

STRATEGIC
CHALLENGES IN
**R&D Talent
Management**



Liquid Talent: Tools to Embrace a More Fluid Workforce



Recruiting and Retaining Early Career Tech Talent



Career Paths for Innovation

Career Paths for Innovation

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Creating Innovation Leadership Solutions
WWW.IRIWEB.ORG

Project Charter - Highlights

Objective:

- Determine the ways in which individuals can move among the various R&D and innovation roles to advance their careers in the future. Study different organizations to determine:
 - Where innovation sits in the organization
 - Current career paths within their R&D and innovation functions
 - Competencies needed for key roles, now and in the future
 - The roles, skills, and experiences needed to be effective

Project Charter - Activities

Jan-June 2017

- Literature scan
- Interviews with consultants, academics and executive coaches working with R&D and innovation leaders
- IRI Winter ROR Session: “Perfect CTO Exercise”
- IRI member survey of organizations to determine their current career ladders, key posts and basic structure

June-Sept 2017

- Member survey analysis
- CTO/Innovation leaders case studies
- Summary of case studies
- Documentation of learnings in RTM

CONSULTANT AND KNOWLEDGE LEADER INTERVIEWS

Traditional Qualifications for CTO

- Significant technical track record and a Ph.D.
- Ability to be adaptable
- High emotional intelligence
- Effective business acumen
- The ability to communicate a technical strategic vision that influences company priorities
- Globalization
- Strong people development
- Skilled at building company culture

Metrics for CTO

- Market share growth in established markets
- Number of new markets entered.
- Identification of key research technologies
- Reduction of department costs
- Creating an image of technology dominance

Challenges for Innovation Leaders

Home grown CTO versus brought in from outside

- Home Grown Leaders: Person knows the organization, industry, people, so quick learning curve. History and experience can be viewed as a positive to the organization.
- External Leaders: Brings in fresh thinking. Can signal change in direction of company. Biggest challenge identified has been to change culture when needed.

Future Skills required for future CTO

- Ability to code
- Understanding of biology and biological processes
- Intellectual curiosity
- Ability to pivot and bring their team with them
- Interpersonal skills

Future-looking landscape for Innovation and R&D

- Physical product development will decrease by 50%+ in next few years, replaced by modeling and simulation.
- Efficiencies when organized as a centralized Innovation function to determine trends.
- Increasing roles for CTO's; engage externally with customers and the market in a dynamic, fast-pace global environment

