Dolcera

Your Knowledge Partner

Finding the Gems: IP Assessment and Development

Knowledge Sharing Presentation

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About Dolcera

Dolcera is a **Knowledge Services** company based out of Silicon Valley, USA and Hyderabad, India

Dolcera's clients include dozens of **Fortune 500 companies** across US, Europe and Asia, that use Dolcera's bespoke research reports

Dolcera also has a library of reports/databases that can be purchased off-the-shelf

Dolcera's Offerings include

- **Value added research services** in IP, Technology and Market Research
- **World-class Web 2.0 technology platform** used by world's largest companies

Case Study

US6323846 "Method and apparatus for integrating manual input"

Filed 1999
University of Delaware

Reassigned 2005
Fingerworks Inc.

Reassigned 2007
Apple Inc.

This is one of the fundamental "multi-touch" patents in Apple's portfolio that maps to several of Apple's products today. The first mainstream multi-touch product from Apple Inc. was the iPhone, launched in 2007.

It is the 'parent' of the patent that Apple used in its recent litigation against Samsung that won it over a billion dollars

Could you have found this 'Gem' before its rise to fame?

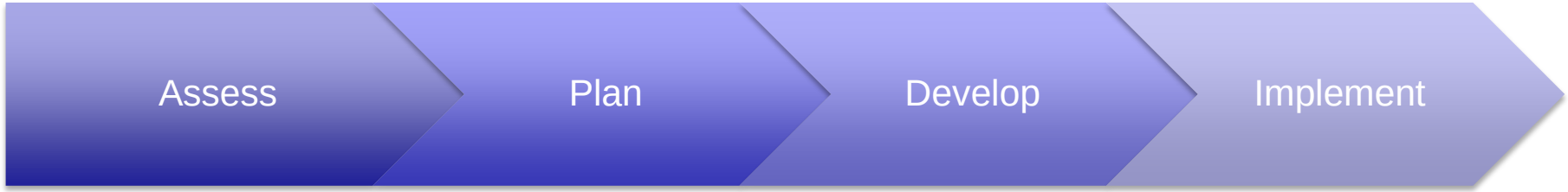
Agenda

- Section 1:IP Assessment and Strategy
  - Assessing your Strategic Focus Areas, and Innovation Process
  - IP Strategy Development, Execution and Maintenance
- Section 2:Gem Mining: Identifying valuable patents in a portfolio
  - What is a ‘Gem’?
  - Current Tools and Methods
  - A customizable ‘Gem Mining Model’ to value your patents
- Section 3:Gem Faceting: Maximizing the value of ‘Gems’

INTRODUCTION

IP assessment and strategy

IP Assessment and Strategy



Identification

Tasks
- Identify organization's focus areas, innovation process

Outputs
- Strategic focus areas and goals; SWOT analysis

Strategy Development

Tasks
- Market and trend analysis
- Patent landscape

Outputs
- IP Strategy Assessment and Plan

Execution

Tasks
- Plan to meet IP Strategy goals

Outputs
- Portfolio refinement

Maintenance

Tasks
- Portfolio Review
- Competitive Monitoring

Outputs
- Portfolio Management

Identification: Strategic Focus Areas

Inputs

- Mission, vision, goals of company, current and future products, people, processes, innovation process, IP, business and market strategy

Tools & Methods

- SWOT analysis, Competitive analysis, Trends and influences analysis, Risk and Opportunity profiling, Valuation modeling

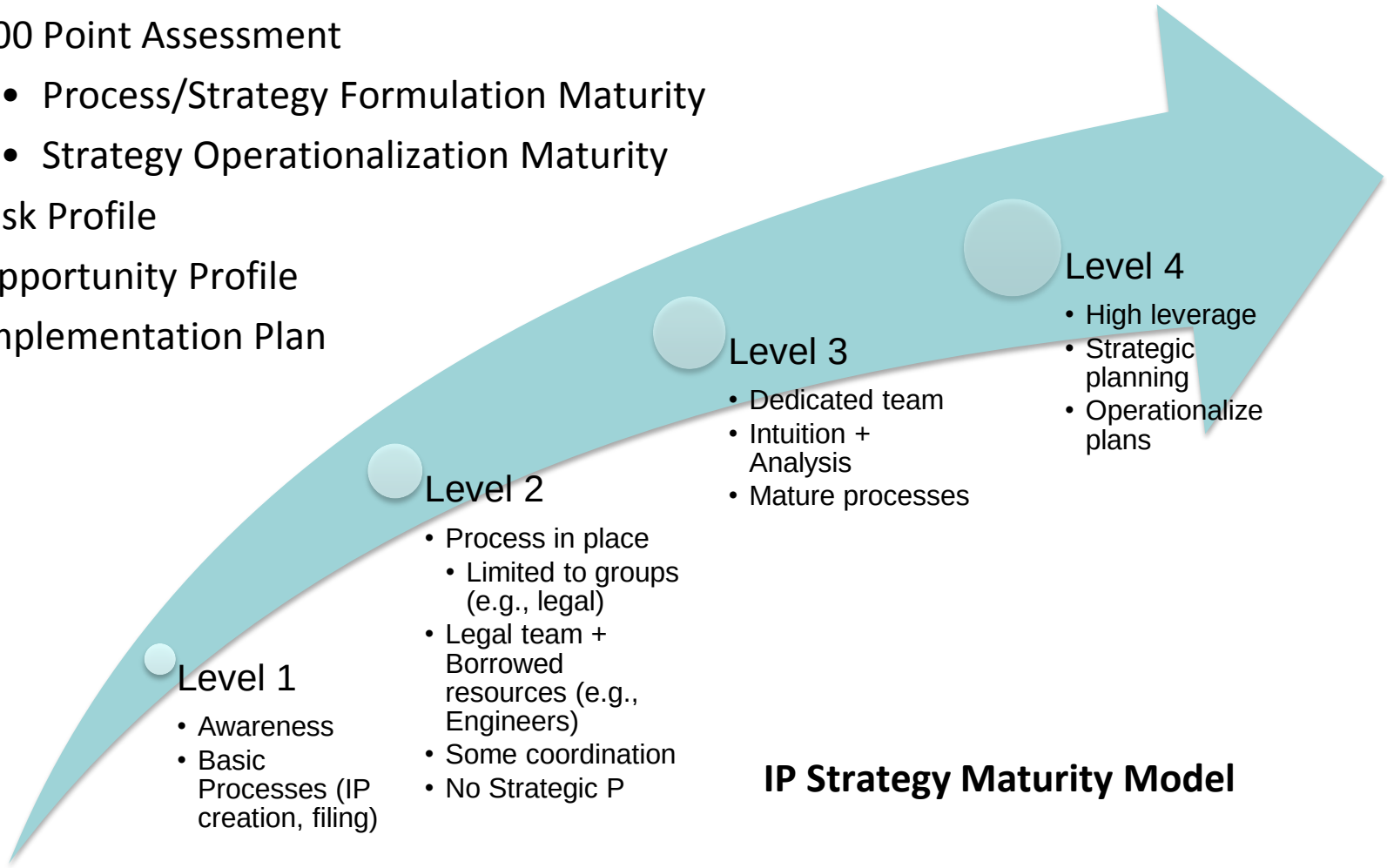
Outputs

- A prioritized list of technology domains identified as strategic focus areas, Strengths, Weakness, Opportunities, Threats

"Strategic Focus Areas are areas that you an organization needs to sustain or grow in, to create competitive advantage."

