

## Fastening: The Future?

In an increasingly turbulent World, three items of interest recently caught my attention. Without having any direct connection, the first two just happen to concern the City of Atlanta, Georgia in the USA. Here it seems, there are virtually no iconic buildings which remain standing. Many were indeed built for both Public and Private use but these are no more, in some cases being reduced to parking lots.

The second item concerning Atlanta identified how the City has spread outward enveloping smaller towns within the greater conurbation. Since public transport is virtually non-existent in these outer communities, folks must have a car to survive. In an attempt to create enclaves of ‘people friendly’ environments, old rail networks which ring the City are being developed as cycle ways and pedestrian only routes in an endeavour to bring local communities to function ‘locally’.

The final item relates to the massive impact Social Media is having on today’s World. A hundred years ago, the likes of Ford, General Motors, General Electric in the USA grew their manufacturing power bases by investment in innovative development and through acquisition. What really shocked this Author was the recent phenomena of major global brands (generally in the cosmetic sector) linking with ‘website celebrities’ who count their ‘followers’ in the millions.

OK, so the ‘block vote’ has always been influential in politics? And few manufacturers would dream of launching a new product without using surveys and focus groups to determine if the new product will ‘fly’ and meet with Public approval. But to do multi-million dollar deals and perhaps create new labels simply because a website has a few million ‘followers’ (sheep?) giving it ‘Likes’; well that’s just plain crazy! Isn’t it?

Looking forward, the three items mentioned above will be significant to most future populations. View the skylines of any major city today. The buildings may be much

newer than the ones which didn’t stand the test of time in Atlanta but as ‘tempus fugit’, they too will become old and unwanted. More importantly, they will occupy a space which will have more value than the building standing on it and then they too will come down. How soon will this be? In the case of Atlanta, the time was counted in decades. But even the most iconic structures of today will never be considered as are the Pyramids of Egypt, ‘a wonder of the World’ worth keeping.

Likewise, if ‘pedestrianisation’, as being pursued in Atlanta is adopted as an urban construct based on the digital way of life, - why travel when you can have fun with others at home - then community living might just become fashionable again?

And if the ‘sheep’ corralled together in the centres of communities express their ‘Likes’ for; more of this and less of that; from which direction will ‘Manufacturers’ get their steer?

Given the accelerating, uncontrolled change which is being propelled by Social Media 24/7; these are not abstract issues but ones which will impact all of us. In particular, the Fastener Industry which not only holds everything together but also determines how things may be taken apart.

# ‘As you LIKE it’

by Peter Standring

## Tomorrow: Expectation

Figure One shows a distribution of Global GDP related to various Industrial Sectors. Table One, gives the percentage of global steel production used by each sector.

**Table One. World Steel Use**

Construction	50%	Shipping/Rail Transport	5%
Mechanical Engineering	16%	Electrical Goods	3%
Auto	13%	Domestic Appliances	2%
Metal Products	11%		

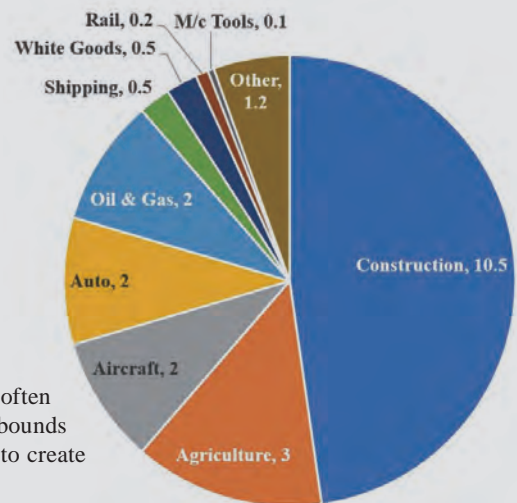
In the construction industry, Architects are the ‘designers’ of tomorrow. They are often hired to ‘make a statement’ in the structures they create. To do this, they push the bounds of technology beyond the current limit by working with ‘experts’ in manufacturing to create the wherewithal which will allow them to achieve their ‘design’ goals.

Space is always the premium; ‘maximum’ - internal usable/saleable, ‘minimum’ - external footprint and surface area. Higher, frame structures meet these goals.

Over or underground structures are usually in the Public domain but in all cases, it is the same repetitive element which is sought in the ‘design’ to provide value for money. Although we don’t know how the Great Pyramid of Cheops was built, we do know that most of the 2.3 million building blocks were cut the same. These were then laid on top of each other in a series of platforms just like 3D printers do today, leaving gaps where internal spaces were required. Modern skyscrapers are no different except that the internal space occupied by inconvenient necessities like, elevators, services and structural vibration dampers are costly additions which reduce the usable/saleable area.

