

31 Innovations that failed



Contrary to what the title may suggest, The Born Loser was not a failed creation. In fact, Art Sansom, who created this syndicated comic strip in 1965 and his son and assistant, Chip, won the 1987 National Cartoonists Society Humor Comic Strip Award and the 1990 Newspaper Comic Strip Award.

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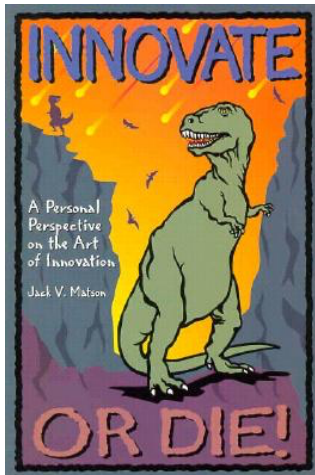
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Take a risk to innovate and learn from failures



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Why do Some Innovations Fail to Generate Returns?

- Imperfect Innovations
 - Cigarette filter
 - Safety car seat
 - Nanomaterials (?)
 - Too much competition
 - New variety of mint
 - Polaroid vs Kodak
 - Inaccurate Valuation
 - Sir Arthur C. Clark
 - Silly Putty
 - Lack of IP Strategy
 - Water-absorbing polymer
 - CRA + conflict of interest
- Problematic Patent Application**
- Diving helmet
 - Steel door silencer
 - Kwow Krua
 - Agricultural bacteria
 - The plough
 - Utility Model vs Utility Patent
- Trade secret misappropriation**
- Super diligent employee
 - Friendly faces from neighbouring lab
 - Mahidol's mosquito-killing bacteria
 - Trade secret leak
 - duPont vs. Christophers
- Weak employment contracts**
- Employer held at ransom
 - IP management for CU people

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(continued)

- Weak Business Model
 - Morse vs. Bell
 - The rise and fall of AT&T
 - Comedone removal gel
- Time and Effort Needed, as well as Permit where necessary
 - 300M\$ Gillette razor
 - Doumar Product
 - Segway Human Transporter
- Consumer Acceptance
 - Continuous aiming of ship gun
 - Automatic Teller Machine (ATM)
 - Sony Betamax VCR
- Disruptive Innovations (Extra)
 - Digital photography replacing film (Polaroid, Kodak, and Agfa)

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Imperfect Innovations

- Pharmaceuticals - needs for safety testing (US\$750 million/drug)
- Consumer products - UL Listed but ...
 - Asbestos
 - Nanomaterials: coating to cosmetics
- Potential risks perceived by consumers
 - New seat belt

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http://reviews.ebay.com/Asbestos-Cigarette-Filter_W0Q CugidZ1000000000897651

<http://www.mindfully.org/Pesticide/Asbestos-Kent1 jun95.htm>

<http://www.aliciapatterson.org/APF1005/Levin/Levin00.jpg>

- Kent Micronite Filter (1952-1956)
Lorillard advertised as “Health Protection”
Contains 10 mg of crocidolite per filter
Total 11.7 billion cigarettes sold in the US

1. Innovative Cigarette Filter

- A = white asbestos, B = side view, C = end-on view, D = side view of filter, D = asbestos recovered from smoke

- Smoking a pack of Kent per day => >131 million >5 um crocidolite per year

[Longo, W. E., M. W. Rigler, and J. Slade. 1995. *Cancer Research* 55:2232-2235]

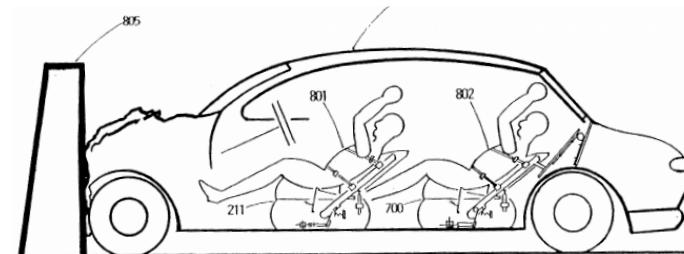


http://reviews.ebay.com/Asbestos-Cigarette-Filter_W0Q CugidZ1000000000897651

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2. Innovative Safety Car Seat



- Inventor: Mongkol Jesadanont, Chulalongkorn University
- May work for frontal impacts but experts are worried about side and rear impact protection

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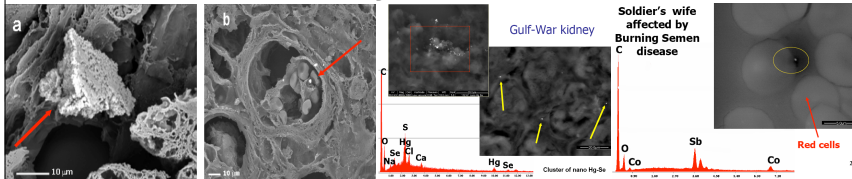
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3. Innovative Nanomaterials, e.g. NanoSilver

