IP Analytics > Discovery > Value Realization

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Mining Your Portfolio

Barry Brager
Perception Partners

Advanced Licensing Institute
January 6, 2009

Why Portfolio Mining?

- **What Do We Have?** Quantifying the relative strengths and weaknesses of a technology portfolio (internal or external to the business) is critical to leveraging IP for a competitive advantage

- **What Do We Need?** Identifying gaps (white spaces) in the portfolio relative to peers and to customer needs is perhaps the most challenging mining activity – yet it can generate the most useful ROI.

- **Acquire What We Need**. Discovering assets that can be exploited in the context of your portfolio may be the difference between build vs. buy; maintain vs. expand; growth vs. hypergrowth,

- **Divest What We Don't Need**. Capturing and protecting real technological advance is not easy and often much "junk" can collect over time, because product development is a series of activities that throws off hundreds – if not thousands of ideas (and patents);

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Portfolio Mining Adds Value to Many Processes

Competitive Assessment

Innovation trends in my industry

Emerging and fading players

Product Development

Patent strategy benchmarks

New product ideas and work-arounds

Risk & Cost Management

Assessing patents at risk

Using patents to improve leverage

Licensing

Identify licensing business cases

Evaluate fees and deal pricing

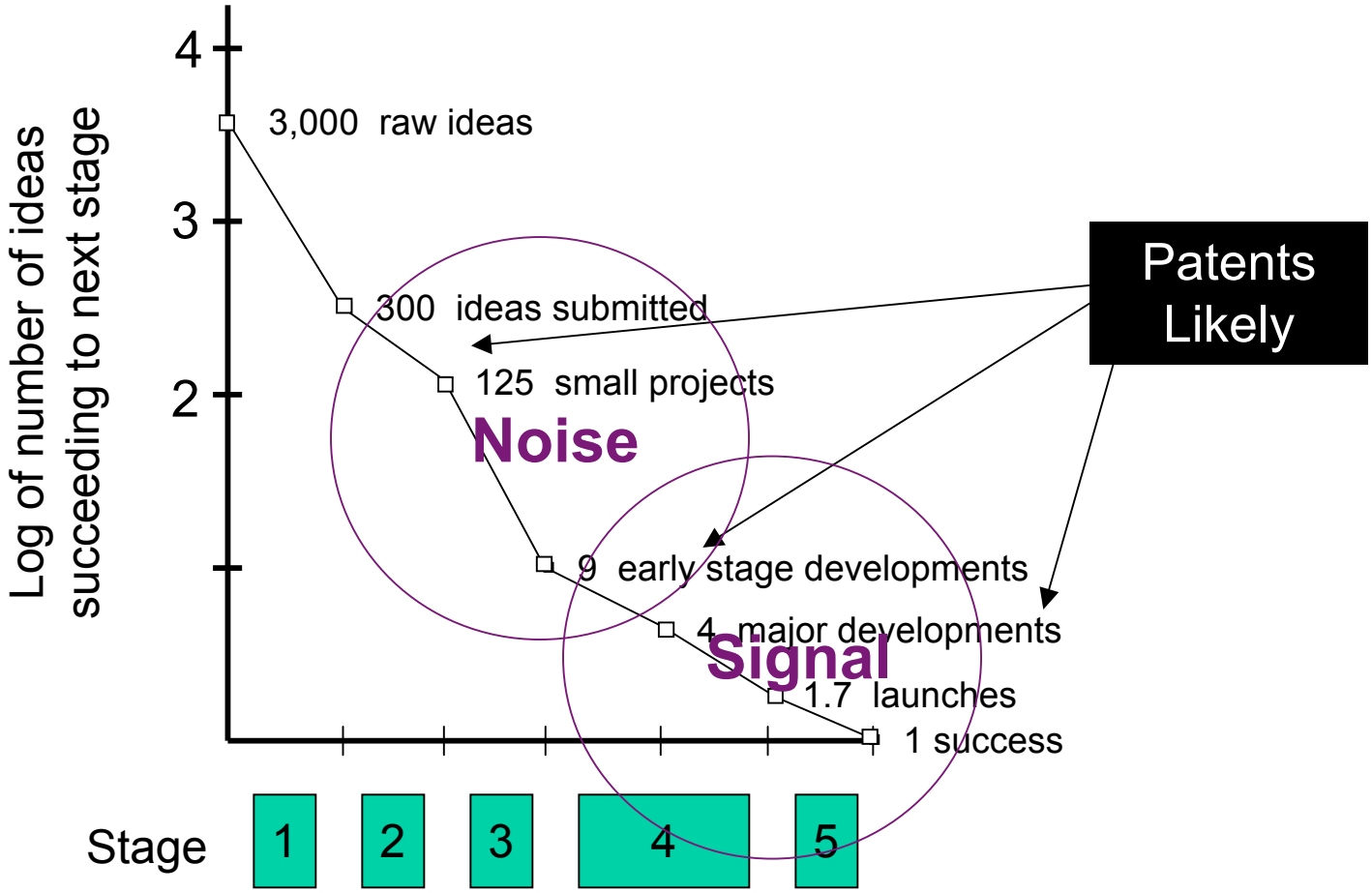
Acquisitions

Locate compatible firms, targets

Assess value and pipeline potential

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Why is Portfolio Mining a Challenge?



Source: Stevens, The Journal of Product Innovation Management 1999

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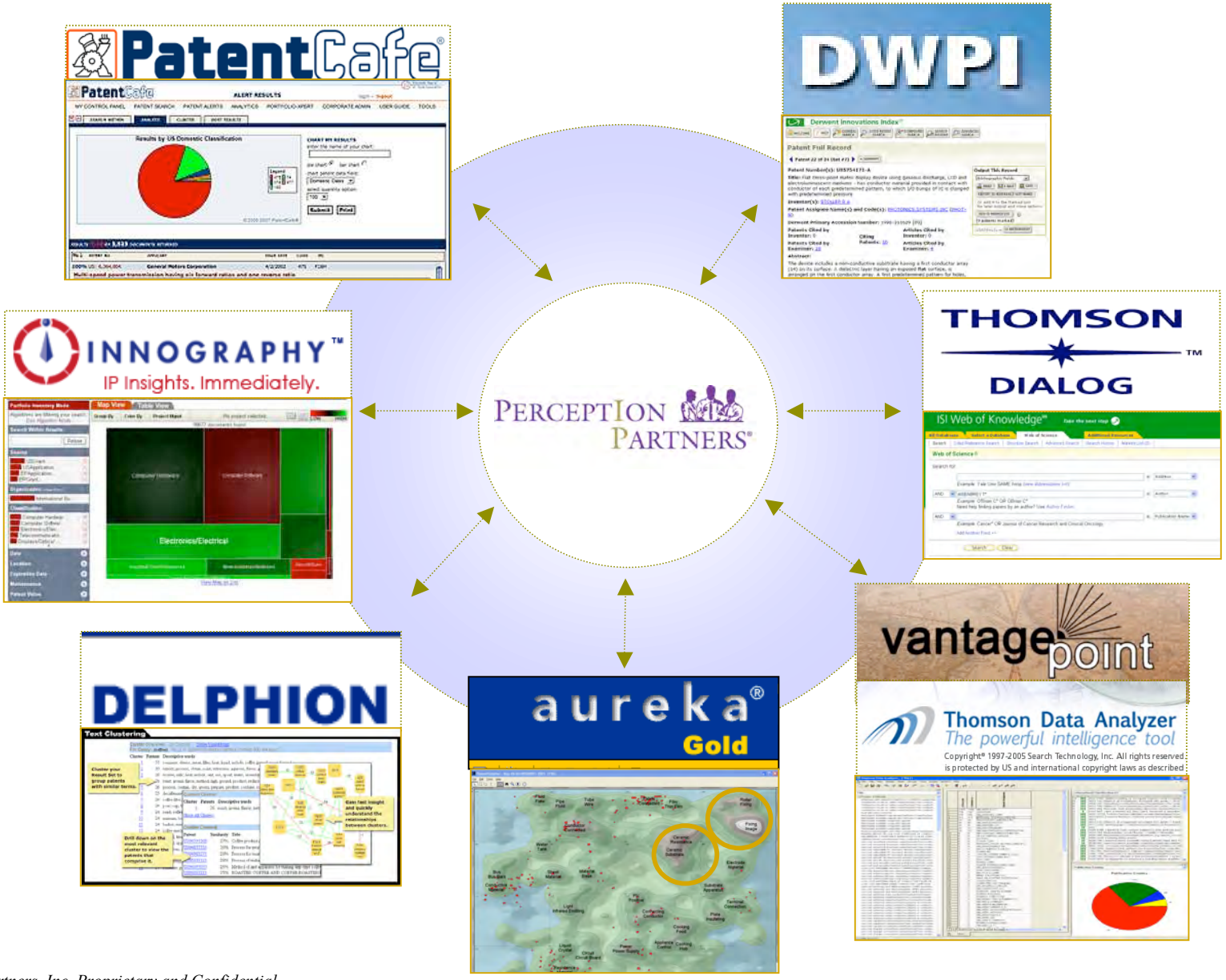
Common Insights in Portfolio Mining

	Inventors	Priority Year	Class Codes	Assignee	Citations
Inventors	Co-occuring inventors		Inventor's technology/ies		An inventor's most frequently cited patents
Priority Year			Technology trend(s)	A year's top patenting companies	
Priority Country	A country's leading inventors			A country's top patenting companies	
Class Codes	A technology's key inventors	A technology's growth trend	A country's leading technology/ies	A technology's top patenting companies	Patents most frequently cited in a technology
Assignee	A company's key inventors	A company's technology growth trend	Similar and associated classes of technology	Allied companies	Patents most frequently cited by a company
Citations	Cited inventors		A company's technology inventory	Companies that frequently cite the patent(s)	Most frequently co-occurring patents