Strategy Development: Maturity Model

- The IP Strategy Process Deliverables
  - 100 Point Assessment
    - Process/Strategy Formulation Maturity
    - Strategy Operationalization Maturity
  - Risk Profile
  - Opportunity Profile
  - Implementation Plan



IP Strategy Maturity Model

Strategy Development: Implementation Plan

- Establish IP goals, benchmarks and metrics
  - 2, 3 and 5 year goals
  - Benchmarks within and outside the industry
  - Metrics to easily and consistently measure the quality of IP strategy
- Set up the infrastructure and tools for IP strategy implementation
  - Software tools
  - Landscaping and market study methods
  - Decision-tree
- Training
  - Train stakeholders about the importance and value of IP strategy

Strategy Development: Market Analysis

Inputs

- Technology domain identified as a strategic focus area, SWOT analysis

Tools & Methods

- Value chain, Key product & player identification, Competitive analysis, Financial analysis, Litigation and Licensing activity

Outputs

- Competitors, market players, world markets and growth forecasts, key products

Strategy Development: Patent Landscape

Inputs

- Technology domain identified as a strategic focus area, Patent information

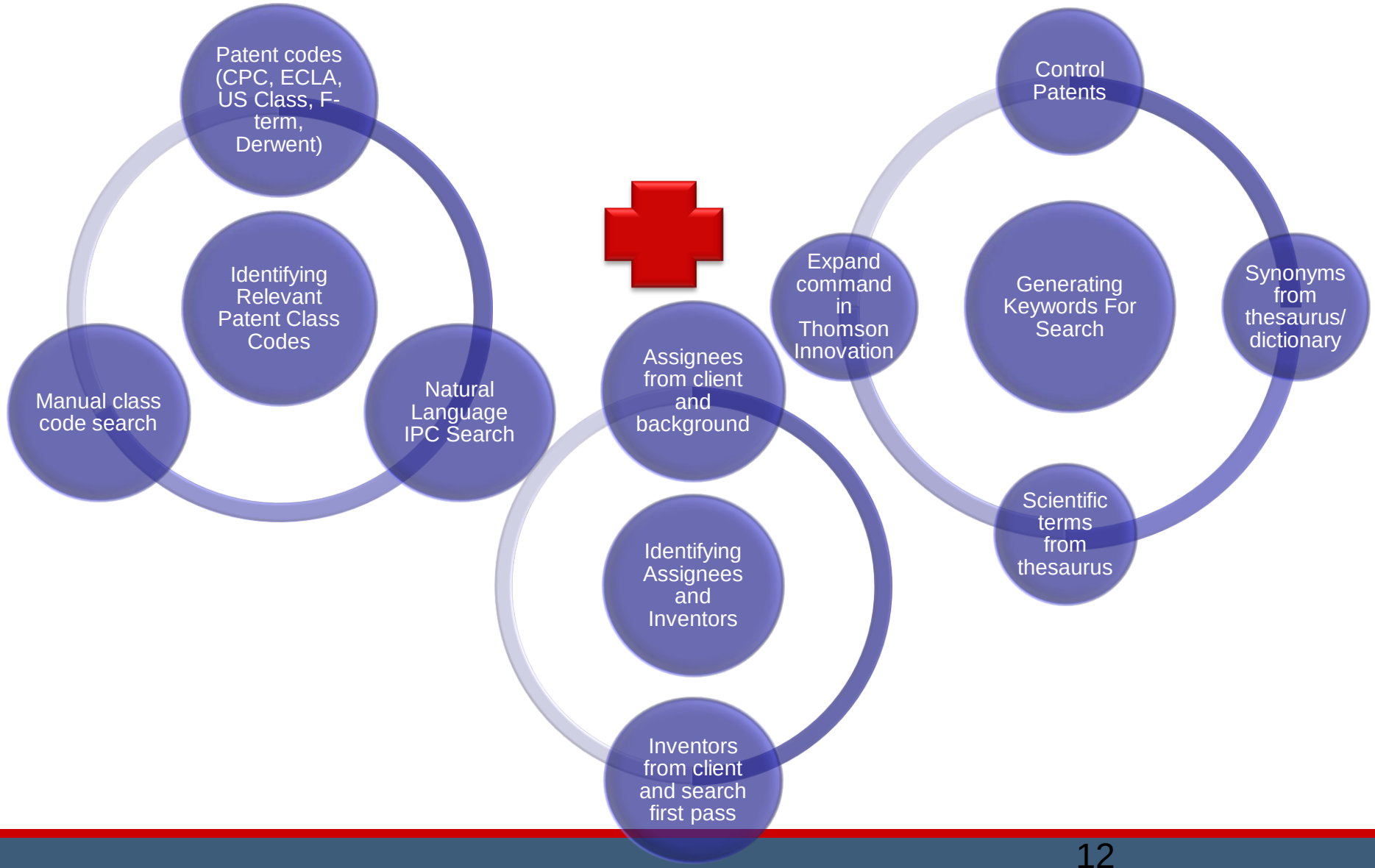
Tools & Methods

- Patent search tools (Thomson Innovation, Google, USPTO), Dolcera wiki platform, Analysis tools (Dolcera classifier, Analyst team), Technology taxonomy, Dolcera Dashboard

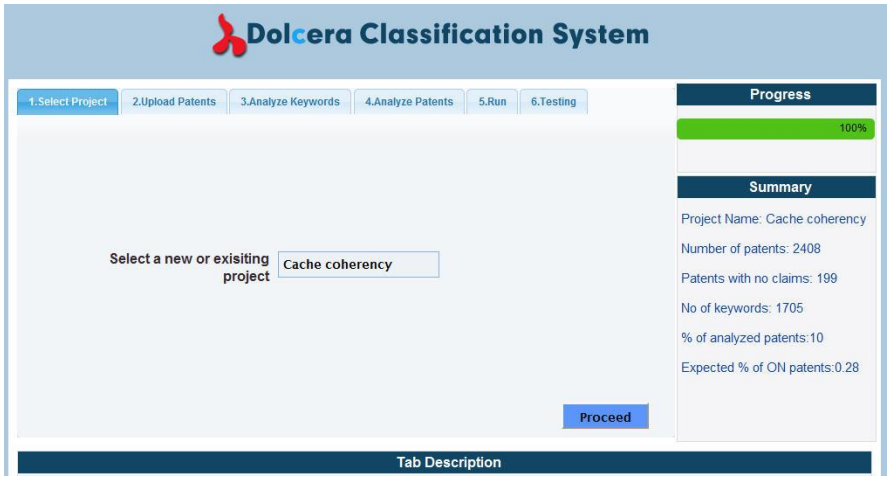
Outputs

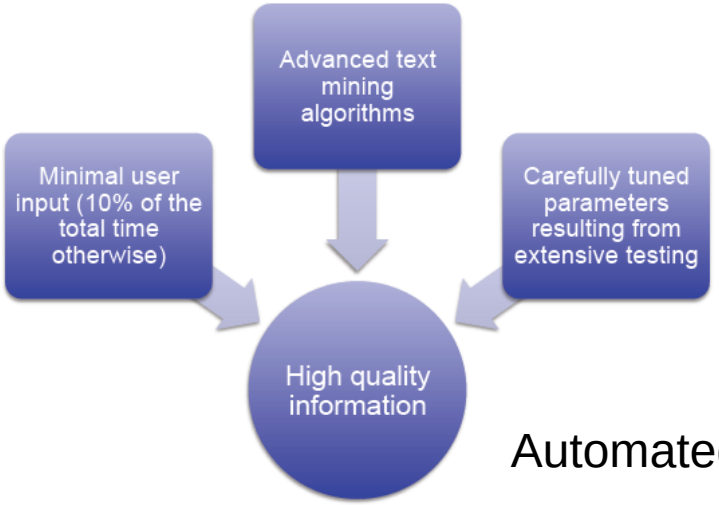
- All relevant IP categorized into a robust technology taxonomy with parent assignee information
- Company's IP categorized into an appropriate taxonomy