Eric Drexler's Engines of Creation (self-replicating nano-robots)

Michael Crichton's Prey



- 100 nm size particles can pass through lung into the blood can be recovered in the liver.
- Nemmar et al. Circulation 2002, 105:411. As shown in a presentation by Antonietta M. Gatti.
- Gulf-War Kidney and Burning Semen Disease



Government Promotion Attracts Competition

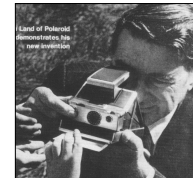
- Government promotion without monitoring the market
- Happens over and over and over again
- Bureaucracy nature



4. Innovative Variety of Oil-Producing Mint

<http://extension.oregonstate.edu/sorecmg/herbathrenewal/mintSpear1.jpg>

- 1970 TISTR developed a novel variety of oil-producing mint called "Puang-Muang" variety
- 1973 Government began promoting plantation and mint oil extracting plants in northern Thailand
- 1976 Most of the plants and plantation went out of business due to cost-competition among themselves
- Villagers returned to opium and marijuana farming



5. Patent Infringed: Polaroid vs Kodak (1976)

- From 1929 to now, Edwin Land has been the inventor of over 530 US patents, second only to Thomas Edison.
- 20 patent lawyers in house in 1976, engaging in about 20 law suits at once.
- 4 camera and 6 film patents in this very technical law suit for SX-70 vs EK series.
- 5-6 years pretrial discovery, 2 months trial, 3 yrs to receive judgement.
- Although this innovation did not quite fail, the profit is not as much as expected during the time of the patent infringement suit

What can we do to keep competition down?

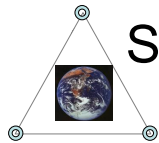
- Seek patent protection
- Seek trade secret protection
- Seek other forms of intellectual property protection
- But first we must assess the value of the innovation in order to formulate an appropriate intellectual property strategy for it. This strategy must mesh well with our business model and become part of our business plan

Inaccurate Valuation

- Predicting the value of an innovation is the first step towards formulating intellectual property strategies, choosing a business model, which will eventually lead to a good business plan
- Valuation is an art as well as a science
- There are a few different schools for valuation approaches



©1990 Charles Adams



Sir Arthur C. Clarke

- In 1945, Arthur Clarke invented a world-wide radio telecom scheme using 3 geostationary satellites.
- Having assessed the value of his new invention, he decided not to file a patent since (he thought) technology would not advance enough in his lifetime.
- Nevertheless, he received numerous honors, e.g.
 - ✓ a gold medal of the [Franklin Institute](#)
 - ✓ the Vikram Sarabhai Professorship of the Physical Research Laboratory, Ahmedabad
 - ✓ the Lindbergh Award
 - ✓ Fellowship of [King's College, London](#)



7. Silly Putty

- 1943 The polymer was invented by James Wright of GE from silicone oil and boric acid.
- 1945 GE began a world-wide search for potential uses of the new rubber - found none
- 1949 Peter Hodgson, seeing a marketing potential as a children's toy, borrowed \$147 and bought the production rights from GE. He renamed it Silly Putty and packaged it in plastic eggs for Easter. Soon, Silly Putty enjoyed multi-million dollars in sales.

Weak (or Nonexistent) Intellectual Property Strategy

Protection strategy - what, when, where

Research strategy -> next step

Development strategy -> products

Commercialization strategy -> returns

- No IP strategy at all
- Leave everything to our business partner (or to our prospective licensee, etc.)
- We need absolute patent protection worldwide !!!
- Unrealistic expectation for returns



8. Water Absorbing Polymer

- A new water absorbing polymer was invented in a Thai university, which at the time did not require faculty members to enter its commercialization assistance program
- Very passive IP strategy + inexperienced researcher
- A local company initiated a negotiation for a research collaboration agreement with the university
- PI was asked by the company to write up a review of the products business outlook
- After the company learned of competing technologies, which are cheaper, it switched to talk with the cheaper technology source
- No IP Strategy => Free Technology



9. Collaborative Research Agreements with Conflict of Interests

- First Time (ca. 2000): Method for large-scale protein production in prokaryotes => production of recombinant DNA derived proteins : Foreign licensee dictated all the terms of the license
- Second time (other subject matter, other licensee): Still happy with the terms of the first license
- Thai Academic Advisor get funding, free plane tickets and co-inventorship on US and EPO patents => conflict of interest
- Foreign licensee derived most of the benefits



Problematic Patent Application

- Unscrupulous patent attorney - USA
- Tricky patent attorney
 - Unqualified application
 - Novelty
 - Best-mode
 - Disguise invention as design
 - Kwow Krua patent
- Ignorance of the Patent Gazette - N₂ Fixing Bacteria
- Miscommunication with the Patent Office
- Interference - Polaroid
- ==> stock price may plummet



