# WIPO Enabling Intellectual Property Environment (EIE) Project
# National Workshop 1 - IP Management & Technology Commercialization for Technology Managers of Hub & Spoke Institutions

organized by World Intellectual Property Organization (**WIPO**)
in cooperation with
Thailand's
National Science & Technology Development Agency **(NSTDA)**,
Department of Intellectual Property **(DIP)**
and with assistance of the Japan Patent Office (**JPO**)

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# EIE National Workshop I - Thailand

## Topic 9

## Initial Technology Assessment, Triage, and Selection Criteria

# Technology triage

What is it?

….. and

Why is it the single most important step in the IP/technology commercialization process?

# What is technology triage?

- A process of selecting those inventions that have at least a reasonable chance to be commercialized (i.e., licensed)
- From those that don't

# Why is triage essential?

Managing IP/technology commercialization takes a lot of professional time and money

Investing time & money on a technology which has little or no chance of signing a licensee (let alone a financial return) is an unacceptable waste

Without triage, the TTO will suffer gradual implosion and ultimate failure

# Triage and the "Cahoon Rule"

**20%** of all inventions will be licensed eventually, with proactive technology marketing

**30%** of all inventions will never be licensed, regardless of how much effort is put into technology marketing

**50%** of all inventions have some potential to be licensed **IF** you proactively marketing

**AND** you have some luck

# Triage

Is the thoughtful analysis and evaluation of all inventions to sort them into these three categories of “licensability”:

High potential (the 20%)

Very low (or zero) potential (the 30%)

Medium potential (the 50%)

# The essence of Technology Triage

- Select only those inventions where you are convinced that you can convince a potential commercial partner that investing in the invention is a reasonable risk, given the potential value of the technology.
- Do not select inventions that you will be embarrassed to later find a “fatal” flaw in the technology, IP, or business case (that you should have known about)
- Only invest your time and money on inventions that have a chance of being licensed

# The True Goal of University Technology Transfer

- A signed contract (i.e., license) in which a financially, technically, and business-competent partner is obligated to invest time and money on YOUR technology.
- This is the best you can hope for.
- Beyond that, commercial success of the technology is out of your hands and dependent on market and other forces out of your control

# The Cornell Example

Over a span of twenty years:

- 3000 inventions submitted to TTO
  - 1500 filed as patents (~ 50%)
    - 750 licensed (~25%)
      - 650 generate revenue (~20%)

50% of all Cornell's patent expense reimbursed by licensees

**Compare:** 95% of US patents produce NO revenue!

## Assessing technical and market attributes: performing invention triage

- What is it? How exactly does it work?
- What are its inventive features? How do they compare with current solutions?
- What problems does it solve? Is it important? What is the economic basis of that importance?
- Is the inventive solution economically feasible?

## Assessing technical and market attributes: performing triage

- What are its superior attributes?

  Faster? More accurate? Cheaper? New capabilities, more durable? Etc., etc,…

- How do these attributes translate into economic benefits? Quantify benefits whenever possible

- What is the stage of development (where in the R&D continuum?)

# Characterizing technical viability/market relevance

- Understand the economics of the problem solved
- What are its market applications?
- What are the market characteristics?
  - Size
  - # of companies
  - Typical profit margins
  - What is the innovation landscape? Are there any dominant companies?
- Are there significant regulatory hurdles?
- How does it compare with current alternatives

  Different is usually not sufficient… you need superiority
- Quantify performance superiority, if possible

# Always be alert for “show-stoppers”

It is a “blessing in disguise” to discover that an invention is one of the 20% DOA,

before investment of much time and money (and embarrassment)

# Characterizing technical viability/market relevance

- Is the technology:
  - a paradigm shift (truly disruptive)?
  - a significant improvement?
  - a minor improvement?
  - no better than the alternatives?

# Characterizing technical viability/market relevance

- Can the invention be commercialized as a “stand-alone……or are other components needed?

  (will licensing be complicated?)
- Is the surrounding technology space in a declining, advancing, or stagnate stage?

# Secondary Factors in triage

- Inventor's status: Faculty? Student? Retiring? New Hire?
  - Their funding track record, industrial exposure, commitment to the technology transfer process and level of cooperative-ness
- Co-owners? (this adds complexity)
- Ongoing research funding, surrounding the invention
- Any "strings" attached or other complications?
- Industrial sponsors of research/researcher?
- Part of expected stream of prior/future inventions

# Assessing the Property Control Position

***Intellectual Property***

- Is it patentable? Patent filed? Issued?
  - Scope of claims?
  - Enforceability?
- Is the "patent field" crowded?
- Is "Freedom to Operate" an issue?
- Geographical extent of patent coverage
- Life of patent
- Other IP? Trademark, Copyright, Trade Secret(?)