Source: www.questel.orbit.com

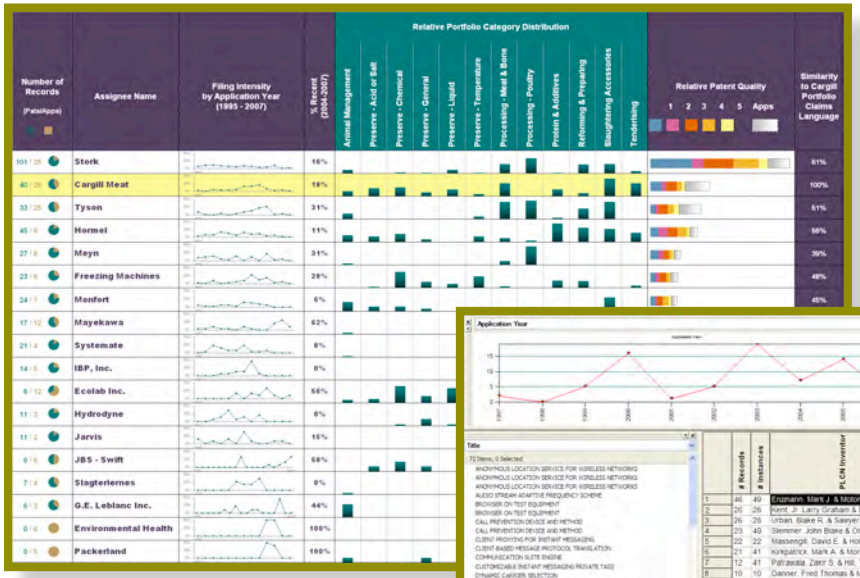
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It Helps to Have World-Class Teams & Tools

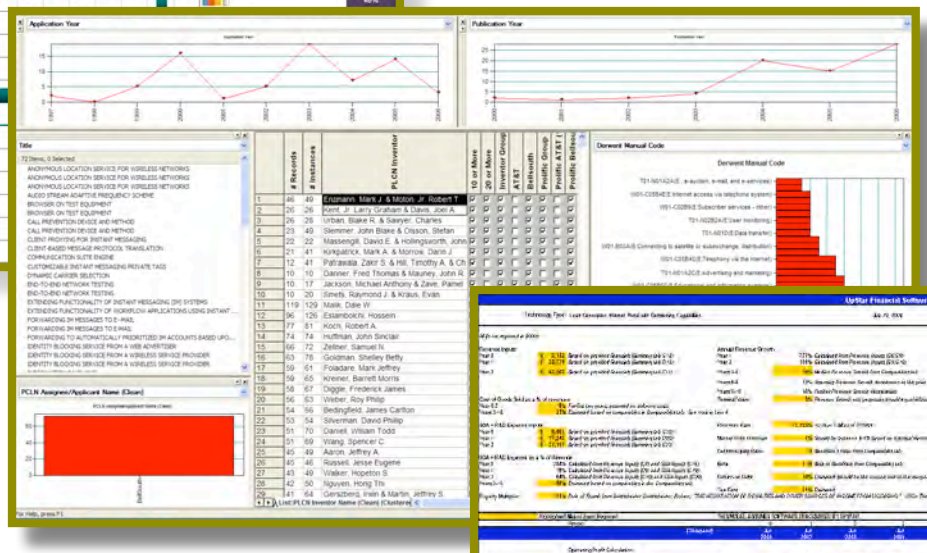


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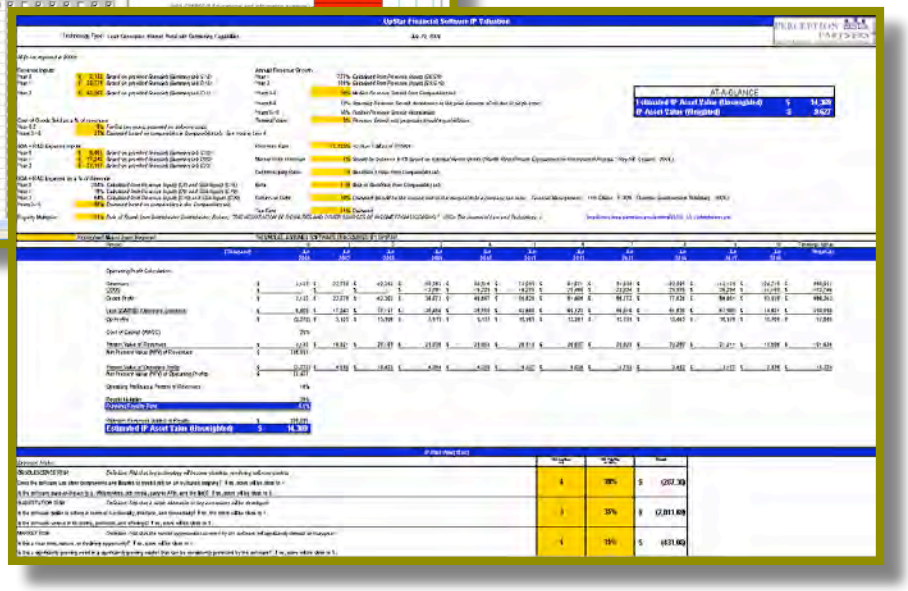
But You Really Need Cutting-Edge Techniques



Landscape Mapping and Visualization



Intelligent Data and Text Mining



Cost, Income and Market Approach Valuation

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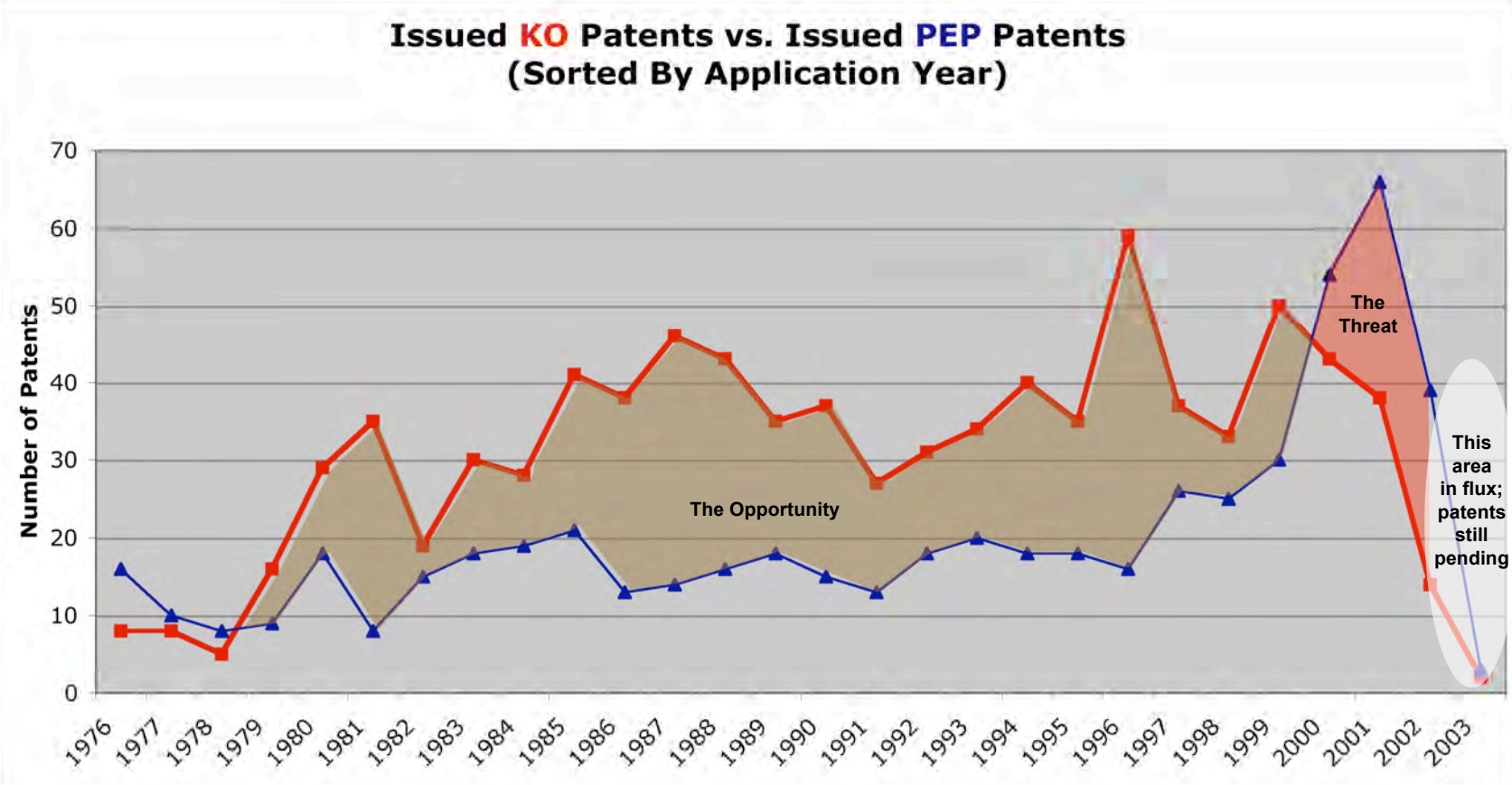
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Portfolio Mining Case Study – Out Licensing Opportunities

The Coca-Cola Company vs. Pepsico

Coca-Cola vs. Pepsico Patents Over Time

- Coca-Cola has been a clear leader in patenting for decades
- In 2000, the company laid off 6000+ people, and the "brain drain" effect is clear
- Pepsico appears to have implemented patent management strategies as well as increased acquisitions
- Could Coca-Cola benefit if it pursued patent enforcement vs. Pepsico?



