



Environmental Sustainability

Introduction

The awareness of manufacturing sustainability and environmental impact has been growing for decades. More and more every aspect in life and the industry supporting it is being recognized as affecting the environment. As society becomes more knowledgeable about the environment, the higher the expectations become for manufacturers to go green and increase product sustainability in the united effort to protect the planet.

At Scodix, environmental sustainability lives in every element of a Scodix product and its lifecycle.

Scodix has four main environmental sustainability areas to ensure success.

1. Industry transformation and digital manufacturing.
2. Product lifecycle sustainability.
3. Consumables and waste, from manufacturing to recycling.
4. Digital print ecosystem.

Please read this document carefully and learn more about how Scodix, the pioneer and leader of digital print enhancement, is revolutionizing the industry by early adoption of sustainable strategy and the mission to bring environment-friendly products to the market.

Industry Transformation and Digital Manufacturing

Analog printing is still a viable technology in the print industry, being responsible for approximately 90% of total printed products. The birth of the digital printing technology revolution more than three decades ago though has changed the market completely and growing faster than any other print segment.

Scodix has brought this same revolution to the print enhancement market with all the advantages of digital manufacturing. Beyond the new commercial opportunities of digital print enhancement like personalized products enabled by variable data printing, or the operational excellence enabled by just-in-time manufacturing, one of the greatest superiorities of digital manufacturing is sustainability.

Analog print enhancement, as well as other analog finishing technologies, bring value mostly when used for large volume runs. When you need tens of thousands of the same product, analog is the natural selection. However, most analog manufacturing equipment has a rather large ecological footprint. The machines are commonly huge and require a large amount of energy to operate. The analog printing technics require molds, blankets, plates and dies made from natural resources such as metals or rubber, which are then disposed of. Since the efficiency of these presses comfortably resides in the high volumes, it is very common to see printing redundancies to justify the use of the equipment. Most of these excessive papers which require storage (meaning more real estate, extra energy to keep it in ideal conditions and other overhead) and the leftover are eventually disposed of.

Digital enhancement printing equipment is much more sustainable. First and foremost, printing is on-demand. Whether your job is one, dozens, hundreds or thousands of pages, the flexibility of digital enhancement printing enables you to print exactly what is required. If more is needed later, it can be easily rerun.

Scodix digital enhancement presses do not require any molds or plates. A print job is digitally proofed, printed instantly with inkjet technology, with almost zero setup time, no need for further equipment, and with almost zero waste.

Scodix enables their customers to print and enhance exactly what they need, when they need it, where they need it. It means that excessive printing enhancement and redundant paper are avoided, and the enhancement applications flexibility allows dynamic planning of production instead of inefficient manufacturing of volumes that are commonly left unused and discarded as waste.

Another benefit of the impact on the environment is near-shore manufacturing and the elimination of shipping. Having a digital enhancement press in-house means you eliminate unnecessary transportation.

To summarize, Scodix brings the digital advantage to enhancement printing with all the known digital benefits. While most discussions about the digital transformation focus on commercial opportunities, it must be remembered that digital enhancement is extremely more sustainable and environmentally friendly than other types of enhancement printing.



Product Lifecycle Sustainability

Scodix products are the result of extensive research and development investments. For more than 10 years, our engineers are continuously perfecting the technologies that are used in conjunction with Scodix digital enhancement presses. The Scodix processes are also just as important as the product result, so our focus is having the best-industrialized printing enhancement equipment with the most positive eco-friendly impact on the environment throughout the entire product lifecycle, from conception to grave.

2.1 Development

Scodix designed presses are durable so customers enjoy the benefits of a product with a long lifespan. It is common to see Scodix customers using Scodix equipment for long periods. It doesn't always make sense from a business perspective for this longevity, but it reduces environmental waste and adds value.

The engineering process of Scodix presses includes sustainability and the goal to protect the environment. Scodix thrives to out-perform any analog or digital enhancement technology in the market in the most sustainable way possible. The architecture of Scodix products enables the replacement, fixing and reuse of almost any component, so if a malfunction occurs, we can bring the equipment back to life quickly with minimal environmental impact.

2.2 Printing Operation

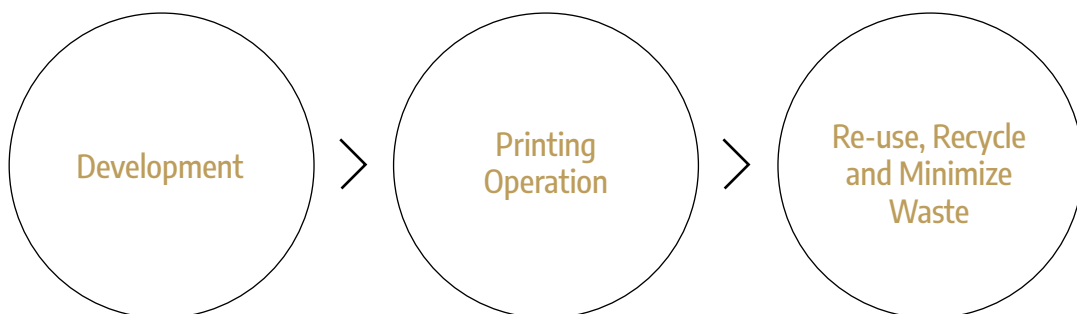
Cutting-edge technology is used when printing on a Scodix digital enhancement press. Each Scodix press creates the most beautiful and appealing products with the use of limited energy per sheet and almost zero waste.

