



# ANGEL CAPITAL ASSOCIATION

## Modumetal

### *The Company*

Modumetal is an exciting Seattle-based company; it makes nanolaminated alloys. Think the metal equivalent of plywood. The technology, which is well covered by patents, at times seems like science fiction. One of our investors said it is Adamantium, the fictional indestructible metal alloy in the Marvel Comics Universe, that best known for being the substance bonded to the character Wolverine's skeleton and bone claws. Another said that this is the greatest advance in metals since the Bronze Age!

In some configurations, Modumetal is stronger and lighter than steel. When applied as a coating on a metal like steel, it has amazing anti-corrosive properties. The total direct cost of corrosion in the United States is over 3% of the GDP, almost \$300 billion. The single largest sub-segment of the market is corrosion resistant, surface coatings. Worldwide, the corrosion protection market is valued at \$2.2 trillion. Modumetal could be a solution for this, reducing the cost of corrosion by as much as 10x.

One of Modumetal's largest target markets is the Oil and Gas industry, where it could revolutionize drilling and oil production, and have a strong impact on the profitability of the oil industry through coatings on pipes, etc. that allow for higher flow rates and longer life times.

Over time, the use of Modumetal could change the way many industries operate by allowing new configurations and applications. Future targets include automotive, aviation, transportation, military, construction, and many others.

The company has a strong technical team and is just beginning to build a correspondingly strong business team. It also has a very strong board (including General Rich Hearney, USMC Vice Commandant, Ret). Current Modumetal customers include: Chevron, Hess Oil, Boeing, US Coast Guard, National Oilwell Varco, Siemens, and others.

So far, all of Modumetal's business might be categorized as pilot projects, which prove its claims first in lab settings and then in the field, then delivering larger quantities of material that can be field tested. When proven, these customers tell Modumetal that the order size will be large (many tens of millions of dollars per year per application). While initially Modumetal must build these pilot orders themselves, the company plans to license the technology over time. They have a JV with Steel Dynamics to produce a better galvanized product (at lower cost with better resilience).

Modumetal has a transformative vision that will impact on the way things are made in the future. This kind of breakthrough is a once a generation (or once every 100 years) kind of event. Modumetal's success will transform the way metals are manufactured, make the industry and country much greener, and allow a whole new industry to take hold.

### *The Angels*

Modumetal was a signature investment of the Alliance of Angels (AoA) in Seattle. From its Seed Stage, it has been strongly supported by the AoA. Modumetal has raised about \$12.6M to get from concept to pilot product stage. Angels have invested approximately \$9M in Modumetal to date, provided 2 board members and given nearly five years of guidance and help.

### *The Outcome*

Although its investors are excited and optimistic, Modumetal is still in the development stage and still exceedingly risky. It now employs about 20 employees and has the potential to transform the metals industry. If successful, this industry, which has (to a large degree) moved offshore could move back to the US with a next-generation technology.