Strategy Development: Patent Search



Strategy Development: Patent Analysis





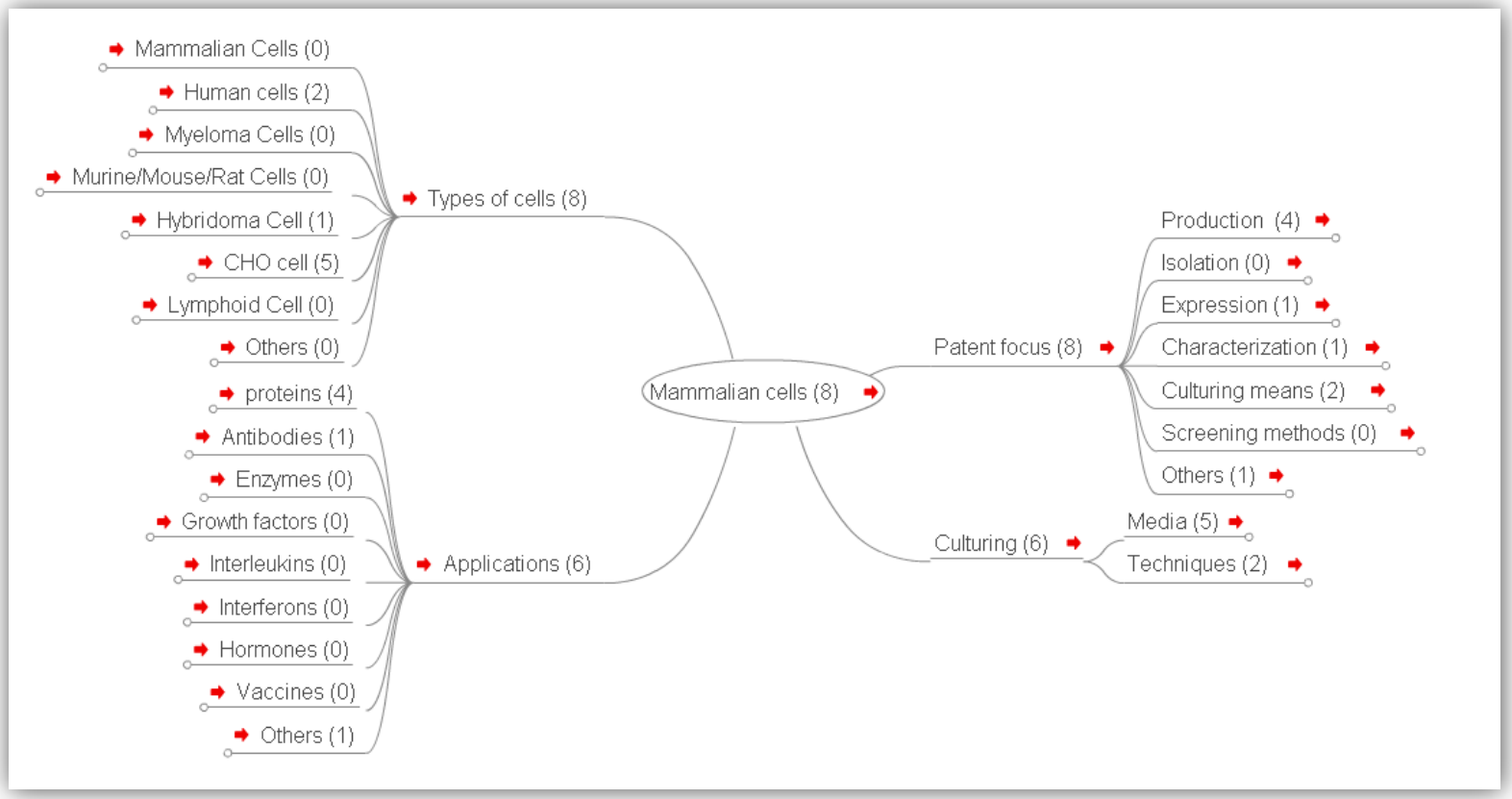
Automated coarse analysis

Manual in-depth studies

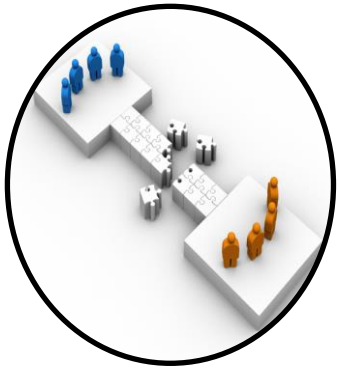
Strategy Development: Patent Analysis

Case Study

Classification of patents into the strategic focus areas



Strategy Execution and Maintenance



Mergers and acquisitions

- In making the make or buy decisions, finding synergies

Competitive intelligence

- To keep a tab on competitors

Rapid response

- For quick responses, like in the case of an infringement suit

Cross licensing

- Barter of IP

Knowledge Management

- Understand your own power

GEM MINING

Identifying key patents

What is a Gem?

"A patent in a portfolio that is active, has an early priority, is well defined and written, broadly scoped, potentially fundamental, with significant offensive and/or defensive value, and is well aligned with key products, strategic goals and business interests of the entity."

Gem Mining: Current Tools and Methods

Current tools determine patent value or strength using objective parameters including litigations, forward citations, crowdedness of space, claim count, backward citations, prosecution time, patent age, assignee, family size, geographic coverage, related applications, non patent literature cites.

Gem Mining: Literature Survey

"**Applications, grants and the value of patent**", Universite´ Libre de Bruxelles, Solvay Business School, Solvay Chair of Innovation, Centre Emile Bernheim

"A text-mining-based patent network: Analytical tool for high-technology trend", Byungun Yoon, Yongtae Park*, Department of Industrial Engineering, School of Engineering, Seoul National University

"Using Intellectual Property Data for Competitive Intelligence", Ron Simmer, Patent Service Librarian, University of British Columbia, Vancouver

"Patent Citations and the Economic Value of Patents", Bhaven N. Sampat, Georgia Institute of Technology

"Using Patent Citation indicators to manage a Stock portfolio", Francis Narin, Anthony Breitzman, and Patrick Thomas

Literature points to using objective parameters like litigations, forward citations, technology area, claim count, backward citations, prosecution time, patent age, assignee, family size, geographic coverage, related applications, non patent literature cites etc. as well as subjective parameters including patent claim characteristics, breadth of claims, enforceability, validity, commercial valuation.

Gem Mining Model: Value Indicators

Strategic Alignment

-- Is the patent's technology area of interest to the entity?

Defensive Value / Offensive Value

-- Does the patent read on a current or future product?
-- Does the patent read on a competitor's current or future product?

