



Comprehensive Study of Nuclear First-Line Supervisor Effectiveness

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Report Overview

- Describes the purpose of the study and the assessment tools used.
- Summarizes findings from across all sites.
- Provides recommendations for how to use findings from the study to improve supervisory effectiveness.
- Includes an Appendix with detailed results.

Study Overview

- **Purpose:** Identify key characteristics differentiating effective and ineffective first-line supervisors (FLS) across the nuclear industry.
- **Sample:** 281 FLS from 4 sites
- **Process:** Administered online questionnaires to FLS and their direct managers.
 - FLS Leadership Inventory contained a broad spectrum of measures related to leadership including experience, personality, and work attitudes.
 - Direct managers were asked to provide ratings of effectiveness and potential of the FLS.

Description of Surveys

FLS Leadership Inventory

- Education
- Military Experience
- Industry & Leadership Experience
- Daily Time Allocation
- Motivation to Lead
- Leadership Self-Efficacy
- Person-Job Fit
- Role Ambiguity
- Organizational Alignment
- Job Satisfaction
- Organizational Commitment
- Transition to Management Team
- Personality Questionnaire

Manager Ratings

- Effectiveness Ratings on 19 Competencies considered important to the FLS role
- Effectiveness balancing administrative and in-field duties
- Overall Effectiveness
- Performance Relative to Others
- Transition to Management Team
- Long-Term Potential for Advancement
- Recognition as a High Potential by others
- Considered to be a Potential Successor

Demographics: FLS by Site & Department

Site	
Site A	81 (29%)
Site B	84 (30%)
Site C	62 (22%)
Site D	54 (19%)

Department	
Engineering	26 (9%)
Maintenance	81 (29%)
Operations	68 (24%)
Security	38 (14%)
RP/Chemistry	24 (9%)
Training	15 (5%)
PS&O	14 (5%)
Other	15 (5%)

Demographics: FLS Education

Level of Education	
Some High School/Diploma/GED	14%
Some College/Technical School	30%
Technical or Associate's Degree	12%
Bachelor's Degree	26%
Graduate or Professional School/Degree	18%

- Overall, FLS education level was not related to manager ratings of FLS effectiveness or potential.
- However, higher manager ratings of FLS effectiveness were related to **higher class standing** in high school and **higher GPAs** in graduate school.

Demographics: FLS Experience

	< 5 yrs	5 – 10	>10 yrs
Industry Overall	9%	10%	81%
Current Plant	21%	17%	62%
Supervisory	55%	20%	25%

- **Experience matters.** FLS with more supervisory experience were rated as:
 - More effective overall
 - Having made more progress transitioning to the management team
- FLS with more supervisory experience:
 - Perceived that the job is a **good fit** for their abilities
 - Were more **confident** in their leadership capability
 - Had a better understanding of the requirements of the role
 - Reported higher job **satisfaction**
- The **more outages** an FLS had worked in a supervisory capacity was related to making a **better transition to the management team** regardless of how much supervisory experience they had overall.

Demographics: FLS Military Service

Military Service	
Served in the Military	42%
Served for 5 or more years	83%
Held a leadership position for 5 or more years	27%

- There were **no differences** in manager ratings of FLS effectiveness and potential for FLS with and without military experience.
- However, FLS with military experience are **less likely** to feel that they:
 - Are treated as a core member of the management team
 - Receive communications in a timely manner
 - Are told the reasons behind key decisions
 - Are involved in making organizational decisions
- FLS from the military also reported **lower commitment** to the organization.

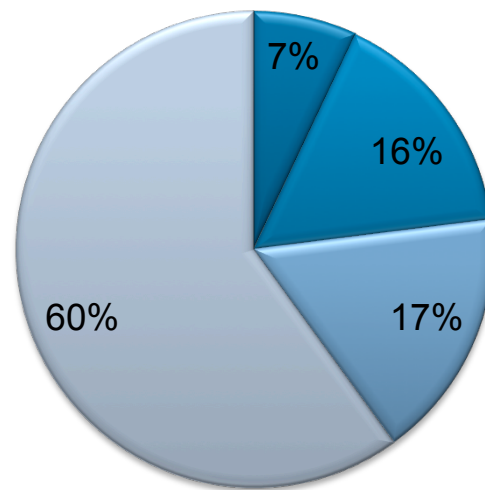
How FLS Spend Their Day

Tasks	Percentage of Time Spent on Task
Scheduling and assigning work	22%
Managing emergent work and issues	20%
Direct report oversight	19%
Coaching and mentoring others	12%
Responsibilities related to the corrective action program	12%
Professional development and education	5%
Attending meetings not related to other areas above	10%

- Overall, 36% of FLS reported that they **effectively balance** in-field time with administrative duties.
- FLS who felt effective in this area were **more satisfied** with their jobs, **more committed** to the organization, and had a personality profile reflecting a stronger **need for social interaction**.
- FLS considered by their managers to be more effective at balancing in-field and administrative work were also considered more effective in the areas of:
 - **Workload Management** – able to multitask and manage his/her time
 - **Strategic Vision** – has a vision for excellence and sees the big picture
 - **Inspiration** – motivates and energizes people to contribute at a high level

