

Career Planning (?) in a Research Lab

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What is Expected of an Industrial Researcher?

- **Research**
 - Engage in scientific discovery, collaborate with peers, fund research (but typically later in career, possibly internal funding)
 - May involve university faculty and students
- **Technology Transfer**
 - Contribute to company's products, client engagements, open source...
 - Publish work and engage with academia
- **Service**
 - Departmental (hiring committee, e.g)
 - Company-wide (promotion review board)
 - Professional

The *Best* Industrial Researchers

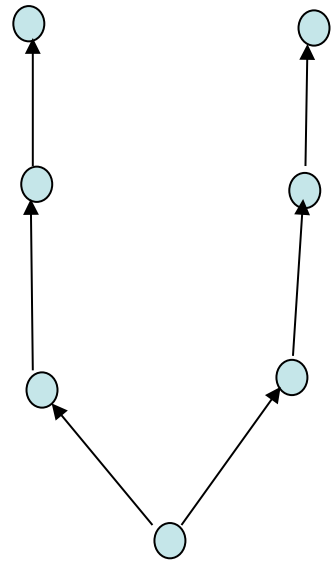
(The 6 I's)

- **Innovate**
 - Solve problems in new ways
 - Invent new algorithms, system constructs, etc
- **Initiate**
 - Anticipate issues and head them off
 - See new opportunities and pursue them
 - Think broadly about how to be more effective
- **Implement**
 - Make sure that the task gets accomplished -- well
 - Take responsibility for all aspects of the task
- **Influence**
 - Shape how key players think about the task, technically, motivation, etc
 - Work within and across teams
- **Grow their Identity**
 - * Are known for their expertise inside and outside their lab
 - * Are known as **THE** expert in something -- what?
- * **Impact**
 - Create quantifiable improvements in quality, function, performance, process...
 - Enable increased customer satisfaction and/or revenue
- With increasing effects as they “climb the ladder”

Two Career Paths or One?

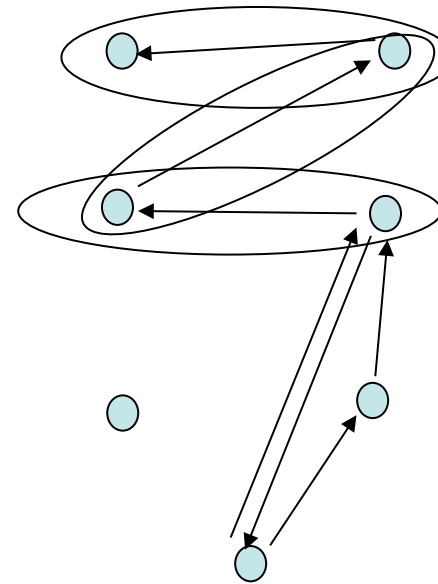
Technical

Management



Technical

Management



- Technical
 - Research Staff Member -> (Distinguished Engineer) -> Fellow
 - Research Scientist -> Senior Scientist -> Distinguished Scientist -> Fellow
- Management
 - RSM/SWE -> project mgr -> dept mgr -> functional mgr -> Director -> VP (etc)

Goal: Be a Senior Technical Leader

- Who is a Senior Technical Leader?
 - Title could be anything
 - In any division, any geography/country, any specialty
 - They have influence on a personal and public level
 - They are influencing the company and (possibly) the world
 - They are mentoring the next generation – and sought for that
 - People inside and outside the company know their name
- What does (must) a senior technical leader do?
 - Develop **people**: a pipeline of future technical leaders
 - The loss of any individual shouldn't kill the institution
 - Create **technology**: extend & grow the organization's technical reputation
 - Publish to shape what is taught, studied, and researched in academia
 - Set and execute on technology directions for the company
 - Make money for share holders by shaping business decisions
 - Shape the **business**: help make decisions through technology
 - Key technical consultant and strategist
 - Have a voice in technology implications, skills, hiring, processes, etc.
 - **Impact** the organization, the community, the industry, the world

Impact Takes Many Forms

- IBM Research priorities
 - Impact on IBM and the Marketplace
 - Globalization and Leverage
 - Balanced Research Agenda
 - “Famous for our science, vital to IBM – and the world!”***
- One kind of impact is not necessarily better than another – it depends on the **degree!**
 - The company: New algorithm vs new feature vs new product vs new business vs new market
 - Science: A paper vs a highly cited paper vs a new sub-field vs a new field vs fundamental change
 - And so on



What You Need to Succeed

- Technical abilities
 - Depth and breadth
 - These are table stakes – but you need much more
- Connections
 - A network of real relationships
 - Mentors, mentees, teams
 - Positive Visibility
- Credentials
 - Vita, patents, publications, awards
- A Good Character
 - Trustworthy, caring, committed, courageous
 - Positive, empowered and self-aware
 - Share the credit, take the blame
- Avoid derailment: personal, interpersonal, organizational blunders
 - Ability to work in a matrix is often essential

You Also Need Skills!

- Communications skills
 - Correct, concise, clear
 - Understand difference between spoken, email, written communication
 - Communicate in terms recipient can understand
 - Reflect *before* speaking
- Basic skills
 - Prioritization and time management
 - Understand your goals for the year
 - Know the difference between urgent and important
 - Analytic skills, especially root cause analysis
 - Negotiation skills
 - “Business” sense – understanding the broad goals of your company

The Moral of the Story

- Technical leaders are people who are listened to
 - They influence the institution, and its people
 - Work to have influence, not for the title
- Technical knowledge and skills are the foundation
- Personal characteristics are the key
 - Know thyself
 - Grow your positive attributes
 - Avoid derailment factors
- Good leaders need good followers
 - Grow your students and your teams
 - Think people, people, people