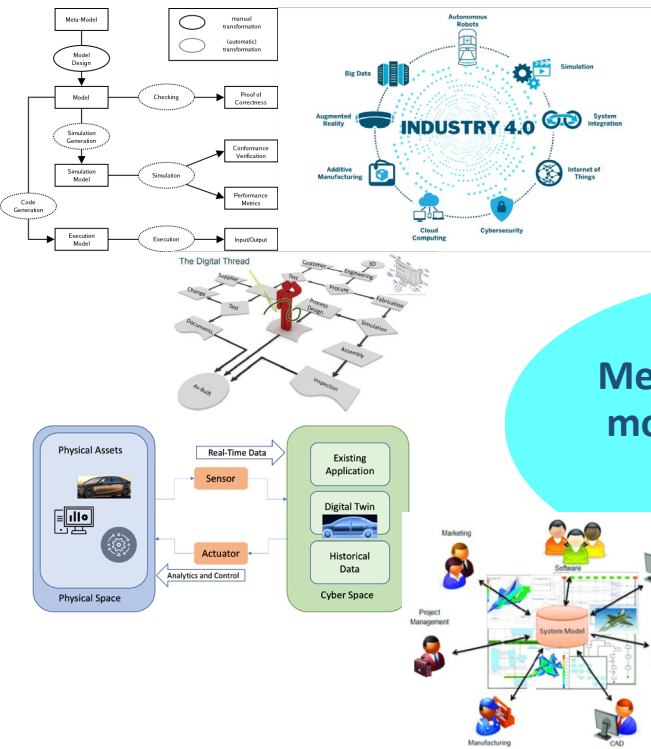
New  
opportunities  
with Next  
methodologies

Was it worth?

Lessons  
learnt



*And if you find her poor, **Ithaka** won't have fooled you.  
Wise as you will have become, so **full of experience**,  
you'll have understood by then what these **Ithakas** mean.*



# Wrap-up

Teams diversity in terms of numerosity, homogeneity, focuses, skills deeply impact the System and System of Systems life-cycle.

Methodologies/tools pass from “enthusiasm” to “challenges and struggle”. If properly supported some of them deliver value and get part of the company “best practices” portfolio.

Opportunities and risks continue their “tug of war” hopefully reaching the desired equilibrium necessary to deliver value with continuity and minimizing quality losses.

Uncertainty changes aspect according to scenario and successful implementations.