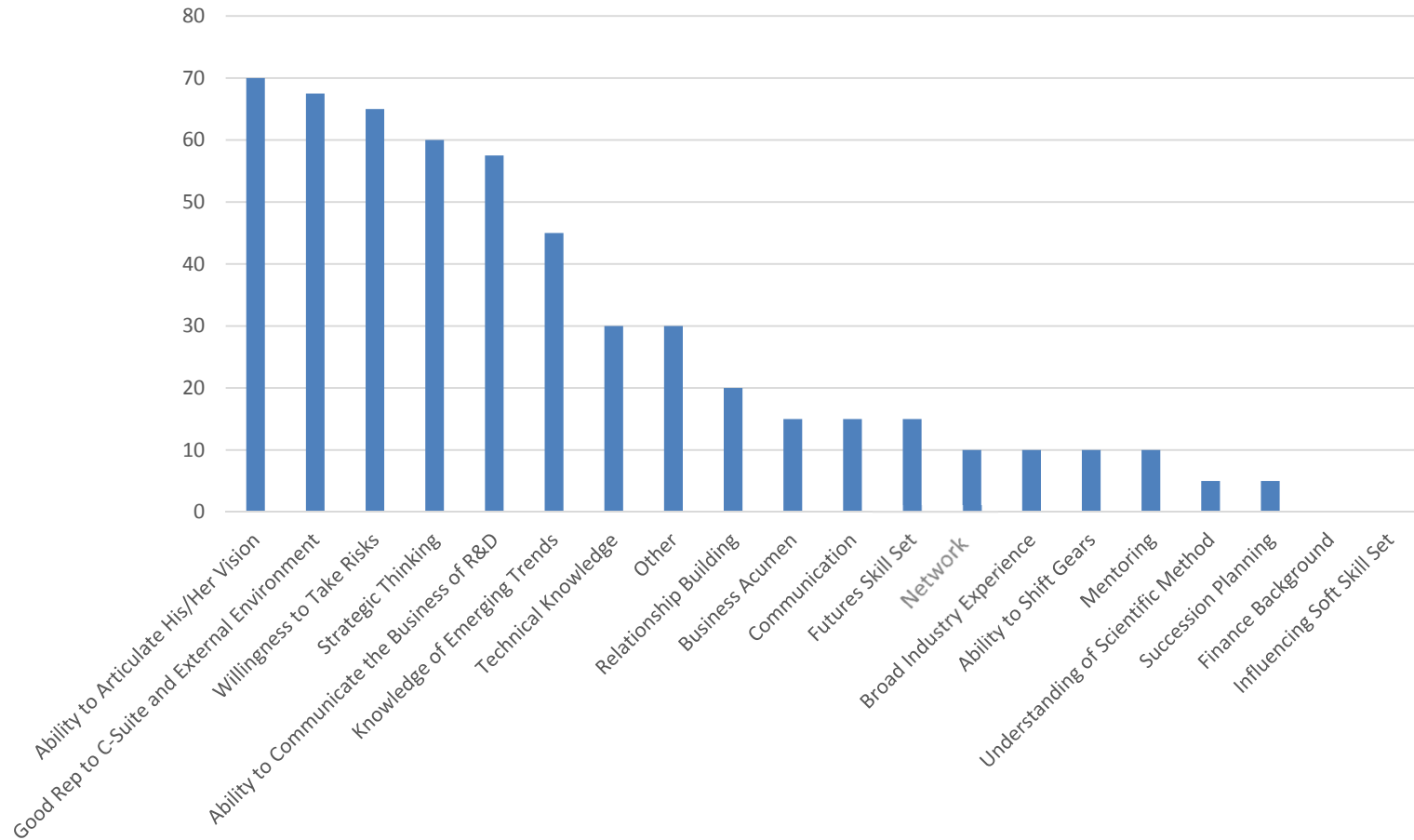
PERFECT CTO EXERCISE FINDINGS

Perfect CTO Exercise

- We held a breakout session at the Spring ROR meeting in Feb. to conduct an active group exercise in about 5 groups of 8.
- Most attendees were individual contributors, key managers and directors.
- Each table developed their own key attributes they thought CTO's needed to be successful.
- The groups then shared their attributes which were then prioritized for this summary.

