After I read Tom's email, I had to look up all the technical terms. This document is what I found by linking these terms to Wikipedia, it clarifies what I meant by Buggy Whip; and because I did not find them in those links, it asks for examples of shortcomings, accuracy and other limitations. As far as cost and time-wise, I found the opposite, but may be missing something. The links provide the types and subtypes needed for the business model. I still do not know all the equipment that goes along with those old manufacturing processes.

From: Thomas C <tridaro@gmail.com>
Sent: Saturday, May 18, 2019 6:05 PM
To: bpace@teamswin.net
Cc: info@bigdewberrytrucking.com; FrGregory Horton <abounagregory@gmail.com>
Subject: Re: Buggy Whip Question

Bob,

I think your question doesn't take account of many factors. The main reason additive manufacturing hasn't overtaken the whole manufacturing world yet is because, among other reasons, it can't at this moment compete cost and time-wise with subtractive manufacturing. It does appear that the technology is close to overcoming those shortcomings for certain kinds of parts, but even then, there are still accuracy and other limitations.

Even if/when 3d printing of metal parts comes into its own as a manufacturing strategy, I doubt it will completely obsolete current machining operations. There are huge disincentives for them to change. Even if it were to happen, though, it will take a long time because there is just too much capital investment and institutional momentum in the current way of doing things for companies to completely abandon these overnight.

We are not talking about one product like a buggy whip, we are talking about the way nearly everything in the entire world is currently made. Most industries are not going to be willing or able to take that kind of hit over a short time. One type of manufacturing company going away is one thing, but nearly all of them? I don't think so.

No, I believe the worst case scenario will be that CNC manufacturing may eventually be replaced as the predominate way of building things even as it replaced manual forms of machining that where the predominate way before it; but this will likely occur over many years and will still retain some place in the manufacturing universe, even as the manual forms of machining CNC superseded still find a limited place in current manufacturing operations.

So, to the point of being hesitant to purchase any CNC machines right now, I believe that concern is premature, but I do also think that it is a good to be looking seriously at the technologies that may eventually take prominence, like 3d printing.

Hope this helps to give a little more context to the discussion.

Thomas

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additive manufacturing: Types and Subtypes:

subtractive manufacturing: Types and Subtypes:

Buggy whip "example": (a term used to represent the many products and industries made obsolete by the introduction of the automobile, the buggy whip industry as a discernible economic entity ceased to exist, and is cited in economics and marketing as an "example" of an industry ceasing to exist because its market niche, and the need for its product, disappears. In discussing market regulation, it is often held that the economy would be disadvantaged as a whole if the automobile had been banned to protect the buggy-whip industry.)

Manual forms of machining CNC superseded: CNC-like systems are now used for any process that can be described as a series of movements and operations. These include laser cutting, welding, friction stir welding, ultrasonic welding, flame and plasma cutting, bending, spinning, hole-punching, pinning, gluing, fabric cutting, sewing, tape and fiber placement, routing, picking and placing, and sawing.

Certain kinds of parts: What are these?

There are still accuracy and other limitations: What are these?

Bye the way, with the advent of the auto people kept using horses and buggy whips for a long time, but they soon quit manufacturing buggy whips in all but a very few locations. The point is the resale value for obsolete equipment goes down. I still have not seen how the old and new technologies are used together, or how to use the old technology to step into the new. Watching the videos for the additive manufacturing it seems to need very little extra equipment. If we have to buy old equipment, what do we do with it when we get the new? Also, I haven't seen how the size of the part makes any difference. Please help me understand. Please send links when you do.

Thank you,

Paisii