Career Planning (?) in a Research Lab

Laura Haas, IBM Fellow
Director, Institute for Massive Data, Analytics and Modeling
IBM Research

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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
  - 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