

Develop Long-Lasting Engineers with Highest Skill and Craftsmanship

- work as hands-on engineers for years; not encouraged to enter management early
- mentored closely in engineering and deep problem-solving skills

Set-Based Concurrent Engineering

- generate many alternative designs in parallel

Cadence

- with short regularly-timed cycles, with small batches of work

Managers Who Are Master Engineers and Teachers

- a key role of 'manager' is teacher
- "at Toyota, your boss can always do your job better than you"
- apprenticeship model

Cross-Functional and Product Mindset

- people and teams emphasize cross-functional integration
- focus on product success over departmental or functional (e.g., test, design) goals

Lean Product Development — "Outlearn the Competition"

Team Room with Visual Management

- chief engineer and others meet and work face-to-face in a large common room, not separate offices; cross-functional members
- visual management: display engineering/ project data on walls
- see pictures in this chapter

Entrepreneurial Hands-on Chief

- engineer responsible for technical *and* business success
- an up-to-date great engineer with entrepreneurial spirit is given not only technical control, but project and business control
- rather than a marketing or other non-engineering specialist