Invention Value Index

-- When was the patent filed? Is it active? What is its status?
-- How many forward/backward citations? Self/Other?
-- How many family members? Where were they filed?
-- How many Continuations, Divisionals, CIPs?
-- How many times was the patent rejected before issue? Office actions?
-- Was the patent litigated, re-issued, re-examined?
-- What is the word length of claims, Claim count? (Breadth scope indicator)

Patent Value Index

-- Is the patent written well, and clearly?
-- What are the characteristics of the claims?

Patent Monetization

-- What is the monetization value of the patent to the entity?

Standards Alignment

-- Does the patent read on any standard?

Gem Mining Model: Strategic Alignment

Inputs

- Patent information, Technology areas identified as focus areas

Tools & Methods

- Patent search and analysis tools, Taxonomy

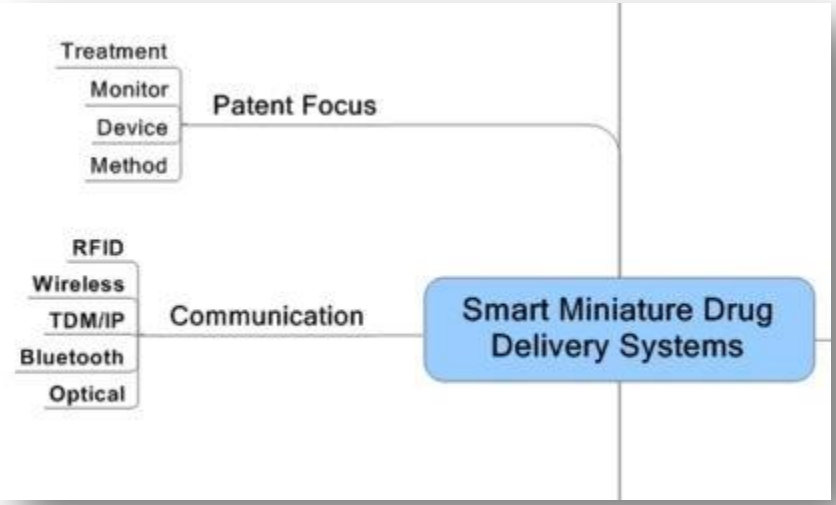
Outputs

- Degree of Alignment of IP to Strategic focus areas.

Gem Mining Model: Strategic Alignment

Case Study

NanoPass Technologies Ltd. was founded in 2000. The company has developed a unique design of MEMS micro-needles in silicon wafers, and develops wireless devices for intra-dermal delivery to treat cosmetic conditions.



Taxonomy based on focus areas

US6558361B1
Systems and methods for the transport of fluids through a biological barrier and production techniques for such systems

Is strategically aligned

US5325867A
Device for withdrawing body fluids using a hollow needle

Is not aligned with strategic focus areas

Gem Mining Model: Offensive/Defensive Value

Inputs

- Relevant patents and products, competitors in a focus area

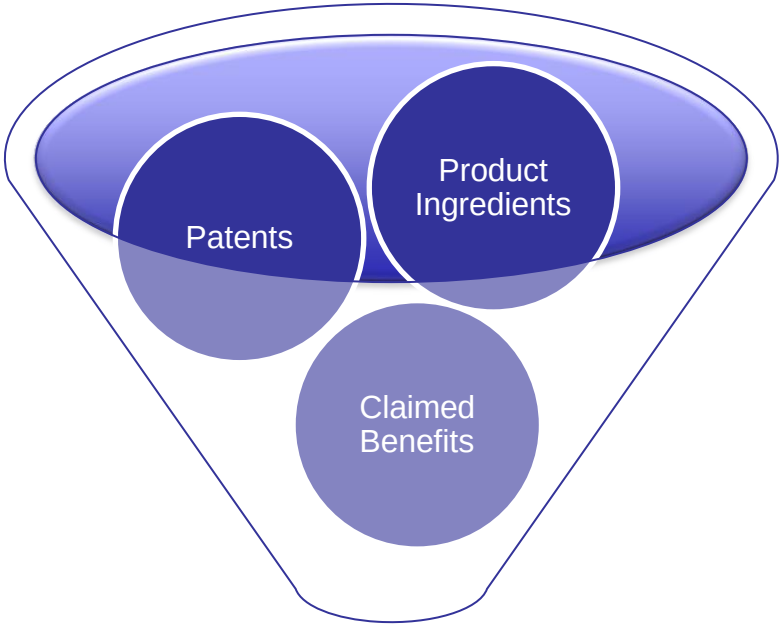
Tools & Methods

- Patent to Product mapping

Outputs

- Offensive value & Defensive value measured as a function of number of products a patent reads on, and degree of mapping of claims to product features.

Gem Mining Model: Offensive/Defensive Value



Comprehensive Competitor strategy

From Lab to Market

	Competitor patent	**Your patent**
Competitor product	Defensive, Product exposure low	Offensive value, Deterrent
Your product	Product exposure high	Defensive, Product exposure low

Offensive/Defensive Value = Function (Number of products mapped, Degree of mapping of claims to product features)

Gem Mining Model: Offensive/Defensive Value

Case Study

San-Ei Gen F.F.I., Inc

Anthocyanins from Sweet potato

Patents map to entity's products indicating defensive value

Claimed ingredients

US20090324787A2	JP7126544A	JP8023919A
• Purple sweet potato • Propylene glycol • Citric acid (Crystal) • Dextrin	• Purple sweet potato • Citric acid (crystal) • Dextrin	• Purple sweet potato • Citric acid (crystal) • Ethanol

