CoopGo consulting

Chance and Necessity

THE DIMENSIONS OF SHIFTING CHALLENGES IN A CHANGING WORLD AND WHAT WE CAN LEARN FROM NATURE

A summary of +40 years of project experiences

An Uncertain World Needs Flexible Answers

- Short-term technical vs. long-term fundamental challenges
- Diversity of supply chains in terms of size, partner and location
- Opening internal business strategy towards global responsibility
- Sustainability and resilience as base for stability

Evolution – the big Principle of Nature

Jacques Monod, biologist and Nobel price winner condensed the result of recent scientific cognition about the drivers of change by two nouns in his book title about a natural philosophy about modern biology

Le hasard et la nécessité

Chance and Necessity

A random change of conditions will cause

- **Adaptions** by selection but also by switches to drive
- **The need to change yourself** (behaviour, shape, functionality etc.) which will finally
- **Fit the new conditions.**

This evolutionary principle **is unique for all life** on earth and also for all human actions.

Thus economy is always a human action and so far embedded in this principle:

Human behaviour and natural impacts may both have probabilities but they are never predictable.

Planning – the big Human Misunderstanding

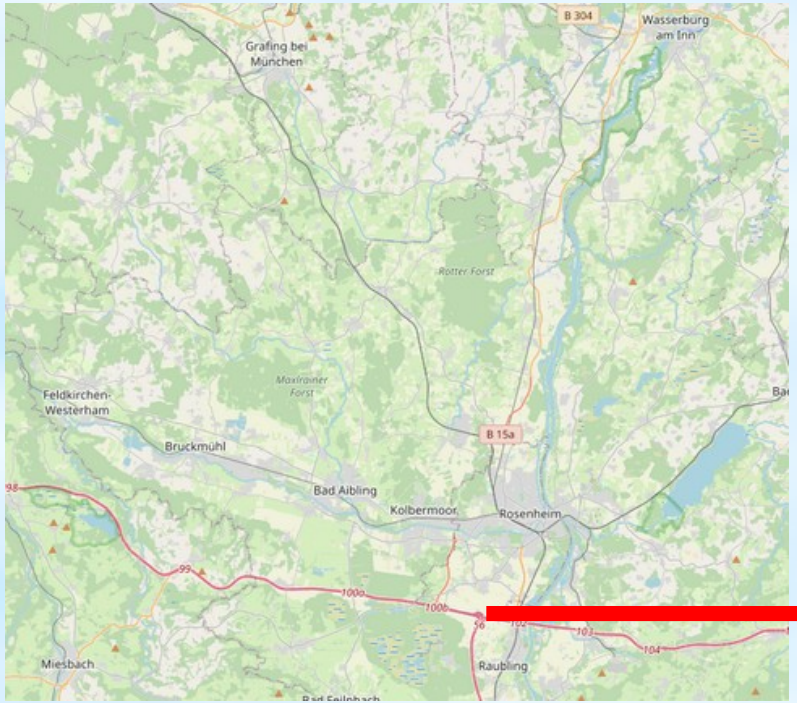
All our plans will become more or less useless by unpredictable chance and missing necessity

- Extreme weather conditions will raise by climate change
- Shrinking resources will cause supply problems
- Politics and war destroy common logistic lines and suppliers
- Traffic jams and broken infrastructure disturb just in time production

- Will technical improvements be enough to fight this challenge?
- Will extended exploitation assure sufficient supply?
- Will new transportation routes solve the problem permanently?
- Will more trucks be a solution?

Is planning sufficient or is there something, we can learn from nature?