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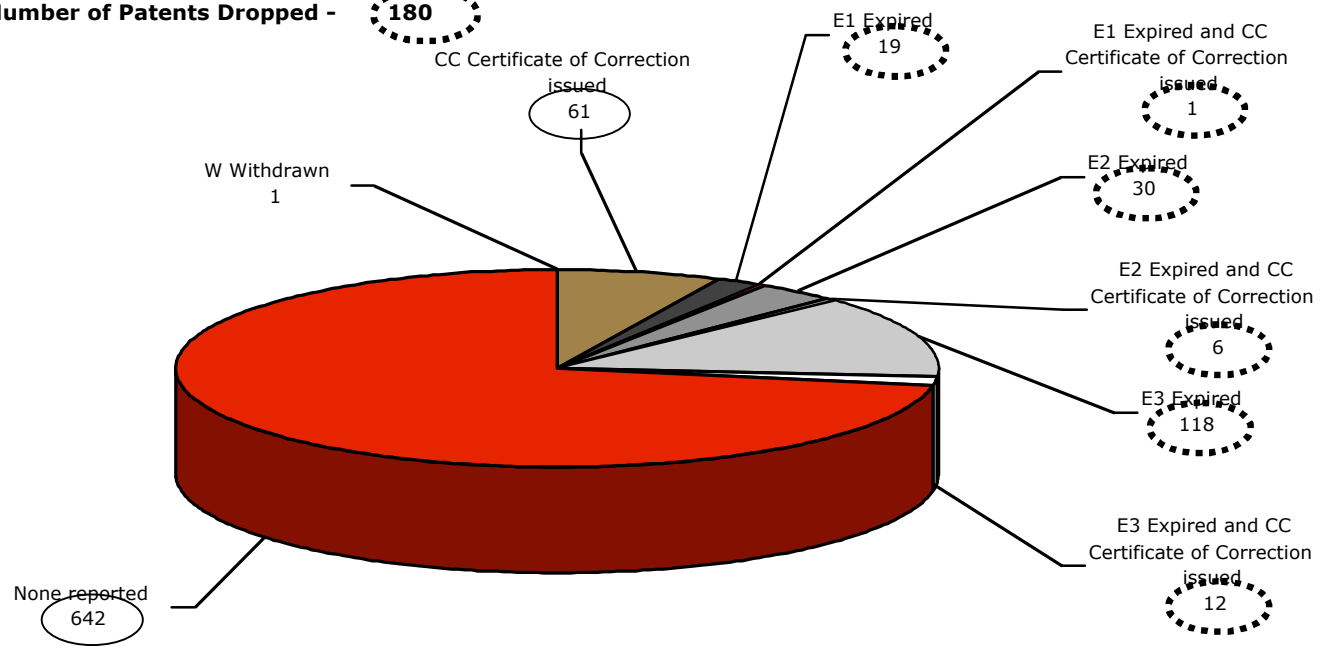
Coca-Cola U.S. Portfolio Maintenance

- **Majority of Coca-Cola's patents are still valid**
- **Most patents expire in E3 term - may indicate a "buy and hold" strategy that could produce immediate savings if instead weaker patents (and associated maintenance fees) were discarded**

KO Current, Corrected and Expired Patents (890 Total)

Maintenance Record Detail

- **Approx. Current Valid KO U.S. Patents - 703**
- **Approx Number of Patents Dropped - 180**



KEY

E1: Expired four(4) years after the initial issue date.
E2: Expired eight(8) years after the initial issue date.
E3: Expired twelve(12) years after the initial issue date.

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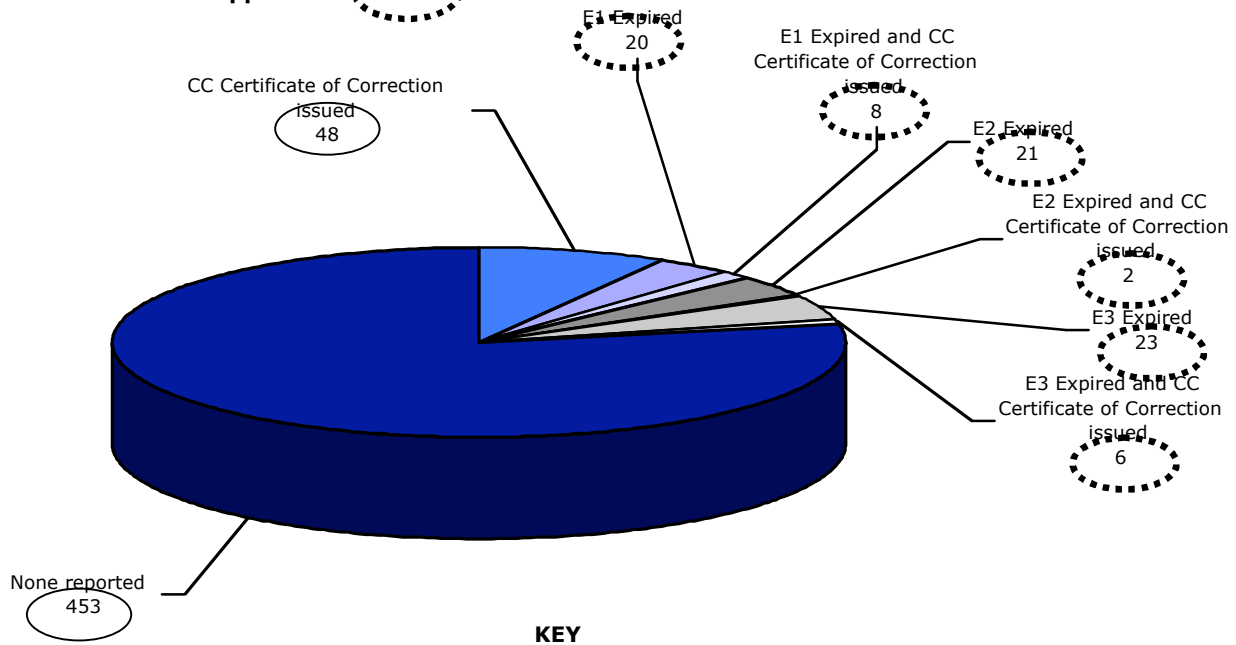
Pepsico U.S. Portfolio Maintenance

- **Majority of Pepsico's patents are still valid**
- **Equivalent expirations in E1, E2, E3 terms - may indicate active "culling" of portfolio**

PEP Current, Corrected and Expired Patents (581 Total)

Maintenance Record Detail

- **Approx. Current Valid PEP U.S. Patents - 502**
- **Approx Number of Patents Dropped - 80**



KEY

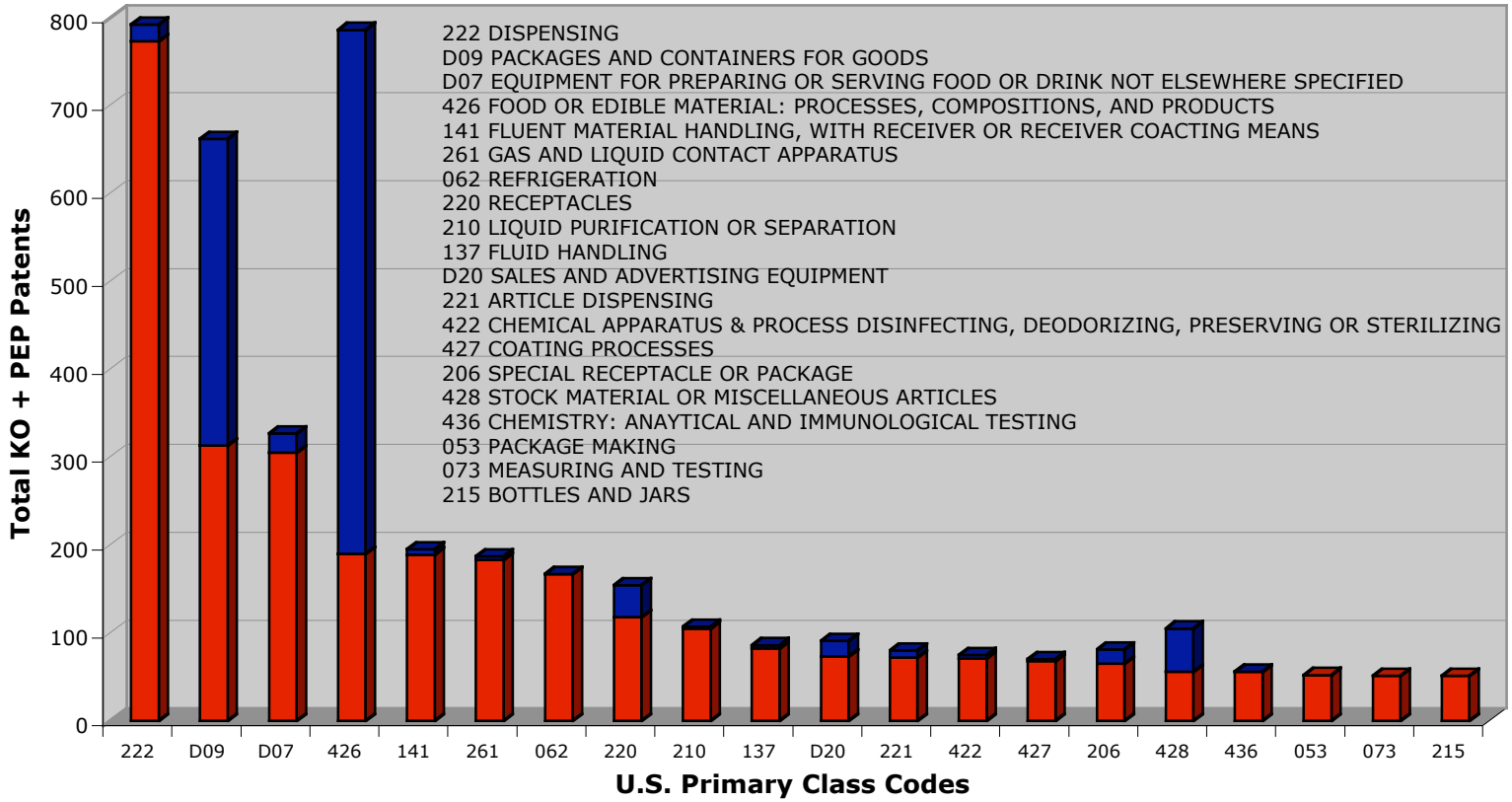
E1: Expired four(4) years after the initial issue date.
E2: Expired eight(8) years after the initial issue date.
E3: Expired twelve(12) years after the initial issue date.

