

Sustainability –The Great Leap Backwards.

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Sustainability is often misconstrued as an expensive and difficult concept .Many people don't really know what it means yet we consider implementing it across our business or our building designs. With the advent of climate change and the agreement by Obama and his cohorts to confirm its existence a range of methodologies are being proffered as the solution to our carbon hungry economy. Carbon capture and storage is but one of the ideas being floated. But the Obama regime understands that we need more rapid fire and easy cost effective solutions if we are going to react against climate change and its consequences in the first instance. Many believe we don't have enough time to research and implement detailed reduction strategies such as carbon capture if we are going of save our planet for carbon strangulation.

The Obama Government and the European Union have identified that one of the easiest and most cost effective ways to reduce our carbon emissions is through our built environment. The built environment contributes around 40 per cent of the carbon contributing to our climate change problem yet the built environment is an area we can mitigate carbon production relatively cheaply, quickly and simply.

Remember 98% of the built environment already exists .Those existing buildings can be cost effectively adapted to reduced energy and other resource wastage by up to 30% without significant structural changes. New buildings provide an even greater range of options to mitigate resource wastage. Therefore this is the area that will be targeted by governments all around the world as the first rapid step in the battle against climate change. The built environment. Get ready for a raft of legislative changes over the next few years that will make buildings much more efficient and carbon free. All buildings. Your office, your factory, your home, your warehouse, your infrastructure. To make this process successful however we need to adopt a change in the way we design, build and operate our not just our buildings but also our business operations.

Building or creating a smart building hinges upon that building being operated correctly .Otherwise your smart building may become a dumb building. To do that requires a change in attitude from the top of all organisations. The concept required to maximise efficiencies across all we do is a concept that until recently has been ignored or misunderstood. It is the concept of going backwards! Yes.. backwards! Remarkably to go forwards we must go backwards! This methodology is the key to the way we must address our future. ‘The Great Leap Backwards.’

Let us examine this proposal.

Consider how we approach the design of buildings or equipment or machinery. How integrated are our designs? How integrated and intelligent are our project teams .How integrated and intelligent are our KPI’s? Our targets, our costs, our skills, our communication proceduresthe list goes on.

‘When intelligent engineering and design are brought into play, big savings often cost even less *up front* than small or zero savings. The only moderately more efficient house and car may cost more to build, but when designed as whole systems, the *super* efficient house and car can often cost less than the original, unimproved versions’.

Professor Michael Porter; Harvard Business School

By utilising intelligent engineering and design skills through using an integrated project team with clearly defined Sustainability objectives combined with a clear understanding of the client’s key project drivers is the first step to taking The Great Leap Backwards. It is at the very first stage of our projects that we must consider and examine sustainability targets and ensure they are locked in before addressing all the other project issues. If this is not agreed and established early in the project the inevitably sustainability will become a variation and if there are any cost blow outs in the project we all know what happens to variations in any project! They are the first costs to be removed. It is in this framework that many projects lose their sustainable intent. The use of the correct design and operational team that understands The Great Leap Backwards means that all assumptions will be revisited at the smallest level. This is the core of the concept of The Great Leap Backwards. The

importance of the chain of design and of operations reverts from the source end to the output end.

Let's consider the example of the simple light globe.

In days gone past we didn't consider the value of saving lighting energy. Now as we embrace sustainability we are all changing our light globes because it will mean we use less energy. But many of us do not understand the true reality of this.

Smaller light globes don't just mean smaller power bills they mean smaller power stations. Yes that stands to reason. But the extent of this saving is not clear to most. The little 50 watt light globe never had so much importance as it does in the Great Leap Backwards! All of a sudden small becomes big. The power is in the small, not the big!

Consider this. If 90% of the energy generated at the power station is lost through inefficiencies in transmission and infrastructure by the time it gets to the light globe then by going the other way from the output to the source we see that saving 50 watts at the light globe will then save 500 watts at the power station. Imagine this concept played out over all our buildings? When we change light globes we are not just saving 50 watts. We are saving ten times more! Each 50 watt light globe becomes a 500 watt light globe we are removing from the system. This applies not just to electricity but any resource or any procedure. It is what we call the 'The Great Leap Backwards'. It calls into play a new paradigm, a new methodology, a new approach to the way we do things. In order to minimise our resource wastage and reduce our operating costs we have to think small because small becomes big. We have to reduce our loads to significantly lower levels which will then have a major impact on the capital cost and equipment size and running cost of the new primary infrastructure.

"Savings furthest downstream will have the greatest leverage in making the upstream equipment smaller, and this saves not just energy but also capital cost. "

Amory Lovins et al 'Natural Capitalism'

What we have read here today highlights one of the keys to effective sustainability. Reduce the easiest, simplest, smallest components of any operations or building or process or

machine and the effect at the larger more costly expenditure end will be multiplied many times over.....this is the new, astoundingly simple way we have to approach all that we do many times -The Great Leap Backwards.