

Productive Innovative Engine (PIE)

The top-left diagram, titled "PIE Team Players", lists five roles: Thumb - Business (Entrepreneur), Index - Customer (Marketplace), Middle - Technologist (Production/Service), Ring - Engineer (Design & Development), and Little - Scientist (Research). It also includes "Area - Logistics (Global Supply Chain) - Move Staff" and a URL: <http://bcswonline.blogspot.com/2010/08/create-job-opportunities-with-pie.html>. The top-right diagram, titled "PIE Team Hats", shows a diamond-shaped structure with "PRODUCT TEAM HATS" at the top, "Logistics" on the sides, and "Global Supply Chain" at the bottom. It lists "Innovative Engine Hats" as Engineer, Scientist, Technologist, Customer, and Business (Entrepreneur). It also includes a URL: www.bcswonline.com and www.bcswonline.com/blog.

- Research - Scientist Hat
- Design & Development - Engineer Hat
- Production/Service - Technology Hat
- Marketplace - Customer Hat
- Entrepreneurial/Manage - Business Hat
- Global Supply Chain - Logistics Hat

<http://www.bcswonline.com/PIE/index.html>

The bottom-left diagram, titled "Technology to Product Example", shows a diamond shape with "TECHNOLOGY" at the top, "PROCESS" at the bottom, and "PRODUCT" on the right. It includes axes labeled X, Y, and Z. The bottom-right diagram, titled "Focus on Continuous Improvement", shows a diamond shape with "DEVELOPMENT" at the top, "PRODUCTION/SERVICE" at the bottom, "RESEARCH" on the left, and "MARKETPLACE" on the right. It includes a central cycle with letters E, T, S, C and a box labeled "BUILD ON PRODUCT VERSIONS".

Entrepreneurial Processes - 2

FIRST Robotics



think tank Engineering Design Process

1. Define the Problem
2. Generate Specifications
3. Specification Ranking/Weighting
 - 2a. Add More Specifications
 - 3a. Re-rank Specifications
4. Brainstorm Design Concepts
5. Prototyping
 - 4a. Brainstorm more Design Concepts
 - 5a. More Prototyping
6. Choose a Concept
 - 5b. More & More Prototyping
7. Detailed Design
 - 5c. More Prototyping
 - 4b. Determine more Design Concepts
 - 5d. More Prototyping
 - 7a. More Detailed Design
8. Manufacturing & Implementation
 - 4c. Back to the Drawing Board More Design Concepts
 - 5e. More Prototyping
 - 7b. More Detailed Design
9. Analyze Results
 - 8a. Build it again ...
 - 9a. Test
 - Etc.... etc....

<http://thinktank.wpi.edu/article/156>

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