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Top Coca-Cola Primary Classes

- Coke appears to dominate Pepsi in almost all of its top 20 Classes
- Pepsi dominates in Class 426 but Coke's patents are in beverage technologies while Pepsi's are in corn and potato processing (snack foods)
- Clear that Coke owns majority of technologies required to manufacture, distribute and market

KO vs. PEP Aggregate U.S. Class Code Assignments
(Ranked by KO Top 20 Classes)



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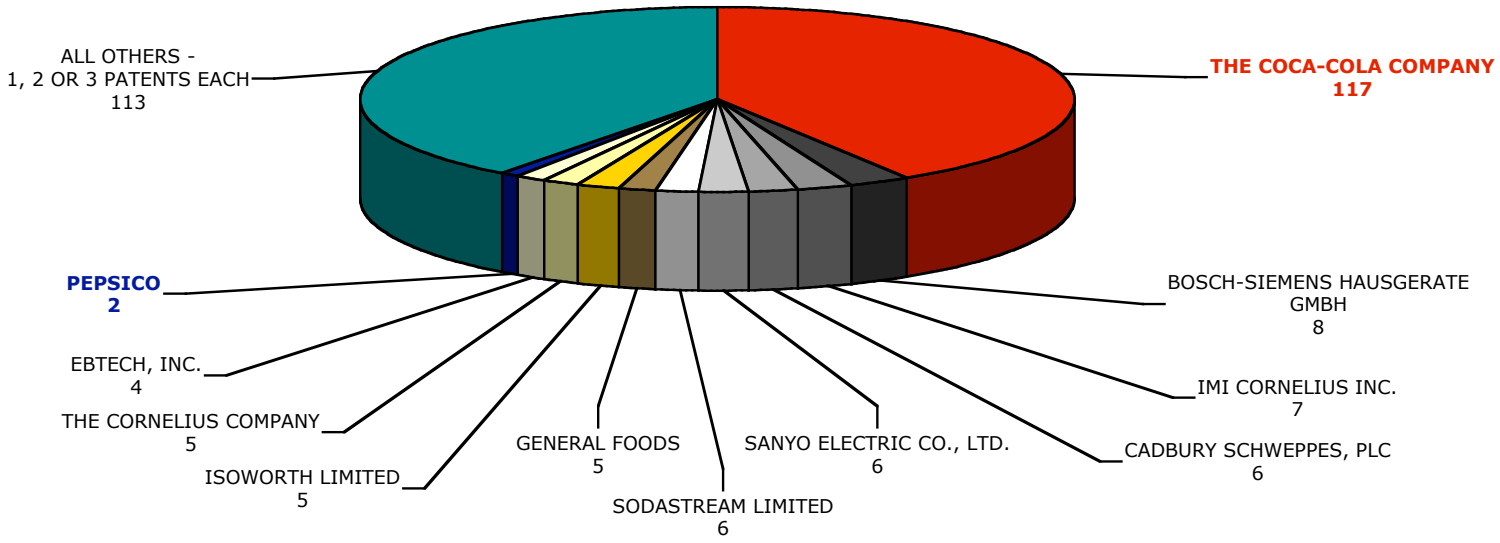
Top Coca-Cola Subclass

- This is Coca-Cola's most dominant US Subclass
- Large portfolio share - are Pepsico and other beverage manufacturers infringing?
- Likely that Coke's reputational concerns will eliminate desire to litigate
- Alternatively, could Coca-Cola license to others and have them enforce?

Top Patent Owners - USC 261/Dig.007

GAS AND LIQUID CONTACT APPARATUS
Carbonators
(284 Total in Class)

#1 • **Total Class Dominance -** **41%**



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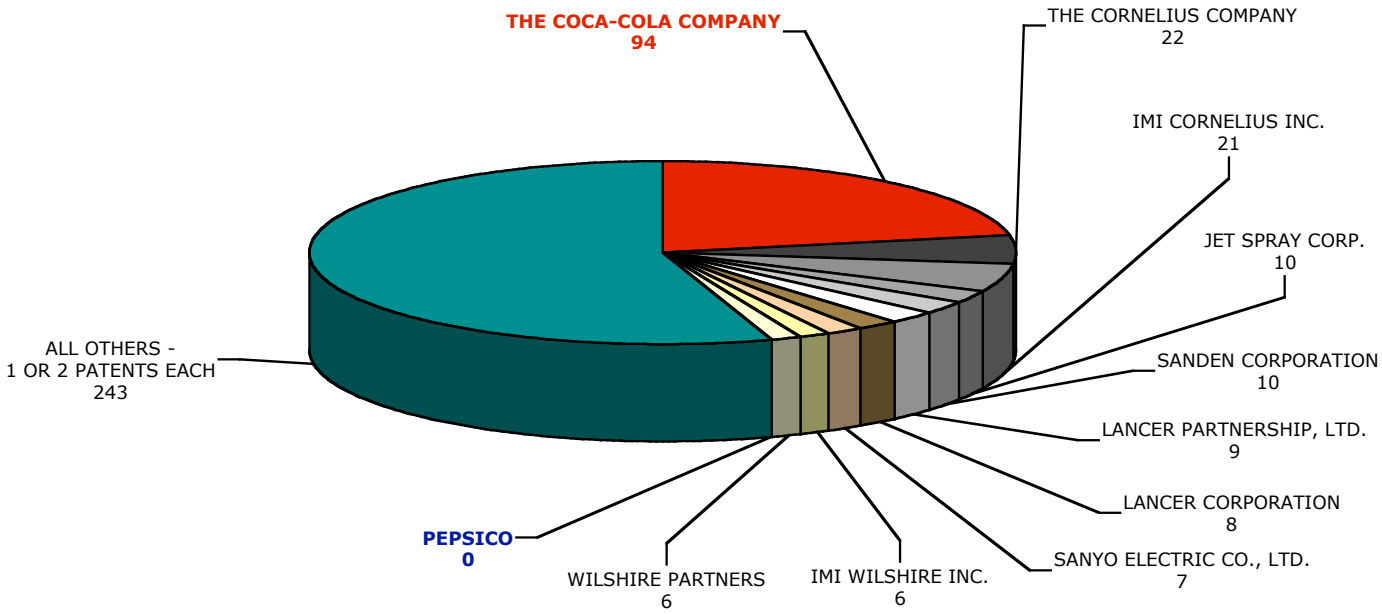
Top Coca-Cola Subclass

- This is KO's second-most dominant US subclass
- Note Cornelius, IMI Cornelius, IMI Wilshire & Wilshire Partners have same parent
- Cornelius, a supplier to Coke and Pepsico, may be patenting technologies "taught" to them by Coke
- Smarter policies at Coke could reduce Pepsico's access to technology or collect license fees for access

Top Patent Owners - USC 222/129.1

DISPENSING
Plural Sources, Compartment, Containers And/Or Spaced Jacket:
Cabinet-Type Dispenser For Single Mixed Drinks
(430 Total in Class)

#2 • **Total Class Dominance -** **22%**



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Competitive Intelligence: Cornelius

- This document was obtained from the Cornelius website
- Since Cornelius supplies Coca-Cola and Pepsi, the products might incorporate IP from one or the other
- Shows that Pepsico depends on its suppliers for innovation/R&D in the beverage area
- If Coca-Cola better controls Cornelius' access to its technology, it could raise Pepsico's costs



UNIT DESCRIPTION

- Built-in cold carbonator produces bottle-quality drinks every time
- No seasonal CO2 adjustments required for changes in water temperature
- A complete system for simplified installation
- Reduces service frequency and lowers equipment life cost
- Generates increased beverage sales and greater consumer satisfaction
- Illuminated merchandiser delivers unique, high impact marketing message
- Ice used to cool cold plate kept separate from ice dispensed into cups
- One piece ABS thermoformed plastic ice storage hopper. Durabide™ ensures all ice in the hopper is dispensable
- Unit readily accepts top mount cubers with manual ice fill capability

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Forward Citation Analysis

- Additional confirmation about Cornelius' reliance on Coke's technology
- Lancer also supplies Coke, Pepsi (founded by ex-Coke employee)
- These companies could represent potential licensees or infringers