Mapped products

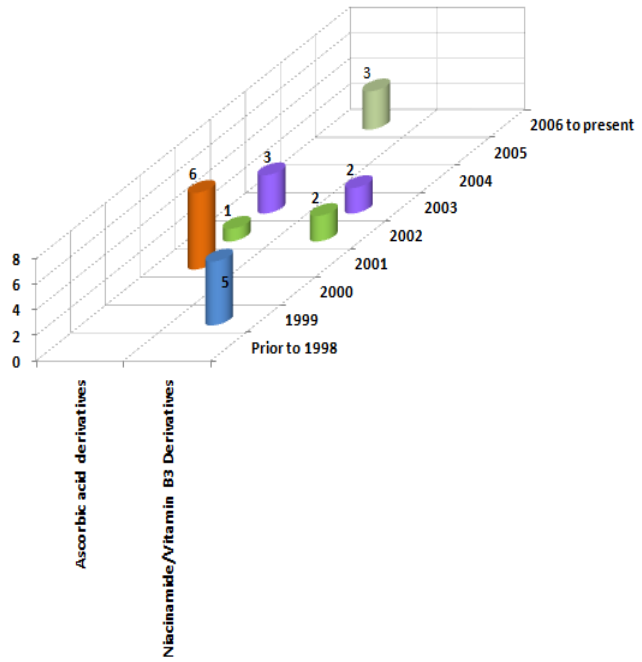
SAN RED YM-EX

POWDERED SAN RED YM

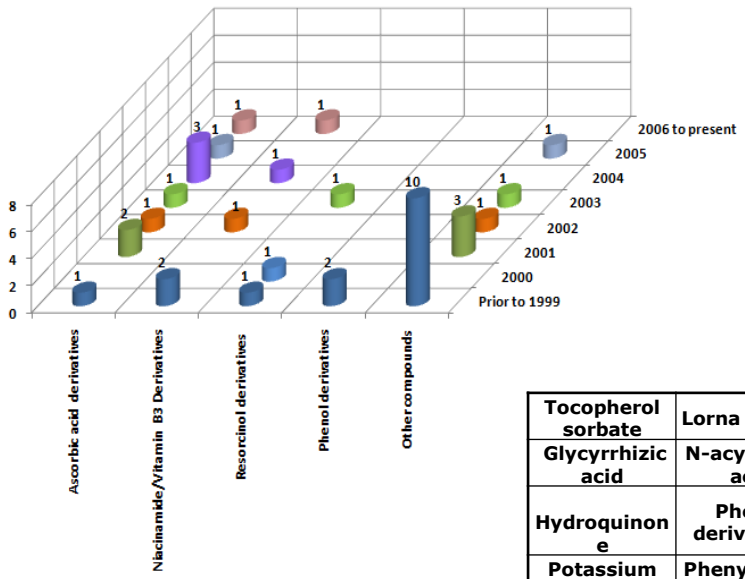
SAN RED YM-DS

Gem Mining Model: Offensive/Defensive Value

Case Study



Mapped Ingredients Year wise Filing



Un-Mapped Ingredients Year wise Filing

Tocopherol sorbate	Lorna (Rona)	Cog varnish (Cognis)
Glycyrrhizic acid	N-acylamino acid	Tranexamic acid
Hydroquinone	Phenol derivatives	Ammonium sulfite
Potassium sulfite	Phenylalanine	Octadecene diacid
Potassium bisulphite	Gallic acid and its derivative	Oenothera biennis seed extract - Uniqema (Uniquema)
Sodium hydrogen sulfite	Glycyrrhizic acid	Burylhydroxy anisole
Sodium sulfite	Hydroquinone	Mulberry bark extract
Retinoid	Kojic acid	Octadecene diacid
Pyrus malus- (apple) fruits extracts		

Mapped and unmapped whitening ingredients

Gem Mining Model: Invention Value Index

Inputs

- Patent information

Tools & Methods

- Patent search and analysis tools (Thomson Innovation, Google, USPTO, Dolcera valuation suite)

Outputs

- Invention value index calculated using prosecution parameters (e.g.: family, citations), litigation related parameters and internal parameters (e.g.: assignee)

Gem Mining Model: Invention Value Index

Parameter	Correlation to Patent Value	Normalization of Parameter
Age adjusted forward citations (forward citations per year)	Positive	Forward cites/Age, Country patent filing, Maximum forward cites across dataset
Number of filing jurisdictions	Positive	Filing count/Maximum filing count across dataset
Family size	Positive	Family size/Maximum family size across dataset
Number of claims	Positive	Claim count/Maximum claim count across dataset
Average claim length	Negative	Average claim length/Maximum Average claim length in dataset
Number of Continuations	Positive	Continuations/Maximum continuations across dataset
Age of patent	Positive (active)	Age/Maximum age across dataset
Status of patent	Positive (Granted)	1 if Granted, 0 if published application
Number of Office actions	Positive	Office actions/Maximum office actions across dataset
Litigated?	Positive	1 if Litigated, 0 if not litigated
Re-issued/Re-examined?	Positive	1 if Re-issued, 0 if not re-issued

Gem Mining Model: Invention Value Index

Examples of Invention Value Index normalized to 0-1

Case Study

Publication No	EP2210940A1	WO2010099195A1	WO2010065439A1	US20070275871A1	US20090239795A1
Age adjusted forward citations	0	0	0.02273	0	0
Number of filing jurisdictions	0.01364	0.02273	0.00455	0.03182	0.09091
Family size	0.00065	0.00098	0.00016	0.01740	0.00423
Number of claims	0.02882	0.05432	0.09091	0.06652	0.03437
Average claim length	0.03669	0.01136	0.06079	0.00767	0.00849
Number of Continuations	0	0	0	0	0.01299
Age of patent	0.05051	0.03030	0.04040	0.06061	0.06061
Status of patent	0.09091	0.09091	0.09091	0.09091	0.09091
Number of Office actions	0.01541	0.01849	0.04931	0.03236	0.05085
Litigated?	0	0	0	0	0
Re-issued?	0	0	0	0	0
Invention Value Index	**0.236626158**	**0.229092279**	**0.359752452**	**0.307277581**	**0.35334326**

Gem Mining Model: Patent Value Index

Inputs

- Patent information

Tools & Methods

- Manual analysis and Dolcera valuation Suite

Outputs

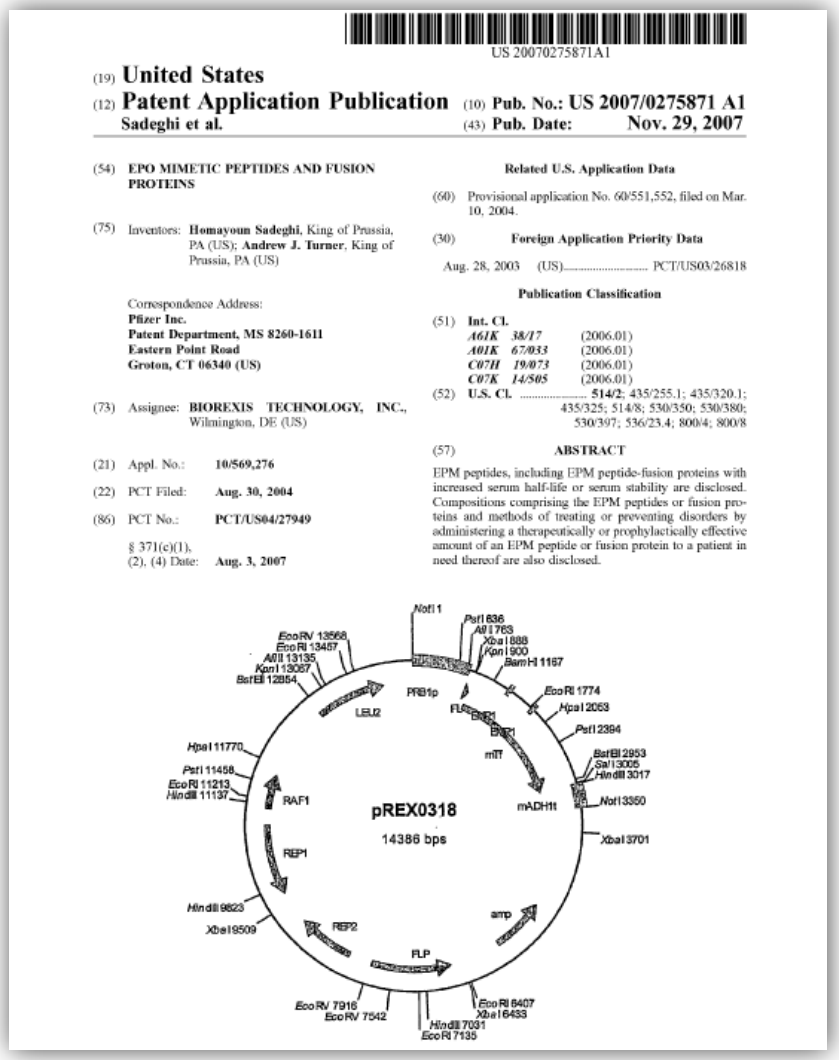
- Patent Value Index which is a function of claim characteristics and breadth of claims

Gem Mining Model: Patent Value Index

"Qualitative evaluation of the patent to understand breadth of claims, and how well defined and written the patent is , is embedded in its Patent Value Index."