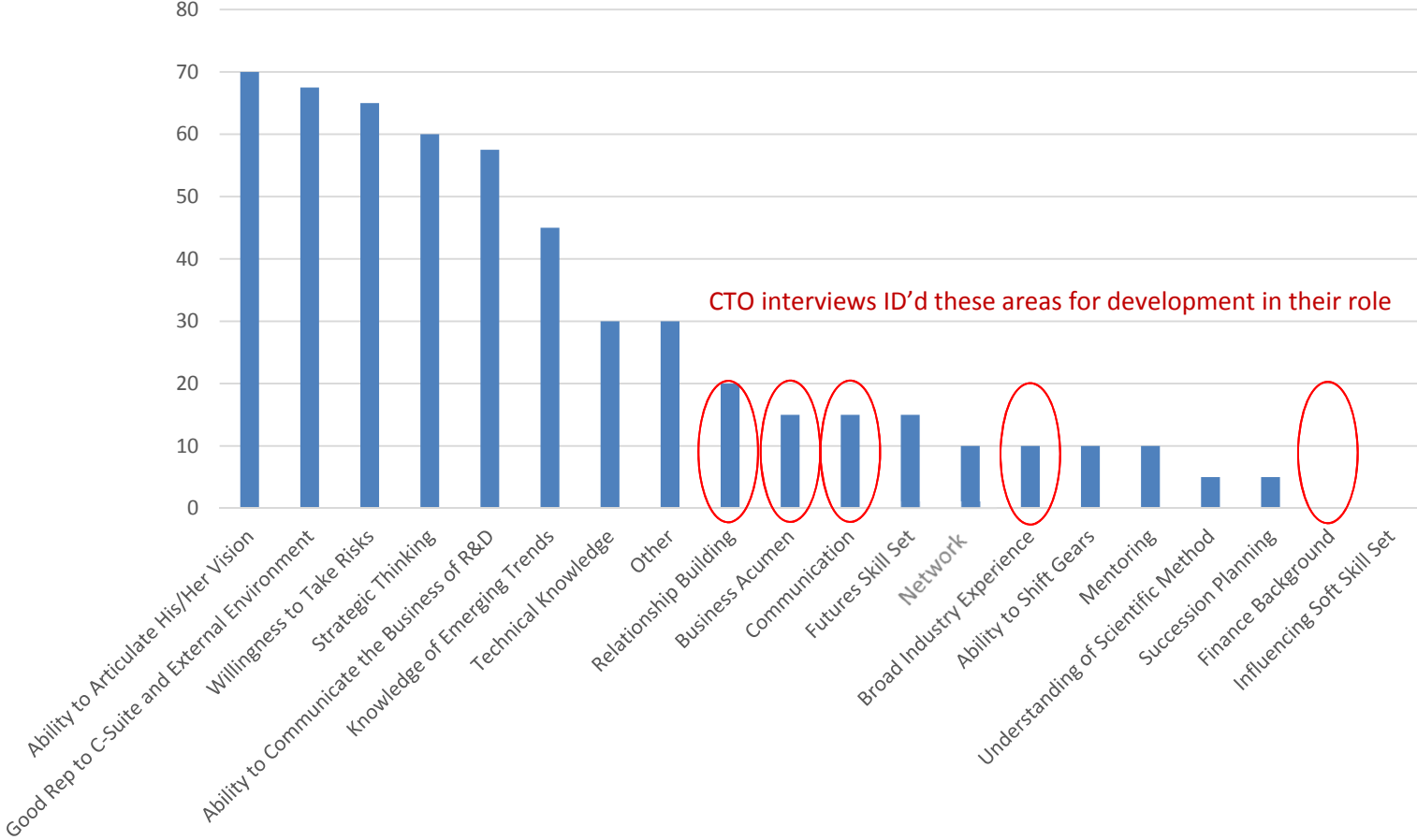
Characteristics of "Perfect" CTO

from Winter Meeting Attendees



Characteristics of "Perfect" CTO

from Winter Meeting



↑ STRATEGIC CHALLENGES IN
R&D Talent Management ↓

IRI MEMBERSHIP SURVEY FINDINGS

Summary of Survey Results

The Survey:

47 IRI members responded to our survey designed to explore some basic questions about career management at their firms. Some key results:

