



# A Faculty Guide to Protecting Inventions

## Intellectual Property Overview

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Intellectual Property Management  
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TECHNICAL  
FELLOWSHIP

# National Academy of Inventors (NAI)

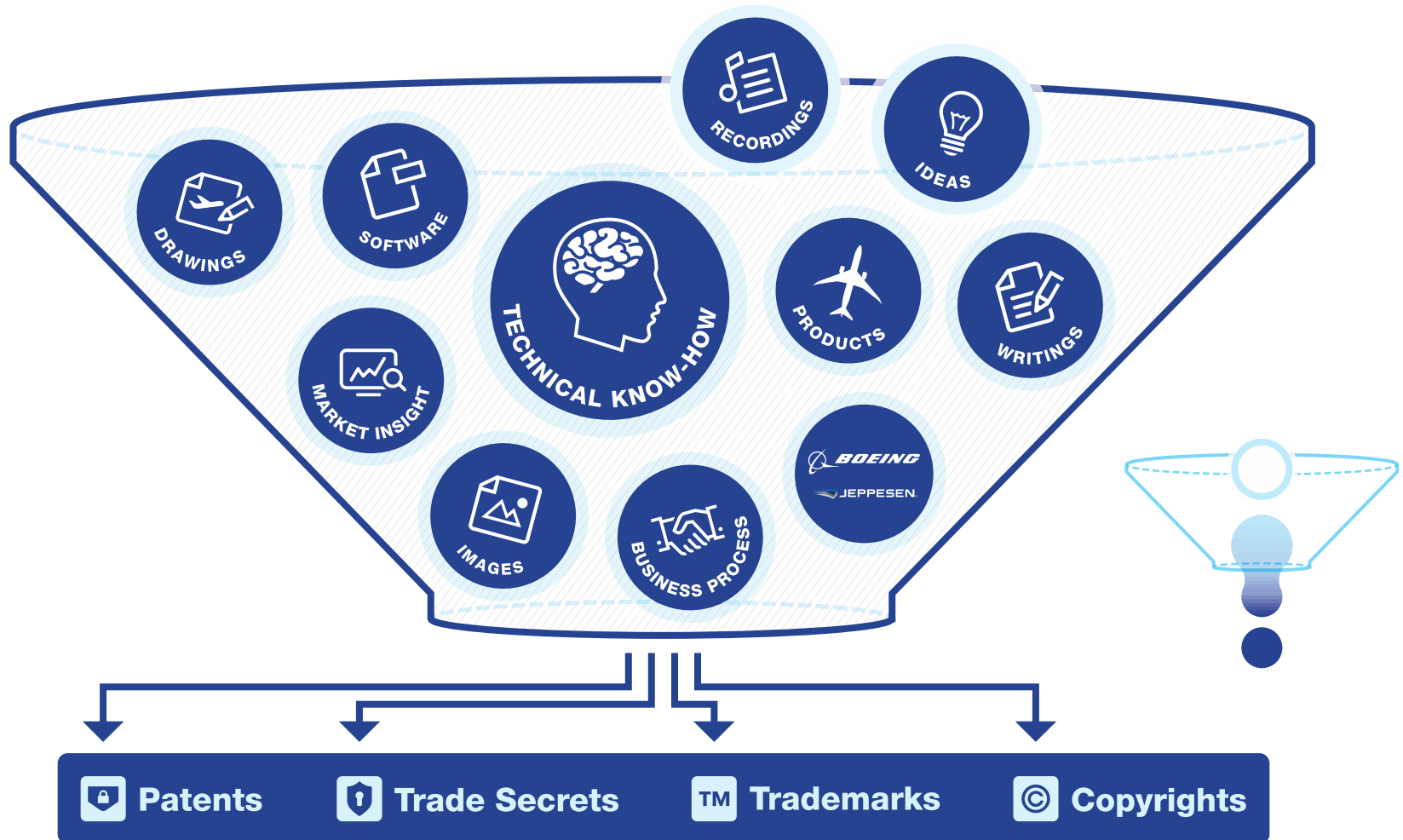
## *Mission and Goals*

- Recognize and encourage inventors with patents issued from the U.S. Patent and Trademark Office;
- Enhance visibility of academic technology and innovation;
- Encourage disclosure of intellectual property;
- Educate and mentor innovative students; and
- Translate inventions of its members to benefit society