Sample Indicators	Description
Average word length per sentence in full text	-Small, clear sentences indicate more value.
Product and Method claims	- Product claims indicate more value than Method claims. Length has negative correlation.
Functional claims and phrases	- Functional phrase count correlates to functional claims which indicate value
Structure of the preamble	-Ratio between the preamble length and characterizing portion is correlated to value
Limiting words in the claim set	-Limiting word count is negatively correlated to value. Examples are 'comprises', 'wherein', 'whereby', 'in which', 'consisting of' etc.
Change in claims from application to grant	-Number of changes and length of changes negative correlated to value

Gem Mining Model: Patent Value Index



US 20070275871A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2007/0275871 A1**

Sadeghi et al. (43) **Pub. Date: Nov. 29, 2007**

(54) **EPO MIMETIC PEPTIDES AND FUSION PROTEINS**

(75) Inventors: **Homayoun Sadeghi**, King of Prussia, PA (US); **Andrew J. Turner**, King of Prussia, PA (US)

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(73) Assignee: **BIOREXIS TECHNOLOGY, INC.**, Wilmington, DE (US)

(21) Appl. No.: **10/569,276**

(22) PCT Filed: **Aug. 30, 2004**

(86) PCT No.: **PCT/US04/27949**

§ 371(c)(1),
(2), (4) Date: **Aug. 3, 2007**

Related U.S. Application Data

(60) Provisional application No. 60/551,552, filed on Mar. 10, 2004.

(30) **Foreign Application Priority Data**

Aug. 28, 2003 (US)..... PCT/US03/26818

Publication Classification

(51) **Int. Cl.**
A61K 38/17 (2006.01)
A01K 67/033 (2006.01)
C07H 19/073 (2006.01)
C07K 14/505 (2006.01)

(52) **U.S. Cl.** **514/2**; 435/255.1; 435/320.1; 435/325; 514/8; 530/350; 530/380; 530/397; 536/23.4; 800/4; 800/8

(57) **ABSTRACT**

EPM peptides, including EPM peptide-fusion proteins with increased serum half-life or serum stability are disclosed. Compositions comprising the EPM peptides or fusion proteins and methods of treating or preventing disorders by administering a therapeutically or prophylactically effective amount of an EPM peptide or fusion protein to a patient in need thereof are also disclosed.

Case Study

Area: Erythropoietin mimetic peptides

Issue date: Nov 27, 2007
Assignee: Pfizer Inc

Patent Value Index: 0.73 (high)

Analysis:

- Describes a modified EPM peptide with amino acids that reduce the disulfide bonds exhibits EMP-1 activity
- Broad claims
- Functional claims, Product claims
- Few limiting words in claim set
- Ratio of Preamble length to characterization portion gives good value

Gem Mining Model: Patent Monetization

Inputs

- Patent and market information

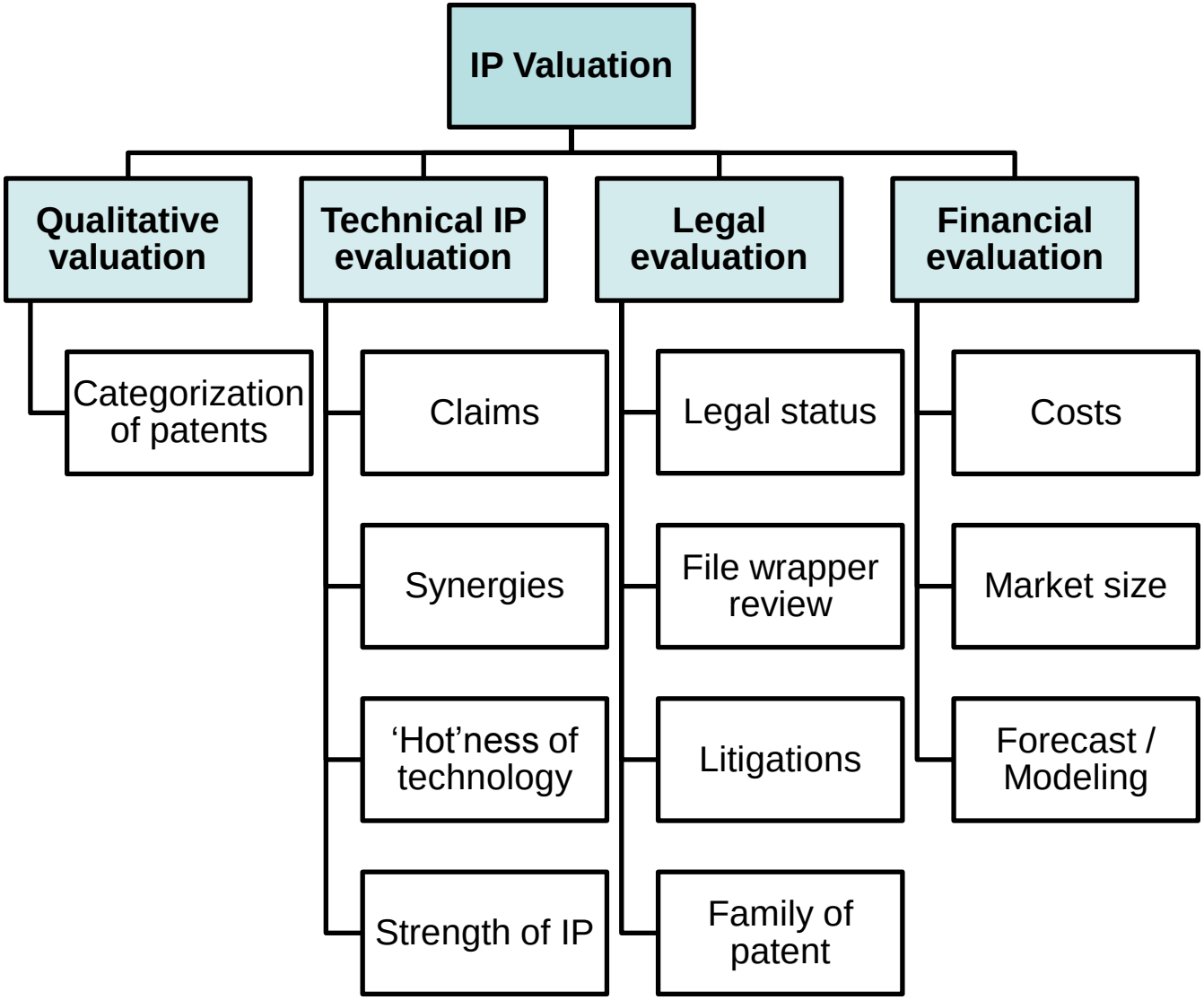
Tools & Methods

- Dolcera patent valuation model

Outputs

- Patent monetization value

Gem Mining Model: Patent Monetization



Gem Mining Model: Patent Monetization

Case Study

Dolcera's Analysis

Expected Value of IP from Granted Patent Application 10/801472 (In Mn USD)	100.379268 (-Licensing, Litigation & Other Costs) Mn USD

For Alternate Scenarios, Please Enter Alternate Valuation Below & Get Valuation Above

	S.No	Factor	Default Value	Expected Value by You
DCF Calculation	1	Expected Market Size at Maturity (in Million users)		1000
	2	WACC		15.00%
	3	Average price of device (in USD)		20
	4	Average uage of device by consumer (in years)		1.5
	5	Royalty Rate		0.01
Bass Diffussion Model Calculation	6	Expected Market at Maturity of Wifi Enabled Devices (in Million users)		200
	7	Average usage of WiFi enabled Device by consumer (in years)		1.3

* A similar analysis further aided with Monte Carlo Simulation based on multiple scenarios can be provided too

*To get Default Values back again, Please close the excel and start again (please do not save) OR if the changes have been only in this page simply enter the default values copying from the left table.