FLS Training: Amount & Source

Days of managerial and/or leadership skills training received

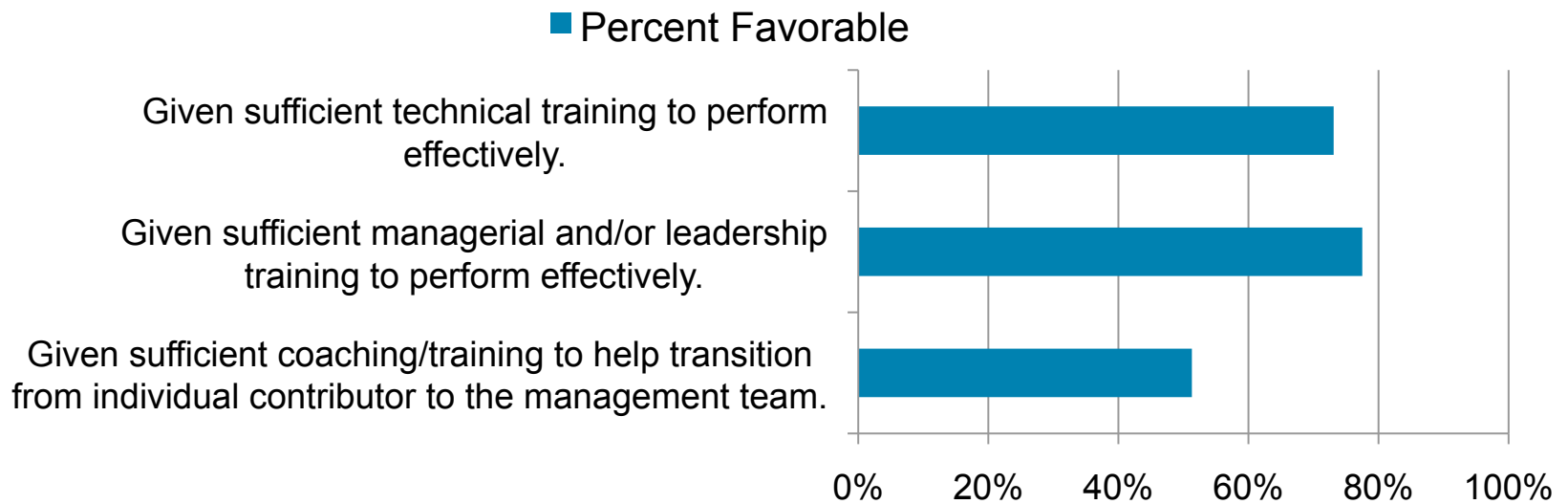


- No Training
- 1 - 10 days
- 11 - 20 days
- More than 20 days

Sources of Training

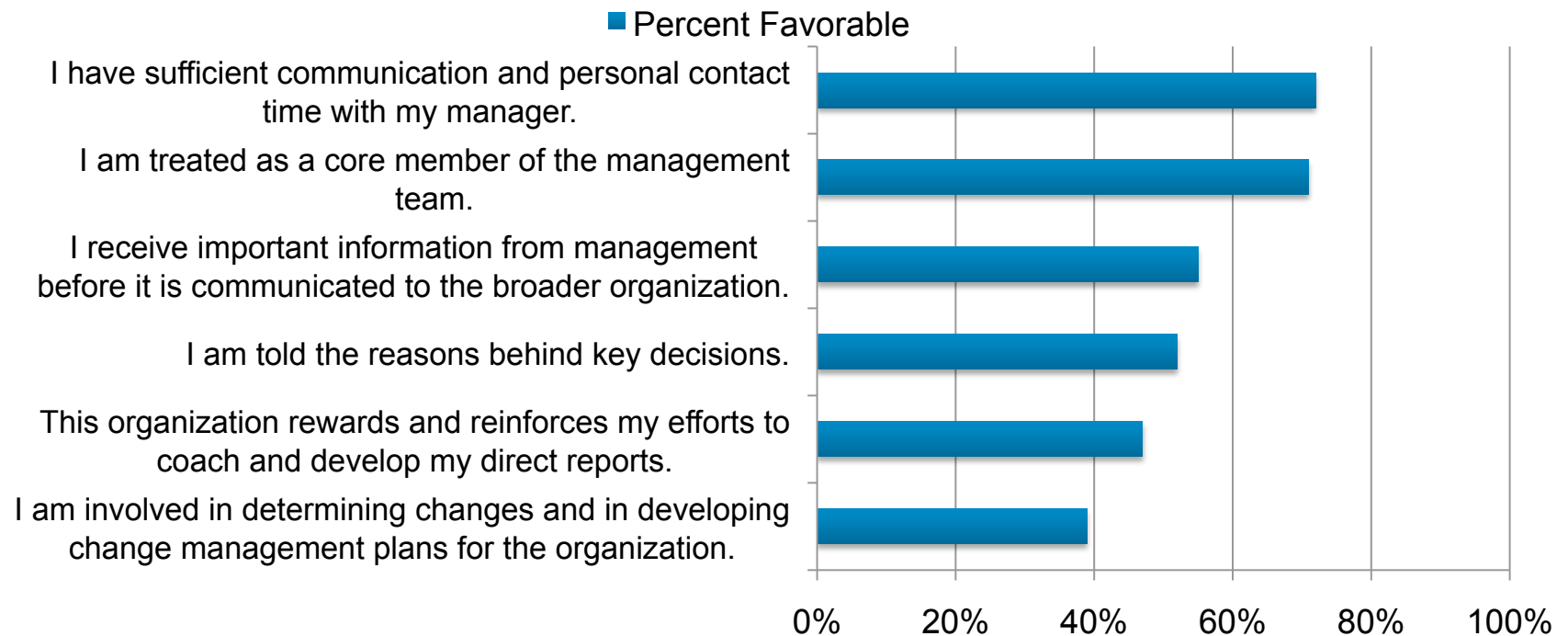
Current Organization	89%
Previous Organization	37%
INPO	31%
Other	24%

Training: FLS Satisfaction



- FLS who were rated as **more effective** and having made **greater progress transitioning** to the management team:
 - Received more days of training
 - Were satisfied with the amount of managerial training
 - Were satisfied with the amount of coaching/training to transition to management team
- FLS who attended INPO training:
 - Had made **greater progress transitioning** to the management team
 - Were **more satisfied** with the amount of training received

Organizational Alignment



- FLS who viewed themselves as having made greater progress transitioning to the management team reported:
 - Having **sufficient time** with their manager
 - **Being told the reasons** behind major decisions
 - Being **treated as a core member** of the management team

Job Satisfaction, Commitment, & Role Ambiguity Description

Job Satisfaction

- The level of enjoyment an individual gets from their experiences on the job.
- Example: All in all I am satisfied with my job as a supervisor.

Organizational Commitment

- An individual's identification with and attachment to an organization.
- Example: I feel a strong sense of "belonging" to my organization.