<http://www.academyofinventors.org/about.asp#history>

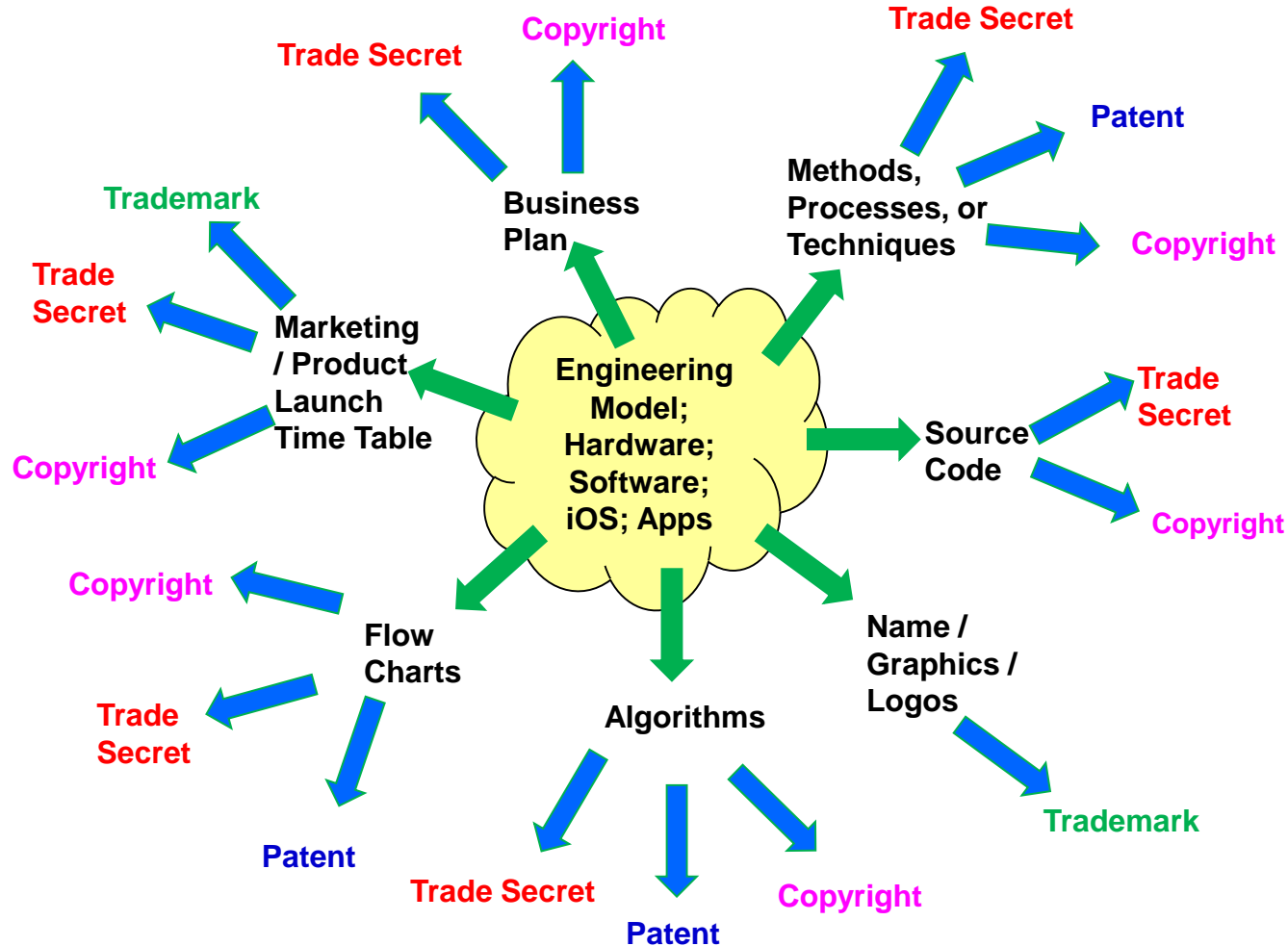
# What is Intellectual Property (IP)?