Assignee	Assignee Patents that Cite KO Patents
IMI Cornelius Inc.	28
Lancer Partnership, Ltd.	27
Nestec S.A.	24
Sanyo Electric Co., Ltd.	22
PepsiCo Inc.	21
Kraft Foods, Inc.	20
The Procter & Gamble Company	20
Illinois Tool Works Inc.	15
Ecolab Inc.	14
Sanden Corporation	12
Eastman Kodak Company	11
Shurflo Pump Manufacturing Company, Inc.	11
Whirlpool Corporation	11
Fuji Electric Co., Ltd.	10
Kimberly-Clark Worldwide, Inc.	10
Lancer Corporation	10
LJL Biosystems, Inc.	10
Mars Incorporated	10
Tate & Lyle Industries, Limited	10

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Portfolio Mining Case Study – In Licensing Opportunities

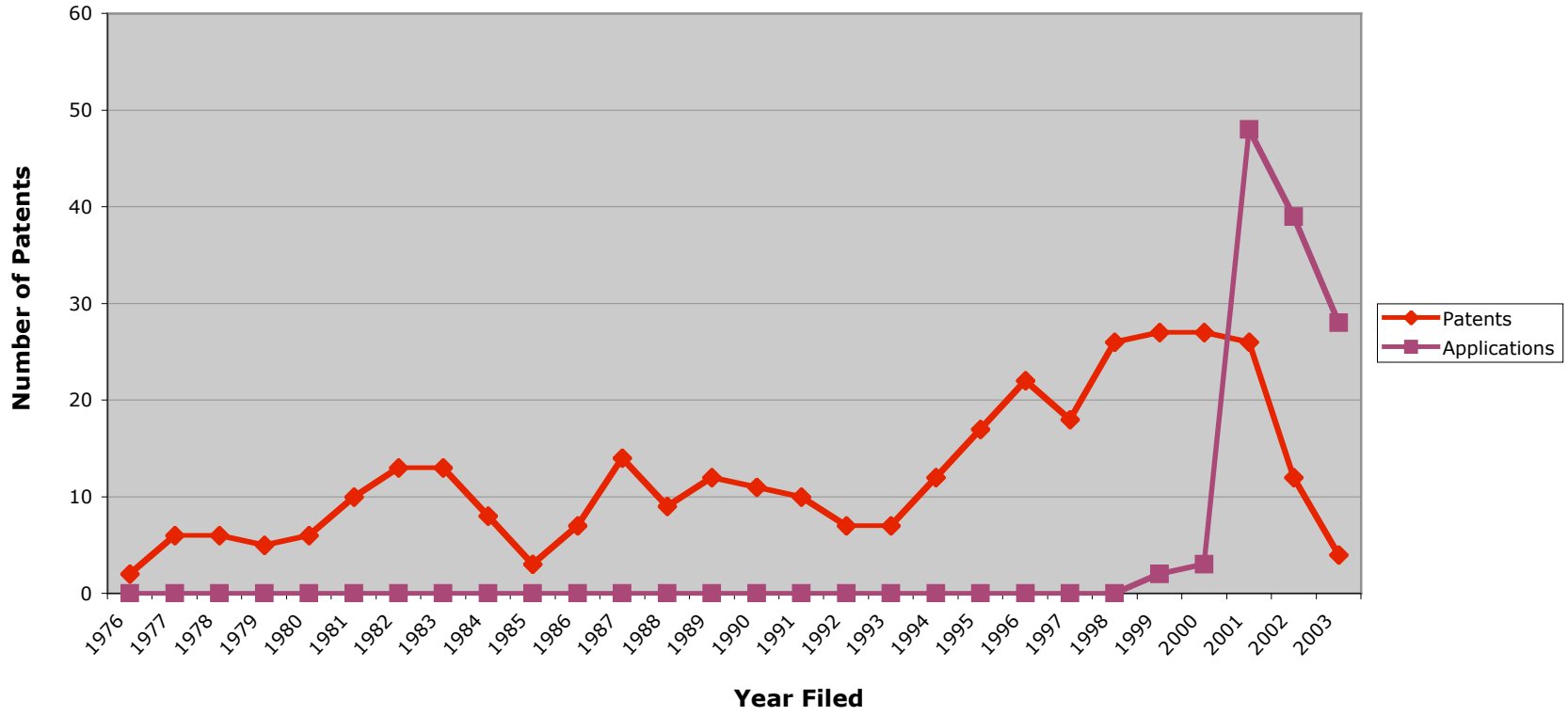
The Coca-Cola Company – Polyester Bottle Suppliers

Patents Over Time

- Filing history shows rising but now steadily competitive innovation
- About half of all applications become patents, so grant of 20-25 patents/year should continue
- Worth noting: 653 Japanese Abstracts; 50 European patents; 104 German patents match query

US Filing History, Polyester-Bottle Patents & Applications, 1976 - 2003

346 US Patents; 112 (Identifiable) US Applications



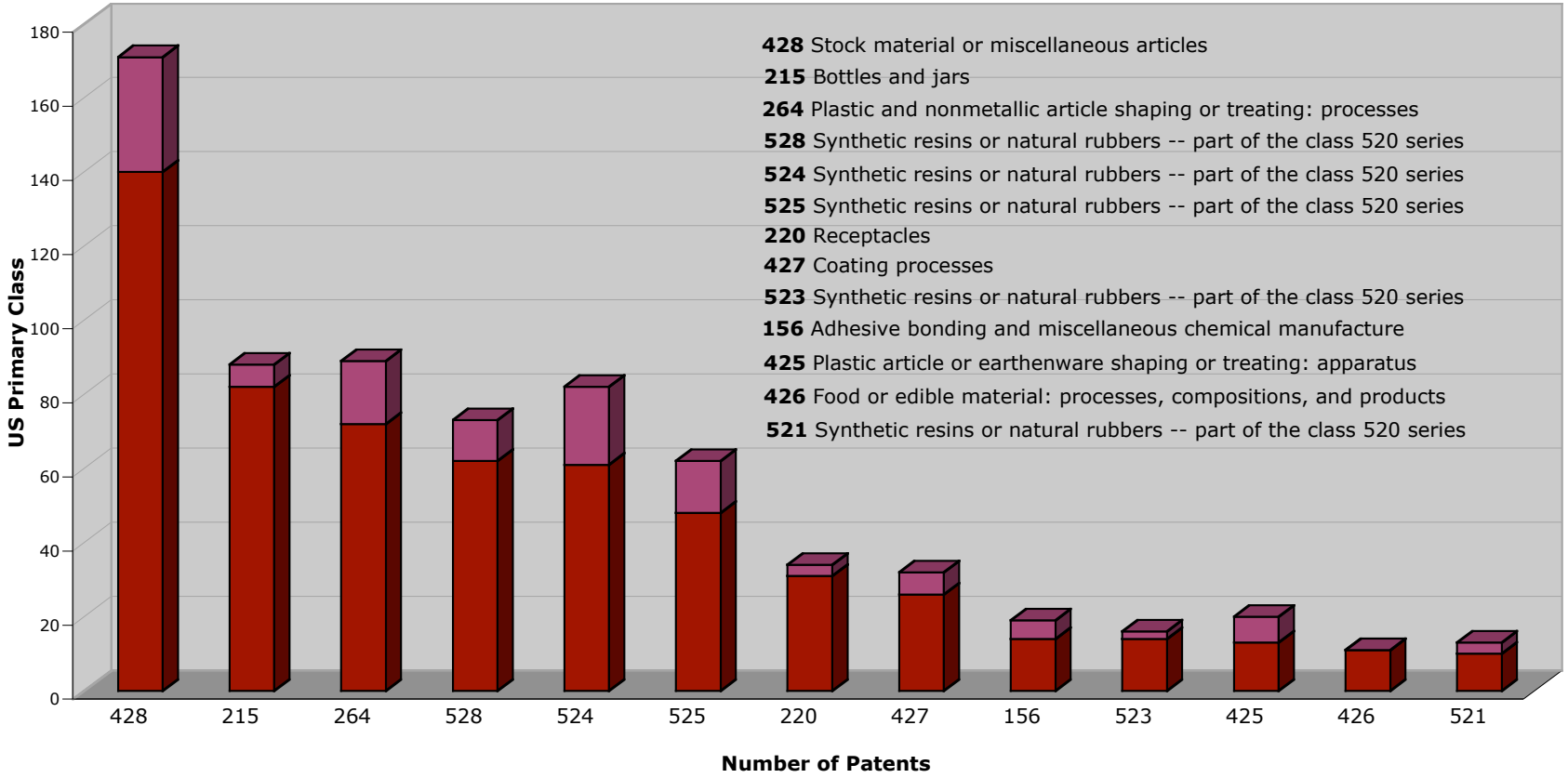
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Top Primary U.S. Classes

- Primary class 428 dominates both polyester-bottle patents and applications
- 428 - Stock material or miscellaneous articles

US Polyester-Bottle Patents vs. Applications Class Code Assignments

(Ranked by US Primary Classes with 10 or More Granted Patents)

