

AUTM Webinar

The Technology Transfer Profession: Mindset for Success

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Our Discussion Today

- The Essential Skills of a TTO professional
- Mindset
 - What is it?
 - Why is it so important?
 - What is mindset for success?
- Can you change your mind?
- How?
- Attitude for success as a TTO Professional
- Developing a Vision for Technology

The Essential Skills

A successful Tech Transfer professional needs:

- Knowledge and understanding of science & technology
- Understanding and appreciation for business and the commercialization process
- Familiarity with the intersection of sci-tech and business:
 - R&D
 - Product development
 - Market development

A successful Tech Transfer professional needs to be:

- Comfortable at the intersection of sci-tech,
 - law, and business,
 - Intellectual Property,
 - Contracts

The Essential Skills

A successful Tech Transfer professional needs:

- In-depth understanding of IP, its creation, management, and use
- Solid understanding of the intersection of invention and patent claims
(prior art search, patentability analysis)
- Understanding where an invention best fits in the “value chain”
- Contracts
(MTA, NDA, Licenses, Joint IP ownership)

Tech Transfer is Unique

A particularly rich mix of intellectual realms

Science & Technology

Law

Business

Psychology

Politics

Organizational Dynamics

This creates an extraordinary mental environment

A “crucible”

of cognition

**However,
while skill mastery is essential**

To be truly successful,
a Tech Transfer Professional
needs more than these skills.

What is the fundamental element?

Mindset

Mindset

What is it?

How you think...

..... and how you think
about how you think

“Metacognition” (educational psychology)
= awareness and understanding of one's
own thought processes.

Mindset ≈ attitude

Mindset : illustrations

- “No matter how good things look now, something’s going to go wrong”
vs.
- “No matter how things look now, things will turn out for the best”
- “That’s impossible”
vs.
- “Where there’s a will, there’s a way”

Mindset: illustrations

- “People are inherently selfish”
vs.
- “Most people will do the right thing”
- “Why keep beating a dead horse?”
vs.
- “If at first you don’t succeed, try, try again”
- “A good life is full of interesting challenges”
vs.
- “Life is difficult, then you die”

Mindset

Why is it so important?

- Skill, knowledge, expertise are necessary, but insufficient for success
- The balance of “aptitude” and “attitude”
- We’ve all reached a level of achievement because of our mindset
- But, we can get stuck with a mindset that hinders rather than fosters success
- Mindset turns out to be critical for the TTO professional

Mindset

Three types of people

“Can-do” ... or

“can’t-do”

“Can-do” ... or

“Will-do”

Mindset

Is there a mindset for success ?
(and happiness)

- “Growth” vs. “Fixed” Mindset (C. Dweck, *Mindset*)
- Growth mindset:
success through the personal evolution of
doing, learning, progressing
- Fixed mindset:
success by proving you’re smart;
imposed constraints on your thinking and
ability

Growth vs. Fixed Mindset

- Fixed:
If you’re smart, intellectual effort and
difficulty is a bad thing, to be avoided
- Growth:
Intellectual effort and difficulty is what
makes you smart and leads to
learning and achievement
- Fixed: “I can’t do that”
- Growth: “I wonder how I’ll do that?”

The Growth Mindset

- A fundamental belief that you are in control of your own ability and destiny; that success comes from doing, learning, and improving.
- Hard work, effort, and persistence are essential, but more important is the underlying belief that you are in control of own fate, that you will make mistakes as you learn, evolve, and succeed in the face of difficulty & challenge.

The Growth Mindset

- Making mistakes is not just ok, it's a positive sign of learning while trying
- Fear of mistakes hinders your progress
- Perfectionism is the enemy of the possible

The Growth Mindset

- Applies to profession, personal life, relationships
- Optimism vs. pessimism
- Is the glass half-full or half-empty?
- Optimism and realism can co-exist
- Fantasy-minded, or unrealistic dreaming is unlikely to produce results
- “Optimistic Realist”, “Practical Dreamer” a better balance

The Good News

- We can change our mind (mindset)
- Neuralplasticity
the ability of the brain to change continuously throughout an individual's life,
Where attention goes,
Neuron-firing flows,
Where neuron-firing flows, pathways are built
Neural pathways produce behaviors
Behaviors produce states

(Siegel, *Aware*)

Mindset: How to change your mind

- Think about your thinking
(view your thinking objectively)
- Practice putting as much space as possible between yourself and your thoughts
- The “Wheel of Awareness” (Siegel)
- Observe your thought processes
- Consider your thinking as a “voice”
- Contemplate how emotion relates to your thought processes
- Practice objectifying your thought processes

Mindset: How to change your mind

- Practice separating the intellectual from emotional in your thought processes
- Meditation
- Remember to step back from being caught-up in intellectual content

Mindset: How to change your mind

- Realize you can change your way of thinking
- Choose the growth mindset
- Talk back to the fixed voice in your mind
- Try to stay in a growth mindset
- Avoid unnecessary mixing of intellect and non-constructive emotion
- Look forward to intellectual challenges and relish the difficulty
(like muscle discomfort of a physical workout)

Mindset :How to change your mind

- Embrace problems and challenges
- Enjoy the feeling of learning
- Appreciate not knowing
- Do not worry
(worry is like praying for something bad to happen)
- Welcome mistakes as a badge of learning
- Enjoy being an amateur
- Stimulate and appreciate your curiosity
- Be kind

Mindset :How to change your mind

- Don't underestimate the power of the lost-art of concentration
(Wood, *Concentration*)
- Use intoxicants and mind-alterants carefully, judiciously, or not-at all
- Develop and use your sense of humor