A product of the mind or intellect, in a concrete or abstract form, in which one can assert ownership rights.



# Technology Innovation Model Generates IP

## Technology Innovation Model



# What is a Patent?

- Grant issued by the U.S. Patent and Trademark Office (USPTO)
- Gives the right to exclude all others from making, using, selling or importing for sale
- Within the United States, its territories and possessions
- Up to 20 years from filing date

US08064920B2

(12) **United States Patent** (10) Patent No.: **US 8,064,920 B2**  
**Bell et al.** (45) Date of Patent: **Nov. 22, 2011**

(54) **SYSTEMS AND METHODS FOR DIGITAL PROCESSING OF SATELLITE COMMUNICATIONS DATA**

(75) Inventors: **Douglas T. Bell**, Torrance, CA (US); **Brian A. Chibowicz**, Manhattan Beach, CA (US)

(73) Assignee: **The Boeing Company**, Chicago, IL (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 186 days.

(21) Appl. No.: **12/406,357**

(22) Filed: **Mar. 9, 2009**

(65) **Prior Publication Data**  
 US 2009/021779 A1 Dec. 1, 2009  
**Related U.S. Application Data**  
 Division of application No. 10/767,000, 28, 2004, now Pat. No. 7,542,716.  
 (60) Provisional application No. 60/443,517, 28, 2003, provisional application No. filed on Jan. 29, 2003.

(51) **Int. Cl.** (2009.01)  
**H04W 72/00** (2009.01)

(52) **U.S. Cl.** (2009.01)  
 455/12.1, 15.1, 63, 509, 452, 455

(58) **Field of Classification Search** ..... 455  
 See application file for complete search history.

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**  
 6,870,490 A 3/1999 Ramach et al.  
 6,117,812 A 12/2000 Samf  
 6,296,250 B1 7/2001 Lantos-Bonason et al.  
 6,301,476 B1 10/2001 Moore et al.  
 6,284,184 B1 11/2001 How et al.  
 6,408,164 B1 6/2002 Lantos-Bonason et al.

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 853 days.

(21) Appl. No.: **10/767,000**

(22) Filed: **Jan. 28, 2004**

(65) **Prior Publication Data**  
 US 2004/0087775 A1 Sep. 23, 2004  
**Related U.S. Application Data**  
 Provisional application No. 60/443,646, filed on Jan. 29, 2003, provisional application No. 60/443,517, filed on Jan. 29, 2003.

(51) **Int. Cl.** (2009.01)  
**H04W 20/74** (2009.01)

(52) **U.S. Cl.** (2009.01)  
 455/12.1, 17, 20, 22, 508.1, 561, 427, 12.1, 455/15.1, 16.1, 168.1, 176.1, 179.1, 180.1, 455/182.1, 190.1, 191.3, 192.1, 207

See application file for complete search history.