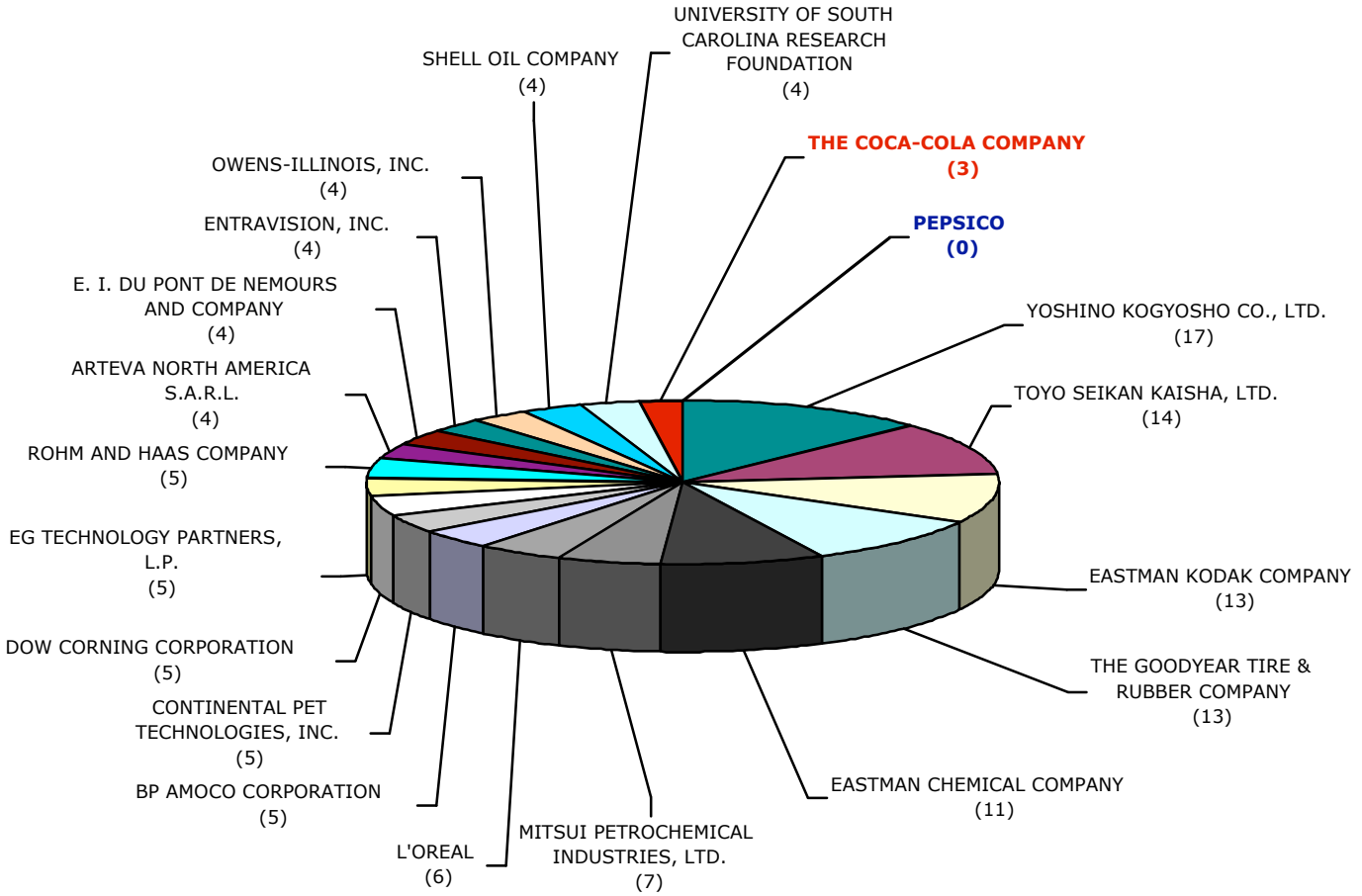


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Top Assignees

- There are no “huge” players with granted polyester-bottle patents
- Presence of both large and small entities indicate fragmentation in research
- Also shows potential to acquire/license with KO’s market power

US Patent Owners of 4 or More Polyester-Bottle Patents

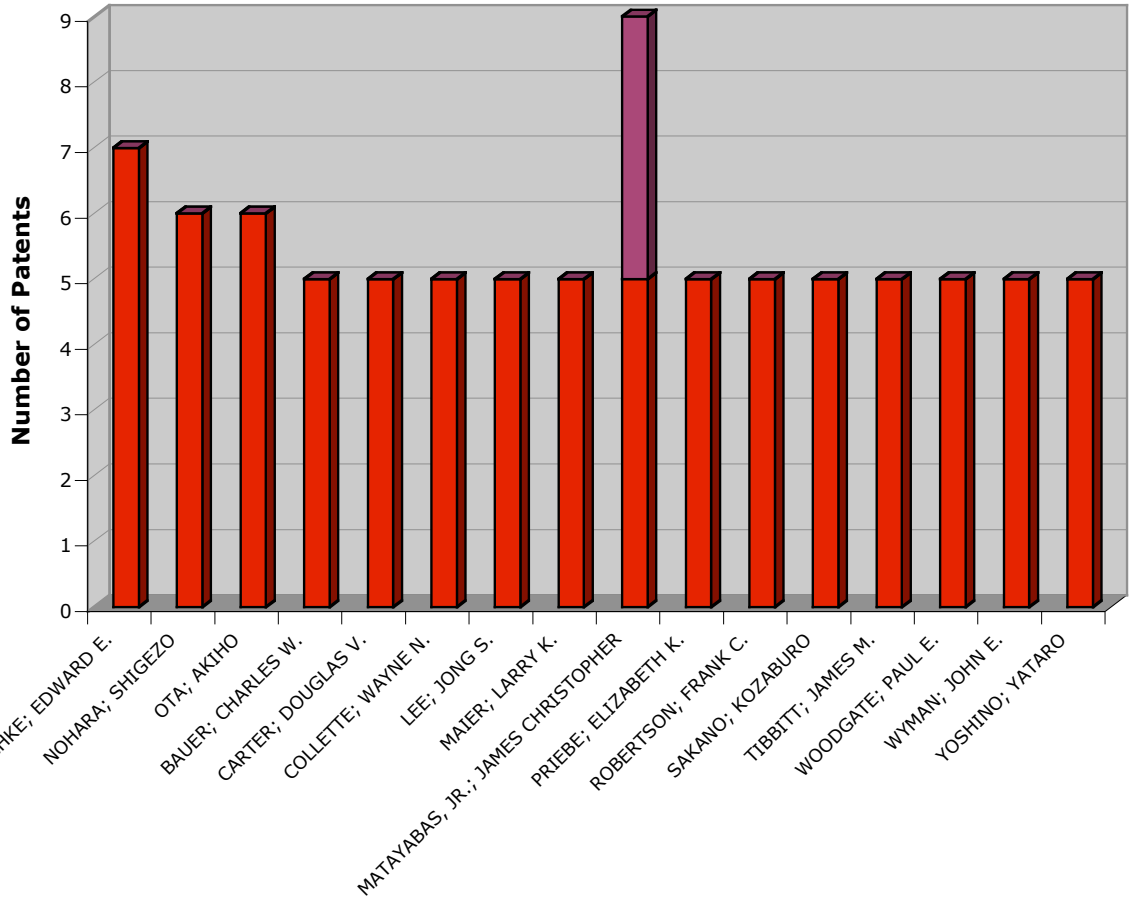


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Prolific Inventors

- Broad group of inventors with 5+ patents indicates diversity of knowledge
- No single "industry expert"
- James Matayabas only prolific inventor with applications pending – interesting outlier

Inventors of 5 or More US Polyester-Bottle Patents and Applications



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Competitive Intelligence: J. Matayabas

- Works for Eastman Chemical; UFL grad; Lives w/wife Deborah in Chandler, AZ
- Researcher on portfolio donated to University of South Carolina
- Expertise in polymer/clay nanocomposites
- Intelligence shows this as a promising multilayer technology for CO2 gas barrier

Matayabas Polyester-Bottle US Patents and All Applications, Sorted by date

Publication	Title/Abstract	Assignee	Filed
US20040082698A1	Polymer/clay nanocomposite comprising a clay mixture and a process for making same	none	2003-10-14
US20040063841A1	Process for preparing an exfoliated, high I. V. polymer nanocomposite with an oligomer resin precursor and an article produced therefrom	none	2003-09-30
US20040127627A1	Polymer/clay nanocomposite comprising a clay treated with a mixture of two or more onium salts and a process for making same	none	2003-07-30
US20040124526A1	Gel thermal interface materials comprising fillers having low melting point and electronic packages comprising these gel thermal interface materials	none	2002-12-30
US20020193494A1	Process for preparing an exfoliated, high I.V. polymer nanocomposite with an oligomer resin precursor and an article produced therefrom	none	2002-07-19
US20020165306A1	Process for preparing an exfoliated, high I.V. polymer nanocomposite with an oligomer resin precursor and an article produced therefrom	Eastman Chemical Company	2002-05-14
US20030013796A1	Process for preparing a high barrier amorphous polyamide-clay nanocomposite	Eastman Chemical Company	2002-05-13
US20030168731A1	Thermal interface material and method of fabricating the same	none	2002-03-11
US20020169246A1	Process for preparing high barrier nanocomposites	Eastman Chemical Company	2002-03-06
US20020137834A1	Polymer/clay nanocomposite comprising a functionalized polymer or oligomer and a process for preparing same	Eastman Chemical Company	2002-02-08
US20030128521A1	Electronic packages having good reliability comprising low modulus thermal interface materials	none	2002-01-04
US20020143092A1	Chain extension for thermal materials	none	2001-12-27
US20020140082A1	Chain extension for thermal materials	none	2001-03-30
US20020119266A1	Polymer-clay nanocomposite comprising an amorphous oligomer	none	2000-12-01
US6552113	Polymer-clay nanocomposite comprising an amorphous oligomer	University of South Carolina Research Foundation	2000-12-01
US20020022678A1	Polymer/clay intercalates, exfoliates, and nanocomposites comprising a clay mixture and a process for making same	none	1999-12-01
US6384121	Polymeter/clay nanocomposite comprising a functionalized polymer or oligomer and a process for preparing same	Eastman Chemical Company	1999-12-01
US6486253	Polymer/clay nanocomposite having improved gas barrier comprising a clay material with a mixture of two or more organic cations and a process for preparing same	University of South Carolina Research Foundation	1999-12-01
US6486254	Colorant composition, a polymer nanocomposite comprising the colorant composition and articles produced therefrom	University of South Carolina Research Foundation	1999-12-01
US6653388	Polymer/clay nanocomposite comprising a clay mixture and a process for making same	University of South Carolina Research Foundation	1999-12-01

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Competitive Intelligence: USC

- These documents were obtained from the USC Tech Transfer website
- Donated portfolio appears available for license; maybe even for sale
- Could this prior art be acquired and reduce effects of monopoly pricing?

