



DESIGN SOLUTIONS

for tomorrow's engineers

Tomorrow's electronics
designers need the bigger
picture to **INNOVATE**



ALL ENGINEERS LIKE TO be creative. It's an essential part of being an engineer. But how many engineers actually have the time to create what they envision these days? There's a lot of talk about design solutions that help engineers move beyond today's challenges for creating next generation technology. Understanding what is needed for engineers and design solutions is key to equipping for future innovation.

Organizations are looking for engineers who think **LATERALLY**

Market factors have radically changed the engineering role from what it was ten years ago. Engineers were more specialized and usually worked in isolation with little connection to outside processes. Unfortunately, design approaches haven't progressed and still reflect this old paradigm, based on the integration of different point tools. The problem is that these solutions are now aging architectures not made for today's engineering demands. And they're just getting harder to use.

Engineers are required to be more dynamic than they once were and no longer fit into specialized roles to the same degree as previously. Capable of more abstract thinking and high-level problem solving, they are also geographically spread out. Next generation engineers are less into repetitive tasks and are connected. There are more demands on them than ever before. Keeping this workforce relevant and skilled into the future has become a top priority for companies.

Electronics organizations need better solutions to be prepared for the future and move beyond the old ways. What is needed is a new way of thinking – a single unified approach to the entire design process that models where development is now. It can help cope with the demands of creating the innovation needed by electronics companies today, instead of just managing the complexities. When looking at each part of this scenario in depth, it's easy to understand why this conclusion is probable.

Looking for a business-minded engineer...

A fragmented design process where engineers work as a silo isn't effective for developing today's technology. It's forcing companies to take a fresh look at all aspects of workflow instead of just individual aspects of it and decide if their design environments are adequately equipped. They need to start with understanding how the roles of engineers have changed from the past to know how best to equip them now.

Requiring engineers to take increased responsibility for customer satisfaction and ultimately business success is coming into the spotlight. Design organizations are looking for engineers who show the aptitude to think laterally and be forward-looking. They need to understand business needs as well as engineering needs. And they still need to be creative and

innovative in addition to being technically competent across a variety of disciplines. It's no small ask.

Those then who can embrace every aspect of board-level design will play an important part in the strategies of worldwide companies. Not only can these engineers balance more aspects of the design process but they can also be involved in multi-disciplinary project teams. Leadership ability is also being recognized as essential as many employers look for engineers who show potential for managing high-priority, complex projects. This represents a significant value for companies which need engineers to communicate and understand the needs of other people outside of their immediate team and comfort zones.

In short, engineers must be more business-minded and responsive than ever before. They must have enough savvy to hit the ground running with their ideas. The days of working in the dark and being completely micro-focused are almost a thing of the past – having sight of the big picture, creating innovation leadership and customer satisfaction has become everything. What's most suited then for these engineers is a design environment that better enables the skills needed and allows them to be fully engaged.

A single view of design

It's equally important to understand that the boundaries between hardware and software are becoming increasingly integrated. Hardware configuration doesn't drive design anymore. What is needed is an environment that provides a single design application and uses a single coherent data model. This allows key elements of the design to be moved into the soft domain. Incorporating a 'soft' approach offers further advantages such as a unified methodology, design automation and reuse. It also allows rapid prototyping and concept exploration without the upfront commitment of custom designing a board.

Once the design perspective is no longer locked into the hard domain, the abstraction level that board-level engineers work at can be raised. This effectively hides the levels of complication from the engineer, creating a dramatic change of focus. The engineer can suddenly approach a task from the customer's point of view rather than having to make a decision about hardware configuration before it's even been decided what the product will do.



Time-to-market pressures will always be there but the wheel will still need to be

RE-INVENTED

Complexities that once made up the inherently difficult part of the traditional design approach (i.e., board design) are downgraded appropriately to something manageable. Focus is once again back on product differentiation and innovation instead of just 'survival drivers'. A single view covering all aspects of the design is created.

Adopting a unified approach allows engineers to focus once again on innovation and device intelligence, where the real functionality and value lie. It's a better approach for today's designs that helps engineers overcome design obstacles and focus instead on future innovation.

The solution for the future

A strategically developed environment that offers both a unified approach and ways for worldwide engineering teams to be fully engaged will make the most difference moving beyond today's challenges. Every part of board-level design can be considered. Engineering teams can work more effectively as leadership innovation groups. Clearly defined project languages and definitions enable project teams and engineers to move beyond technical and cultural barriers. The advantages aren't just for the project either; everyone benefits. By being able to cross different realms of design, engineers themselves are able to diversify from previous conventional roles by building additional skill sets.

With diversified workloads and emphasis on design innovation, engineers have a greater need than ever for a unified and single design solution. And companies are focusing on core product development as a strategy for innovation leadership – time-to-market pressure will always be there but the wheel will still need to be reinvented! Since market demands have moved most design projects beyond the scalability of current methodologies and approaches today, shouldn't engineers be equipped with comparable solutions as well? ●

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