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**  
 5,870,490 A \* 2/1999 Ramach et al. .... 314,709  
 6,172,812 A \* 12/2000 Samf ..... 453,11.4  
 6,286,320 B1 7/2001 Lantos-Bonason et al.  
 6,301,476 B1 10/2001 Moore et al.  
 6,408,164 B1 \* 6/2002 Lantos-Bonason et al. .... 455,11.1  
 6,478,794 B1 \* 6/2003 Samf ..... 725,63  
 6,594,460 B1 \* 7/2003 Serr et al.  
 2001/0012277 A1 \* 8/2001 Campesella ..... 455,429

\* cited by examiner  
 Primary Examiner—Tu X Nguyen  
 (74) Attorneys, Agent, or Firm—Hoyle Birdsell Hartman, LLC

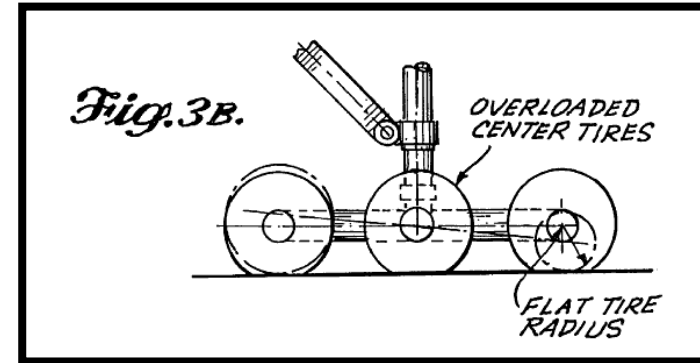
(57) **ABSTRACT**  
 A digital payload for processing a sub-band spectrum received on an uplink beam at a communications satellite includes a digital channelizer, a digital switch matrix and a digital combiner. The digital channelizer divides the sub-band spectrum into a plurality of frequency slices that can be routed by the digital switch matrix to any of a number of receiving ports. A digital combiner receives the frequency slices and re-assembles them to form one or more output sub-beams for transmission on an output beam of the communications satellite. The digital payload may also include an erasable digital reprogrammable module configured to demodulate one or all of the sub-band spectrum to extract a digital bitstream therefrom. The digital bitstream may be processed to implement code-based multiplexing, switching, access control, and other functions.

28 Claims, 16 Drawing Sheets

# 3 Types of Patents

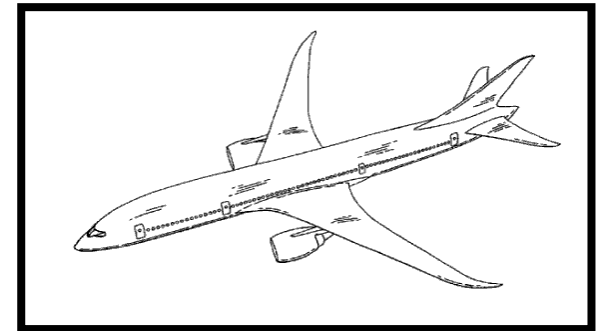
## Utility Patent

- Protects the function or “utility” of the invention. Term is 20 years from effective filing date.



## Design Patent

- Protects the “ornamental design” or appearance. Term is 15 years from grant.



## Plant Patent

- Protects distinct and new varieties of plants. Term is 20 years from effective filing date.



# America Invents Act (AIA)

## 2013 - U.S. Patent system changed

- **Previously:** “First To Invent” gets the patent
  - **Now:** “First Inventor to File” gets the patent
- An inventor must file the invention as quickly as possible before another inventor files for the same invention.

# Patentability – What is patentable?

## **New, useful and non-obvious:**

- Machine (Apparatus)
- Article of Manufacture
- Composition of Matter
- Process (Method)

**A useful improvement on any of these**



# Patentability – What is NOT Patentable?

## NOT Patentable:

- **Laws of nature**
  - $E=mc^2$ ; Gravity
- **Natural phenomena**
  - $H_2O$ ; Salt
- **Abstract ideas**
  - algorithm, method of computation or other general principle
  - when taken as a whole, the claimed invention must have additional limitations that amount to significantly more than the abstract idea

*(Alice Corp. v. CLS Bank International)*

# Novelty and Prior Art

## Prior Art – No patent if already:

- Patented;
- Described in a printed publication;
- In public use;
- On sale; or
- Otherwise available to the public before the effective filing date (date of first application for patent)

## Except:

- 1-year “grace period” for inventors in US only
- Foreign – Any disclosure is “absolute bar” to patentability

## Use Non-disclosure Agreements!

# Non-obvious

## Invention may be obvious, even if not identical to prior art, if:

The differences between the claimed invention and the prior art are such that...

