



Panel: Improving the Effectiveness of the Systems Engineering Workforce

NDIA Systems Engineering Conference

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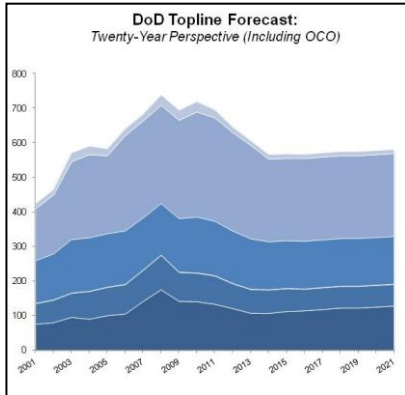
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Context: Quantifying the Business Need for Growing Capability of the SE Workforce



Market Trends

- Increasing complexity
- Greater competition for declining resources
- Technology innovation
- Diversification into adjacent markets

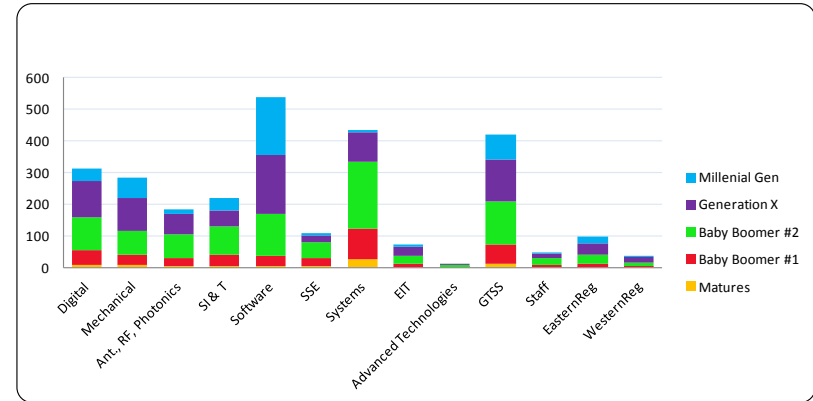
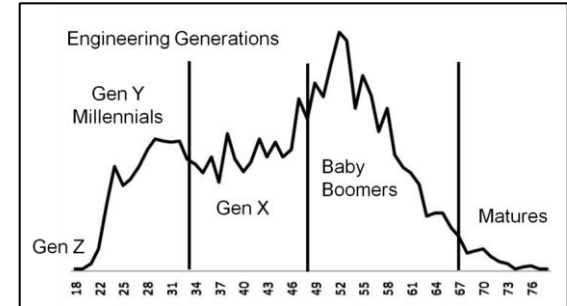