A Recipe for Your Mindset

- Enjoy the present moment (mindfulness)
- Look for and try to solve problems, accept mistakes
- Take action
- Maintain focus, don't be distracted
- Stay positive, counter the negative voice
- Help others, encourage collaboration
- Stay resilient, be persistent
- Always be learning
- Believe in yourself; setbacks necessary for growth
- Take calculated risks
- Stay in a growth mindset

Tech Transfer Professional Attitude for Success

- This is a noble profession
(doing good for humanity)
- YOU hold the keys to successfully bringing new technology to society
- You have a “sacred” duty to help bring solutions to problems, for the public-good
- The essential role of the TTO is little-known
- In some cases, the creativity required by TTO, rivals that of the inventor”

The Tech Transfer Professional Mindset for Success

- Accept the fact that most new technologies will not advance, despite all your efforts
- Rule of thumb: only 25% of new, selected technologies will “succeed”
- Remember: batting 300 → Hall-of-Fame
- You will “kiss many frogs”
- Once you’ve evaluated/selected a technology, always believe in its future
- Be patient, creative, proactive, opportunistic

Tech Transfer Professional: Attitude for Success

- Be inventive, think outside the box in your commercialization strategy & tactics
- Apply “Lateral Inventiveness”
(the specialty of the TTO)
- Lateral Inventiveness = novel and unintended applications of an invention

Examples of Lateral Inventiveness

Invention: *Antimicrobial nanoemulsion for packaging films*

Lateral invention: 3-D cosmetic or medical devices

Invention: *Soybean process waste for wall construction material*

Lateral invention: “Green” skateboards

Invention: 2-photon laser-scanning microscopy

Lateral invention: Imaging-microscope Endoscopy

Tech Transfer Professional: Attitude for Success

- Experiment with approaches and methods
- Always be looking for commercialization opportunities:
 - potential licensees, allies, resources, entrepreneurs, supporters
- Remember, we're in the innovation business, right?

Side Note: "commercialization allies" can be hugely important to TT success
(commercialization allies ≠ licensees)

Tech Transfer Professional Attitude for Success

- Balance thinking with acting
- Remember the three types of people:
- "Can't-do"
 - "Can-do",
 - WILL-DO
- Successful TTO Professionals:
 - "Will-do" people

Tech Transfer Professional Attitude for Success

- Perfection is the enemy of the possible
(and inaction is the opponent of success)
- Be a catalyst (not a reactant)
- Never forget your primary client

the Technology

Tech Transfer Professional Attitude for Success

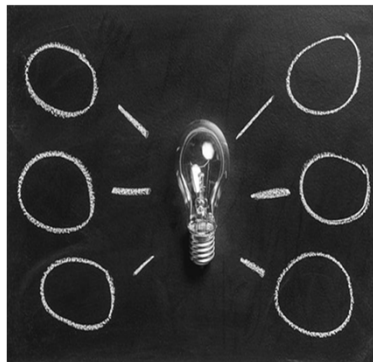
- Ask yourself: “What can I do today to move the technology forward?”
- Develop a “vision” for the technology

**What is a
“Vision for Technology Commercialization”?**

The ability to think about and plan for future
uses of a new technology with
.....imagination and
...wisdom

**Discovering your
“Vision for Technology Commercialization”**

- Curiosity
- Imagination
- Creativity
- Inventiveness
- Innovation
- Inspiration
- Intuition
- Awareness
- Insight
- foresight, prescience



Discovering the Vision

Intelligently and creatively imagine the technology in practice, solving problems,
creating opportunities

- Optimistic, glass half-full thinking
- Combine your left-brain (linear, analytical) and your right-brain (wholistic, big picture, creative) thinking (see *A Whole New Mind* by D. Pink)
- Practical dreaming
- Encourage your whole mind through right-brain or left-brain exercises
- Find the “dots” and connect them
- Enjoy the creative process

Stimulating your Vision

- Listen and think symphonically – connect different and often unrelated ideas, disciplines
- Don't fear crossing of intellectual/disciplinary boundaries
- Always look for relationships
- Don't fear mistakes; no perfectionism!
Perfectionism is the enemy of the possible
- Be a “lateral inventor”
- Enjoy/use metaphor – understanding something in terms of something else

Stimulating your Vision

- See the “big picture”
- Visit newsstands
- Draw
- Follow the links (internet)
- Enjoy looking for problems to your solutions (inventions)
- Create an inspiration board
- Release stream-of-consciousness using word-maps

Stimulating your Vision

Try brainstorming

- Go for quantity (having good ideas requires lots of ideas)
- Encourage wild/crazy ideas (not too much)
- Be visual
- Defer judgement of good/bad, right/wrong
- Always listen (politely), add positively to the dialogue
- Don't be afraid to go against the tide of opinion
- Remember: finding good ideas requires many ideas
- Celebrate others ideas, your own, and the synergy of communal thought

Tech Transfer Professional

Some final advice

- Be curious
- Enjoy this unique profession
- Have fun
- Enjoy being an amateur
- Develop and use your sense of humor
(find it, if you've lost it)
- Your personal/professional reputation is your most valuable asset

Some Resources

Mindset Dweck, C.

Aware Siegel, D.

A Whole New Mind Pink, D.

The Power of Mindfulness Nyanaponika, T.

Learned Optimism: How to Change Your Mind

Seligman, M.

Concentration: An Approach to Meditation

Wood, E.

Practicing Mindfulness: An Introduction to Meditation

Muesse, M.

Thank you