* A decision tree based on the same can be provided too to aid decision making using Rollback decision making

*Licensing & Litigation Costs will depend on wether your Strategy, for which further info is required

*Besides the quantitative assumptions, following are the key qualitative assumptions

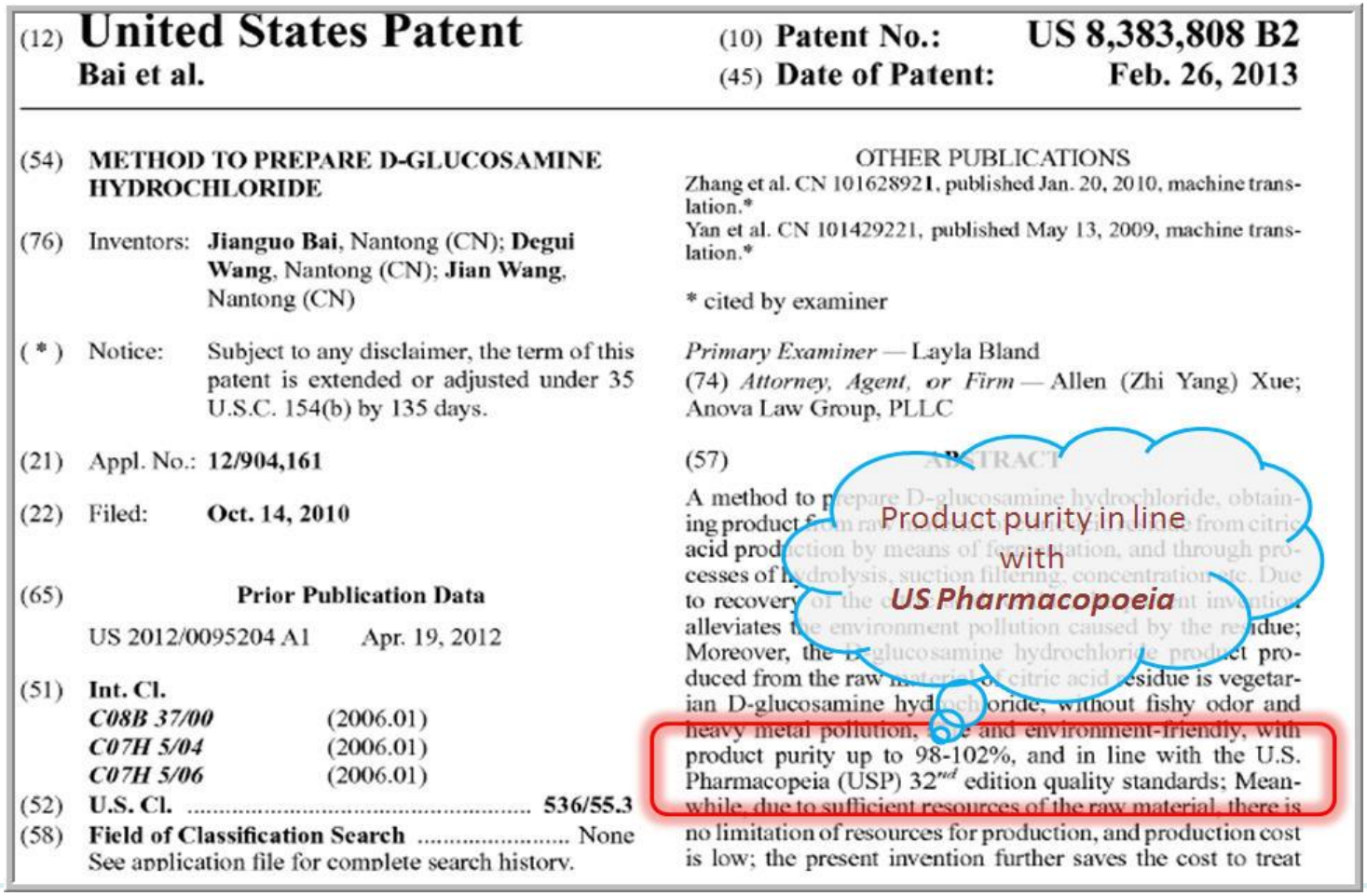
1. The tech-crunchies forecast Wifi Enabled forecasts are fit
2. Wifi Enabled Phones are a suitable proxy for this device
3. This is a disruptive innovation, not an incremental innovation over current dual mode devices
4. There is no competition as during the life of the patent enforcement
5. Demand to be independent of pricing strategy

All these issues can be tackled by enriching the model as per your requirment and taking suitable qualitative assumptions, we can discuss over the same e.g. Issues 1 & 2 can be tackled with other more apt proxies, 4 & 5 by enriching the Bass Difussion Model, and 3 by segmentation modelling

Business and IP research complement each other to provide business analytics

Patent mentions product compliance with USP thus has high patent value.

Case Study



(12) **United States Patent**
Bai et al.

(10) **Patent No.: US 8,383,808 B2**
(45) **Date of Patent: Feb. 26, 2013**

(54) **METHOD TO PREPARE D-GLUCOSAMINE HYDROCHLORIDE**

(76) Inventors: **Jianguo Bai**, Nantong (CN); **Degui Wang**, Nantong (CN); **Jian Wang**, Nantong (CN)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 135 days.

(21) Appl. No.: **12/904,161**

(22) Filed: **Oct. 14, 2010**

(65) **Prior Publication Data**

US 2012/0095204 A1 Apr. 19, 2012

(51) **Int. Cl.**

C08B 37/00	(2006.01)
C07H 5/04	(2006.01)
C07H 5/06	(2006.01)

(52) **U.S. Cl.** **536/55.3**

(58) **Field of Classification Search** ..... None
See application file for complete search history.

OTHER PUBLICATIONS

Zhang et al. CN 101628921, published Jan. 20, 2010, machine translation.*
Yan et al. CN 101429221, published May 13, 2009, machine translation.*

* cited by examiner

Primary Examiner — Layla Bland
(74) *Attorney, Agent, or Firm* — Allen (Zhi Yang) Xue; Anova Law Group, PLLC

(57) ABSTRACT

A method to prepare D-glucosamine hydrochloride, obtaining product from raw material citric acid residue from citric acid production by means of fermentation, and through processes of hydrolysis, suction filtering, concentration, etc. Due to recovery of the citric acid residue in the present invention alleviates the environment pollution caused by the residue; Moreover, the D-glucosamine hydrochloride product produced from the raw material citric acid residue is vegetarian D-glucosamine hydrochloride, without fishy odor and heavy metal pollution, safe and environment-friendly, with product purity up to 98-102%, and in line with the U.S. Pharmacopeia (USP) 32nd edition quality standards; Meanwhile, due to sufficient resources of the raw material, there is no limitation of resources for production, and production cost is low; the present invention further saves the cost to treat