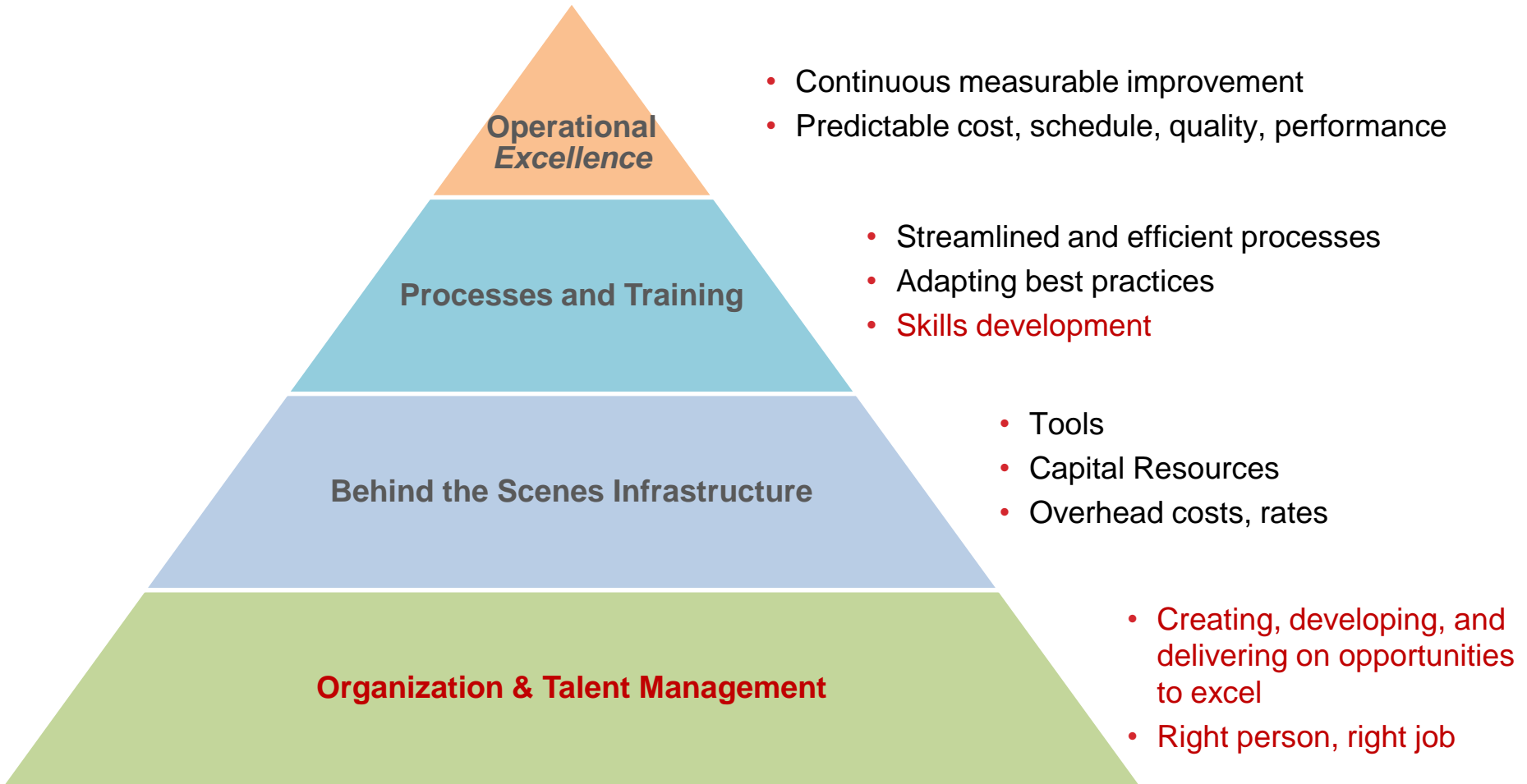
Business Drivers

- Growth
- Speed
- Talent
- Strategy
- Affordability



Demographics





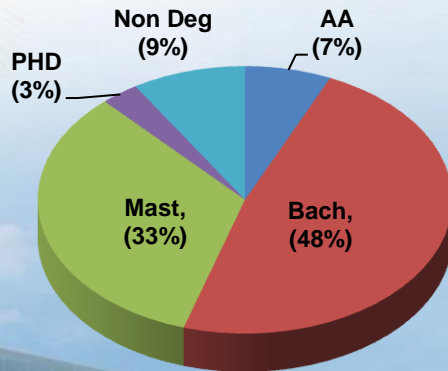
Capability of the Engineering Workforce is a Foundation for Business Performance and Growth

