

**TPWG 2002**  
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## **Successes and Lessons Learned in Technology Commercialization**

# Panel

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# Format and Topics

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- *Open Format-Audience Participation*
- *Topics*
  - *Invention Process*
  - *Entrepreneurial Efforts*
  - *Agreement Management*



# Invention Process

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- **Best practices in invention capture and review including inventor relations**
- Feeding the pipeline and portfolio development
- Management/Business leader involvement
- Co-inventorship issues

# *Protection of Intellectual Property*

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- Patent strategies to capture and maximize protection
  - Be familiar with prior art
  - Be familiar with direction of technology and prospective efforts
  - Be familiar with trends in the area of technology as well as related areas of technology
  - Explore range of commercialization applications
  - Continuously analyze and review technology portfolios

# *Criteria for Determining Whether to Patent an Invention*

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- Legal patentability: non-obviousness, novelty, uniqueness and usefulness
- Is further experimentation required or advisable to reduce to practice?
- Commercial application and potential ?
- Has there been a public disclosure?
- Are there any contractual requirements to file?
- Is it a key invention in programmatic area?
- Patent budget constraints

# *Process for Protection*

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- ANL-Legal learns about a potentially patentable invention
  - Communications from the inventor, division director, and others, via e-mail, telecon, Webpage (OTT/Legal web site), personal communication, or inter-office mail.
  - Review by ANL-Legal of each and every manuscript and abstract in advance of publication, for the purpose of identifying undisclosed inventions and protected data.
  - Attendance at on-site technical reviews, seminars, conferences

# Process for Protection

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- ANL-Legal assigns a number to the invention, enters a record of the invention into a database, and with the concurrence of inventor(s), files invention report with the U.S. Department of Energy
  - ANL-Legal reviews documentation, discusses possible invention with inventor(s), and prepares a draft invention report. Invention report includes a brief description of the problem solved by the invention, prior art identified by inventor(s), possible novel elements, record of contract and funding under which the invention arose, and possible avenues for commercialization.
  - Inventor(s) reviews and, after ANL-Legal incorporates revisions, signs the invention report.
  - ANL-Legal sends the invention report to DOE. Prime Contract requires that ANL disclose each subject invention to DOE Patent Counsel, within two months after the Inventor discloses it in writing to ANL-Legal.

# Process for Protection

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- ANL's Office of Technology Transfer (OTT) schedules and conducts an ad hoc Intellectual Property Decision Group (IPDG) meeting
  - ANL's internal practice is to schedule IPDG meetings within thirty days of invention report signing, if possible. Invited participants are:
    - Inventor(s)
    - ANL management responsible for division employing inventor(s)
    - OTT account manager responsible for division employing inventor(s)
    - ANL Patent Counsel and/or other Legal representative

# Process for Protection

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- If title to the invention is elected, OTT prepares Technology Transfer Plan and obtains approval of Director, OTT.
- If title to invention is elected, ANL-Legal sends appropriate documentation to DOE Patent Counsel.
  - DOE Prime Contract requires that University elect title within 2 years of invention report to DOE, or 60 days prior to last date on which application might be filed to avoid statutory bar.
  - DOE permission is required to register copyright, but might be granted in advance under the contractual instrument funding development of the copyrightable material.
- If appropriate, ANL-Legal administers processes to protect intellectual property.



# Invention Process

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- Best practices in invention capture and review including inventor relations
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- **Co-inventorship issues**

# *Co-inventorship Issues: Joint Invention with Industry*

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- License exclusively to joint owner
- Limited Alternatives
  - Decline to patent
  - Nonexclusive licensing
  - Agreement as to 3rd Party Licensing

# *Co-inventorship with Research Institute*

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- Interinstitutional Agreements
- Who's the Lead?
- Administrative cut for Lead
  - 15%?
- Split of costs and income
- How much input from junior partner
  - Foreign patenting
  - Extraordinary costs - litigation
- Termination issues



# Entrepreneurial Efforts

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- **Various inventor roles in a Start-up**
- **Conflict of Interest and Fairness of Opportunity issues**
- License negotiations with former staff
- Managing the expectations of the researcher

# *Inventor Roles in Start-ups*

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- None
- Sponsored research at Lab
- Scientific Advisory Board
- Other consulting
- Part-time employee
- Full-time employee
- Officer or Director

# *Start-ups: Fairness of Opportunity*

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- Consider use of multiple promotional media
- Follow-up through Tech Transfer Office
- Solicitation of proposals if multiple interested parties

# *Conflict of Interest: Menu of Management Approaches*

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- Independent review
  - Conflict of interest coordinator
  - Independent substantive review committee
- Separation of Lab & company research
- Notice
  - To all research group members
  - To sponsors of related research