- ***Who sits at the top of your organization?***

Chief Technology Officer – 45% Vice President R&D – 38%

- ***Which organization drives innovation in your company?***

Technology (CTO) - 60% Marketing - 19% Other - 21%

Summary of Survey Results

- ***What is your firm's career track / career ladder?***

Single – 13% Dual - 72% Triple - 11%

- ***How often people allowed to move across these ladders?***

Once in a career – 21% Twice – 32% Three or more – 15%

- ***What rotations are considered relevant for R&D Leaders?***

R&D - 93% Innovation – 52% Marketing – 41%

Technical Contributor – 41% Project Management – 39%

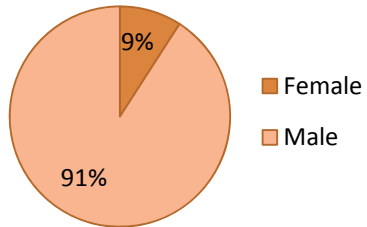
Business – 35% Manufacturing - 22%

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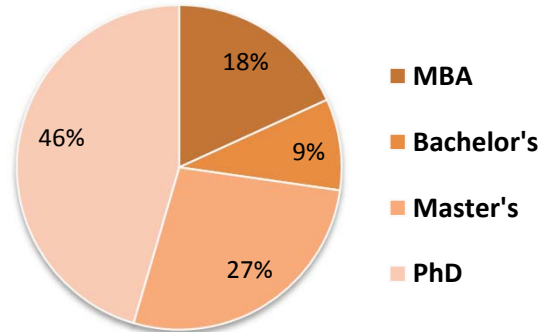
INNOVATION LEADER CASE STUDIES

Case Study Demographics

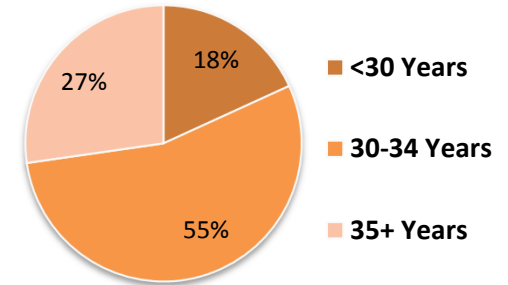
Gender



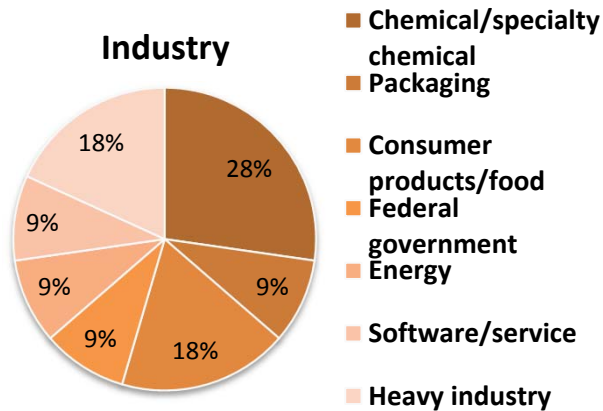
Highest Level of Education



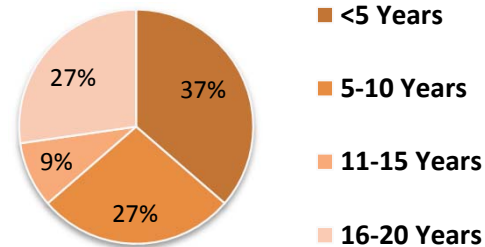
Career Tenure



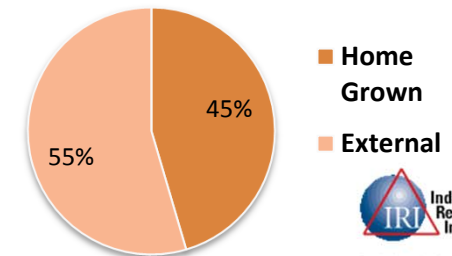
Industry



Time in Current Role



Career Progression



What Qualities of Good Scientists are valued in CTO's?

- Intelligence
- Intellectual curiosity/Love of learning
- Self-disciplined
- Self-directed
- Deductive, logical thinking

Qualities of Good Scientists that impinge on success as CTO?

- Intellectual curiosity limited to deep knowledge in specialized topics rather than breadth.
- Self-directedness can lead to intense focus which creates inability to sense macro-trends and needs of others.
- Need to know/discover on your own, rather than understanding how to learn through others.
- Purely deductive thinking without ability for inductive reasoning, pattern seeking.