**Figure One. Global Industrial Sectors GDP (\$ trillion)**

Total Global GDP ~ \$87.5 trillion 2018  
Global Industrial GDP ~ 25% of total



Modular construction where basically boxes of the same geometry are placed together to define the desired space are all that's required but cleverly disguised to provide something more aesthetically pleasing. But the essential core items and particularly the components which are never seen, like the fasteners which hold much of it together, are basically utilitarian.

It is presumed that no Architect would ever want to see their building being pulled down. This may well have happened in Atlanta but it can be reasonably concluded that if the Architect was still alive when it happened, they wouldn't have wanted to be present at the building's destruction? For this reason, it is doubtful that any Architect, other than those who design temporary structures for military use, ever consider designing for disassembly? And why should they?

Well, in the hundred or so years when downtown Atlanta has been constructed and in many cases destroyed, the scale of the whole operation has been very small compared with many of the World's current largest city communities. In the 20th century, the Global population increased by around 4 billion and by 2100 is expected to increase by a further 6 billion to 11. More importantly, the rural community will shrink as people desert the countryside and move to become 100% Social Media using city dwellers. These will naturally be well informed about: climate change, dwindling resources and the mountains of human waste they produce. Also, as time passes, they will find they are surrounded by lots of old decaying buildings which may not be easy or cheap to demolish. This will inevitably create a ground swell of opinion for things to change. And who will facilitate this 'change'? Why, the people who make the things which hold it all together. Who else?

In the same way, automotive OEM's have recognised that the 'leasing' of vehicles to customers is currently a way of maintaining sales and product value. In the wider, often complex world of 'financing', it is highly probable that most 'big ticket' items of capital expenditure, i.e. buildings, ships, aircraft, even space rockets, will be owned by a holding company and then leased out to users. In the Public Sector, Private and Public Financing helps build Hospitals, Schools and other Public Utilities.

Public Utilities generally only have one use which remains constant. Alternatively, 'big ticket' leased items do tend to have more than one role. The primary role is clearly to fulfil the 'design function'. For instance, an airliner would be expected to operate at its maximum level of 'efficiency' used first by major, then, minor airlines. At some point however, the leasing company will sell the aircraft which may then be subjected to a major overhaul and converted from passenger to freight operations.

In short, the 'servitisation' model of leasing is one which has emerged as a 'common sense' viable option. A similar model related to the Global automotive industry was published in Fastener World in 2017 entitled, 'Fastening: A Future. Opportunities for Automotive Fasteners to Change the World'.

All these big ticket items for leasing share a common element, that of obtaining and maintaining a strong customer base. Having that naturally supports the supply chain in its

## How Things could Change

At some point in the last hundred years, the politicians responsible for running countries have become increasingly influenced by the power of Industry to deliver, or remove employment to their public. Previously, politicians' often curried favour from those who controlled the media since it was through them, their own message was spread. Today, with so many different free to air media sources, this monopoly has largely disappeared.

The Globalisation of industrial supply chains and the regional centralisation of large scale manufacturing plants have caused local politicians to turn their interests to ensure that employment and prosperity exists within the community they serve. Like any communications network, the spider's webs of supply, originate at a primary source and extend to hubs which manufacture and distribute everything, 'literally', on Earth. Having one or more big hubs in your neck of the woods means employment and enhanced standards of living. Hubs also support high population densities which could eventually suffocate under their own waste unless those 'governing' the communities become active in preventing this on behalf of the folks who dwell there.

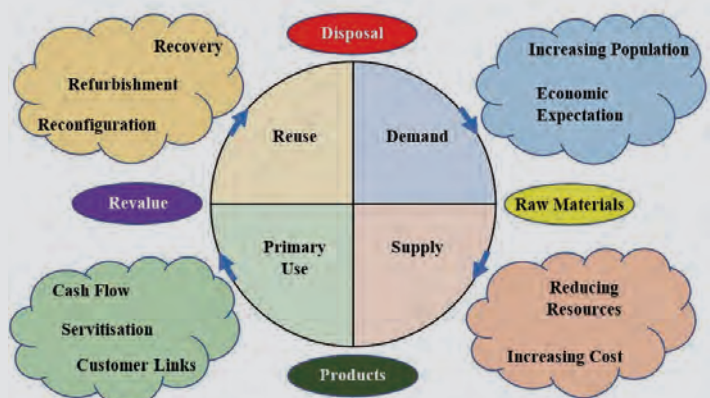
Evidence has shown that the 'philanthropic' behaviour of the exceedingly wealthy, whilst being welcomed, is entirely marginal when compared with the scale of the need for change. In reality, this must and can only come from the legally constituted bodies which legislate and regulate the 'standards' by which whole communities live. The huge container ships which currently make 'Globalised' trade possible also make the shipment of waste from consuming countries to those less capable of 'manufacturing the goods', a viable alternative for recycling trash.