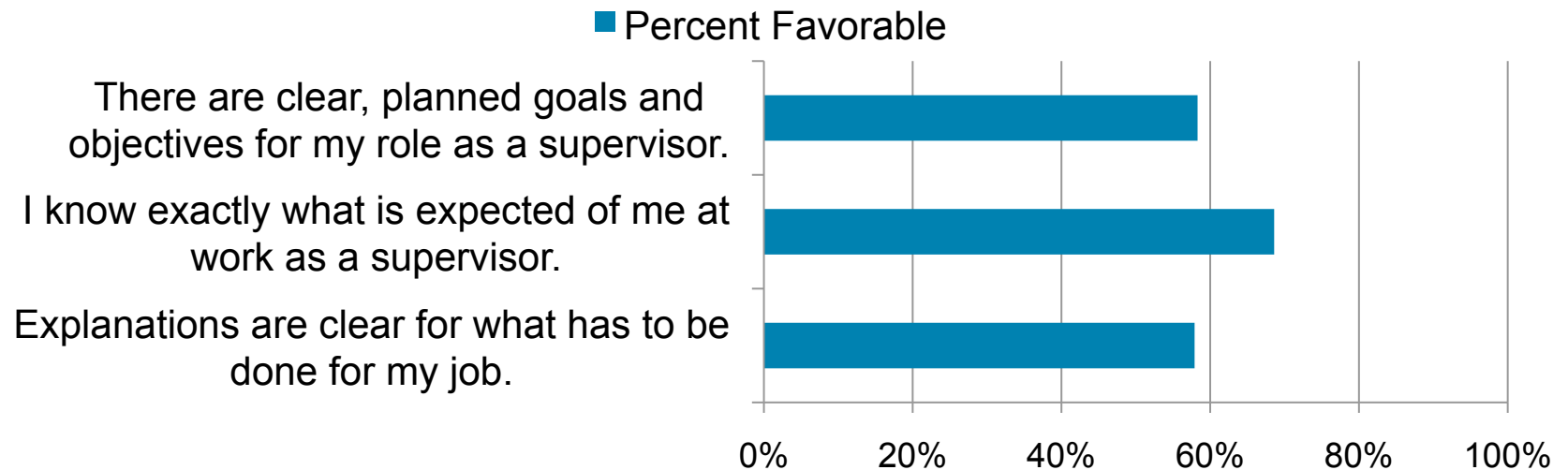
Role Ambiguity

- The perceived lack of clarity regarding the objectives and expectations for a role.
- Example: I know exactly what is expected of me at work as a supervisor.

Job Satisfaction & Commitment Results

- Emotional attachment to the organization is the strongest aspect of organizational commitment for FLS rather than obligation or concern about the cost of leaving.
- FLS with greater organizational commitment were:
 - **More satisfied** with their job
 - Rated as **more effective** by their manager
- Research has consistently shown that higher levels of organizational commitment is related to **less turnover and absenteeism**.
- Our research shows that the key ways to improve both FLS job satisfaction and organizational commitment are to:
 - Treat supervisors as **core members** of the management team
 - **Reward and reinforce** supervisor's efforts to coach and develop their team
 - Provide sufficient managerial **training**

Role Ambiguity Results



- FLS who were more satisfied with the amount of training they received (managerial and technical) had a better understanding of the expectations of their role.
- FLS who had a better understanding of their role expectations had greater:
 - Motivation to take on leadership roles
 - Perception that their capabilities and needs match the role of a FLS
 - Confidence in their leadership ability
 - Job satisfaction
 - Commitment to the organization
 - Sense of feeling aligned with the organization

Person-Job Fit, Leadership Efficacy, & Motivation to Lead Description

Person-Job Fit

- An individual's perception of the match between the abilities of a person and the demands of the job and/or the desires of a person and the attributes of a job.
- Example: I am well suited for the role of a supervisor.

Leadership Efficacy

- The level of confidence in the knowledge, skills, and abilities associated with leading others.
- Example: I am confident in my ability to influence a group I lead.

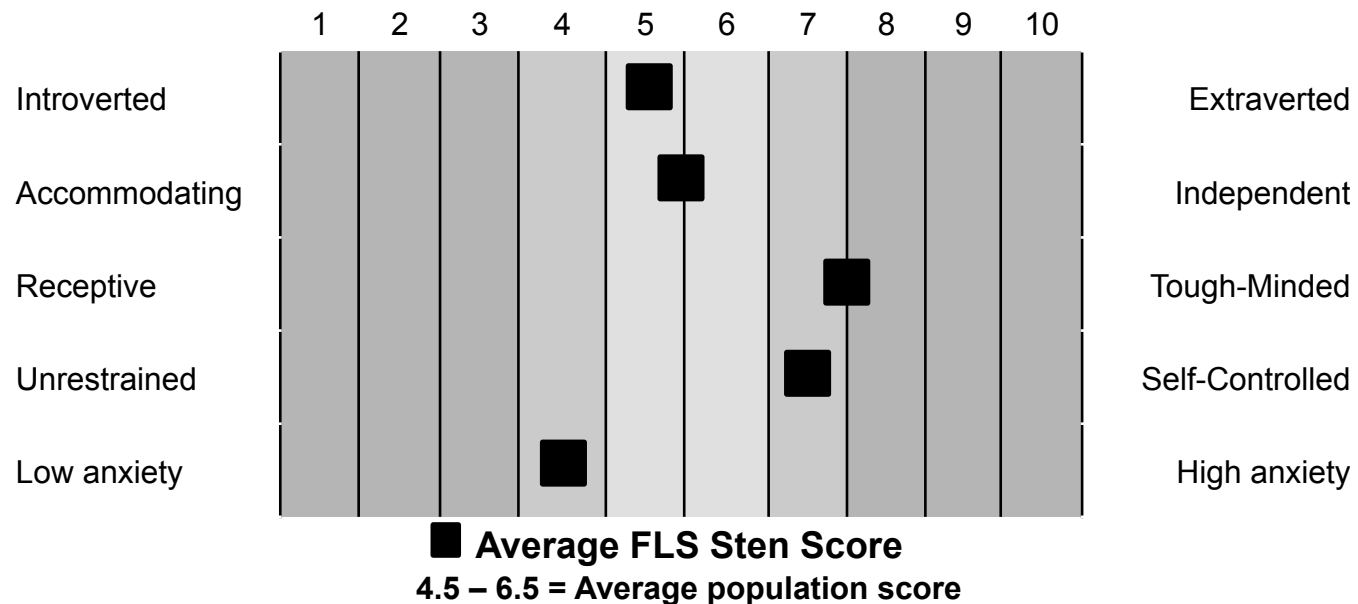
Motivation to Lead

- Motivational force influencing an individual's decisions to assume leadership roles that affects his or her intensity of effort and persistence as a leader.
- Example: I usually want to be the leader in groups that I work in.