One Scodix press replaces many machines such as varnishing, UV coating, hot foil stamping, silk screening and more. Having a single all-in-one Scodix machine allows Scodix customers savings on real estate, overhead, labor, and energy.

2.3 Re-use, Recycle and Minimize Waste

Scodix offers its customers the ability to stay up-to-date with the latest technology and products with the Scodix trade-in programs. Used digital enhancement presses are commonly refurbished and sold to ensure continued digital enhancement production on an already manufactured press.

At the end of the product lifecycle, the Scodix design enables further sustainability. A press life that ends, has a specific plan to guarantee environmental best practice disposal. For instance, parts are dismantled and can be reused as spare parts and the non-salvageable pieces are disassembled and recycled according to local laws. This program minimizes waste when the press has reached its end of life.



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Consumables and Waste, From Manufacturing to Recycling

Scodix is constantly investing in research and development projects that are purposed to expand compatibility with multinational standards and regulations. The Scodix PolySense polymers are already in compliance with many public regulation requirements. Leading companies in the industry have successfully worked with Scodix to assure that Scodix products also comply to their standards.

Scodix Polymers comply with the following standards:

- Tin free polymers
- REACH EU - Regulation that address the production and use of chemical substances, and their potential impacts on both human health and the environment
- California Proposition 65 - Prohibition of knowingly discharging significant amounts of listed chemicals into sources of drinking water
- EN71 EU Toy Directive 2009/48/EG - Compliance with part 2 (flammability) and part 3 (migration of certain elements) of the directive
- TPCH by CONEG - Reductions in the amount of four heavy metals (specifically, mercury, lead, cadmium, and hexavalent chromium) in packaging and packaging components
- RoHS Legislation - Restriction of Hazardous Substances, Directive 2002/95/EC, restricts the use of specific hazardous materials found in electrical and electronic products
- Volatile Organic Compounds - Complying with international standards for VOC emissions
- Conflict Minerals - In 2021 a new law is being implemented across the EU to help stop the trade of four minerals known as 3TG (Tin, Tantalum, Tungsten, and Gold) which sometimes finance armed conflict or are mined using forced labor. Scodix has declared that conflict minerals are not present in any of our polymers.

3.1 Food Contact Compatibility

The global demand for healthier products has increased the standards of food packaging regulations. For example, in Europe, all food contact materials and articles must comply with the European Framework Regulation (EC) 1935/2004. This regulation requires that materials that are in contact (indirectly) with food are not a threat to human health nor does it change the food taste, smell or composition.

Scodix has developed low migration polymers dedicated to packaging products, which comply with the Commission Regulation (EU) No 10/2011 and the Swiss Regulation (Food Law 2017) on food contact materials.

3.2 Recycling and Waste Handling

Scodix manufacturing technology reduces almost completely waste during production with minimal set-up and the elimination of molds, dies, blankets or plates. However, inkjet by its nature creates waste during production to keep the printing process healthy and ensure high quality. Following local environmental rules and regulations, Scodix provides Scodix customers with instructions on how to best handle this waste. It is extremely important to comply with local laws, and Scodix expects Scodix customers to help with the effort to go green.

Products manufactured with Scodix are recyclable. Scodix tested the recyclability of paper substrates that were printed using Scodix polymers (coverage based on global average), and the results show that substrates are 100% recyclable. Scodix recommends for Scodix customers to further check recycling information of other vendors involved in the digital enhancement process to develop best practices procedures eliminating waste across their production floor.

Digital Print Ecosystem

The ongoing Scodix mission of retaining the most sustainable solution in the market, Scodix is constantly expanding its collaborations with other vendors involved in the digital enhancement market, to offer the most environmentally friendly products.

Scodix works with global paper manufacturers to provide the widest selection of recycled and uncoated substrates. The popularity of uncoated substrates across the printing spectrum as the preferred substrate selection by printers and end customers is due to its sustainable nature. In certain regions, local legislation has become stricter with its requirements for using recycled substrates.

Many of the substrates included in the Scodix Recommended Substrate List include one or more of the following attributes which are crucial for the sustainability of the end product.

- **Responsible forestry** - Paper products that are manufactured from sustainably managed forests. The main certifications for responsible forestry are the FSC (Forest Stewardship Council), the PEFC (The Program for the Endorsement of Forest Certification) and The European Ecolabel.



- **Recycled paper** - The most recycled product on the planet (over 60% in North America and over 70% in Europe), recycled paper can contain up to 100% used paper.
- **Uncoated paper** – A substrate that is not treated with a coating process which is more environmentally friendly, as it contains fewer added ingredients, and more recyclable.

Summary and Outlook

Sustainability is not a temporary trend or fashion. it is a critical foundation of the economy and mankind. Natural resources are becoming less available, while demand is increasing. The only solution is for industries to think about how to make and have their products used more responsibly.

Scodix takes sustainability seriously and we think about it with every decision we make. Scodix guarantees to deliver cutting-edge green products, as protecting the planet has always been and remains a Scodix top priority.