

A truck driver who changed the world – Malcolm McLean

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Few people have heard of Malcolm McLean, yet his invention, which lay the foundation for ISO's international standards on freight containers, revolutionized the world economy of the 20th century. *Forbes Magazine* described him as “one of the few men who changed the world”. He was recognized as “Man

of the Century” by the International Maritime Hall of Fame in 2000, and was compared to Robert Fulton – inventor of the steam engine – in his ground-breaking impact on maritime trade.



Malcolm McLean, the man behind ISO's freight container standards.

Malcolm McLean's great achievement was to develop the first secure, reliable, and cost-effective means of transporting cargo, the shipping container. Distilled into international standardization by ISO technical committee ISO/TC 104, *Freight containers*, his insight changed world trade dramatically.

A visionary entrepreneur

McLean passed away in 2001, at the age of 87, in relative obscurity. Yet the founding father of the freight container had already transformed all aspects of our lives. Take a moment to examine your surroundings. Almost all the objects that you can see have at some point been inside a shipping container. In fact, today, 90% of cargo travels by container. Imagine stacks dozens of stories high, on huge transport ships brav-



ing the sea between the world's main ports. These constitute one of the most critical components of global trade, amounting to over 200 million containers moved per year.

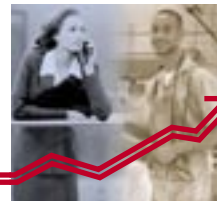
How can we envisage the significance of McLean's invention? A London dockhand recounts, “in 1970 it took 108 guys about five days to unload a timber ship. Then came containerization. The comparable task today takes eight folks one day. That is a 98.5% reduction in man-days.”¹⁾

McLean's story is one of vision, proving that hard work and determination is what it takes to succeed. A farmer's son, he grew up in a small town of North Carolina, USA. Difficult times

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pushed him to start work early, but McLean knew how to transform challenges into opportunities. After graduating from high school in the midst of the Great Depression, he began pumping gas at a local gas station until he

1) Bohlman, Michael “Tribute to Malcolm McLean, founding father of the freight container.”
<http://www.iso.ch/iso/en/commcentre/news/archives/2002/malcolmmclean.html>



saved enough money to buy an old truck for USD 120. That first truck was the beginning of a successful, though by no means easy, enterprise that concluded 30 years later in a company worth USD 160 million.

McLean started his career in the industry by hauling dirt and produce for farmers in areas where reliable transportation was scarce. Soon he was able to buy additional trucks, and develop his business. Challenging economic conditions however, forced McLean to scale down his operation and start driving again. It is during this particularly difficult moment, when McLean seemed to have lost everything, that he had an idea that would change his life and the world economy forever.

“Thanks to standardization, freight containers flourished globally, and McLean soon controlled the largest cargo-shipping business in the world.”

McLean had driven to New Jersey to deliver a charge of cotton bales. As he sat at the dock, waiting all day to reload his cargo into a ship, he thought of a better way to pack and transport goods. Years later he recalled this moment: “I had to wait most of the day to deliver the bales, sitting there in my truck, watch-

ing stevedores load other cargo. It struck me that I was looking at a lot of wasted time and money. I watched them take each crate off the truck and slip it into a sling, which would then lift the crate into the hold of the ship.”²⁾ Not only was this process long and labour intensive, but there was a high risk of pilferage and damage.

McLean figured that if the cargo was stored in a safe container that could be shipped directly without having to load and unload the cargo, a lot of time and money could be saved. It was not until McLean had developed his trucking business into one of the largest fleets in the United States 19 years later, that this idea became a solid business proposal.

McLean needed to reduce the costs of taxes and weight restrictions on trucking loads. He speculated “that ships would be a cost-effective way around shore side restrictions...no tire, no chassis repairs, no drivers, no fuel costs... Just the trailer, free of its wheels. Free to be lifted unencumbered. And not just one trailer, or two of them, or five, or a dozen, but hundreds, on one ship.”³⁾

Changing the world with standards

McLean’s idea was to pack goods in standard-sized steel containers that could ride in the back of any truck or train. These containers were separated from the wheel bed of the truck, and could be easily loaded and piled on a ship’s deck. The heavy steel boxes were strongly built to endure rough seas. McLean also designed and patented corner-fittings, so that trailers could be easily gripped and lifted into a ship, while providing the necessary reinforcement for stacking.

Standardization was crucial to the success of McLean’s enterprise. His invention had the potential to dramatically reduce labour and dock loading time. However, standards were neces-

sary to ensure the right equipment, optimize the loading and stacking of containers, and replicate this process in all ports. McLean therefore thoroughly developed a standardized design for crates, for which he obtained the patents. This model was to provide, much later on, the basis for the ISO International Standards on freight containers.



McLean Trucking Co. in the 1950s.

In order to finance his innovative though uncertain dream of “inter-modal” transportation, McLean was forced to sell his trucking fleet to acquire in 1955, SeaLand Industries. In 1956, McLean strengthened and prepared the decks of a ship, the Ideal X, to test his first cargo. Industry, transport and government authorities followed with great suspense the voyage of the Ideal X, as it carried 58 containers from New Jersey to Houston. Upon arrival, the contents were carefully inspected and the news that they were safe and dry rang the first bell of success.

McLean’s journey however, was not an easy one. He had to overcome many challenges before his idea became the

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2) Mayo, Anthony and Nohria, Nitin *In Their Time: The Greatest Business Leaders of the Twentieth Century*. Copyright 2005 Harvard Business School Publishing Corporation

3) Ibid.

standard transport operation it is today. His design had to be perfected so that it became a simple, cost-efficient, but secure alternative to conventional hauling; and customers had to be convinced to try a new transportation process – which did not prove too difficult given the lower price and increased safety.

McLean also faced resistance from port authorities who at first refused to redesign their sites to accommodate McLean's intermodal transport operation. Unions opposed this change, as McLean's new process meant fewer men and therefore fewer jobs for the shipping industry. However, when port authorities realized the advantages of containerization, and the revival it brought to old forgotten ports, McLean's strategy was both accepted and adopted.

“McLean's standardized container design and shipping process resulted in its worldwide adoption, and a revolution for trade.”

McLean recognized the importance of standardization in facilitating the propagation and dominance of the freight container in international commerce. As the patent holder, he could have barred others from taking advantage of his invention. Instead, he provided ISO a royalty free license of his patented designs for the creation of an international standard on freight containers. This standard, now designated ISO 1161:1984, *Series 1 freight containers – Corner fittings – Specification*, became the foundation of ISO's subsequent work on freight containers, and the commercial success of the container transport operation.

Thanks to standardization, freight containers flourished globally, and McLean soon controlled the largest cargo-shipping business in the world. Although in some aspects McLean's idea was not entirely new – already in 1929 large boxes were occasionally transported by sea – it was his standardized design and process, which maximized the efficiency of his idea, resulting in its worldwide adoption, and a revolution for trade. ■