



System mapping for circular systems

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How can you make complex circular systems visible, discussable and manageable?

Circular ReX pathways often seem logical on paper, but in practice they run into hidden dependencies, delays and lock-ins. System mapping makes that dynamic visible. It helps you see more quickly where the real levers are and which choices move your circular strategy forward.

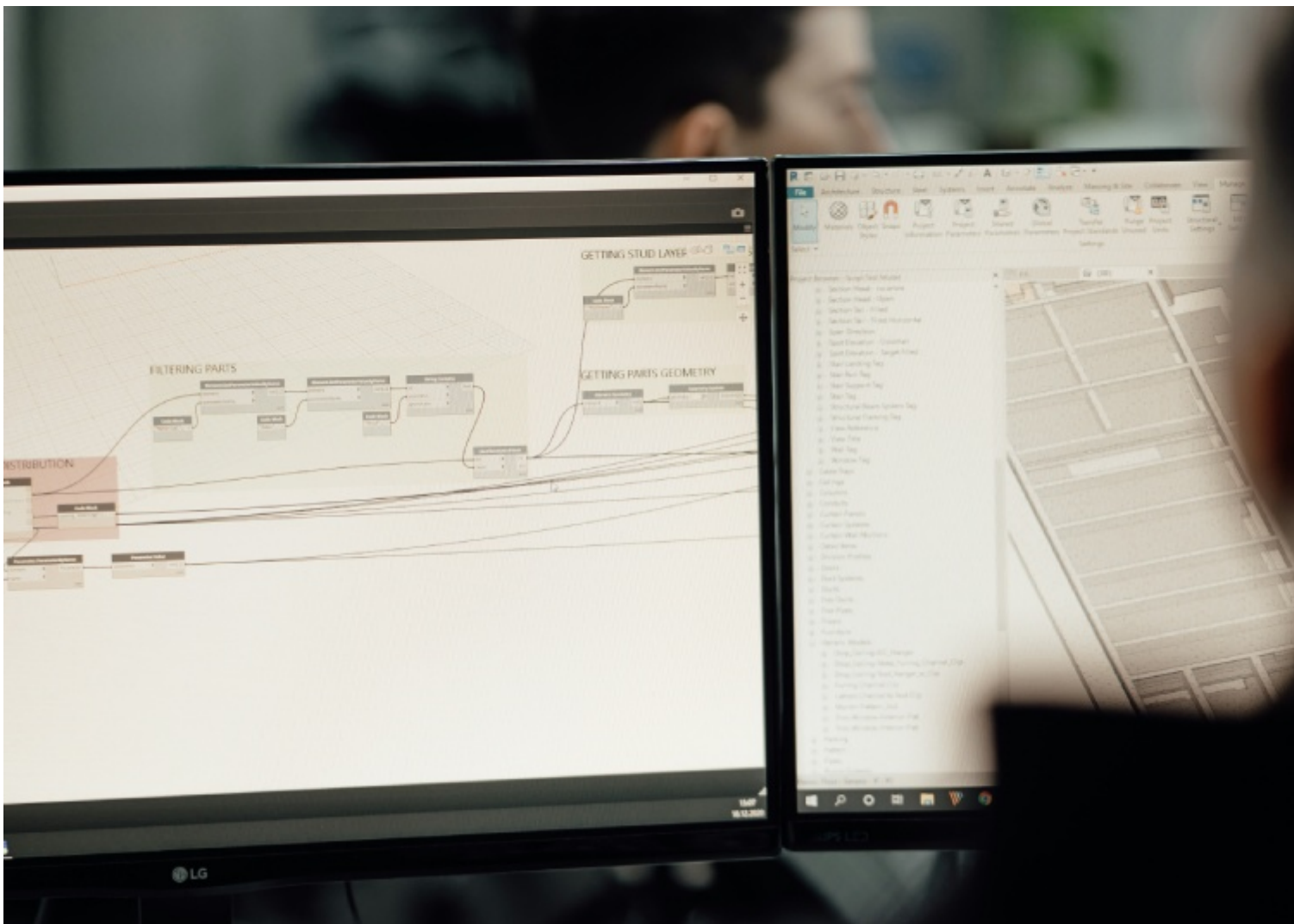
In our blog series, you discover how to use system mapping effectively in complex circular value chains. You learn how to define causal relationships more precisely, apply stock-and-flow thinking, recognise system lock-ins, choose the right level of detail and translate workshop insights into a useful system view.