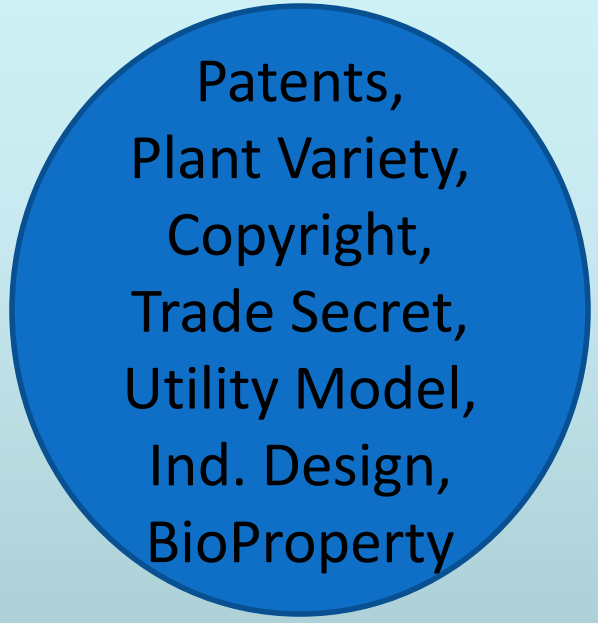
  UPOV (plants)

# Assessing the Property Control Position

***Tangible (personal) property***

- Bailment law (MTAs) (transfer of possession not title)
- Organisms, (individual and/or populations), tissues, cell cultures, DNA, etc
- Reproducibility
- Non-biological
- Feasibility of implementing bailment control through R&D or commercialization?
- Bailments effectively implemented to date?

