Recycling

We have written about this topic before, but it's growing in importance and worth reconsidering. We usually define business processes in this way: Business processes take inputs and convert them into valued outputs. The dirty secret is that business processes take inputs and convert some of those inputs into valued outputs. Most of those inputs are, in fact, converted in waste bi-products that are simply thrown away.

To be more specific: In 2015 it was estimated that 93 billion tons of resources (minerals, ores, fuels and biomass) were extracted from the earth and then used in various business processes. Of that, two-thirds, or 67 billion tons of resources were ultimate generated as trash, waste or pollution (e.g. Carbon gas). 23 billion tons were turned into long-term capital (e.g. Housing, machinery, or goods that were retained by users). Only 9 billion tons of resources were reused in some manner or another. The goal of those who are concerned with long-term resource availability is to recycle nearly everything that is now being discarded as trash.

Looking at the global system as a single giant process, in 2015, the system took in 93 billion tons of resources as inputs and generated 23 billion tons of valued outputs. In addition, it turned out 67 billion tons of un-valued outputs which is disposed on in some manner, and another 9 billion tons of un-valued outputs which is converted to valued products which it recycled.

A classic example of a standard business process is the creation and sale of automobiles. An auto company consumes metals, glass, plastics, computer components, paint, and so forth. A car begins with a metal frame and gradually acquires parts and subsystems until it is finally a complete car, ready to ship to a customer. If the assembly process is well designed and efficiently executed there isn't much scrap. There are various bi-products like chemicals and gasses that are disposed of. Most of the inputs become valued parts of the output.

In some industries, however, we know that there are bi-products that aren't consumed. The water runs orange outside some plants as chemicals are flushed down rivers and the skies are gray with smoke as still other chemicals are released into the atmosphere. In some cases dumps are filled with materials left over after manufacturing is complete. Smart companies have been looking at this problem for a long time. In an ideal world, it would be nice to think a company could make a little more money by selling its wastes to someone else who could use it as input for some process they performed. In some cases it's just a matter of collecting bi-products and shipping it to someone else. In other cases the bi-products need to be processed, converted from one chemical to another perhaps, and then sold. In other

cases bi-products can be reprocessed and used again in the same industrial operation.

In some cases items sold to customers can be reacquired and reused. One thinks of soft drink manufacturers reacquiring bottles or cans and reusing them, or computer companies arranging to reacquire batteries or screens. Increasingly, as acquiring new materials becomes more expensive, recycling saves money and increases profits.

In the same sense that chemicals can be recycled, some energy can be recycled. Plants whose processes generate heat can install ducts and move hot air to other locations to provide heat for other plants or homes. In Copenhagen, Denmark, a new trash incineration system converts some 500,000 tons of waste a year into electrical energy that is used to heat and provide electricity for some 30,000 homes. (In spite of this, Copenhagen has announced that their long term goal is to eliminate trash altogether, and recycle material that is now being incinerated.

Many companies have focused on customers and on the ways their products are disposed of. One can think of a product as linear – it's created, sold, used, and then disposed of – or one can think of a product as part of a cycle – created and used, recycled and then used again. The latter requires thought about how one might get the product back after the user is done with it. Perhaps an arrangement that rewards customers for trading in the product for a new one.

In focusing on consumers, one strategy is for companies to work to get consumers to change their tastes or expectations. If consumers demand products encased in plastic containers, then plastic containers will become trash once the consumers get the product home. If consumers can be educated to wish to avoid the unnecessary generation of plastic waste, and products are wrapped in more easily recycled products, or simply sold unwrapped, then trash generation can be reduced.

All of these approaches can be diagrammed using process diagrams. Most of us are aware of the ways in which process diagrams can be used to show how multi-company supply chains operate. In essence, a diagram is divided into sections to show what portions of a process occur within a company and what parts happen as things pass between companies.

In a similar way, diagrams can be created to show how marketing delivers products and another division provides services when the product needs to be repaired. In this case one creates a customer process and shows how the customer interacts with different divisions to buy products or obtain services.

Increasingly, smart companies are going to want high-level process diagrams of their major value chains that not only show inputs and then generation of valued outputs, but also picture what is recycled, what trash is generated, and how customers dispose of theproducts and packaging that they buy. Everyone involved

needs to be aware of what is actually happening: The generation of trash, as well as the generation of value. Efficient use of resources, recycling and waste generation need to mapped and kept in front of decision makers as they evolve business processes.

The world isn't getting simpler. Many resources are getting more costly. Energy prices are likely to go up. Laws to control the disposal of wastes are likely to become more onerous.   Increasingly organizations need to think about how they can make their processes more efficient and self-sufficient.

Reusing what is currently considered a useless bi-product can be a major win in many different ways. Helping customers recycle, saving customers and your organization money can be another big win.

Someone needs to focus on this set of problems, taking a very broad view. That someone needs a process perspective. They need to think of just what flows into each major company process and just what flows out – as product, and as waste. Then they need to think about how each process could be rearranged to reuse resources that have already been acquired and to reduce wastes. This may require working with other companies in other industries to see how wastes your company produces might become inputs for one of their processes. Similarly, this work may require thinking about how customers use your products and how you could help them recycle used products.

As we say, this requires a process perspective. It ought to be a function of a process group, if your organization has such a group. If not, someone with process training needs to seek an appointment to study the possibilities. Some jobs may disappear in the future, but this job won't. The world needs people who can think about better ways to arrange and integrate business processes to make organizations and societies more efficient and less wasteful.

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