Person-Job Fit, Leadership Efficacy, & Motivation to Lead Results

- Overall, the most effective FLS:
 - Are confident in their ability to lead others (Leadership Efficacy)
 - Feel the role of a supervisor fits well with their capabilities (Person-Job Fit)
 - Are highly motivated to assume leadership roles because they **like to lead** and feel a **social obligation** to lead (Motivation to Lead)
- Again, FLS with more experience had stronger perceptions of fit with the supervisory role and greater confidence in their ability to lead.
- FLS who perceived that they received **adequate training** had stronger perceptions of fit with the role and greater confidence in their leadership abilities.
 - This was true regardless of the amount of experience or the number of days of training the FLS received.

Personality Factors



16PF Global Factors

Extraversion	Social orientation; the desire to be around others and be noticed by them; the energy invested in initiating and maintaining social relationships
Independence	The role a person assumes when interacting with others; the extent to which they are likely to influence or be influenced by the views of others
Tough-Mindedness	The way a person processes information; the extent to which they will solve problems at an objective, cognitive level or by using subjective or personal considerations
Self-Control	Response to environmental controls on behavior; internal self-discipline
Anxiety	Emotional adjustment; the types of emotions experienced and the intensity of these

Personality Factors

- More effective FLS were characterized by **lower levels of anxiety**.
- Individuals with low levels of anxiety are characterized as:
 - Emotionally stable, adaptive, and mature
 - Trusting and accepting of others
 - Self-assured and unworried
 - Relaxed and patient
- The FLS rated as more effective had the following personality characteristics:
 - Forthright and transparent
 - Open-to change and seeking ways to improve the status quo
 - Group-oriented and affiliative
 - Easy-going and developing trusting relationships with others

Manager Ratings: FLS Effectiveness

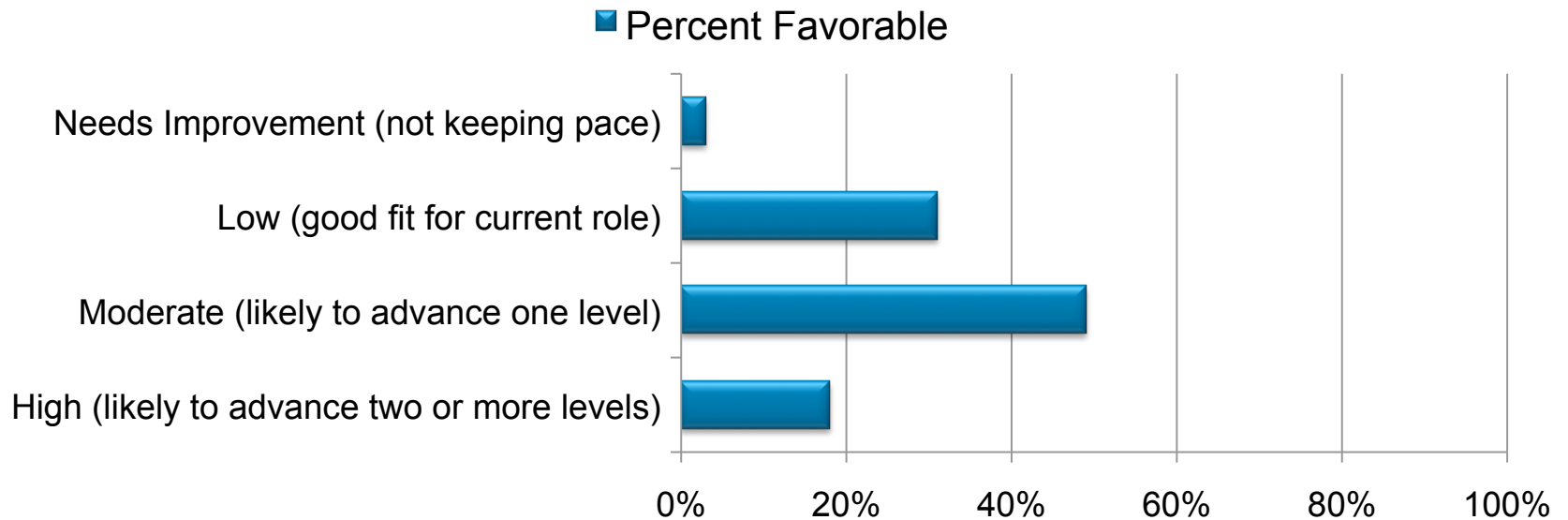
- Managers rated their FLS's effectiveness on 19 competencies as well as their effectiveness overall.
- The average manager rating on each competency was effective or above—demonstrating that most FLS are at least effective in the core performance dimensions for the role.
- The competencies with the highest average effectiveness ratings were **safety** and **integrity**. Our research has shown that managers view these areas as the most important competencies related to supervisory effectiveness.
- The lowest effectiveness ratings for all FLS were in the areas of inspiration, strategic vision, innovation, and developing others.

Manager Ratings: FLS Effectiveness

- Of the 19 competencies, the competencies that best distinguished between effective and ineffective FLS were:

Inspiration	Motivates and energizes others to contribute at a high level
Drive for Results	Shows bias towards action and follow through on commitments
Problem Solving & Judgment	Identifies relevant information; makes timely and accurate decisions
Innovation	Challenges the status quo; looking to drive continuous improvement
Workload Management	Able to multitask; manages time effectively
Expertise	Demonstrates detailed knowledge and skill; keeps abreast of industry performance
Cultivating Relationships	Builds and maintains effective relationships
Strategic Vision	Has a vision for excellence; sees the big picture

Manager Ratings: Potential



- Managers reported that 38% of FLS were high potentials.
- Managers also reported that 60% of FLS were potential successors.
- The large percentage of FLS considered to be **high potential** and **potential successors** suggests an area for improvement in talent management.
- Superintendents need development assessing FLS leadership potential.