Product purity in line with *US Pharmacopoeia*

Simple Gem Mining Model using all parameters

Level 1 filters (customizable): Invention value index, Patent value index, Monetization, Standards mapping

High value patents

Characterize patents into 'Gems' based on strategic alignment, defensive and offensive value

Patent	Strategic aligned	Defensive value	Offensive value	Invention value	Patent value	Monetized	Standards	Value
I	1	1	1	High	High	High	1	Diamond
J	1	0	0	High/Med	High/Med	High/Med	1	Ruby
K	1	0	0	High/Med	High/Med	High/Med	1	Emerald
L	0	0	1	High/Med	High/Med	High/Med	1	Sapphire
A	0	0	0	Any	Any	Any	0	Loadstone

Simple Gem Mining Model using all parameters

Case Study

Gem analysis

US20090239795A1 "Exendin Fusion Proteins"

(Assessment of gem value by Apple at the time of acquisition using the Simple Gem Mining Model)

Parameters	Value
Strategically aligned	1
Defensive value	1
Offensive value	1
Invention value index	High (0.6)
Patent value index	High (0.6)
Patent monetization	High ($2,646,039.57)
Standards alignment	1 (NA)

Result/Recommendation

Diamond

Complex Gem Mining Model using all parameters

Parameters	Relationship to Patent Value
Strategically aligned	Function (Degree of alignment); positive correlation
Defensive value	Function (Number of products, Degree of mapping); positive correlation
Offensive value	Function (Number of products, Degree of mapping); positive correlation
Invention value index	Function (Citations, Age, Transaction parameters…); positive correlation
Patent value index	Function(Claim characteristics); positive correlation
Patent monetization	Function(Market, WACC, Royalty, Usage, Device price); positive correlation
Standards alignment	Binary (0 if not, 1 if aligned); negative correlation

$$Y_i = a + S\, b_i\, X_{ij} + e_i$$

A Customized Linear Regression Model may be used to predict the patent value ‘Y’ based on the parameters (continuous, discrete) described above.

GEM FACETING

Maximizing Gem Value

Gem Faceting: Using Your Gems

- **Use IP in areas not envisioned before Ex: Augmented Reality**
- **Use IP in new areas. Ex: Aspirin**

- **Whitespace analysis to find 'no gem' areas.**

- **Ensure 'Gems' are filed in all jurisdictions of interest**

- **Plan strategic licensing in low density gem areas.**

- **'Patent' to 'Product mapping, and filling gaps to ensure protection.**

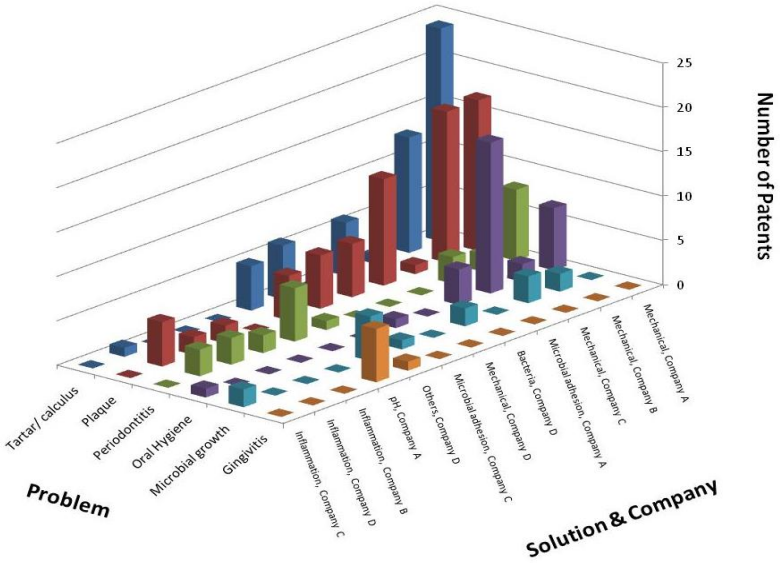
- **'Coal' patents may be pruned**
- **Patent sale examples: Nortel, IBM**

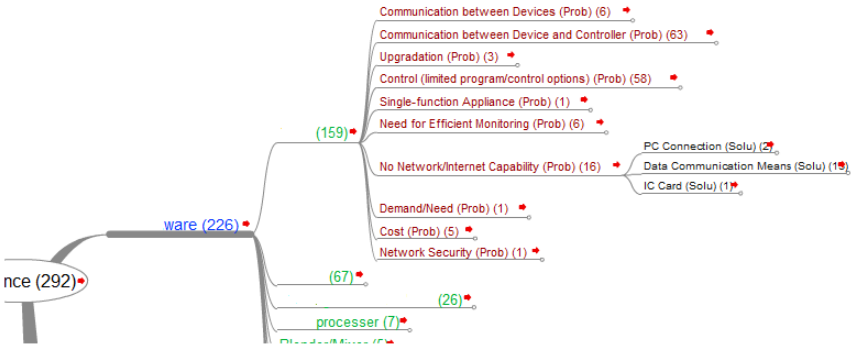
Gem Faceting: Using Your Gems

Case Study

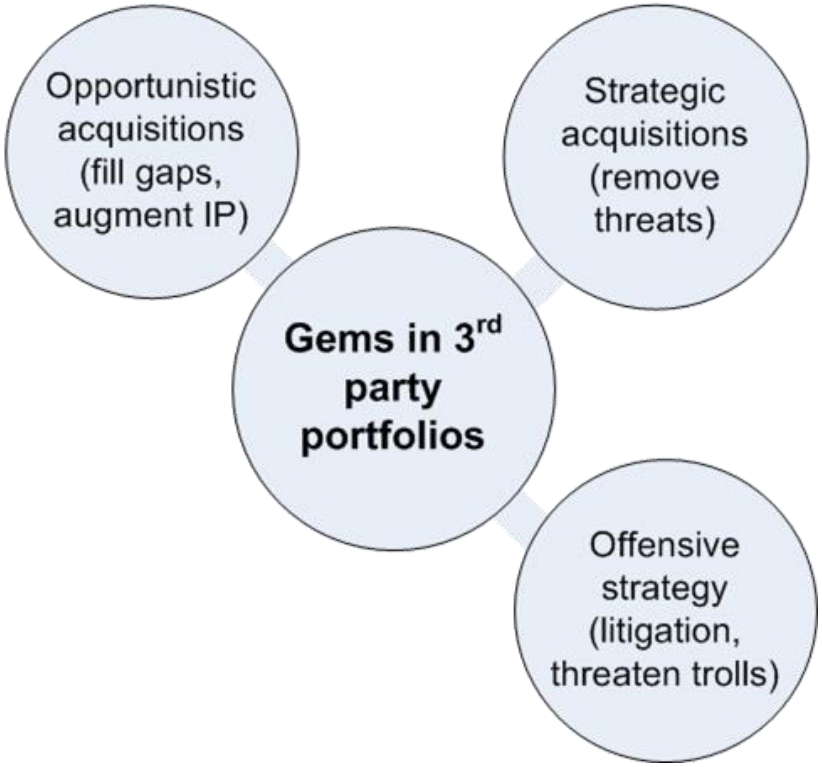
White space analysis.

Problem clustering → Solutions → Identification of novelty → Mapping solutions to problems → **White Spaces and "SWOT" analysis**





Gem Faceting: Using Others' Gems



Conclusion

- ***Organized information*** *that is easily* ***accessible*** *leads to a* ***competitive edge!***

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