Technical Staff Pipeline
Process, Challenges, and Opportunities

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Technology Management Challenges

- Tracking Technology trends
- Complex Supply Management
- Quality Marketing
- Interface complexities / lack of standards
- Design for Security
- Strong technical staffing

Today we want to look at typical corporate technical pipeline and focus on case examples in often ignored areas

Technical Pipeline

- Parallel to management defining technical seniority and leadership
- Responsibility rests with both a management and technical leaders
- Distribute technical leaders strategically to impact all product aspects
- Ignoring areas like manufacturing, enablement and support can cost the bottom line.

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Leadership: See the Parallels

https://www.youtube.com/watch?v=GPeeZ6viNgY

- All are frustrated over challenges
- Most are looking for others to be responsible
- Many wish problems would just "go away"

- Leaders
  - Realize the need to confront the challenge
  - Ignore the hurtles, even if appears impossible
  - Engage in a strategy to resolve
  - Motivate others to understand they can help
  - Build the path to the solution
  - Make it happen
  - EARN RESPECT

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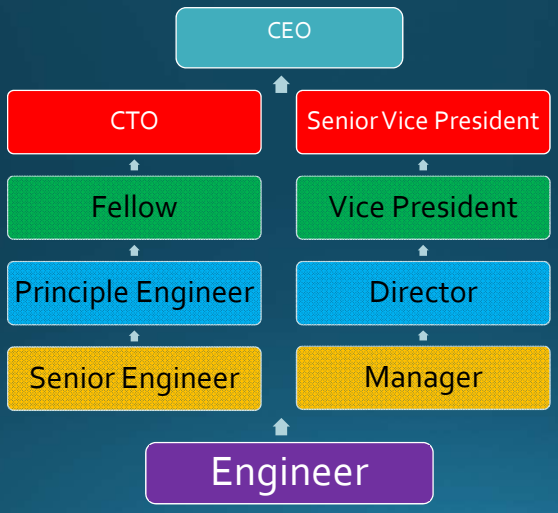
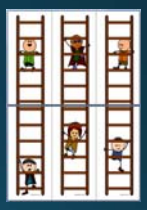
Typical Staff Development Ladder



Many sub-steps can exist



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Typical Key Criteria for Seniority

- Technical Expertise – represent individual knowledge
  - Patents, Papers, Presentations
  - Feature designs, solutions to customer's technical problems
- Leadership and Strategy
  - Recognized leader in the company and even outside
  - Consistent technical contributions
- Role Model and Mentor
  - Effective track record model and interest of mentoring others
- Embrace Business Requirements
  - Business strategy and its technical needs
  - Communication and influence particularly with the customer

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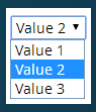
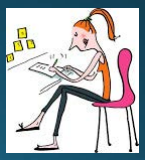
Common Selection Process



- Evaluation Team representing management and technical leaders
  - Scope of team depends on level from first line to executive
- Candidates internal or external but criteria is essential
- Balance business revenue to senior technical staff count
  - Often a rank ladder is used
- Focus on areas where company needs expertise
  - Research, Product Architecture, Enablement and Support, Manufacturing



Focus is a key management responsibility!!!

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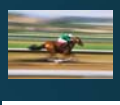
Business Technical Pipeline Values

- Smart current and future Product Design
  - VPs need this technical advise to make funding decisions
- Keeping up with technology velocity



- Global recognition of technical excellence
- Knowing competitor's technical areas

- Distribute Technical Smarts across the company
  - Smart Enablement for customer demands
    - Particularly true with complex technical products where the end user is rarely technically skilled but the product is
    - Customer recognition of brand and quality
  - Utilizing new technologies in production/manufacturing

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Sample Cases

- Numerous examples from research and development
  - Products (PC, iPhone, Wearables, …)
  - Elements (USB, hinges, power systems, etc.)
- Three examples from enablement*
  - Negative Outsourcing of Support
  - Product design changes, power delivery example
- Manufacturing example*
  - Adding IoT Smarts to Manufacturing

*All based on real cases but company/product names are not cited

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Outsourcing and Support

- OEM outsources PC motherboard including BIOS and its support
- Support team works from script
  - Instructions: after all scripts, replace system
- Situation: External drive vanishes from OS after inactivity
- Cause: BIOS error
- Estimated Impact
  - The brand of drive about 20% of the market
  - OEM owns about 25% of this type of PC for that year, model about 15%
  - Total Market Size 150M units for this type of PC*
  - Replacement costs: 80% of revenue per unit
  - 3 replacement average implies $148M loss by poor support

* Market size source IDC, others are author's estimate, data not available

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Processor Design Change

- New processor changes power delivery requirements
  - Many power rails needed, depending on product – not one size fits all
  - Mobile systems have additional power restrictions to save battery life
- Vendor starts with "last years" design
  - Estimates $10 cost adder for mobile, $5 cost adder for desktop
- Managing the impact
  - Innovative co-design with vendor and partners
  - Redesigned power circuitry reduced delta $0.05 mobile, and $0.03 desktop
  - Ecosystem savings impact*
    - $327.5M (mobile) + $867.5(desktop) = $1195M Ecosystem Cost Savings
    - Someone would have to pay (end customer, vendor, processor provider)

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* Market size source IDC 2014, 50% impact

IoT Instrumentation

- Silicon Production Yield improvements
- IoT instrumentation and analysis of manufacturing facility
  - Add sensors to monitor machine parameters and continuously analyze big data (10TB/Wk) from IoT gateway feed to predict part failure
  - Analyze the relation between motor inaccuracies in oven from gateway feed
  - Employ high definition image analysis to identify both good and possibly bad parts
- Impacts
  - Sensor analysis provided timely replacement of parts before failure with a >90% accuracy
  - Motor inaccuracy points discovered to be tool pressure settings allowing correction
  - Image analysis improved part selection process
- Overall, significant cost reduction and yield improvements

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Myths and Realities – Do's and Don'ts

- Individual side
  - Life has no GPS, there is no magic tool to guide you
  - People will not necessarily notice even if you are doing a great technical job
    - You need to show others your technical skills and impacts
    - Communicate at every opportunity
  - Balancing leadership and technical skills is not easy, you must find it.
  - Build relationships to evaluators
- Manager side (and "committee side")
  - Encourage and reward technical leadership and achievements
  - Look beyond the ones that are "nice" to you
  - New Teams should not rush and pick too soon, old teams look beyond "friends"
  - Look for leadership and mentors, not just technical depth alone
  - Discourage politics in criteria

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Summary

- The Technical Pipeline parallels management ladder defining technical seniority and leadership
- Both Technical leaders and managers have a key role in building a strong Technical Pipeline
- Management must distribute its technical leaders across the company to impact products at all aspects
- Typically research and architecture are first, but ignoring manufacturing, enablement and support will cost the bottom line.
- Be consistent in criteria, count what matters, focus on values not just friends or company establishments

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Questions?

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Join TEMS and in a TAC

- Network, locally and internationally
- We are planning a SJSU chapter soon
- Engage with Technical Activities Committees
- Start with Conferences
  - Industry Summit 2016
  - Summit and TEMSCON 2017
- Opportunity for Publications
- Good growth opportunities

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