# ***Conflict of Interest: Menu of Management Approaches***

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- **Alternative Management or Oversight**
  - Appoint other P.I.
  - Supervision by line management
  - Oversight committee
- **Separation from Lab**



# Entrepreneurial Efforts

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- Various inventor roles in a Start-up
- Conflict of Interest and Fairness of Opportunity issues
- **License negotiations with former staff**
- **Managing the expectations of the researcher**

# Some Researchers Have Expectations that are Difficult to Manage

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- Believe that their technology is the best in the world
- Assume they will become rich
- Think that a new company starting will both be simple and wildly successful
- How do we handle these expectations and not kill the staff's competitive drive



# ***First Step: Build Business Alliances with Technical Divisions***

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- Align Business Service Offerings to best fit division's strategic needs
- Utilize cross-trained business team that knows the division management and staff
- Participated in technical and business meetings to shape programs as needed



## ***Second Step: Build Relationships with Key Inventors***

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- Use patent decision process to help coach inventors on how companies evaluate intellectual property
- Provide project specific commercial development support to drive technology transfer
- Utilize other projects as teaching moments to help staff understand commercial world
- Post key laboratory policies on web and other venues to reinforce understanding



## ***Third Step: Engage the Commercial Firms with Inventor Partner***

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- Negotiate with emerging firms as part of deal mix
- Support their efforts as appropriate to gain government research funding
- Be sensitive to special situations that may enhance company value and not compromise Laboratory interests
- Assist staff in understanding options in working with startup companies
- Assist division management handle staff startup COI issues.



# Agreement Management

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- **Long term nature of licenses**
- **Technology maturation efforts**
- Agreement evolution including amendments and termination
- Commitment management
- Distributing the money



# ***Technology Maturation Requires Teamwork and Often Sweat Equity***

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- Collaborate with division management and inventors as well as Legal to determine present status of technology
- Select those technologies that appear to have commercial interest in concert with the divisions
- Determine what the likely next steps to make the technology of interest to commercial firms.



# *Now Comes the Hard Part Implementing the Plan*

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- Perform market and related business analysis to determine the largest firms and the possible value of the technology
- Meet with the division to draw up business strategy which includes actions of both Scientists and Account Managers
- Summarize the plan and implement the actions.



# *Now Comes the Hard Part Implementing the Plan*

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- Seek new funds if necessary such as LTR funds or other DOE program funds
- Make a close overlay of the commercial approach with the DOE program needs
- Utilize a variety of approaches from following division efforts to driving much of the program



# ***Now Comes the Hard Part Implementing the Plan***

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- Implement commercial development approach where OTT staff actually shapes the direction of the program
- Use the OTT commercial development lead to develop considerable industry knowledge by travel, presentations, calls, etc.
- Employ royalty use as appropriate to mature technology



# ***After the CRADAs, WFOs and/or Licenses are signed the work is just beginning***

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- Seek to continue to grow the technology by helping the licensee
- Understand that most licensees still want your help in the deployment phase
- Ensure that the Laboratory does not over promise what it can deliver to the licensee such as doing free work

# *After the CRADAs, WFOs and/or Licenses are signed the work is just beginning*

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- Watch that your licensee does not stretch the relationship beyond your comfort level
- Consider licensee requests such as press releases for license signing, new joint research results etc.
- Welcome joint DOE project proposals if it fits your business needs.



# Agreement Management

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- Long term nature of licenses
- Technology maturation efforts
- **Agreement evolution including amendments and termination**
- Commitment management
- Distributing the money

# *Agreement Evolution: Amendments*

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- Successors in Interest
- Performance Milestones: unilateral changes?
- Financial Terms: trade-offs?
  - Narrowing of grant
  - Back-end payments
  - Royalty rates
  - Tiered payments

# *Agreement Evolution: Termination*

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- Claims that invention or patent not strong
- Clarity of breach
  - Payments
  - Performance requirements quantified



# Agreement Management

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- Long term nature of licenses
- Technology maturation efforts
- Agreement evolution including amendments and termination
- **Commitment management**
- **Distributing the money**

