Engineering capacity Management Analytics

Avoid making multi-$M engineering platform decisions at risk....

March 2025

Silicon Insights

Poor understanding of compute and EDA capacity requirements results in **multi-$M decisions being made at risk** affecting efficiency and effectiveness of your engineering platform. Using skills and proprietary tooling, Silicon Insights offer capacity planning and management analytics that identify resources required, understand costs and assist with commercial strategy.

Does existing capacity meet engineering platform demand requirements?

Whenever there is a mismatch between the engineering platform demand forecast and the engineering platform capacity plan, action must be taken to reconcile the two. This action needs to take place once all relevant demand forecasts have been scrutinised and checkpointed. The key question is does the existing capacity plan meet the total demand forecast needs and therefore can the team deliver the engineering roadmap? If the demand forecast does not reconcile with the capacity plan, then either the demand forecast needs to change, or the capacity plan needs to be adjusted to ensure that all roadmap projects can be delivered according to the given schedules. If there is a significant capacity shortfall, further investments in platform capacity may be needed, either as a short-term uplift, or as a permanent platform expansion. The business then needs to reconcile these additional costs with the forecast revenues and the ROI of product development.

Platform constraints lead to difficult compromises

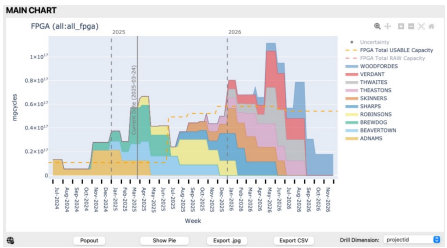
Alternatively, demand forecasts can be iterated to realign product delivery dates and milestones to force-fit the demand to the planned capacity. Thus, the demand forecast is levelled against the capacity. This will alter the roadmap and delivery dates of some products and again the business will have to reconcile the later delivery of some products against the revenue forecast.

When undertaking a demand forecast levelling exercise, it may be necessary to prioritise key products so that commitments are maintained for some products, while others can be delayed. There are other options. If efficiency and effectiveness can be improved, and the team can invest in such endeavours, the demand may be reduced. There is another less desirable option to reduce demand at the expense of quality.

Businesses need early warning of a capacity crunch

In practice, capacity levelling is a combination of both capacity adjustment and demand forecast levelling. The team may choose to uplift capacity to maintain commitments for critical products but accept some delay for less critical ones.

The key point here is that the business needs early visibility and analysis of demand forecasting versus platform capacities. Without this, business leaders cannot plan and commit to product roadmaps, or reason about the cost of development and product ROI.



Capacity Analytics Service to manage risk

Engineering organisations must constantly balance the provision and costs of engineering platforms against the needs of the engineering teams in terms of what they need to deliver the required product on time and on quality. Experience and industry studies, indicate the cost of the engineering platform can be in the region of *30-40% of the total development cost for a complex hardware IP or a SoC product. Engineering leaders need to plan for right-sized capacities and to do this they need accurate data, plausible demand forecasts, and instructive analytics.

These investment decisions can be $multi-million in either direction, the cost of underinvesting on product delivery and quality, or the cost of overinvesting on product ROI and business success. **Silicon Insights guide engineering leaders on the data, the analysis and the governance and processes necessary to achieve capacity management success leading to more predictable results.**

* Encouraging Innovation: *The Policies and Partnerships Needed to Support Semiconductor Startups*, Daniel Armbrust, April 2024.

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For further reading
Bryan and Joe have co-authored a series of articles and white papers which can found on Silicon Insights' website using the following QR code.

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