The business model which is being widely adopted today by many leading manufacturers is one of 'servitisation'. This means, the Original Equipment Manufacturer (OEM) not only makes the product but instead of selling it, basically, leases it out to those in need of its function. So, an aircraft engine manufacturer will sell the products of the engine, i.e. the thrust, to a customer whilst maintaining ownership of and liability for that function.

endeavours. So, if the leasing model is a successful way forward for the global big players, how might it be used to benefit others upstream of the point of sale?

Figure Two, provides a simple view of the 'Virtuous Circle' of Manufacture.

**Figure Two. Virtuous Circle of Manufacture**



The top right hand quadrant shows the increasing demand for manufactured goods inexorably driven by the growing global population and its economic expectations. Quadrant two indicates the supply side from raw materials to finished goods. The third quadrant

identifies a product's primary use and the potential role 'servitisation' would offer OEM's to maintain customer contact, in-service data on product performance etc., generating an on-going income stream from product use.

The fourth quadrant illustrates how a revaluation of the product can lead to its reuse through reconfiguration, refurbishment, recovery of part/material value and finally, disposal.

The Earth has been 'naturally' recycling its life for millions of years and will presumably continue to do so long after we are no more. However, in the past, what has come out of this 'mix'; dinosaurs to 'nuclear winters' has been entirely due to 'natural' phenomena. To have any aspirations to be able to control our own destiny, we must take control. And the only way in which this can be done, is through 'organisation'.

To be able to manufacture anything on a global scale necessitates 'organisation'; so we do know how to do it. The trouble is, at present, OEM's only ever 'organise' things for their own well-being. To do it for everyone requires everyone to do it together, working to achieve the same goal. In short, global legislation is essential to ensure that the playing field is the same for all.

## And Why Not?

Ridiculous you might say, yet consider today's World where the ubiquitous 'shipping container' which makes all 'Globalisation' possible is built to truly international standards without which, the ports of entry and embarkation could not function. Consider the sizes of aircraft, the overhead luggage space, the fuel, even the signage at airports, all are designed to serve an international market.

In manufacture, nothing could sensibly operate without the 'ergonomics' which standardise size, movement, shape and colour. Purchase a phone, a camera, flat pack furniture or a pair of shoes almost anywhere in the World and you will be able to get what you want and understand how to use it.

The manufacturer of fasteners is able to service any market and satisfy any international standard for one or a range of products such is the global nature of the trade. Would it be so different then if everyone, everywhere were to consider tomorrow instead of just today?

Designers of ships, buildings, bridges, CT Scanners, everything you can name have a primary function to satisfy the requirement for safety. Safety of manufacture, safety of use. However, unless it is a nuclear power plant or facility handling toxins, potentially deadly viruses etc., little consideration is given to end of life disposal.

防水螺絲 OEM      埋入射出 OEM      華司墊片 Own Product

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SGS      ISO 9000      UL      ROHS      REACH      FDA

Manufacturing and sales of various precision molds, tooling, mechanical parts, IC molds processing, electrical components, plastic parts for computers, 3C cases, electrical plastic fasteners, automotive components, plastic hardware fasteners.

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As pointed out in the previous Fastener World article mentioned above, the automotive industry could, if it was serious about waste, recover real value from its own products. Instead, it disposes of the 'problem' by partnering with vehicle scrappers whose business model is basically 'destruction'.

This 'destruction procedure' is also true for most old buildings, ships, bridges and unwanted manufacturing plant. And why? Because, the things which were used to hold all the bits together couldn't be taken apart cost effectively. But if they had been, consider the impact that would have economically, environmentally and intellectually for the whole fraternity of designers and mostly, for us. So why don't they do it? Because they can't since such fasteners are not at present available for anyone to design with.

The very obvious suggestion then to those who supply directly to the manufacturers of 'big ticket' items must be, to meet with their customers and work together to consider how future designs can incorporate fasteners for ease of disassembly. Do this first on modules to prove the case. If successful, the modular form could then be repeated throughout the design. If such a methodology were available, a step change in design would be accomplished. Moreover, it wouldn't take long before everyone would want to buy into the 'objective' and those who didn't would quickly find themselves sidelined.

After all, fasteners built the human World, so why not have them save it as well?

Hey and if that were to happen, guess how many LIKES it would get through Social Media!

As Shakespeare could have written, 'All the world's a stage and fasteners play the most important parts.'

As for the potential influence of Social Media? Astonishingly, the four biggest 'tech companies' FAGA, (Facebook, Apple, Google and Amazon) collectively have a greater income than the GDP of Germany. That represents a whole lot of 'sheep' and maybe, the 'trends' which will determine the future? ■

Any interest in joining a Global Feasibility Study to explore the ideas stated in this article can be registered by contacting the Author at [events@imft.co.uk](mailto:events@imft.co.uk).