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Your Career Path in IACS: Technical and Managerial

Industrial automation and control systems (IACS) are essential elements for modern industries and national critical infrastructure, offering diverse opportunities to students and young professionals. Four possible career paths in IACS are Technical, Managerial, Sales and Academic. Understanding the career options and the **required competencies** can help you align your aspirations with your strengths and your goals. This document will discuss **Technical** and **Managerial.**

Why Choose a Career in IACS?

• **Growing demand**: Industries are adopting automation creating a multitude of opportunities.

• **Diversity of roles**: Whether you prefer solving technical problems or leading teams, there is a path for you.

• **Global impact**: Contribute to cutting-edge projects to make an impact now and shape the world of the future.

To succeed in IACS, professionals must acquire skills in the fundamental, technical, and leadership domains.

1. Technical Career Path

The technical path is a good fit for those who enjoy mastering automation technologies, tools, and their systems.

Small to Medium Enterprises

- **Early Career**: Start as an Automation Engineer or Junior Control Technician, handling tasks like system programming, hardware installation, and troubleshooting.

    o **Key Competencies**: Foundational competencies such as *Personal Effectiveness* (initiative, integrity), *Academic Skills* (mathematics, science), and *Workplace Skills* (problem-solving, communications, teamwork) are critical.

- **Mid-Career**: Advance to Senior Automation Engineer or Lead Engineer, taking on larger projects and mentoring junior staff.

    o **Key Competencies**: Develop *General Technical Competencies*, such as understanding SCADA systems, safety standards (e.g., ISA 84.01/IEC 61511), and control strategies.

- **Late Career**: Transition to Principal Engineer or Architect, leading complex projects, overseeing innovation, and contributing to research and development.

    o **Key Competencies**: Expand into *Specific Technical Competencies*, such as field instrumentation, advanced process control, and cybersecurity (e.g., ISA/IEC 62443).

Large Enterprises

- **Early Career**: Begin as a Control Systems Engineer, working on advanced and specialized projects.

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- o **Key Competencies**: Focus on Academic Competencies like data analysis and system modeling.

- **Mid-Career**: Move into roles like Automation Specialist or Lead Engineer, collaborating across global teams and departments.

  - o **Key Competencies**: Strengthen General Technical Competencies, including integrating IoT and AI into traditional systems.

- **Late Career**: Ascend to positions like Chief Engineer or Technical Fellow, driving corporate innovation and shaping long-term strategies.

  - o **Key Competencies**: Combine Specific Technical Competencies with leadership skills like strategic planning and resource allocation.

2. Managerial Career Path

The managerial path is ideal for those who want to combine technical expertise with leadership, team management, and strategic decision-making.

Small to Medium Enterprises

- **Early Career**: Begin as a Project Lead, balancing technical tasks with team coordination.

  - o **Key Competencies**: Leverage Workplace Competencies such as adaptability, teamwork, and communications to manage teams effectively.

- **Mid-Career**: Transition to roles like Operations Manager or Program Manager, overseeing cross-functional teams and client relationships.

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- o **Key Competencies**: Add Industry Competencies like project management and stakeholder engagement.

- **Late Career:** Progress to Director of Automation or Vice President of Operations, influencing company-wide strategies and resource allocation.

  - o **Key Competencies**: Master leadership and Strategic Planning for high-level decision-making.

Large Enterprises

- **Early Career**: Start as a Project Manager, focusing on structured deliverables within larger teams.

  - o **Key Competencies**: Apply Workplace Competencies such as organizational skills and risk management.

- **Mid-Career**: Advance to senior roles such as Department Manager or Operations Manager, leading global projects and large teams.

  - o **Key Competencies**: Develop General Technical Competencies alongside leadership skills.

- **Late Career**: Reach executive roles like CTO or VP of Engineering, driving innovation, resource management, and corporate strategies.

  - o **Key Competencies**: Combine all tiers, with an emphasis on strategic and global leadership.

Where Does Sales Fit?

Sales roles in IACS can align with both technical and managerial paths:

- **Technical Sales**: Focus on understanding client needs and presenting tailored solutions. Roles include:

Classification: General Business Use

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- o Sales Engineer

- o Technical Sales Representative

- o Solutions Sales Specialist

- o **Key Competencies**: Foundational skills in communication and technical expertise in IACS solutions.

- **Managerial Sales**: Emphasize strategy, team leadership, and business development. Roles include:

  - o Regional Sales Manager

  - o Global Account Manager

  - o Vice President of Sales

  - o **Key Competencies**: Leadership and strategic planning, coupled with industry knowledge.

Trends Shaping IACS Careers

The future of IACS is evolving with exciting trends and opportunities:

- **Emerging Technologies**: AI, IoT, and cloud computing are transforming automation.

- **Cybersecurity**: Securing industrial systems is a growing priority, creating demand for specialists.

- **Sustainability**: Green initiatives and energy efficiency are driving innovation in automation.

- **Competency Shift**: Professionals must combine traditional engineering expertise with digital skills like data analytics and machine learning.

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Tips for Success in IACS

- **Build Foundational Competencies**: Develop personal effectiveness (initiative, integrity), academic skills (math, science), and workplace skills (problem-solving, adaptability).

- **Master Industry Competencies**: Focus on DCS and SCADA systems, control strategies, and cybersecurity standards.

- **Stay Updated**: Pursue certifications and training like the ones offered by ISA to remain competitive.

- **Gain Experience**: Internships and hands-on projects help you build valuable skills.

- **Build Your Network**: Join industry organizations and attend workshops to connect with professionals. Take advantage of ISA volunteer opportunities to develop leadership skills, enhance your professional networks, and engage local and technical mentors.

Conclusion

A career in industrial automation and control [systems](#) offers endless opportunities for growth and impact. By developing skills in the foundational, technical and leadership domains, you will be able to excel in a dynamic and enriching field. Whether your passion lies in technology or leadership, IACS offers you the path to achieve your goals.