Summary

- FLS experience is important to effectiveness because the leadership development process takes time.
- As the nuclear industry prepares for experienced FLS to retire in large numbers, a critical issue for maintaining safe and reliable operations throughout the industry is highlighted.
- The primary goal for the industry is to **accelerate the development** of less tenured FLS in key leadership characteristics and competencies related to effectiveness.
- The secondary goal is to promote job satisfaction, organizational commitment, and alignment

Recommendations

- Refine processes for recruiting and selecting the best FLS
 - Make the FLS more attractive to potential leaders by:
 - Actively addressing concerns that might keep individuals with high potential from pursuing an FLS role.
 - Communicating a positive message regarding the FLS role and the opportunities to have a significant positive impact on the site.
 - Focus recruitment efforts on potential FLS that have historically gravitated toward leadership positions—more effective leaders “like to lead.”
 - Assess for specific personality characteristics related to effectiveness (e.g., able to manage emotions/anxiety, sociable, transparent, open to change, innovative, etc.).
 - Ensure selection process includes an assessment of competencies that best differentiate between FLS (e.g., drive for results, problem solving, workload management, etc.).

Recommendations

- Design and implement leadership development initiatives focused on increasing FLS's **clarity** of their role and **confidence** in their leadership ability
 - It is **never too early** to begin developing new FLS or potential FLS. The industry could do more to set up FLS for success and ensure rapid development and stronger alignment once in the role.
 - The focus of development activities and programs for FLS should be on **practicing** skills for motivating others, delegating, developing teams, and holding others accountable.
 - **Experiential or On-The-Job learning** is a critical tool for FLS development that should be applied more actively and systematically to enhance IDP processes that often provide minimal value.
 - Take advantage of the outage as a development opportunity.
 - Superintendents must support/coach the FLS when assigned stretch roles—this will likely require training for superintendents.
 - The development plans for high potential FLS should include engagement in higher level meetings to **enhance strategic leadership skills**.
 - Take full advantage of **INPO training** as an impactful development tool for FLS.

Recommendations

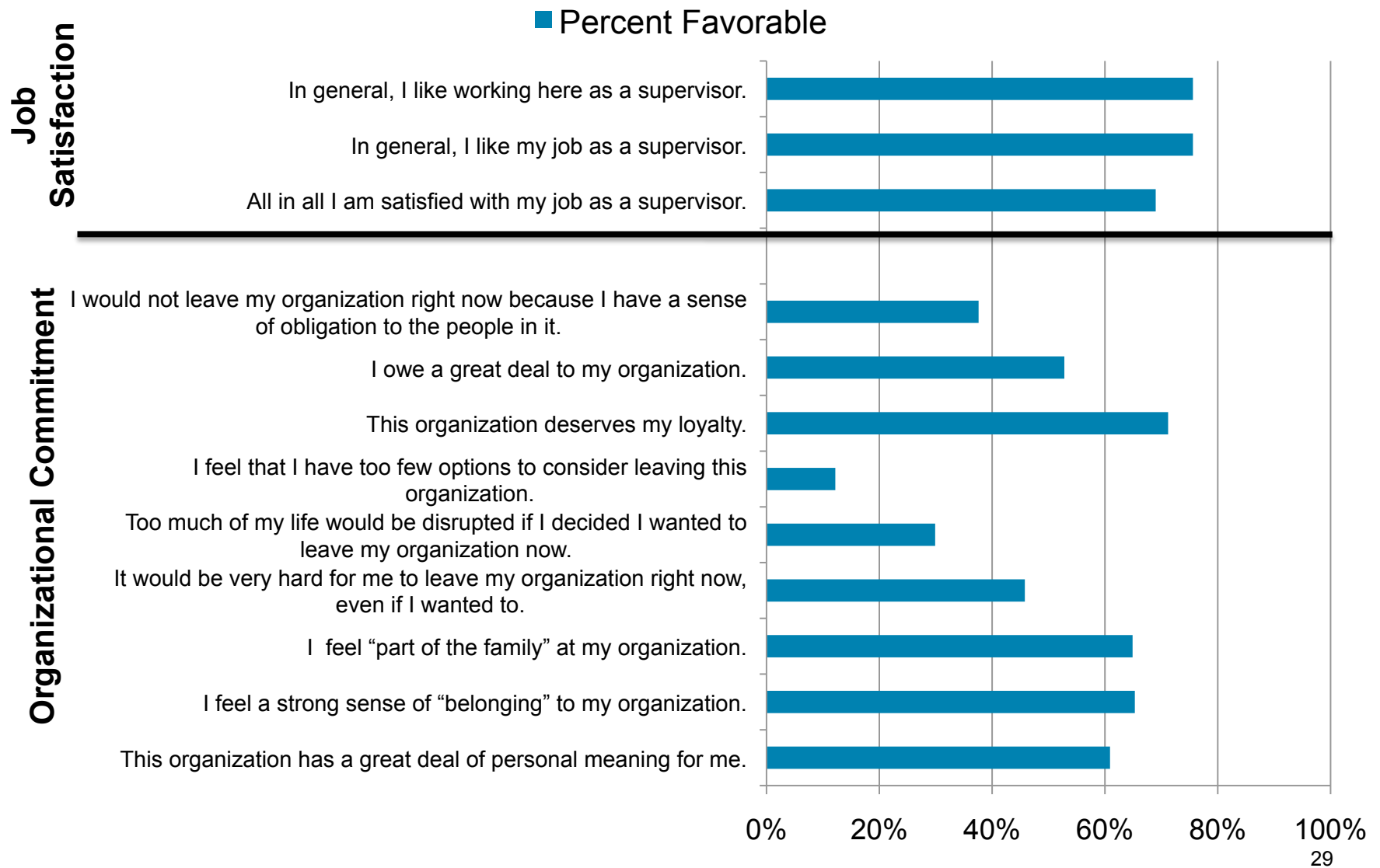
- **Accelerate the transition of FLS to the management team**
 - Leadership alignment meetings are beneficial, but our study shows that even long tenured FLS are not fully a part of the management team despite such initiatives.
 - Superintendent's play a critical role in assisting FLS in making this transition. First and foremost, sites should ensure that superintendents are giving the right amount and right kind of **focused attention** to FLS and establishing a **strong team mindset** within their functional area.
 - Provide additional opportunities for FLS to collaborate and network with other peers, superintendents, managers, and senior plant leaders. This should include both informal settings as well as establishing **peer groups** and **mentoring relationships**.
 - Expect and reinforce **greater involvement** of FLS in key departmental decisions—this creates alignment and develops FLS skills.
 - Continue to find new ways to **explain the rationale** behind management decisions and provide sufficient opportunity for Q&A.
 - Measure success not in terms of getting the message out, but the level of understanding and alignment.

