No	Company			Experience	
	Field	Size[1]	Description	Relevant	Further
4	Solar	3.5k	Technical Manager	8 years	

[1]k = 1,000

Similarities and Differences - Overlaps and Deviations in Terms of Objectives, Methods and Underlying Philosophy

In order to enable or promote R-strategies, a platform strategy should be established for products, components and materials.

5 Why, 8D, Six Sigma and also Poka-Yoke are used in many areas of the company. 8D offers the opportunity to bring together areas such as development, quality and management, especially in the B2C sector. Error cases can thus be discussed in a structured manner, which helps to reduce waste in the context of LM and CE, especially with regard to cross-product topics. Development should already consider R-strategies at an early stage and assess repairability in connection with the respective sales market. The repairability of errors should be monitored using a corresponding quota (e.g. 80%). Poka-Yoke is ideal for easy repairability. Smart error detection by the product itself can support a targeted discussion on prevention and automate the repair process. The recycling rate in sourcing is a useful parameter for reducing the cost of raw materials. Good exchange processes with the customer benefit in mind enable the connection of LM and CE. The customer quickly receives a replacement from the pool of refurbished or repaired devices and the returned product is repaired and then goes into the pool. Error-dependent KPIs serve the KVP and can also provide feedback for production via shop floor management (Andon Board). 5 Why helps to structure the processing of errors and the documentation in the course of PDCA helps to improve the process.

Conflicts between LM and CE arise in some areas. LM aims for less transport, while CE increases transport costs. If the responsible areas are largely autonomous and only improve their own KPIs, this will conflict without corresponding specifications from the company management. Clear guidelines and objectives for CE aspects are essential for guidance in order to define the framework for action for the individual actors and to measure success.

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Synergy Effects and Target Conflicts - Interactions and Results in the Joint Implementation of CE and LM

Synergy Effects and Target Conflicts - Interactions and Results in the Joint Implementation of CE and LM

Regional production offers advantages. Security of supply increases and transport distances are shorter. For customers, production within the EU or regional value creation is now considered an important purchasing argument. In contrast to decentrally distributed locations, however, centralized production locations result in more transport costs, especially in international trade. Decentralized repair can improve service and at the same time reduce corresponding costs. Likewise, regional production locations can react more quickly and better to local conditions, customer requirements and legal regulations.

Synergies within products should be used. LM and CE should be developed jointly and corresponding platforms for product groups should be established. In doing so, companies should design green KPIs and not just consider CE as a by-product of LM. To this end, it would be important to clarify which CE KPIs can be linked to positive corporate effects. Ultimately, products must be sold and not serve a purely self-serving purpose. Manufacturing costs, e.g. for the consumption of energy, compressed air and cooling water, are often declared as fixed operating costs and are therefore neither tracked nor questioned. Accounting and corresponding targets must be wanted and pursued by the company management. A stronger focus on R-strategies and the cost/benefit of measures must be clear. VSM can be used to record the material flow and the associated consumption. Costing only at the expense of the environment or personnel was often the management credo in the past, but avoiding pollutants or emissions can also have positive business results. It is important to have appropriate monitoring in place to make informed decisions. For example, the use of adhesives can negatively affect the repairability of components and is therefore avoided. Plugs and cables are designed to be interchangeable. High quality results in long warranty periods, which in turn are guaranteed by LM in the sense of CE. Especially for more expensive products or electronics that are necessary for the operation of systems, guaranteed availability of the service is considered crucial by many customers. However, technological progress, changed market conditions or legal regulations do not always allow for continued use or repair. In addition, certain components cannot be stored forever. The influence of suppliers can also be problematic here. If components are discontinued, replacements cannot always be procured new. AAS approaches and extended functionality (e.g. live monitoring) also have potential for customers. However, AAS is less accepted by customers for low-priced products, especially with long warranty periods, and the purchase price often counts when making a purchase decision.

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Further Thoughts on Strategies, Methods and Tools

Repair and refurb workplaces are often less automated and troubleshooting can take experts a lot of time. This means that a new product quickly becomes cheaper. Accordingly, R-strategies must be considered in product and process design. For example, automated error analysis and serialized preparation. In this context, subsequent measurability and a general ability to disassemble are important aspects.