54% GCS Employees are Degreed Engineers with an Average of 14 Years of Service

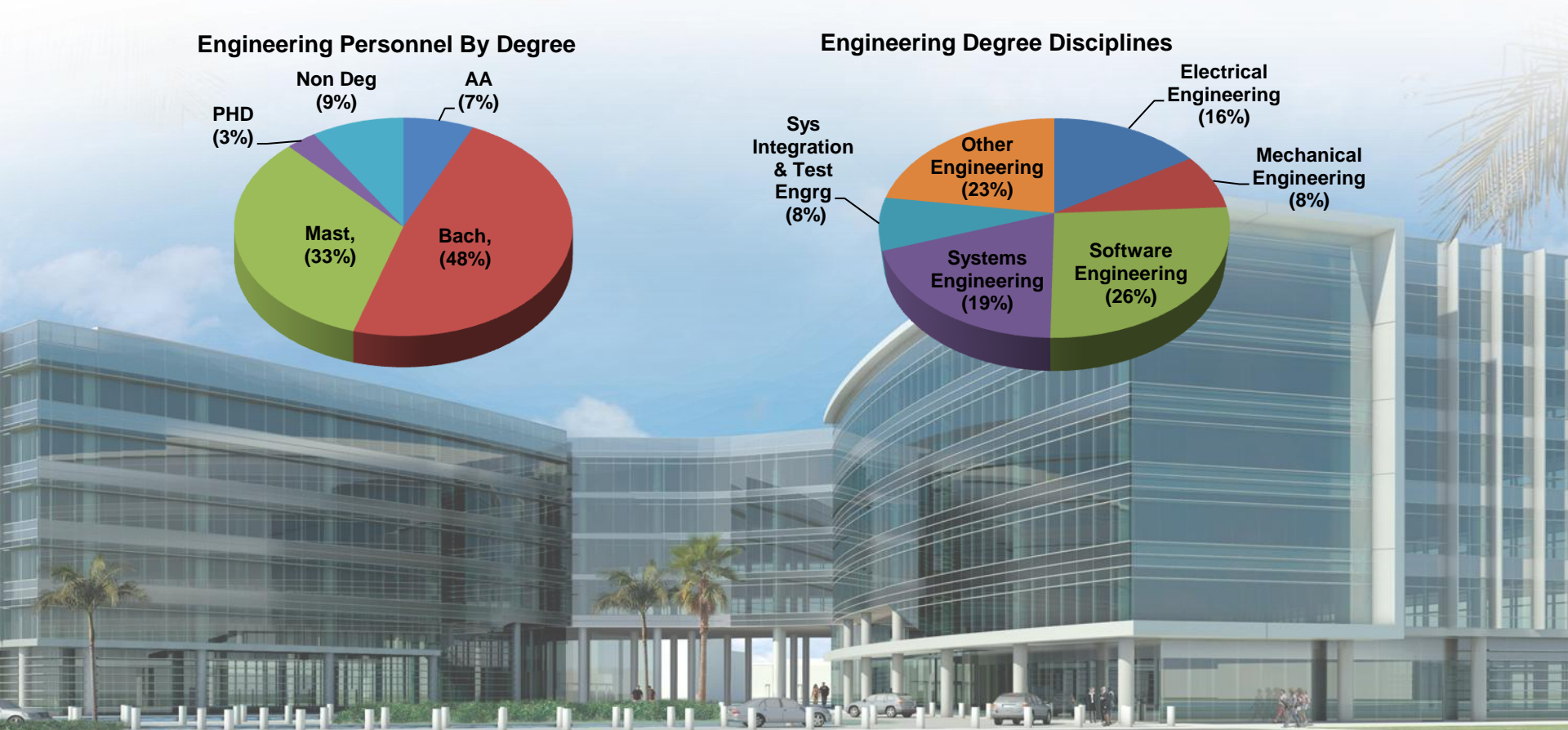
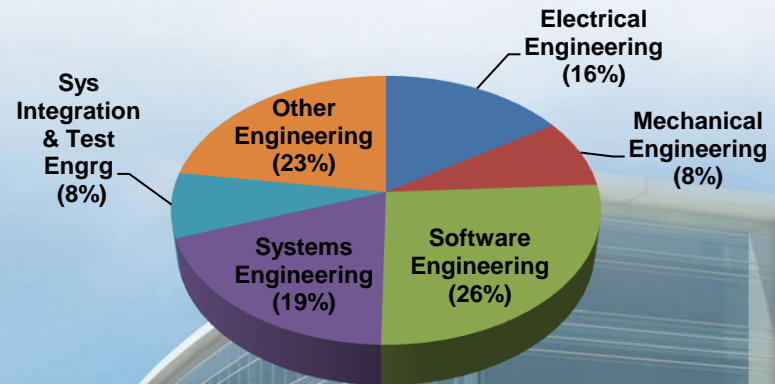
\$100M investment in High Technology Center

- Increases technological innovation
- Enhances collaborative thinking

Engineering Personnel By Degree



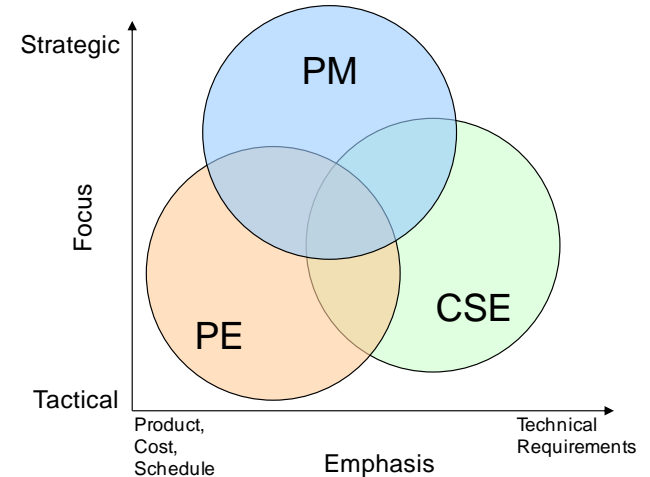
Engineering Degree Disciplines



Harris SE Leadership Roles



SE Role	Definition
Chief Systems Engineer (CSE)	Senior technical authority and point of contact for a program, pursuit, study.
Project Engineer (PE)	Implements and executes the plan for delivering the system, within established cost, schedule, and technical baselines.
Systems Architect	Creates program conceptual approach based on a thorough understanding of customer mission, applications, and value system.
Advanced Programs Engineer (APE)	Provides strategic technical leadership to draw on Harris technical competencies to meet the business needs of Harris and its customers.
Enterprise Architect	Works with stakeholders to validate understanding of an organization's strategy, processes, information, and information technology assets.