What can you expect?

1. [Recognising conditional relationships in your system map](#)
2. [Applying stock-and-flow thinking in a CLD](#)
3. [Understanding why circular systems get stuck](#)
4. [Choosing the right level of detail for your system map](#)
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1. Recognising conditional relationships in your system map

A causal relationship can sound logical while still hiding important conditions. Consider this statement: “Greater acceptance of ReX among end customers leads to more availability of use phase data.” That may seem correct, but data does not appear by itself. You also need sensors, tracking, data sharing, interoperability and agreements on data ownership.



A good causal loop diagram makes those hidden system conditions explicit. This helps you avoid “magic arrows”: links that seem plausible, but only work in practice when other factors evolve as well. It

helps you see more quickly where interventions can really have an effect.

[Read more about conditional relationships in CLDs](#)

2. Applying stock-and-flow thinking in a CLD

A CLD is not a simulation model, but it does show how system behaviour emerges. That is why the difference between what accumulates and what drives change remains important. ReX capacity, installed base and market trust build up over time. Investment rate, return rate and refurbishment throughput drive change.

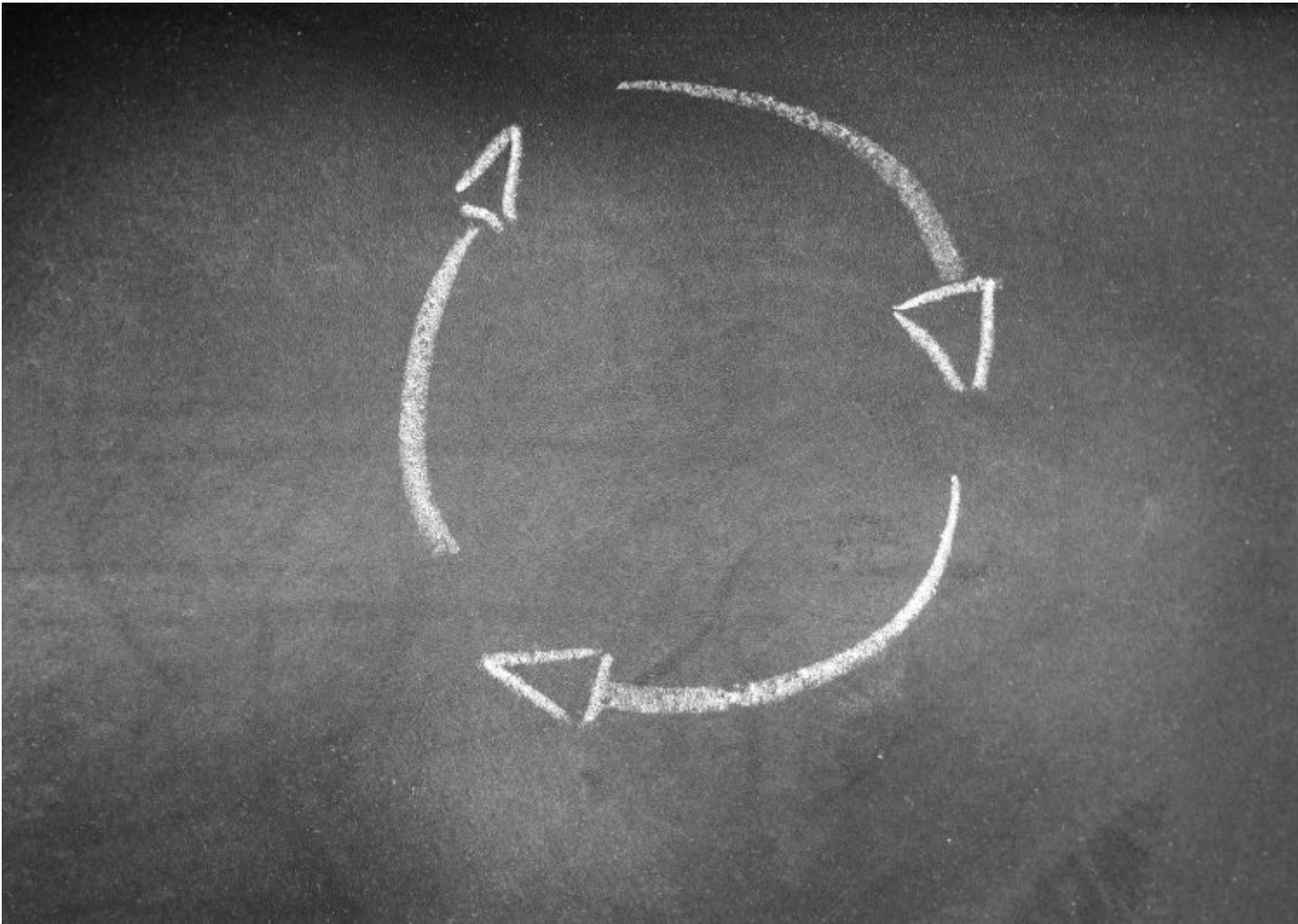
Without that distinction, effects often seem too fast or too simple. You then miss delays, inertia and accumulation. By naming variables precisely, you see more clearly where the system has memory and where real leverage can be found. Some variables, such as adoption rate or failure ratio, are best treated as derived signals of broader system dynamics.

