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Innovation often stems from team-building measures

ACHIEVING CREATIVITY AND INNOVATION IN ENGINEERING

Casting aside the traditional norms of productivity is necessary to effect innovation



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Creativity and innovation in an industrial context generally means to make something which is original, novel, and imaginative to bring additional value to the client relative to existing products and services. All innovative or creative activities need a set of requirements to thrive. They cannot be taught in a traditional framework. Instead we need to create an environment where knowledge, skill and innovative processes are synergised to bring about creativity and innovation. Knowledge and skills can be divided into two sections — generic knowledge and skills, and subject specific knowledge

and skills. The most universally accepted creativity technique is brainstorming, or otherwise called brain writing. However there are other techniques like morphological analysis, forced connections etc. The techniques used should be suited to the phases of the innovation process like exploration of the problem, generation of ideas, or selection of concept.

The innovative process on the other hand begins with a need or opportunity and completes with a product or software system that is launched into the market. The process of innovation is iterative and many avenues are evaluated before a solution is reached. In software engineering or industrial design, it is a concurrent activity whereby different parts of the project are at different stages of work in progress. Innovation management ensures that the various modules or sub activities are integrated seamlessly. The objective is to ensure commercial

REQUISITE SKILLS NEEDED BY CREATIVE AND INNOVATIVE ENGINEERS

- Generic skills such as problem solving, data analysing, and critical thinking are core skills for fuelling creativity.
- Design skills
- Expertise in a specific field enables one to focus on the problem.
- Capability to work with other experts. Creative solutions are usually enhanced by interaction with others who have relevant expertise because creativity tends to be the outcome of a detailed, interactive exchange.
- Cross-functional project work, which brings together people with complementary skills.
- Increased use of problem-based learning and inquiry-based learning approaches.
- Innovation management is critical. The approach to managing innovation has a major impact on how creativity finally takes shape and effects value addition.

viability of the project before additional resources are committed. Finally, it is the people who make a difference. Innovation needs leaders who can establish an innovation-friendly culture, and manage innovation. employees who have strong generic skills and a good understanding of how to apply relevant technologies and, people with a good understanding of the market, in terms of the specific needs and wants of the consumers of the product or service. Additionally, innovation also needs people with business acumen who have the ability to commercialise a product or service.