<http://www.seatrek.tc/underwater.htm>

10. Unenforcable Thai Patent No. 9725 (10/6/1997->10/7/2000)

- 1994-5: Diving helmet service in Thailand
- 1997: a Thai patent application was filed
- 2000: a Thai utility patent was issued
- 2001: the patent holder tried to enforce its right
- Tour companies sued one another, getting injunctions, etc.
- CIPITC finally invalidated the Thai patent based on evidence that destroyed the novelty of the invention covered by such patent (Case TP 97/2545)

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<http://www.wolfeindsvc.com/rolling-doors.html>

Inside here

11. Designs of Quiet Rolling Steel Door

- Plastic insert inside the frame
- Invention wrongfully disguised as design in order to speed up patent prosecution delay
- Patent Attorney might have advised his client to choose to protect the design instead of the invention
- Waiting to be invalidated by the Court

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<http://www.vfnutrition.com/phpshop/assets/images/shop/product/9ed1a2d7e3b265233c90423966adb622.jpg>



<http://www.herapeal.com/>

12. Kwow-Krua Patent

CLAIMS

1. Medicinal herbal compositions comprising of the following ingredients:
 - 1.1 White Kwao Krua and/or Red Kwao Krua and/or Black Kwao Krua
 - 1.2 Milk and products from milk of animals in the category of cow, water buffalo, and sheep
 - 1.3 Food sweetener consisting of white cane sugar, red cane sugar, and solid palm sugar
 - 1.4 Plants of medicinal herbal type Makampom [Phyllanthus emblica], Samor Thai, Samor Pipek [Terminalia bellirica]
 - 1.5 Colorant, fragrant, flavoring, characteristics modification agent, excipient

- A positive attempt to mislead others to accept that the company had monopoly on all Kwow Krua formulations
- The publication looks benign but ...

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The Hidden Claims

2. Medicinal herbal compositions according to claim 1 consisting of the said ingredients in the following quantities:
 1. white Kwao Krua and/or red Kwao Krua and/or black Kwao Krua: 10 to 100 per cent of the weight of the Kwao Krua medicinal herbal composition product
 2. milk and/or product from milk of animals that belong to the group of buffalo, water buffalo, goat: 0 to 50 per cent of the weight of the Kwao Krua medicinal herbal composition product
 3. food substance with sweet taste from the following list: honey, sugar cane juice, sugar, white granulated cane sugar, brown granulated cane sugar, palm sugar: 0 to 50 per cent of the weight of the Kwao Krua medicinal herbal composition product
 4. ingredients from medicinal herbs Makampom [Phyllanthus emblica] and/or Samor Thai and/or Samor Pipek [Terminalia bellirica]: 0 to 50 per cent of the weight of the Kwao Krua medicinal herbal composition product
 5. ingredients for modifying the color, odor, taste, characteristics, or the bolus (excipient) of the composition; ingredients acting as base, filler, or carrier. 0 to 25 per cent of the Kwao Krua medicinal herbal composition product

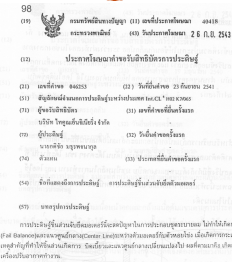
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Bad Faith

- The claims were drafted so that the publication looks benign but the actual patent revealed hidden tricks (last slide)
- PR was used to mislead lay people that the patent owner held the exclusive right to any Kwow Krua formulation containing over 10% Kwow Krua
- Finally invalidated by the Central IP&IT Court



13. Agricultural Bacteria



- Agricultural bacteria
- 3 Thai universities + 1 government agency + 1 state funding agency
- Worked for about 4 years
- Pre-commercialization Stage
- Got a notice from a law firm, informing them of a Thai patent held by a K company.

This is what a typical Thai Patent Office Gazette looks like.



14. The Plough

- A Thai inventor with only Grade 4 education, who specializes in agricultural (farm) machinery invented a new, improved blade
- A patent application was prepared with the help of friends => Published App
- He left his wife to live with his mistress.
- An Office Action was sent to his home address!!! Nobody told him about it. After a period specified in the law, the Patent Office considered the application abandoned.

15. Utility Model Instead of Utility Patent

- Utility Patent: about 3-5 yrs of examination, last 20 yrs from filing date; Suitable for invention that needs big investment and long monopoly period
- Utility Model: Registration takes about 1 yr, last max. 10 yrs from filing date. Good for very simple inventions and inventions with rapid life cycle and fast break-even period
- Many inventions that should have been filed for utility patents have been filed for utility models to take advantage of the quick registration delay. Some may not break-even when the protection period expires.