Mentors/Bosses

- No formally assigned mentors were mentioned.
 - If they had them, no influence.
 - Many sought them out on their own.
- Mentor relationships occurred through shared experiences.
 - Inside and outside the company.
- Subject-specific mentors
 - Mentor about partnerships
 - Mentor about leadership
 - Mentor to help with communication skills.
- Excellent bosses were developmental
 - Pro-actively arranged for growth opportunities

Career Path Planning

I. Opportunism and hard work:

- “Never really had a plan...I got lucky that a technical assignment didn’t work out, so I had to get more involved with the businesses and out into the field.”
- “If all you are thinking about is earning your next stripe, that can be counterproductive.”
- “Every time I focused on my career it never advanced, but when I focused on the client and results, it did.” My career path was structured around “advocacy by others rather than by formal mentoring advice.”

Career Path Planning

- II. Proactively plan your career path
 - “As I progressed I was more in control of the opportunities I wanted and could seek them out.”
 - “You are the CEO of your own career.”

Synthesis: Have a long term objective of where you'd like to end up, and then view every opportunity provided to you through the lens of how it helps prepare for that endgame.

“There are a lot of lateral moves people need to make. It's more of a jungle gym whereas it used to be a career ladder.”

The Evolving Role of the CTO

CTO title carries different types of responsibilities in different companies, and therefore may require different backgrounds.

- Innovation and commercialization
- Product development
- Technology strategy leader/thought leader
- “I am a coach, a coordinator, and a communicator”

New Skill Requirements common to all

Much more of an external facing role than in the past:

- Need to work with external partners, including universities and small companies.
- Able to work with a much broader set of stakeholders.
- Able to present to a diverse set of audiences
 - Varied messaging and communication skills critical.
- Digest large volumes of information into opportunities that are relevant to a company's strategy.
- Able to work with freelancers/external individuals

Trends/Influencers of Change in R&D

- In IT/SAAS world, R&D people in established companies see Silicon Valley heroes as role models, e.g. Elon Musk.
 - Leads to impatience, lack of understanding about need for frameworks for building out a business.
- Young people not as worried about job security or careers.
 - More interested in doing meaningful work.
 - Less willing to bide their time until the next promotion.
- Easy to access external expertise. 'I can get any kind of help I need.'

Synthesis: *The Gig economy is affecting R&D. How do we maintain an internal stable R&D competency in our company? Today's CTO needs to be able to manage freelancers.*

Aspiring CTO's: Here's how to prepare, *or*

“What I know now that I wish I'd known earlier.”

- How to read & understand financial reports: financial knowledge.
- How to build brand equity, gain customer insight: market knowledge.
- Understand the value of portfolio management
- How to deal with a diverse set of people.
- Importance of developing a robust internal network. Start early, don't burn bridges, respect others.

Advice

- Take every opportunity that is opened for you. Don't shrink back.
- Be willing to supervise other people.
- Diversity your experience base and skill set. "I had five or six full careers at my first company."
 - International assignments to understand cultures.
 - Business assignments:
 - New business development
 - Mergers and acquisitions.
 - Strategic planning role taught value of short term and long term planning simultaneously.
 - Roles in different BU's teach the linkages between them and rationale for the organization's structure.
 - Different company environments. Start up experience helps.
- Be able to listen in an open manner...allows you to learn from others.
- Establish credibility so that, when you try to influence directional change, others are willing to follow you.
- Remember the importance of humility.

Conclusions

- Innovation career paths vary based on the individual and the opportunities given and created along the path of an individual's journey – you can't plan everything ahead of time.
- Broad assignments and experiences help shape the perspectives and outlook innovation leaders develop.
- A willingness to serve customers, work within the business, and a creation of a personal network builds credibility.
- Innovation leaders recognize the rate of change in the global environment will demand a mindset to create opportunities to innovate within, with customers, and partner externally at an increasing rate.