University of South Carolina Research Foundation
Nanocomposite Plastic Technologies

DEVELOPMENT

The polyamide-clay composite is market ready. The technology provides gas barriers to carbon dioxide and oxygen resulting in a shelf life up to 3-6 months for beers, and fruit juices. **There is even the capability of producing a carbonated soft drink bottle that has a shelf life up to one year.** Light transmission levels of the multi-layer bottle based on PET with internal barrier layer of polyamide-clay composite have been reduced to 5% or less and many elements of the plastics have been thoroughly tested. The multi-layer bottle based on PET with internal barrier layer of polyamide-clay composite is able to withstand temperatures of 300° F (150° C). **Multi-layer PET bottles using a middle layer polymer resin barrier material are currently in production.** The middle layer of the bottle is enhanced by a polyester nanocomposite medium. **Additional research and development is needed to make mono-layer PET commercially viable.**

FUTURE DEVELOPMENT

USC'S plans with this technology include improving the properties of PET/clay nanocomposites to allow use for applications requiring enhanced gas barrier properties, such as beverage container, etc, with the **goal of achieving a market-ready PET monolayer bottle**. Initial research will focus on the exfoliation of clay platelets and the uniform dispersion of novel clay treatment chemistries, of polymer-specific synthetic clays and of novel measurement methods.

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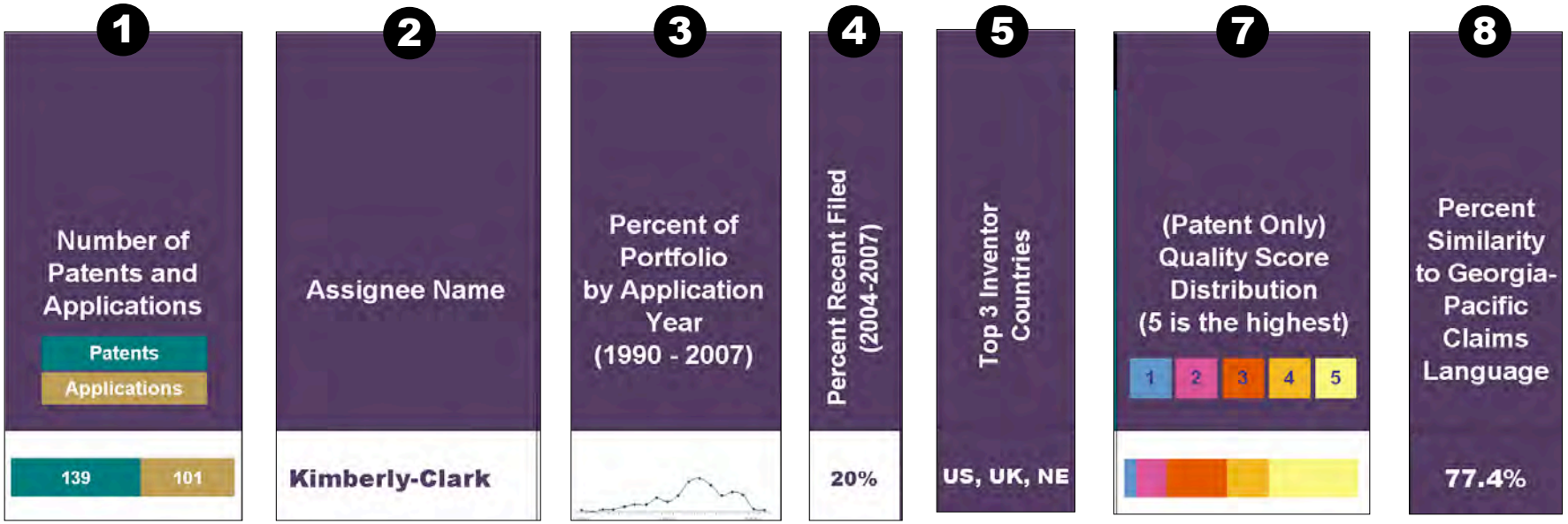
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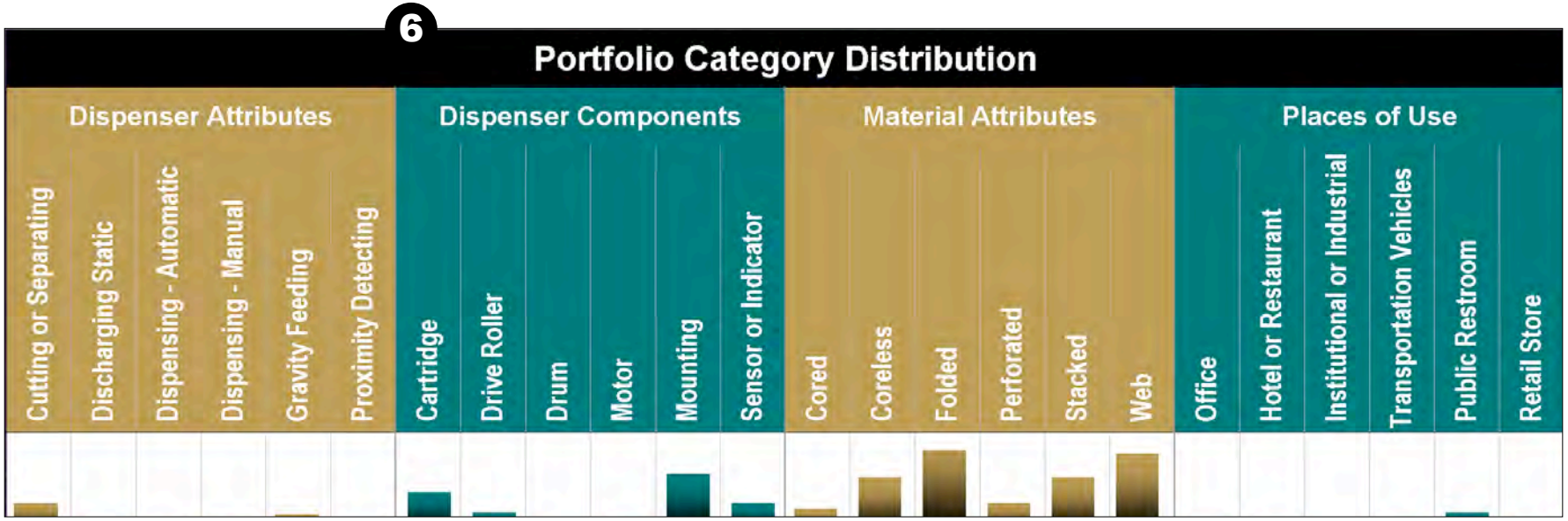
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Portfolio Mining IP Landscapes – Systematizing the Analysis

