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Viewpoint: Competitive Advantage vs. Collaborative Advantage

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Almost no semiconductor company works with a standard design flow. The current EDA tools are not complete in addressing the entire needs of a company. By that I mean the capabilities offered by the current EDA tools are necessary, but not sufficient. Inevitably, every company builds custom tools to support their flow. Most of these tools either involve extending the existing EDA tool functionality or developing a framework for increasing the efficiency of the design or verification process. However, these neat little tools or ideas never come out. They are seldom published or advertised because every company believes that they lose a competitive advantage by disclosing these ideas. Thus, the competitive advantage clouds a big possibility of a collaborative advantage.

Competitive advantage is necessary for every company to succeed in this ruthless marketplace. However, the time is ripe to think about collaborative advantages too. Let us define collaborative advantage as the advantage gained by a company due to its contribution to the technical community by developing methodologies, taking leadership in solving outstanding challenges and addressing the general issues that everyone in the community is facing. These issues do not directly affect a company's financial objectives or business model. However, solving these problems is critical in efficiently meeting the business needs. Hence, every problem solved in a company is tied to its competitive advantage.

Then, what about the collaborative advantage that has worked so well in the open source community? Every person does their bit in solving an open challenge or improving on a need so that the entire community can benefit. Will this work in the semiconductor industry? It is absolutely necessary for the big players in the semiconductor industry to evaluate the ratio of competitive advantage (COMA) to collaborative advantage (COLA). If the ratio of COMA to COLA is greater than some reasonable number, then you protect the idea. However, if it is otherwise, then it will benefit the company to publish the idea and take leadership in developing the solutions everyone in the industry needs. For the EDA tools to start offering more personal solutions catering to its customers, this becomes even more important.

The concept of COLA also works in a company's benefit. Normally, staffing is a big deal in any company. A team always runs short of resources over the course of a project life cycle. The time a company invests in developing home brewed tools is an added staffing overhead. There is no doubt that this is a much needed investment of time and resources for improving the project life-cycle efficiency. Basically, we can adopt this thought process "We think that every tool we develop has a competitive advantage, which means that our engineers can get job done faster than other engineers in other companies. This is the reason we don't publish or share our ideas. However, are we sure that others don't have similar or better ideas? Like we do, don't other companies invest in tools and methodologies? If everybody thinks of competitive advantage, how are the new methodologies going to come out in the open? How do we advance and perfect our practices?"

Recently, I was reading a book about Creative Capitalism. The book was based on Bill Gates' famous speech on the same topic and presented discussions with Gates and Buffet about how to maximize profit while helping the world. Probably, in the semiconductor industry, we need collaborative capitalism. At least a forum where people can openly discuss the issues that are methodology based. We get so much caught up in implementation. When I look at many tech forums, magazines and workshops, the discussions are almost always on the challenges of a modeling language, features of a tool, etc. I agree that this might be an exaggeration, but the point is we start focusing on methodologies that are agnostic to languages and tools.

How to determine the COMA to COLA ratio? My opinion is that if COMA: COLA is greater than one or fifty or some number that seems reasonable, then we should preserve the idea, else share it. Determining this ratio is a challenge not because it is hard, but requires some serious gut-checking. Also, the method might vary across companies and across teams. I have come up with the following questionnaire based approach for determining the COMA to COLA ratio.

1. Does this idea have a direct impact on our profits?
2. Can we staff for this idea to completion?
3. If we publish or disclose this idea, would commercial tool vendors be able to address this in their next releases?
4. When we publish this challenge or methodology, are we creating a healthy competition among vendors to come up with the most optimum or effective solution?
5. Does publishing this idea give an unfair advantage to our competitors?
6. Are we sure that this is the best method to solve this problem? Can we convince ourselves that nobody else has this method meaning our products get much faster to the market?
7. Can we also take leadership to address open challenges in the industry in addition to developing cutting edge products?

The above questions can be one set of sample questions that help in determining whether an idea or methodology is to be disclosed or preserved. All the questions above need not have the same weight. For instance questions 5 and 6 can become very important as they require an honest evaluation of the ideals and philosophies of the company. When companies get out of the shell to protect everything they own irrespective of the significance of what is being protected, a healthy corporate culture is also created. Employees can develop a sense of leadership and community service/awareness that helps them grow professionally and infuse a positive feedback to the company's culture.

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