

Competition Or Collaboration?



Or both? 'Innovation in Dredging Through Collaboration – A Worldwide Connection' was the title of IADC secretary general CONSTANTIJN DOLMANS' WODCON presentation, which drew surprising conclusions...

After analysing innovation in our industry, my first conclusion was that there's no innovation without competition – after all, dredging is not only an extraordinary industry, it's an industry with fierce competition between the service providers.

Yet at the same time, to promote innovation, quality and low costs, clients should realise they need to collaborate closely with dredging contractors...

So, my intention is to try and explain the sources and areas of innovation in the dredging industry and the lessons we can derive from them. But first, a little...

BACKGROUND

The modern dredging industry was born out of the disastrous floods that hit western Europe in 1953. In the Netherlands, the UK and Belgium this resulted in a partnership between government and the industry. In Japan, land shortages resulted in partnerships for land reclamation in the 20th century. These kinds of partnership between

private contractors and government created the knowledge centres for innovative dredging.

Today, there are further industry drivers, eg demands for energy, maritime transportation, tourism, urban development and coastal defence related to climate change. All are growing and that's reflected in world trade:

- ◆ The Panama Canal is no longer wide enough for today's generation of ships
- ◆ Many harbours are not deep enough
- ◆ Further port extensions are needed.

Now add the world's major land creation projects – Hong Kong's airport, Singapore's city extensions, Sydney's third runway and the huge reclamation projects in the Middle East. New land is very much a growth market.

As a result of all this, and particularly since 1995, trailing suction hopper dredgers have enjoyed a period of gargantuan growth. In 1995, the largest hopper was 12,000m³. In under five years that doubled and went on to triple. As I speak, a mega vessel of 46,000m³ is

under construction.

Modern jumbo trailers can dredge deeper and retrieve material from greater distances. This increased capacity has reduced the price per cubic metre of sand and created new markets. But we're still driven by that overriding question: How can we reduce the price per cubic metre even more?

SOURCES AND AREAS

You could argue that there are four main sectors where innovation flourishes:

- 1). *Equipment through new knowledge* – often developed in-house. Vessels are being built ever larger, with more technology, new drag and cutterheads and new survey systems. They're highly specialised, highly competitive and each new vessel is innovative – stacked with knowledge.
- 2). *Applied technology by experience* – each project has unique challenges, resulting in new applied technology. Consider the Panama Canal's hard rock or environmental issues relating to

New land is very much a growth market



Hong Kong reclaims land



Innovation in cutterheads and...



...dragheads

dredging nearby coral reefs? Or planning the optimal design for a particular harbour? And just how do you co-ordinate 10 vessels dredging in a high-traffic shipping area?

Dredging is 50% hands-on practical experience. And this expertise is transferred from one project to the next, each time adapted to meet new challenges and circumstances. Applied technology means applied innovation.

3). **Ecological engineering by changes of perception** – changes in perception about nature are a very important source of innovation. They're sometimes assumed to be bad, though they can in fact be neutral or positive and sustainable.

The trend is towards soft engineering solutions rather than hard structures; making agreements – partnering – with environmental organisations beforehand and ensuring that existing habitats are not destroyed, but balanced within the natural system.

Rather than turning to compensating measures, ecology is taken into consideration from the earliest stages of a project. This requires a partnership approach to a dredging project from the beginning, again: collaboration is a source for innovation.

4). **People, a source of innovation by training and persistence** – today's dredging industry requires a highly skilled workforce, but an integral element in recruitment is retention. More and more firms are promising continuing education for employees with the aim of providing opportunities that transform a job into a career. It gives an employee a chance for growth, while at the same time guaranteeing companies a successful transition into the future.

By training and education, people are an important source of innovation. In the end, people make it all possible.

CONTINUOUS INNOVATION

In some cases, creativity may be an immediate response to a crisis – like fighting a fire. Yet in the best organisations the opposite is true: the process of innovation is continuous and constant.

As well-known business thinker Peter Drucker put it: "In innovation, as in any other endeavour, there's talent, there's ingenuity and there's knowledge. But when all is said and done, what innovation requires is hard, focused,

purposeful work."

Competitive advantage is temporary: what seemed unique yesterday may be common tomorrow. Continuous and constant innovation is absolutely key for the industry's major players and that requires a creative climate.

Increasingly clients understand that when contractors are given more space, it also benefits them. It allows both parties to be more creative in tendering and contracting – since each contract, project and client/ contractor relationship is unique, there's no prescriptive way of structuring that relationship. But here are some guidelines:

A). **Tendering as a dialogue** – allow space for experience and creativity. Clients are an extremely varied group of people, often suspicious towards contractors. Sometimes they're experienced, often not; sometimes they look for quality and sustainability, but usually for low-cost solutions. And they're often supported by a consulting engineer who's selected on the basis of price rather than experience and knowledge of maritime construction.

The first rule is that the process of tendering should be seen as an open dialogue based on trust.

B). **Contracting and partnering** – luckily, these days, many clients prefer working with a contractor who's also able to design and develop the best technical solution for a project. New, more intermediate forms of contract have evolved to support this, eg alliance contracts, a partnership where a very solid agreement is reached in advance to share a project's the ups and downs. Client and dredging contractor co-operate, using the knowledge of both.

Modern alliance contracts go further than mutual design, partners taking responsibility for the project's success, simultaneously helping to reduce risks. A true partnership results, based on a reasonable division of risks and responsibilities.

The second rule is to create a trustful environment, bounded by a fair contract.

C). **Specialised work, specialised contracts** – the dredging industry's an extremely specialised, capital-intensive sector of the construction industry: inevitably, higher than normal risks exist.

Sustainability issues are much more explicit than in 'dry' civil works and, with this in mind, a contract for dredging works should be different

from a normal civil works contract. It should not be part of a civil works contract, as is often the case.

The third rule is that when the contract is managed, specialised and specific, there's much more room for creative solutions.

D). **An international, competitive and learning environment** – as a final guideline, let's go back to the end of the 19th century when a Belgian government mission was sent to study dredging techniques on the Mississippi River (see Marc Krumbholz's article on page 26—ed). The Belgians reported that the so-called *Bêta Dredger*, developed by Lindon Bates, winner of a US-government-sponsored competition to build a better cutter suction dredger, was 'very superior' to anything known in the Old World. At the end of the 19th century, the US-government stimulated innovation and the US was an open market ... but not today:

- ◆ International dredging contractors are not allowed to compete
- ◆ There's less and less government funding even for essential dredging
- ◆ Projects are awarded based on open tenders that leave little room for creativity and innovation
- ◆ There's no partnership approach between stakeholders in this closed market. No wonder, then, that the US is the only dredging market in the world that declined during 2006!

And yet, as a recent *New York Times* article reported: "Freight bottlenecks – planes circling overcrowded airports and cargo stacked up at ports – are costing the US economy over \$200Bn annually".

The fourth rule is that an international, competitive market is essential for innovation and creativity.

FINALLY...

As said earlier, new land is a growth market and through innovation and creativity, the costs per cubic metre of land reclamation have decreased dramatically. Innovations have been derived from collaboration with clients and governments. And innovations were made possible in an open market where contractors compete with each other to offer the best solution. And that's the key message from the *International Association of Dredging Companies* as the industry's trade association.

More info at www.iadc-dredging.com