[Discover how stock and flow variables work together](#)



3. Understanding why circular systems get stuck

Circular systems do not change slowly because nobody acts. They often remain stuck because feedback loops reinforce, slow down or balance each other. Sometimes this is a classic balancing loop. More often, it involves competing growth loops or a self-reinforcing lock-in.



That distinction is crucial. If you think a system is balancing, you steer with subsidies, targets or parameters. If you are actually dealing with a lock-in, those interventions are often absorbed. In circular transitions, the challenge is rarely about balancing. It is about shifting dominant feedback loops.

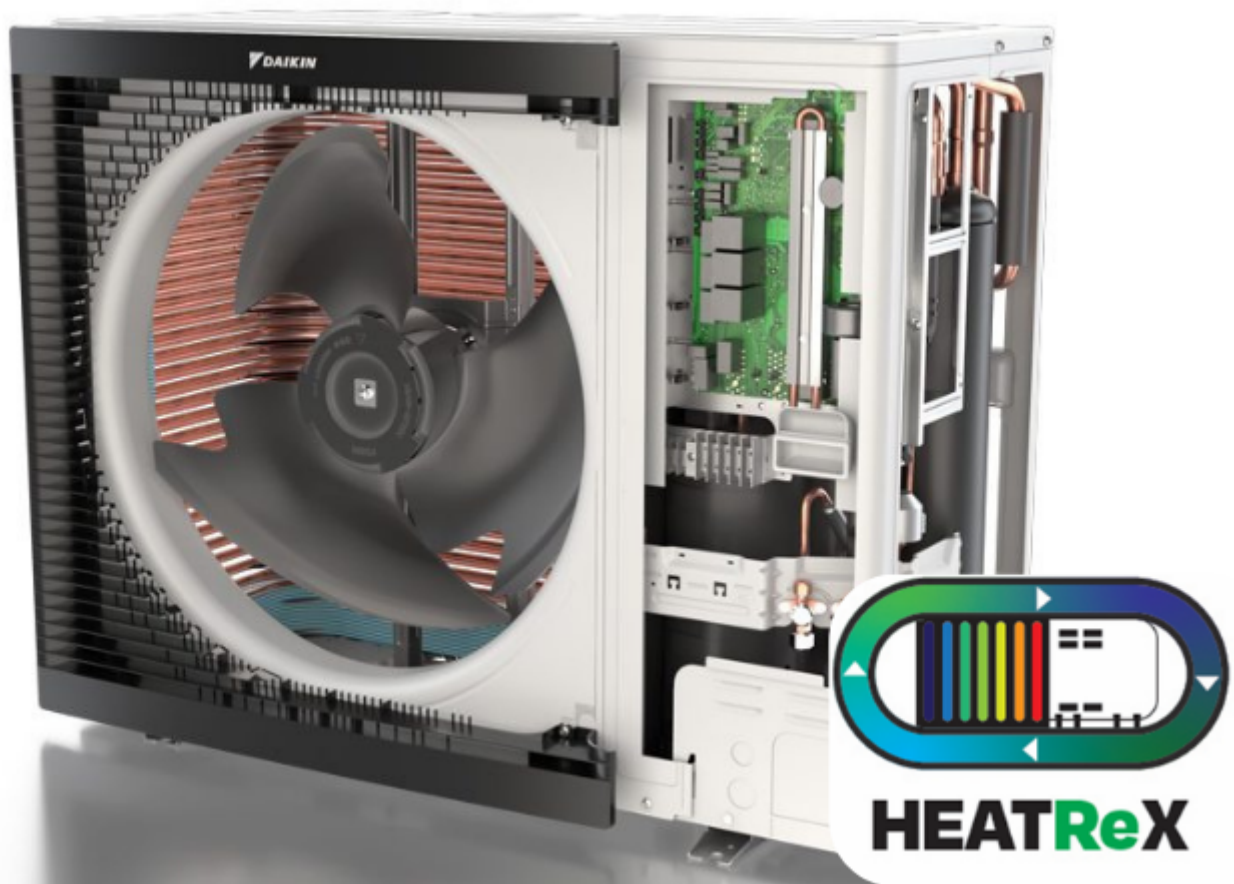
[Read more about system equilibrium and lock-ins](#)

4. Choosing the right level of detail for your system map

The best system map is not the most detailed one. It is detailed enough to reveal the right dynamics. A map that is too simple misses important interactions. A map that is too complex loses clarity and becomes difficult to use in workshops or decision-making.

So start broad. First map the main lines and key feedback loops. Then refine only where mechanisms truly differ. In ReX, one umbrella term can be useful for clarity. But repair, refurbishment and parts harvesting often need separate attention when they have different effects or compete for the same resources.

[Discover how to choose the right level of detail](#)



5. From workshop to useful system view

System mapping is not just about visualisation. It is a process that connects co-creation, analysis and decision-making. Within [HEATReX](#), we combined workshops, system scans, AI support and tools such as Miro and Kumu into a pragmatic workflow.



A strong system map starts in the workshop. Work with clear variables, explicit relationships and a simple table behind the scenes. AI can support harmonisation, tagging and quality control. The real value comes afterwards: when you use the system map for analysis, stakeholder dialogue and targeted choices.

[Read more about the pragmatic system mapping workflow](#)

Ready to get started with system mapping?

Do you want to accelerate ReX in your company or value chain? Sirris helps you make system relationships visible, find hidden levers and develop scenarios for scalable circular solutions.

Discover the HEATReX Living Lab

Contact us

HEATReX | Accelerating circular value retention

[HEATReX](#) explores how reuse, repair, refurbishment and remanufacturing can become scalable in complex value chains. Through system mapping, Sirris works with companies and partners to identify the main barriers, feedback loops and levers.

[Discover the HEATReX Living Lab](#)

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