

Continuous casting investments at usx corporation



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Do you think Kappmeyer should sign the proposal, and why? What pushed USS to stay with conventional technology? My recommendation based on analysis of the case and understanding the basic nature of disruptive technologies, and their impact on the general industry is that Kappmeyer should not sign the proposal. The main reason for that is USS is tying itself to an existing, but dying business model and technology. While this plan may make sense in the short-term, it does not have long-term sustainability. The market has already indicated that it is changing, adapting to minimills, and this trend would likely continue. As minimill technology becomes more sophisticated, their quality and other disadvantages would reduce and they would start competing with integrated manufacturing even in the high-end markets. Unfortunately for USS, there is no silver bullet.

Since USS is already invested in the market, they will have to go through a difficult, and expensive, change, or they will end up perishing as the industry changes around them. USS current decided to stay with conventional continuous casting technology simply because they were looking at the shorter-term future, and was not willing to take the financial hit and risk associated with a new disruptive technology. Additionally, they were tying themselves to the requirements of the current customers, and ignoring potentially new users for the future. Did the USS team get the right answer to the wrong question? What if, rather than asking whether USS should install CSP in Mon Valley, Kappermeyer has asked whether USS should invest in or participate in this technology? Would you have answered that question differently than you did when the problem was framed as a Mon Valley issue? My recommendation was that USS should not sign this proposal, and

that remains the same whether the issue is addressed with respect to Mon Valley or independently. The main reason for disagreeing with investing in the proven conventional continuous casting process is that it would only commit USS to an older technology going extinct.

While it may sense in the short-term foreseeable future, for long term survival USS would need to embrace the disruptive technology. Looking at CSP technology only from the Mon Valley perspective is a mistake - the current plant puts a lot of restrictions on the project. If the technology and market is looked at independently from Mon Valley, then my recommendation would be more concretely recommend investing in a new greenfield plant based on the minimills model. It may also be practical for USS to house the disruptive technology as an independent entity. As the market and industry changes, minimills and CSP would mature to improve quality, and further widen the gap between themselves and integrated producers such as USS. Sooner or later, USS would have to modify its production and business models to survive the industry.

If it does not do that right now, there is a good possibility that it will be too late. What are other decision alternatives? What are the reasons of choosing each alternative? What will these reasons look like in five years? The company should follow a combination of the following options to maintain long-term competitiveness:

- Close Mon Valley: USS already has close to 25% of unused capacity. Currently (1990) they have approximately 14.4 million tons of capacity. The Mon Valley plant would add another 3MM in capacity which is not necessarily needed. Maybe there is an opportunity to shift some

(or most) of the orders from this plant to another plant, and even close this facility.

In the worst case scenario, USS would lose \$26.3MM (75,000 * 3,500 workers) for laying-off unionized workers. This number may be reduced if some of the workers could be relocated to an existing or a new Greenfield plant. Since USS is committed to invest in a continuous casting capacity at Mon Valley, this may be the only way to save \$800MM investment, unless USS can renegotiate with the union. This plan would give USS some time and money to invest in one of the other options for CSP technologies.

- CSP at Mon Valley: USS had investigated the possibility of adding 3MM tons of capacity in CSP at Mon Valley through three or four caster strands. While difficult, maybe more investigation can make this process feasible. CSP technology would bring USS closer to Nucor's projected low costs, but not all the way there. This would still be a short-term strategy if USS decided to increase capacity, as there are other cost advantages that Nucor's minimill production model still has.

- NEW CSP greenfield project: Invest in new greenfield plant operating on similar models as the minimills. While this may not be very financially viable in the short run - given the success already enjoyed by minimills, it is necessary for USS to start shifting its assets in that direction for long term survival in the market. Through research and analysis conclude there may be the possibility to conclude that there will be ample demand and orders to pay back for this investment in conventional casting technology in approximately 10 years. Then they can consider signing this proposal, but

keeping in mind that the disruptive technology would be improving at a faster rate. So as long as the disruptive technology does not catch up in 10 years, this may still be feasible. This may be hard unless USS can get customers to commit to long-term orders, and through more technical research conclude that Nucor's lower product quality would prevent it from competing with USS's products in the high end markets.

While this strategy may seem financially viable, it is not a long term strategy and should only be executed if USS can also follow one of the short-term strategies to pursue CSP technology. The question facing Kappmeyer at the end of the case is, What should USS's next technological move be? Should USS take another "long shot" to leapfrog ahead of Nucor? Or should it "get on the ground" neck-to-neck with Nucor, employing a viable commercial technology as soon as possible incrementally improving CSP? USS would probably need to employ a combination of a long-term and a short-term technology strategy to remain competitive and survive the changing market. Ideally, USS should invest in research to take a leapfrog ahead of Nucor in order to redefine the market with its disruptive technology and set the new standard in its favor. But given the time that may require, it may not be possible. Competing neck-to-neck with Nucor employing a commercial technology may not be the best idea considering the rate of improvement of the disruptive technology is far higher than the rate of improvement of the proven technology.

In fact, that's exactly what the conventional continuous casting technology would have been. It would have given a short term incremental advantage to USS at best for the high end markets, but it would not be sustainable.

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