

# Digital on-Demand Recycling

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## The origins of DoD

Digital on Demand is used in the oil industry. This industry is faced with a complex input, the crude oil, and at the same time a huge number of clients that use the input for a wide range of applications. Products such as kerosene, diesel and bitumen are made in a refinery from the crude oil. By tuning the chemical and physical conditions in reactors, a refinery can determine which products get produced.



## Linear optimization

This requires a big operation that is controlled by a linear optimization program. This program works in two ways:

1. It considers the orders from clients, checks what the refinery has in stock and then defines the best settings for the reactors to satisfy all customers.
2. And if the incoming crudes are not ideal for the products that the clients need, then it can decide to change crudes.

This process involves a large number of variables that can only be optimized digitally.



## The recycling industry

The concept of Digital on Demand can also be realized in the recycling industry, but this is currently not the standard. At this moment, the recycling industry is largely subsidy-driven. This means there is less incentive for recyclers to produce high-quality products. This status quo, where very little information is used, can be handled by hand and does not depend on much technology.



## The essence of DoD

From the example of the fossil supply chain, the essence of DoD can be concluded:

1. Amounts and qualities of material flows are recorded digitally along the supply chain.
2. The production processes are demand-driven.



## DoDR in the recycling industry: the next steps

How can Digital on Demand be incorporated in the recycling process?

1. All products are inspected to check if they fit the demand.
  2. This data is incorporated in the process to be able to change the parameters upfront.
  3. Before producing, it is determined if the purchased waste is suitable to create the desired products
- All this information is again handled by digital optimization.