Recommendations

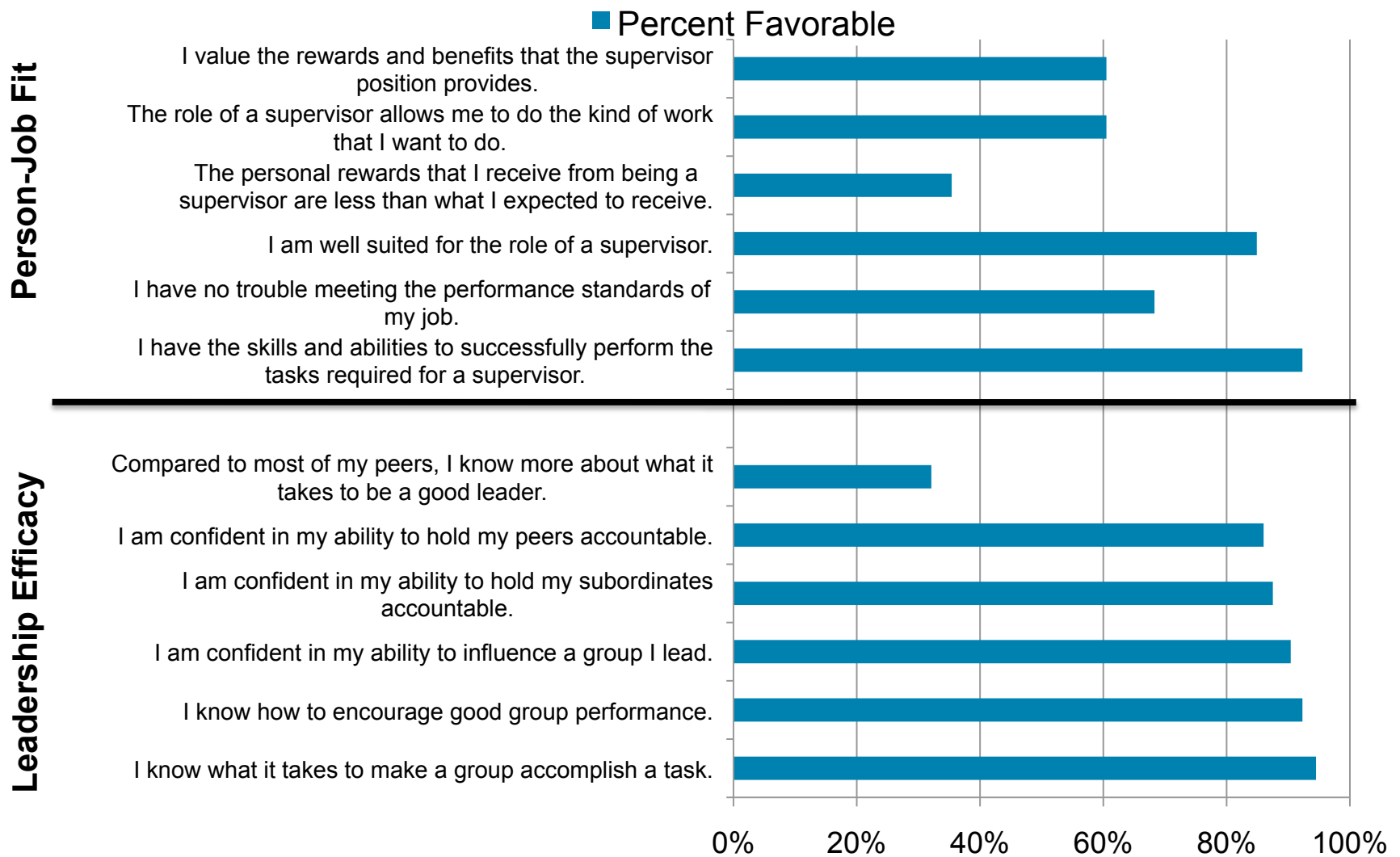
- Provide additional on-boarding for FLS transitioning from the military to a corporate culture
 - In a facilitated group session, discuss the key differences between the military and corporate sector leadership cultures.
 - Highlight the identified transition pain points such as communications, alignment, and teaming.
 - Identify available training opportunities that can facilitate a successful transition.
 - Implement a formal mentoring system by pairing new hires with FLS who have successfully made the cultural transition.