# *Distributing the Money*

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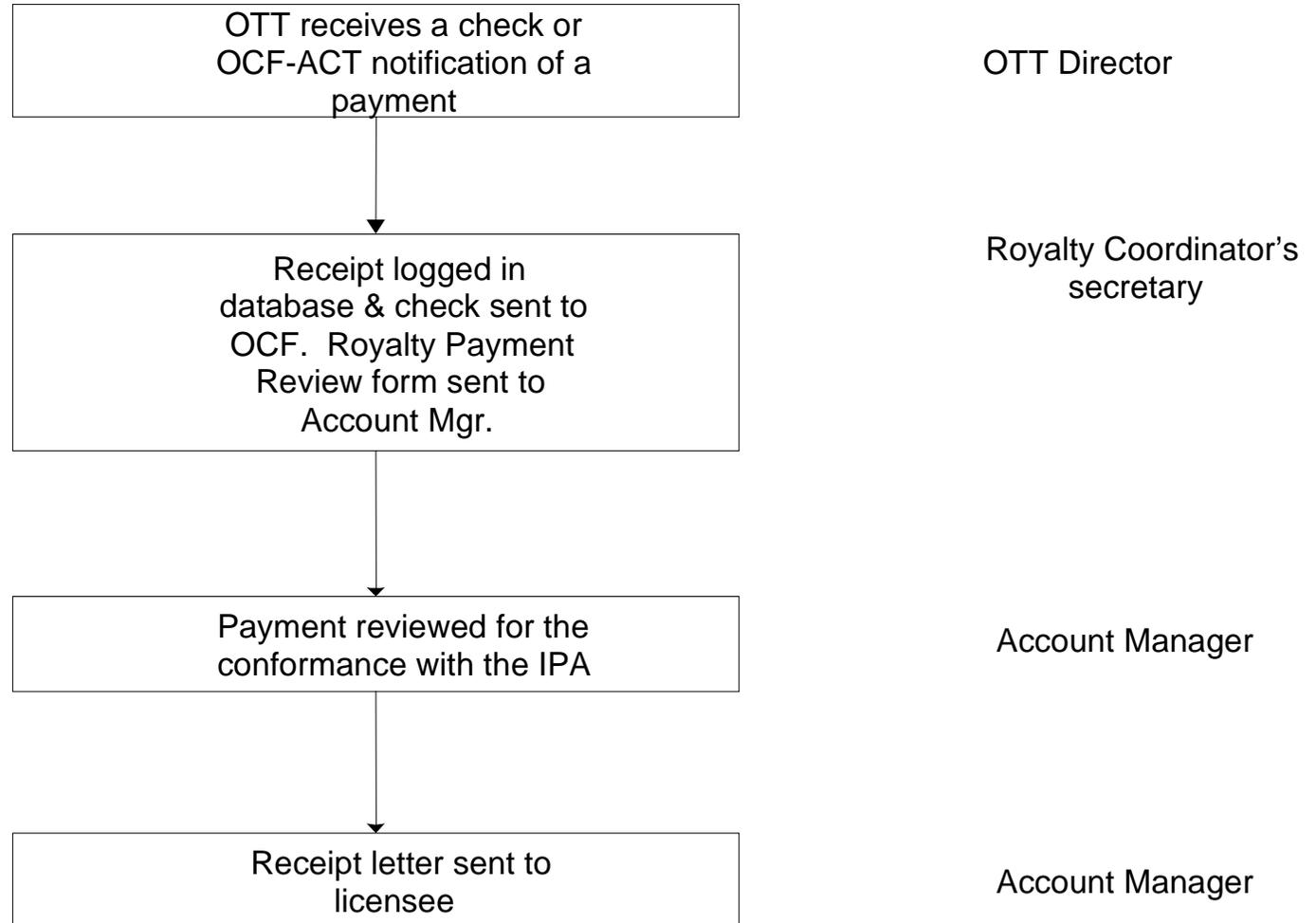
- Cost Reimbursement
  - Patent costs
  - Licensing costs
- To Inventors
  - Fixed
  - Sliding scale
  - Changes in formulae