- ✓ The invention as a whole
- ✓ would have been obvious before the effective filing date
- ✓ to a person having ordinary skill in the art.

# Patent Application (Non-Provisional)

## Patent Specification

- Written description of the invention
- Full, clear, concise, and exact
- Describes manner and process of making and using invention
- Enables a person skilled in the pertinent art to make and use it

## Claims

- Particularly pointing out and distinctly claiming the subject matter

## Drawing

- Where necessary for understanding the invention

## Cost is high

- \$10-15K / patent plus maintenance fees

# Provisional Patent Application

- Provides a **lower-cost first patent filing** in the United States
- Establishes an effective filing date (but **only for the technical details you include in the Provisional Patent Application**)

**Danger!** You must include as much technical detail as possible in the Provisional Application, or the Provisional filing date might not be effective for additional technical detail in the Non-Provisional.

- Difficult balance between putting everything in Provisional vs. filing as quickly as possible.

# IP Ownership and IP Rights

The creator of IP is the presumptive owner with all rights...

*Unless*, there is an **agreement to the contrary**, for example:

- Employment agreements (university employment) may assign ownership and rights
- Shop right interests may imply a license to use by employer
- CSULB has a policy on “*IP: Inventions and Discoveries*”

**This is not legal advice.** I refer you to the CSULB website:

[http://web.csulb.edu/divisions/aa/grad\\_undergrad/senate/documents/policy/2007/05/](http://web.csulb.edu/divisions/aa/grad_undergrad/senate/documents/policy/2007/05/)

# What Is a Copyright?

- Exclusive legal right
- Protects original works of authorship
  - Given to an originator or an assignee
  - To print, publish, perform, film, or record literary, artistic, or musical material, and to authorize others to do the same
- Protects *creative expression* of ideas, but NOT the ideas, themselves
- Must be fixed in a tangible medium of expression

# How To Obtain a Copyright?

A copyright automatically comes into existence the moment you create a work of authorship and fix it in a tangible medium

- Pen to paper; Type a line of code; Record sounds; Shoot video

Don't need to register, but filing with the U.S. Copyright Office provides some important additional benefits

- Ability to sue for Infringement, Statutory damages, Attorney fees

Relatively inexpensive to register

- \$65.00 / application
- \$35.00 / application if file on-line



# Rights in Copyright

## Exclusive rights to (or authorize others to):

- Reproduce in copies or phonorecords (audio recordings)
- Dictate who can copy
- Modify or prepare a derivative work
- Distribute/sell copies
- Publicly perform or display a work

## Exceptions: Fair Use

<http://copyright.gov/fair-use/index.html>

# Resources

- U.S. Patent & Trademark Office (USPTO)...[www.uspto.gov](http://www.uspto.gov)
- U.S. Copyright Office...[www.copyright.gov](http://www.copyright.gov)
- CA Civil Code 3426-3426.11...[www.leginfo.ca.gov](http://www.leginfo.ca.gov)
- State and Local Bar Associations
  - CA State Bar Association...[www.calbar.ca.gov](http://www.calbar.ca.gov)
  - LA Bar Association...[www.lacba.org](http://www.lacba.org)
  - OC Bar Association...[www.ocbar.org](http://www.ocbar.org)
- Libraries
  - Long Beach Law Library ([West Ocean Blvd, Long Beach](#))
  - LA Law Library ([1<sup>st</sup> Street, LA](#))
  - OC County Law Library ([North Flower Street, Santa Ana](#))