Harris Strategies for Growing SE Capability

- Workforce assessments
 - Leadership
 - Technology
 - Succession planning
 - Workforce competencies
- SE development
 - Transfers from other disciplines
 - “Systems thinking” across functions
 - Sponsored MSSE / MSEM programs
 - Training and development
 - Career planning (tech vs. mgmt paths)
 - Formal mentoring program
 - SE forums, seminars, working groups
- Key initiatives: processes and tools
 - Model-Based Engineering
 - Affordability, Design to Cost

<p>Mission Leader Succession Plan</p> <ul style="list-style-type: none"> • Who drives: VP Sys Eng, Eng Dirs, SEDT (SE EM's) • Attributes: mission/domain knowledge, deep cust understanding & credibility, technical breadth, strong business acumen • Position(s): APE, PL Lead Engineer, Chief Engineer, BDM 	<p>Technology Leader Succession Plan</p> <ul style="list-style-type: none"> • Who drives: Discipline Teams, Eng Dirs/SEDT • Attributes: Deep discipline technology knowledge, ability to apply technology in creating discriminators, ability to influence & lead tech teams • Position(s): Sr. Scientist and Engineering ranks, SE/CSE/SA
<p>Project Leader Succession Plan</p> <ul style="list-style-type: none"> • Who drives: Discipline Teams, Eng Dirs/SEDT • Attributes: Broad technology knowledge, demonstrated ability to execute plans, ability to influence and lead technical teams, strong prog perf • Position(s): CAL, IPTL, PE, PM 	<p>Engineering Management Succession Plan</p> <ul style="list-style-type: none"> • Who drives: Discipline Teams, with close VP review • Attributes: high potential and/or demonstrated ability to influence and lead discipline teams • Position(s): GL, EM, Director, VP



	SE/INT Processing Systems	Software Systems	Space Payloads-Systems	Space Reflector Systems	Spectral Systems	S/WAF Constrained Systems	Telecom Systems	Weather Information Sys	Wireless Systems	MSSE	CSI	PE/PPE	IPT	Idly Programs Eng	Architect	Subcontract TM	Idly Products Eng	Innovation
Target Expert 3	4	15	6	3	2	6	3	5	5	28	10	15	5	7	4	5	2	
Target Expert 2	0	0	0	2	2	0	0	0	0	52	0	0	0	0	0	0	0	
Target Expert 1	0	0	0	1	1	0	0	0	0	26	0	0	0	0	0	0	0	
Current Expert 3	9	21	6	2	1	7	10	8	9	2	39	31	12	27	25	5	2	10
Current Expert 2	10	32	5	7	3	16	8	6	10	3	16	18	16	29	17	10	5	32
Current Expert 1	2	10	3	3	1	4	6	2	4	21	10	6	3	0	7	3	1	60
Current Experience 6	2	17	0	0	0	9	3	1	1	0	14	9	25	10	6	2	0	0
Current Experience 5	13	83	6	7	2	25	21	8	13	0	18	15	41	17	25	16	0	0
Current Experience 4	10	15	6	7	3	7	7	2	9	0	15	6	9	9	9	4	1	0
SKILL	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼

The Harris strategic growth plan depends on developing future leaders. Action plans are defined and tracked to close capability gaps.

Developing the Workforce in a Matrix Organization



Action	Engineering	Programs
Performance Management	<ul style="list-style-type: none"> • Perf. reviews (annual, periodic) • Regular communications (formal and informal) • Mentoring, counseling, action plans 	<ul style="list-style-type: none"> • Day-to-day oversight • Regular feedback to employee • Periodic inputs to Eng Mgmt chain (performance, salary planning, ...)
Rewards and Recognition	<ul style="list-style-type: none"> • Formal and informal recognition • MBWA 	<ul style="list-style-type: none"> • Program team/peer recognition • Nominations for formal recognition
Career Development	<ul style="list-style-type: none"> • Staffing assignments • Salary planning, promotions • Succession planning • Calibration across departments 	<ul style="list-style-type: none"> • Salary planning input • Promotion input (solicited, unsolicited) • Program role opportunities • Mentors, protégés
Training	<ul style="list-style-type: none"> • Role-based career learning paths • Strategic skills development • Tools, processes, technologies • Classroom, CBT, forums, lunches 	<ul style="list-style-type: none"> • Program training (domain, tools, processes, etc.) • Cross-IPT collaboration, sharing, WGs
Employee Engagement / Communications	<ul style="list-style-type: none"> • Periodic interaction • Harris communications, roundtables • Employee resource groups • Status reports, briefings, email 	<ul style="list-style-type: none"> • Daily interaction • Business area/program communications • All hands, staff meetings • Program socials, team building

Effective workforce performance and retention is a partnership between Engineering and Programs



Innovation. Performance. Anytime. Anywhere.

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