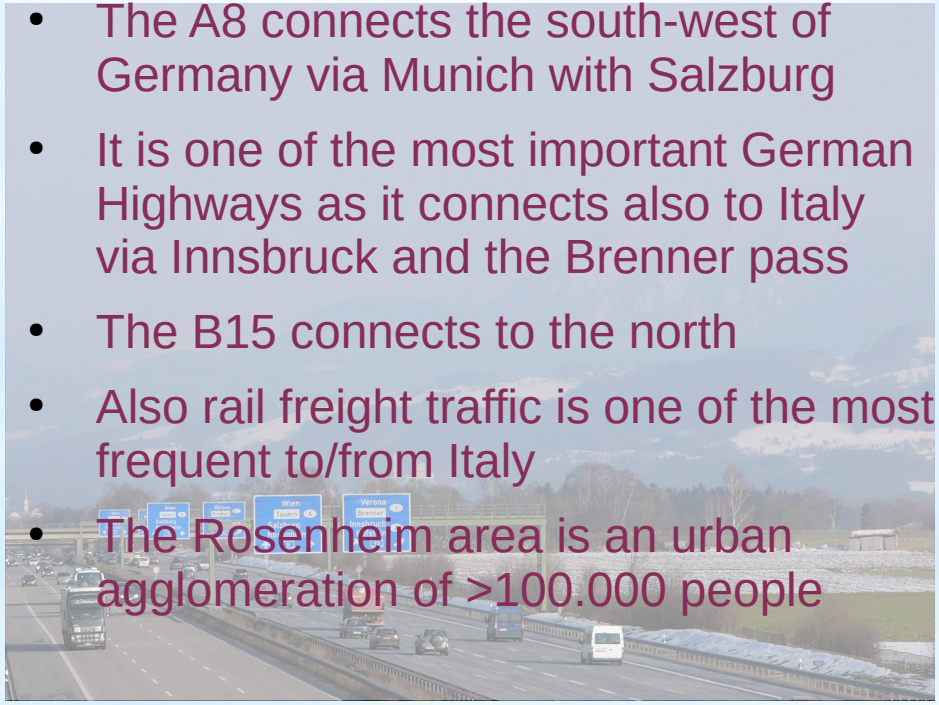
Comparing a River Ecosystem to a Supply Chain



Looking at the Inn’s Natural and Human Environment

- The river crosses the Alps over 200km in west-eastern direction
- At Kufstein it turns to the north and passes an old glacier lake which is now a dry basin.
- Through the Alpine foothills it leads into the river Danube
- It is the fastest flowing river in Germany
- The Basin is now an important moorland and alluvial reservate

- The A8 connects the south-west of Germany via Munich with Salzburg
- It is one of the most important German Highways as it connects also to Italy via Innsbruck and the Brenner pass
- The B15 connects to the north
- Also rail freight traffic is one of the most frequent to/from Italy
- The Rosenheim area is an urban agglomeration of >100.000 people



Geology Forms Logistics And Supply Chains

- The topographic situation concentrates traffic as the Inn valley is the natural gate to Austria and Italy
- The location is interesting for many SME businesses as it is a hub between great economic centres
- Growing business causes massive problems by traffic congestion on road and rail

- Lessons to learn:
  - Look out for upcoming problems when looking for new locations or logistic routes
  - Build alternatives for suppliers and routes, grids are more resilient than lines
  - Set up switches in your supply chain for situational reactions
  - Cost dropping may become lethal ⟶ show-stoppers can cause the end of business

A River Ecosystem is also a Supply Chain

The river Inn at km 171 looks like a wild river in beautiful nature.

But Massively Influenced by Human Impacts

So it looks at km 173

The Result of River Shoring and Earth Warming

The flood in june 2021 with the same height before and behind the barrage

Damages and Risks by Human Influence

- To nature:
  - Faster eroding of the river's bed
  - Destroying of the riverbanks
  - Lowering the level of ground water
  - Stopping the dynamics of alluvial forests and flood areas
  - Reducing species diversity
    - Erasing spawning grounds
    - Dry out of alluvial forests
    - Changing regularly flooded areas to permanent basins or gravel banks
    - Polluting by agricultural fertilisers

- To supply chains
  - Interruption of shipping on rivers
  - Shortage of cooling water for power plants ⟶reduced energy supply
  - Shortage of water for production processes
  - Risk of extreme flooding by extreme raining
    - stock damages
    - Production interruptions
    - Transport interruptions

The Sense and Nonsense of Adaption Strategies

- Coots build their nests at the reed edge mostly on floating wood
- Changing water levels will never be a problem.
- The brood will grow up successfully

- Local authorities planned an industrial zone in a flood prone area.
- Prevention was demanded by stronger concrete foundation and barrages.
- But higher floods damaged the higher floors as well 5 years after

The Result of Bad Planning + Nonsense Adaption

The July 2013 flood:

- 4 logistic centres lost their stock goods
- One furniture shop lost their joinery machines
- A car dealer lost 2/3 of his new cars
- Many houses flooded
- Higher than the calculated 100year flood event

Natural Systems Never Base on Planning

Economics teach **precise planning** – projects, supply chains, production figures, market penetration, time schedules etc.

But unpredictable Chances force the Necessity for Change

The biological principle of chance (which action?) and necessity (perform this action!) is the basic genetic functionality Monod found by his research on bacteria E. coli. And it is also feasible in complex biologic systems so, it is essential for all organisms.

So far, the first thing economists should learn from nature:

Planning may be a base but,

evolutionary development is performance for stability, resilience and continuity even under unpredictable conditions

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