Appendices

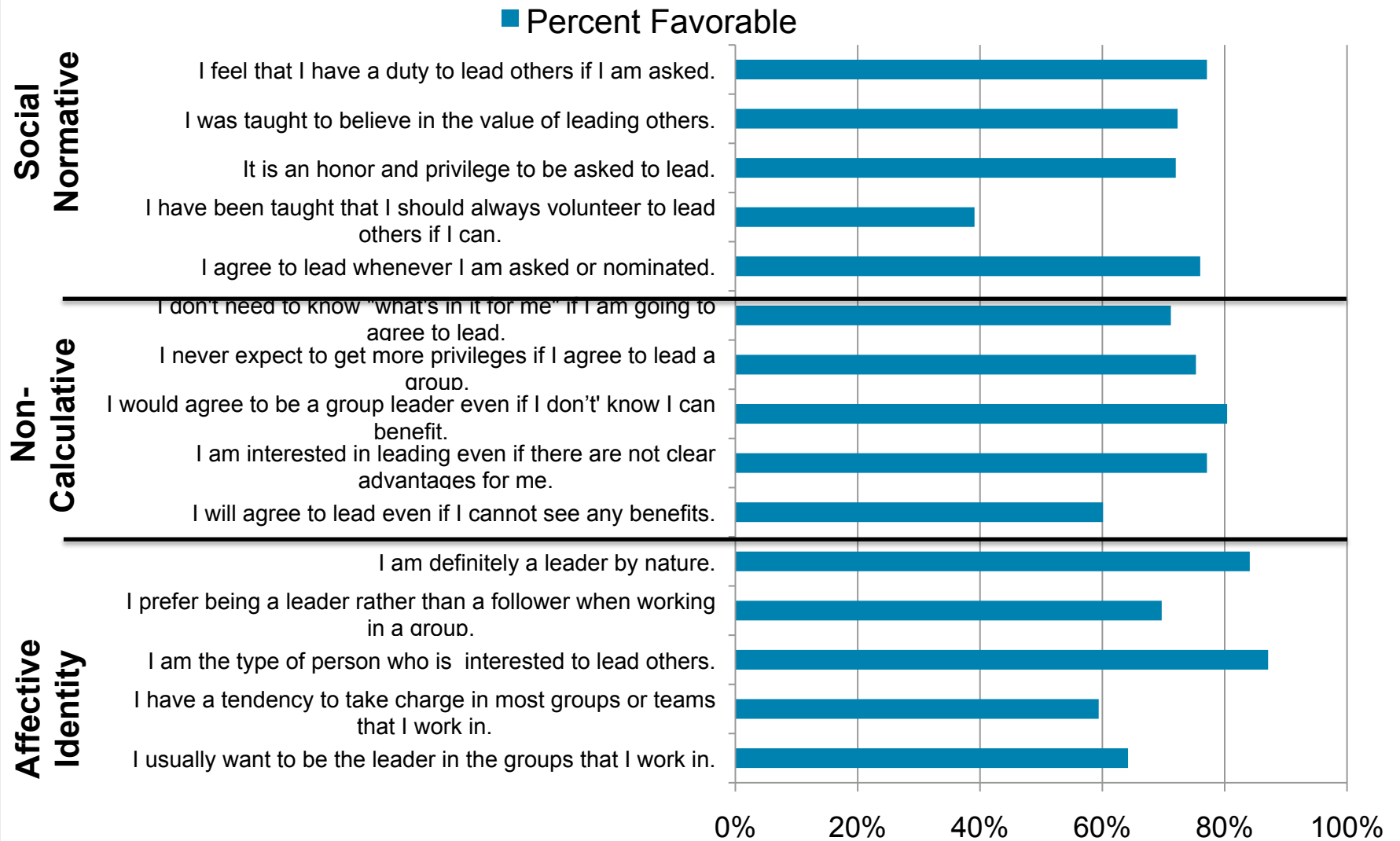
Job Satisfaction & Org Commitment



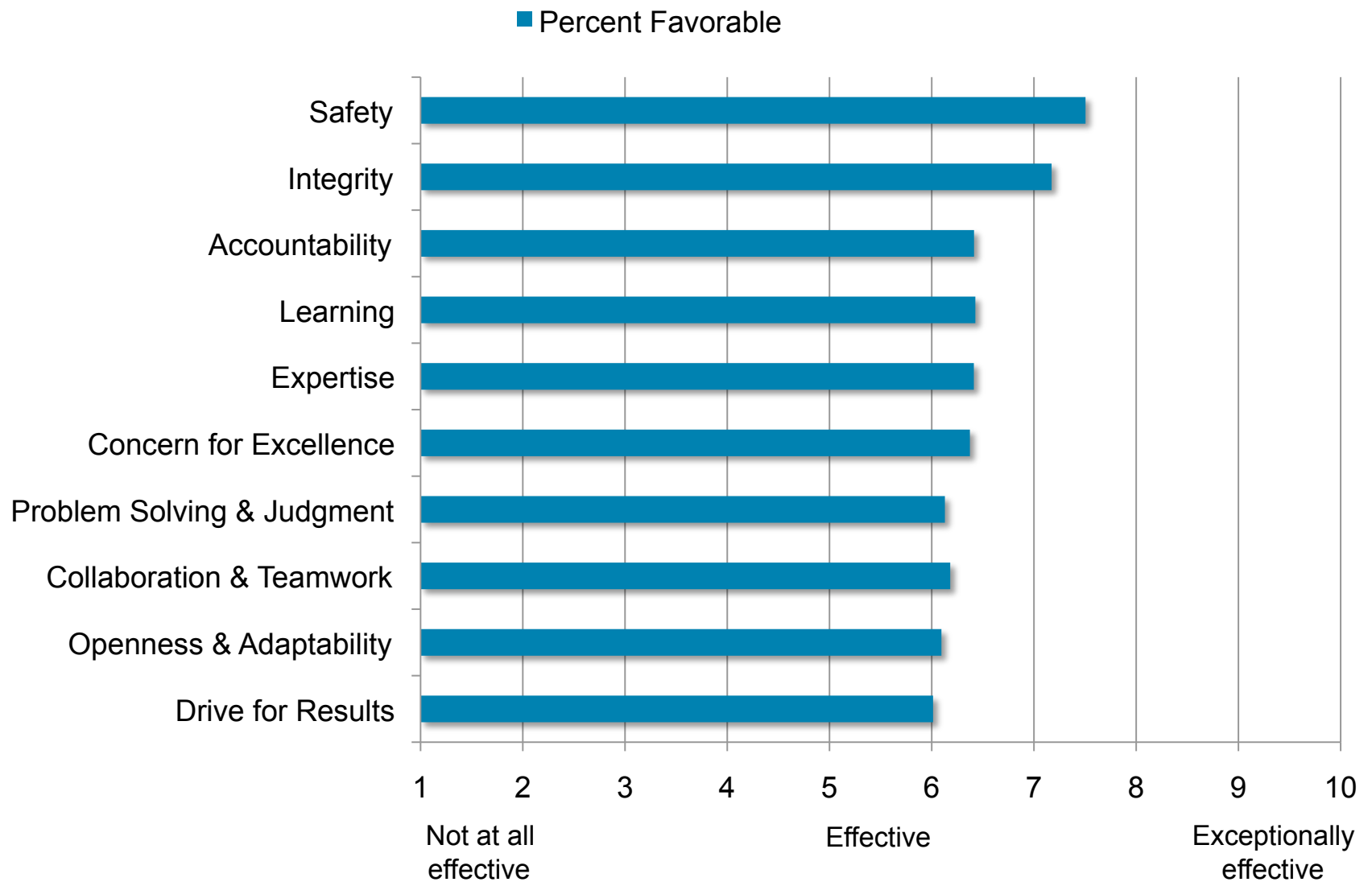
Person-Job Fit & Leadership Efficacy



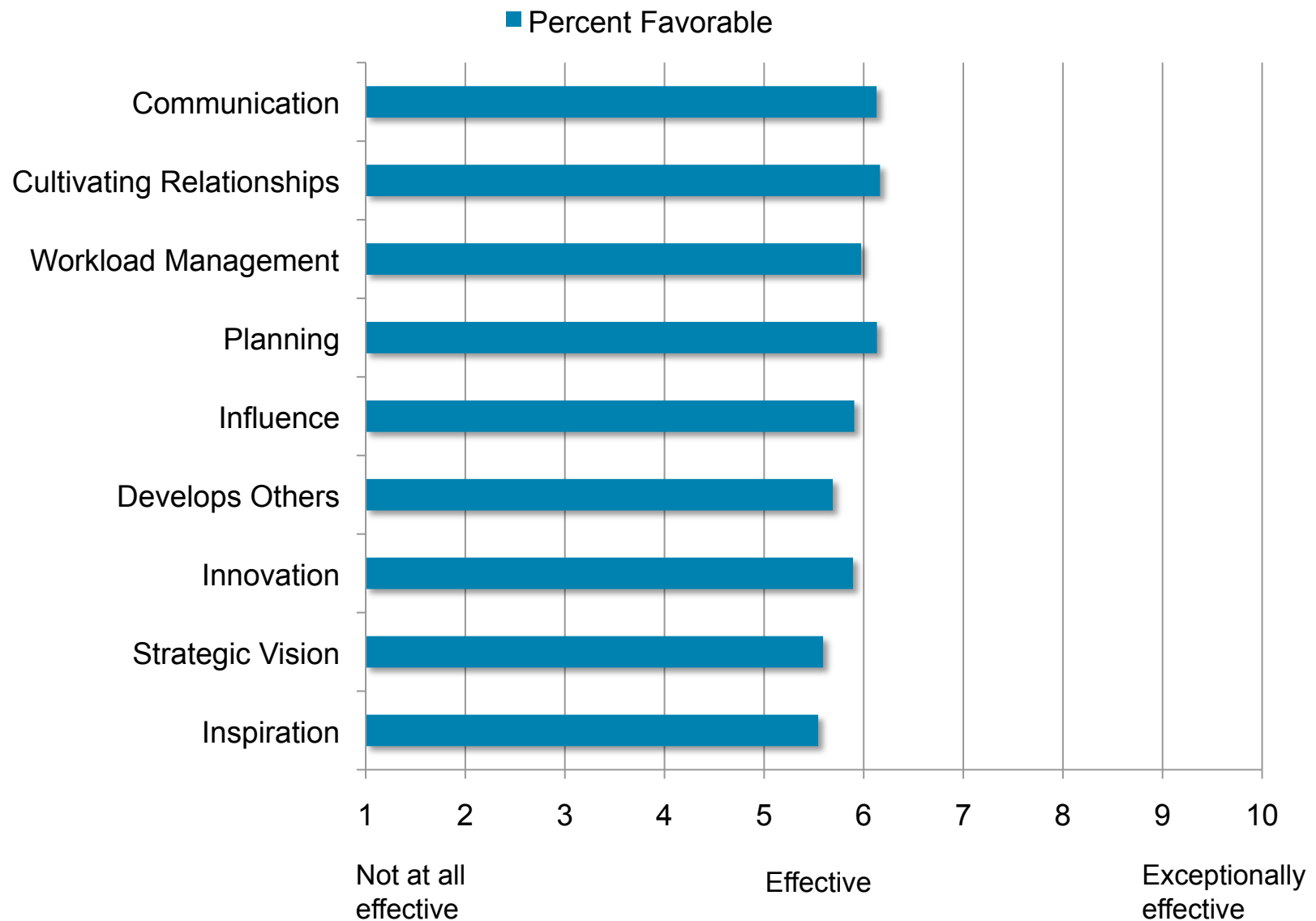
Motivation To Lead



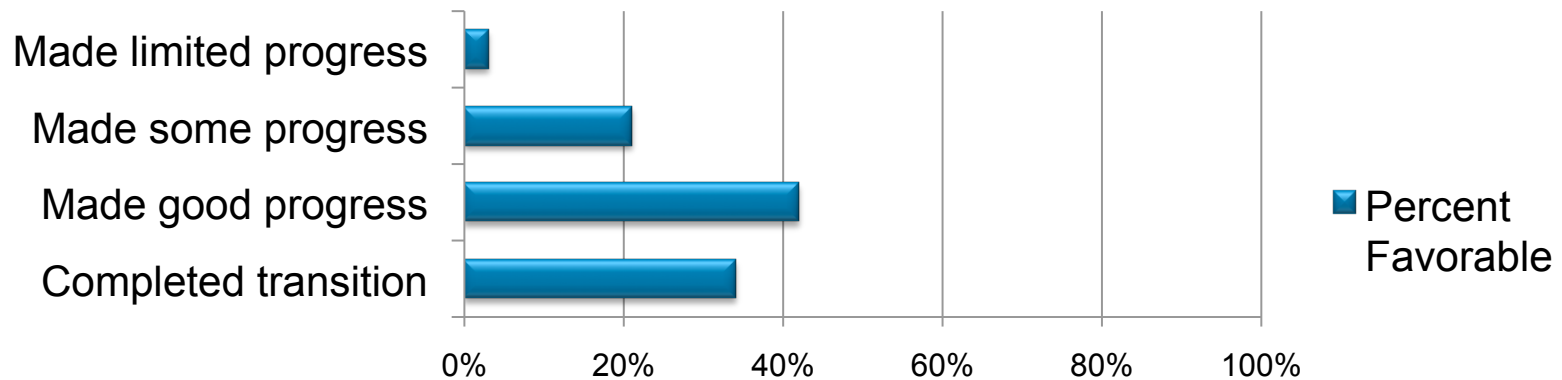
Manager Ratings - Competencies



Manager Ratings - Competencies



Manager Ratings: Transition to Mgmt



- **Made limited progress:** Does not see self as part of management team; has not stepped back from technical work; has not accepted administrative and supervisory responsibilities and requires prompting in these areas
- **Made some progress:** Starting to see self as part of management team but is much more closely aligned with direct reports; has accepted all responsibilities of the role but remains too involved in technical work and is struggling to balance administrative tasks and supervision of people
- **Made good progress:** Sees self as part of management team and is aligned with this group on many issues; generally balances administrative tasks, supervision of people, and involvement in technical work but there is still room for improvement
- **Completed transition:** Sees self as part of management team and is fully aligned with this group on all issues; effectively balances administrative tasks, supervision of people, and involvement in technical work; could mentor new supervisors



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