

PRINTERS WIN IN GOOD CLEAN COMPETITION

COMPETITION AND TECHNOLOGY, NOT CIVIL PROTESTS, HAVE HAD THE GREATEST IMPACT ON REDUCING NEGATIVE ENVIRONMENTAL IMPACTS, WRITES *PHIL LAWRENCE*. IN THIS REGARD, THE PRINTING AND PAPER INDUSTRIES ARE A GREAT EXAMPLE OF WHAT CAN BE ACHIEVED THROUGH HI-TECH ADVANCES AND IMPROVED EFFICIENCIES.

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The environmental movement began in the 1960's with civil protests against the activities of some large global organisations. The highlight of the early environmental movement was the first worldwide Earth Day in 1968 when more than a million people took to the streets in the US to show their concern about what large corporations were doing to the planet. Around that time, a number of sociologists also began to comment on the problems facing the world with regard to global organisations. The sociologists concluded that the protest movement, although commendable in its ambitions, was in the end largely ineffective.

The organisational sociologists such as Joseph Huber in Germany concluded that industry, regardless of social pressure, will naturally become more environmentally responsible due to increased competition between firms. Huber was in fact drawing on the ideas of Karl Marx who predicted back in 1846 that competitive pressures between firms would drive margins down so that the only way firms could be profitable was to become less wasteful. Huber suggested that by striving for a competitive advantage, companies would become more efficient, and that this would be translated into a reduction of waste and so pollution.

An example of this is the car industry. Passenger cars manufactured today have far greater fuel efficiency and much improved power to weight ratios than similar cars made 25 or 30 years ago. It hasn't been pressure from environmentalists that has driven the efficiency, it has been the competition between brands of cars and manufacturers. Competitive advantages such as engine fuel efficiency means lower running costs, and improved power to weight ratios means more power while still achieving low fuel consumption.

CLEANER FLOWS FROM UPSTREAM

Huber suggested that all industries would benefit from becoming more efficient over time because of increasing competition. The printing industry has benefited from this philosophy more than any other industry sector. It is highly likely that the printing industry today is more than 95 percent less polluting and less wasteful than it was 20 years ago. Almost the entire environmental improvement is due to the efforts of large global firms in the graphic arts sector. This confirms another idea that Huber wrote about in describing that it would be large 'upstream' organisations that would achieve the greatest environmental change.

The technologies that can be cited to highlight the dramatic advances in the environmental performance of the printing industry are significant. CTP is one example. This technology is quite remarkable in its positive impact on the environment. CTP has eliminated a massive volume of toxic chemicals from the graphic arts process and has also eliminated, in physical volume, a tremendous amount of material that would most likely at some stage have ended up as non-biodegradable landfill. When considering the entire environmental footprint, the resources to manufacture film that we used in the past are no longer required at all in the industry.

The use of heavy metals in both printing inks and chemicals was widespread at one time. However, in more recent times, printing ink manufacturers have had to conform to tight regulations when it comes to the materials and ingredients they use. The result is that printing inks today are far safer, both for humans and the environment, than they were more than 20 years ago. The use of hydrocarbon oils in printing inks has also been under scrutiny which has further improved health and environmental

characteristics. It would not be unreasonable to suggest that printing inks today are more than 60 percent more environmentally friendly than 20 years ago.

Wash-up solvents and chemicals throughout the printing process have been dramatically reduced in volume and toxicity in recent years. In the past, printers would wash machines by hand with rags soaked with solvent. Now printers are using water-miscible, surfactant-enhanced washing systems. Roller washes are available in water-based systems that are far less toxic to printers and also have far less impact on the environment, probably as much as a 90 percent reduction in environmental impact.

PAPER MAKES BIGGEST CUTS

By far and away the major challenge for the printing industry has been in paper manufacturing. Historically, paper production and the pulp industry was dirty and its emissions included sulphur dioxide, dioxins and solid waste to landfill. However, over the last 20 or 30 years, the paper industry has changed dramatically.

Chlorine bleaching, a major source of toxic pollution, has all but disappeared from the industry. New bleaching technologies that still result in extremely white paper are infinitely more environmentally responsible. The waterways that supply paper making machines with water are now so clean that fishing and recreational pastimes are the norm around paper making factories. The use and reuse of water in the manufacturing of paper has seen the volume of water used in paper production drop by more than 80 percent in the last 15 years.

The paper industry has also been an early adopter of externally audited environmental standards through schemes such as EMAS. The world's first factory site to achieve ISO14001 and EMAS was a Stora Enso paper mill in Germany. Paper manufacturers have embraced carbon neutral bio-fuel as a major energy source replacing fossil fuels such as coal and oil. Re-use of heat from paper machines is regularly piped for use outside the factory where it is sent to local communities for schools, hospitals and houses, replacing the need for fossil fuel-based domestic and community heating. In the case of the Stora Enso Nymolla mill in Europe, the replacement of fossil fuel heating in the local community is realising a reduction of 27,000 tons of CO₂ emissions each year.

So today even those printers who have made absolutely no effort or commitment to environmental responsibility still fall into the net that has been created for them by the large manufacturers in the printing industry. In this regard, it is interesting that the printing industry has confirmed the sociological theory proposed in the late 1960's when it was suggested that technological change and competitive advantage would be key drivers for a much more environmentally responsible industry. ●



Phil Lawrence

Phillip Lawrence is widely known in the graphic arts industry as a printer, writer, consultant and judge. He works with paper manufacturer, Stora Enso. <philip.lawrence@storaenso.com>