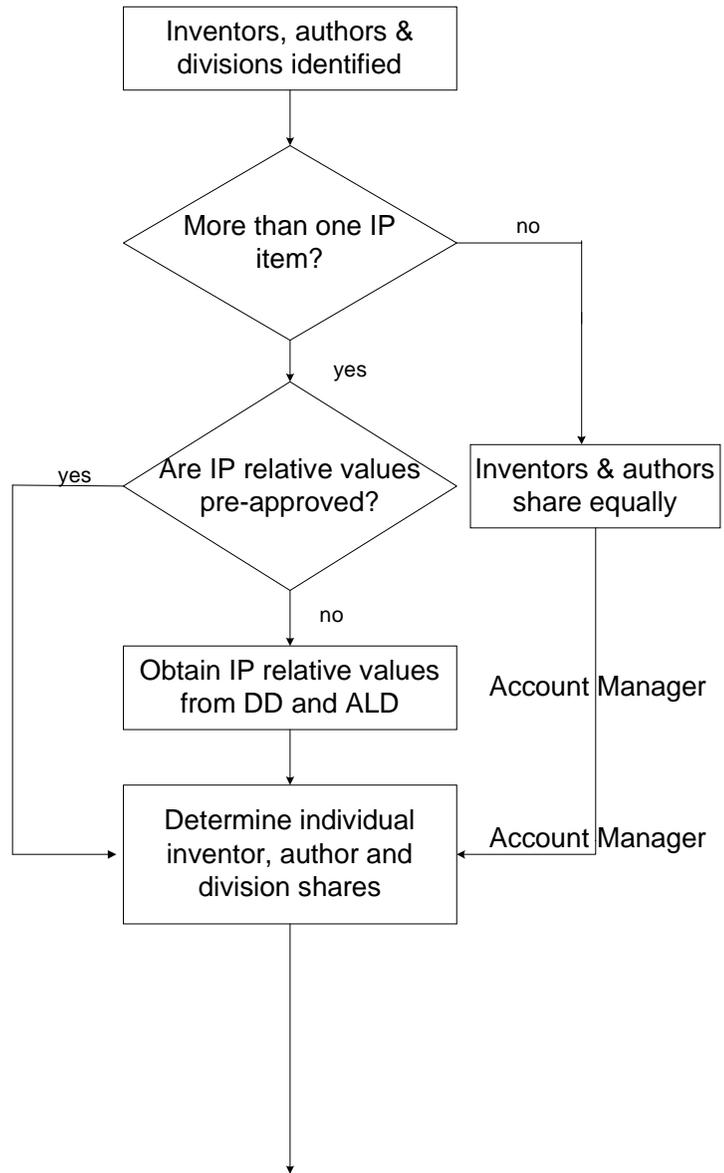
# *Distributing the Money*

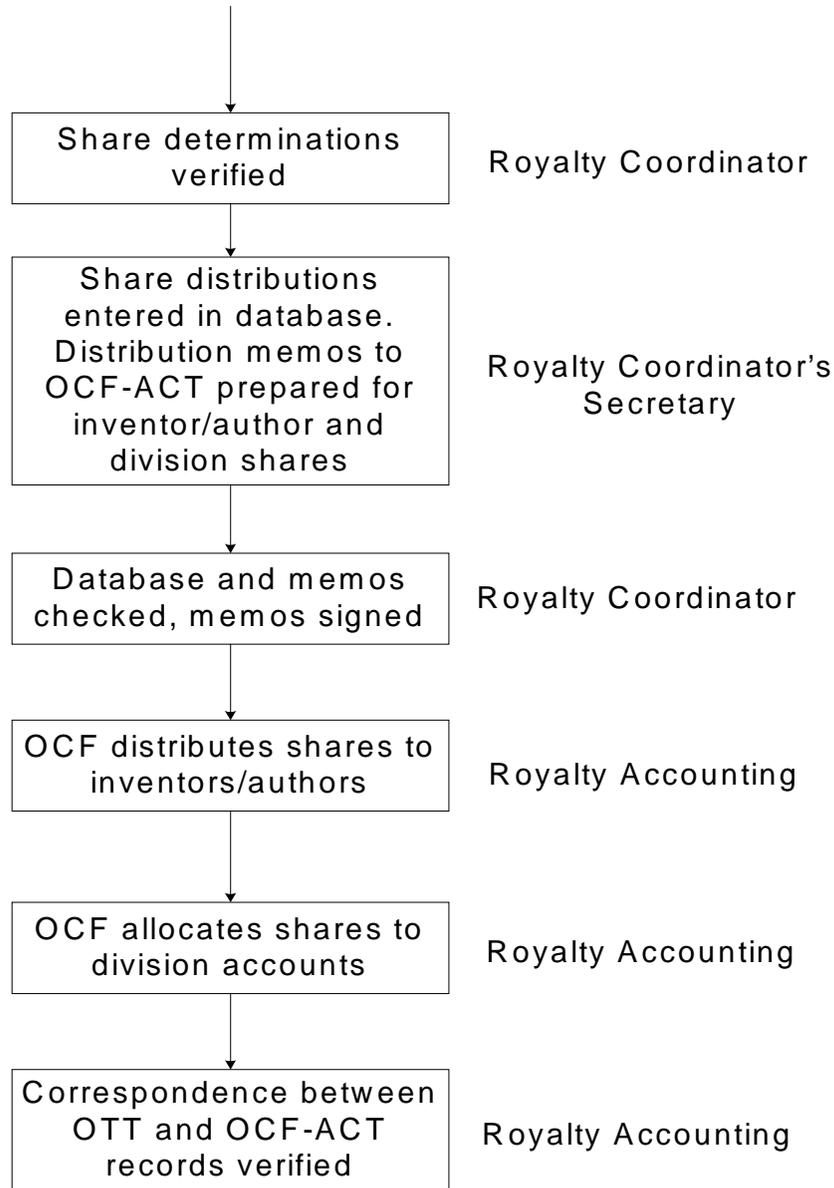
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- For research and development
  - Division
  - Central research pool
  - Research group

# Royalty Income Management OTT Intellectual Property Agreements (IPA)







# Contact Information

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