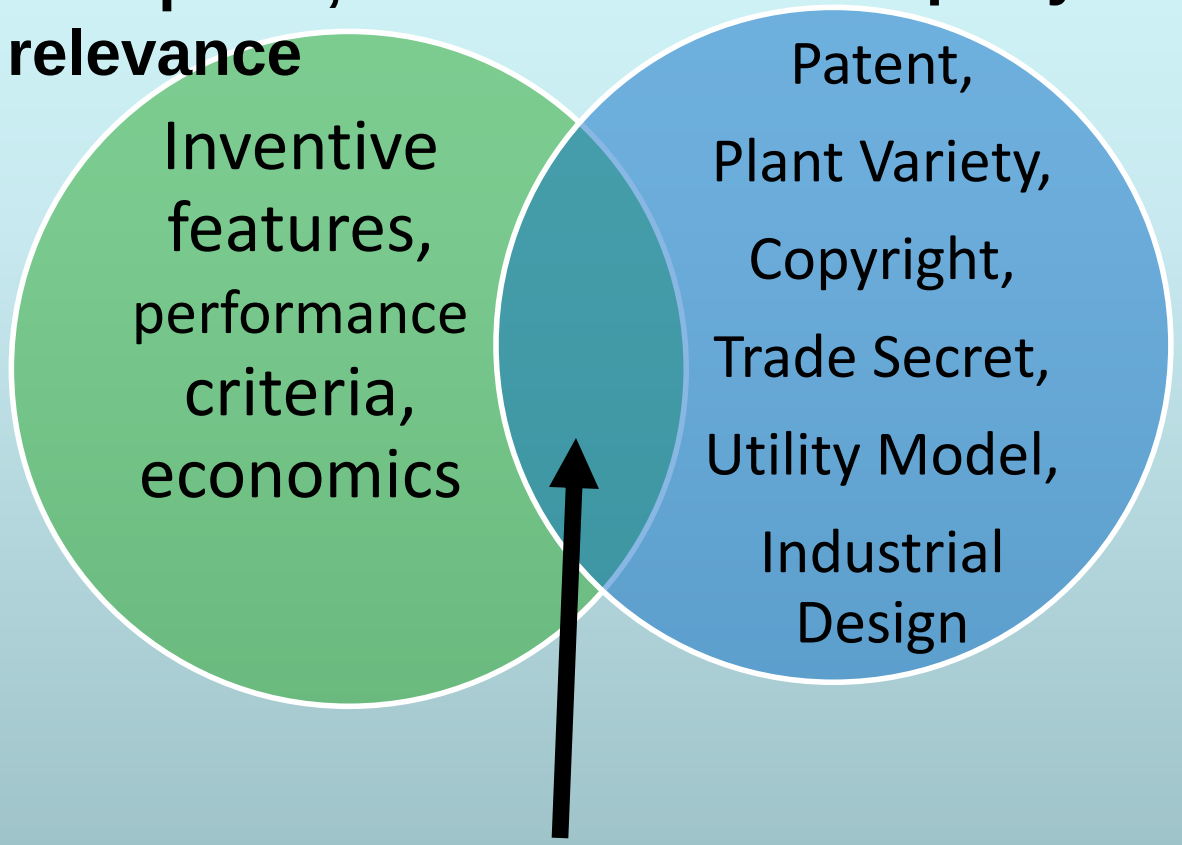
Technical aspects & market relevance


Potential Property Control Position

**Technical aspects, market relevance**

**Potential Property Position**




Invest in these: inventions with market potential and meaningful property control

# Assessing technical and market attributes:

## a precursor to early valuation

Define and quantify at least one "value proposition"

(performance and economic justification for why someone will buy the product or service)

What will be sold? Who will buy it? Why and how much will they pay?

What portion of the product can be attributed to the invention?

(the "Product Enabling Value")

Car vs. windshield analogy

Are there extraordinary market factors?

(regulatory hurdles, PR issues, unique competitors

What are typical profit margins in the market(s)

Pharma vs. Farming

# Assessing technical and market attributes: a precursor to early valuation

- Cost of manufacture

  (wheat, semi-conductor, human drug)

- Investment required vs. ”ROI”

- Is there a development “bottle neck”?

  potential flaws, difficult hurdles (e.g. human safety issues, environmental impacts, unreliable supplies, etc.?

- Consider the “equation”: stage of development vs. risk

# Stage of development vs. risk "equation"

Initial invention: highest risk

Proof of principle: high risk

Patent application: high risk

Prototype: medium risk

alpha-test (lowers prototype risk)

beta-test (further lowers risk)

Patent issued: medium risk

1st product sale: significantly lowered risk

Initial sales: lower risk

Repeat sales: lowest risk

# Steps to Strengthening the Business Case

- Define the technical advantages over existing alternatives
- Describe how those advantages lead to economic benefit
- Define who has an interest in the economic benefit
- Quantify the economic benefit

## Strengthening the Business Case:

### define a feasible business model

Describe how the technology will be turned into a product and/or service?

How will the product/service be sold and to who?

Why will they buy it?

Describe the feasibility of scale-up of manufacture, distribution, and sale

# Strengthening the Business Case

**Develop at least one**

**Unique Value Proposition ("UVP")**

# The UVP of an invention concisely describes:

The benefit(s) it will provide……

**[describe them clearly, concisely, and thoroughly]**

….at a cost, that a future buyer (the customer) will perceive as a compelling “value”

“Value” = Benefits – Cost

**[define and quantify the benefits and costs]**

# The Unique Value Proposition (UVP)

- Explains how the invention provides this unique value (specific benefits – cost) to a future buyer, compared to alternatives.
- Is a clear and concise statement that summarizes why someone would buy the product or service based on the invention.
- Describes how the invention will produce a product or service that will add more value, create more profit, or better solve a problem than current alternatives.

# The Unique Value Proposition (UVP)

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- Makes it clear how the invention will solve future buyers' problems or improves their situation such that profitability is enhanced
- Identifies why the technology is superior to the competition (unique differentiation).

# What makes a good UVP?

- Clarity! It's easy to understand.
- Communicates concrete results that will result from using the technology and its products and/or services.
- States how it's different (and better) than the alternatives.
- Avoids hype (… "never seen before, amazing miracle product"), superlatives ("best"), and business jargon ("value-added interactions").
- Can be read/understood in about 10 seconds.

# UVP Examples

“Achieves the same level of pest control as current chemistries at 30% cost reduction.”

“Produces materials that exhibit 25% increased life at temperatures above 450°C at a cost comparable to existing high temperature materials.”

“Increases the manufacturing yield of large Li batteries by 50% with no cost increase”

# UVP Examples

“Is a natural topical antiseptic 90% as effective as current chemical antiseptics.”

“A tomato variety that exhibits 50% more solids and 25% more sugar per unit weight than currently available varieties.”

“Reduces scours mortality in new-born calves from 15% to 1.5% at a cost of less than 6 Pesos per animal.”