Away-From-Home Towel Dispensing

Useful Elements of a Systematic IP Landscape

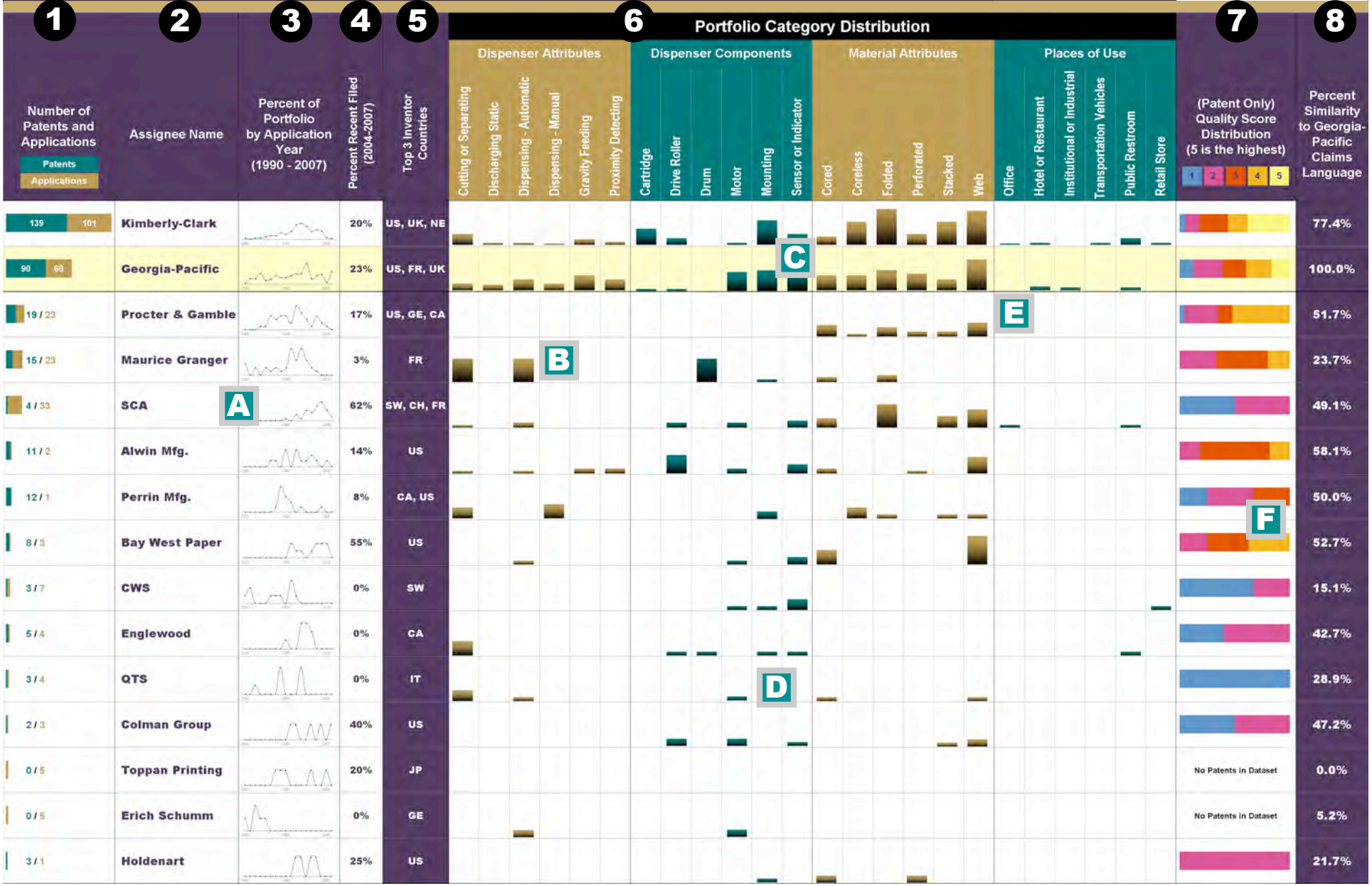




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The AFH Towel Dispenser IP Landscape

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* Number of documents for Top 2 Assignees is plotted on a 4X scale (compared to smaller competitors)

The AFH Towel Dispenser IP Landscape

A



Observations:

While other patent portfolios appear more significant to Georgia-Pacific's in terms of size and growth rate, competitor SCA shows a recent and rapidly growing interest in patenting across similar IP categories

Insights:

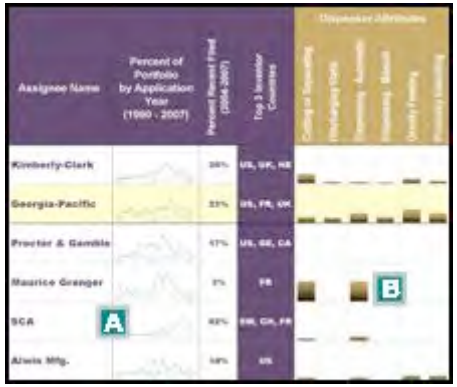
SCA appears to be aggressively pursuing design differentiation in dispensers to encourage switching. Key segments are healthcare, industrial, commercial with significant focus on hospitality and foodservice

Conclusions:

SCA should be watched carefully for infringement, and patents should be blocked where possible by understanding and attacking white spaces

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B



Observations:

Independent inventor Maurice Granger (and family) has a significant number of patents, more so than many better known competitors

Insights:

We have not identified any industry employer for Mr. Granger, whom we believe to be a French citizen. His portfolio may be available

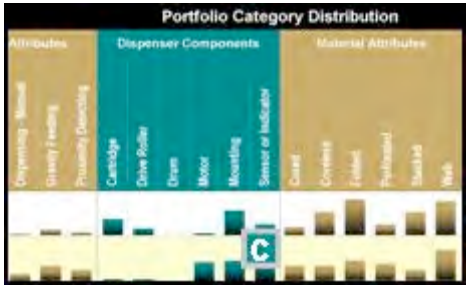
Conclusions:

The Granger portfolio should be reviewed for complementarity and his affiliation with industry should be confirmed. He may be a valuable expert or provider of advantaged geographic rights for Georgia-Pacific

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The AFH Towel Dispenser IP Landscape

C



Observations:

The volume, focus and diversity of the Kimberly-Clark patent portfolio is more similar to the Georgia-Pacific portfolio than any other competitor

Insights:

While both portfolios claim a similarly diverse range of the types of materials dispensed, automated and sensor-based dispensing is weaker in the Kimberly-Clark portfolio – it appears they are blocked by Georgia-Pacific

Conclusions:

Georgia-Pacific should continue to block Kimberly-Clark in this area, which may include acquiring patents from other inventors or companies

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D



Observations:

Sensor or indicator patenting is of significant interest across a wide range of landscape assignees, regardless of portfolio size

Insights:

Sensor technologies enhance a number of other categories, from web feeding to proximity detection to data collection and dissemination

Conclusions:

A competitive advantage in the use, application and integration of sensor technologies is critical and a deeper dive in this area is warranted

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The AFH Towel Dispenser IP Landscape

E



Observations:

Procter & Gamble's portfolio in dispensing is large, yet it has relatively little presence in the categories within this landscape

Insights:

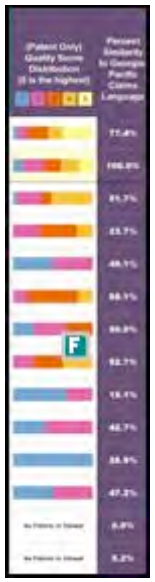
P&G is primarily claiming dispensing for wipes, as well as dispensers that are disposable and for small packages

Conclusions:

P&G does not appear to present a significant threat in commercial or AFH dispensing using its own patent portfolio. P&G's use of vendors or suppliers in the area should be investigated to determine blocking potential by Georgia-Pacific's portfolio

---

F



Observations:

Competitor Bay West, which has recently grown its portfolio, has higher than expected quality in its patents

Insights:

Higher quality patents are related to multi-roll dispensers, which add convenience for facility managers. In addition, claims language is significantly similar to Georgia-Pacific's

Conclusions:

Based on portfolio and ~7% US AFH market share (SCA), this company should be assessed for infringement – or perhaps partnership/acquisition

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So What's the Point?

- Portfolio mining is an analytical activity designed to answer key questions:
  - What do we have?
  - What do we need?
  - Acquire what we need
  - Divest what we don't need
- Visualization tools and techniques aid significantly in the mining activity and in the communication of findings
- Mining can be systematically performed within portfolios and across industry areas
- Understanding the portfolio in the context of relevant peer assets provides a most useful approach to assessing strengths and weaknesses in order to build a business case for licensing, acquisition and disposition

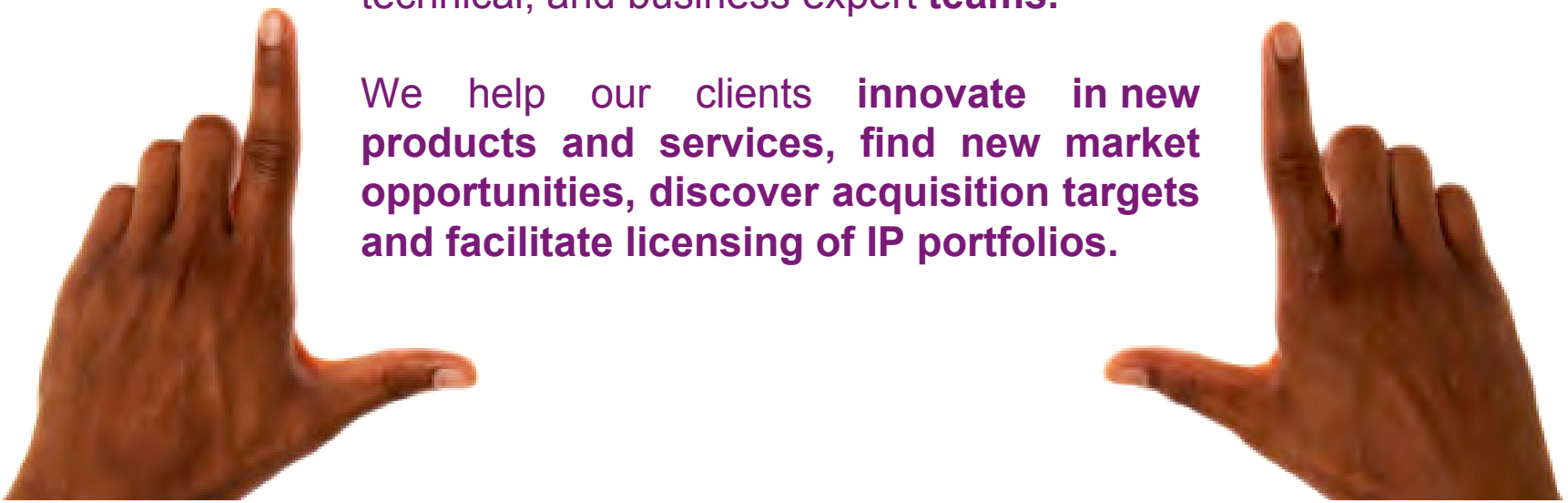
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About Perception Partners

Perception Partners is an advisory services firm that provides unique IP Analytics Solution Suites that help clients understand, quantify and maximize the value derived from innovation and intellectual property.

We enable our clients to increase revenues and profits with facts, using cutting-edge IP and business intelligence **tools**, algorithmic discovery **techniques**, and extensive legal, technical, and business expert **teams.**

We help our clients **innovate in new products and services, find new market opportunities, discover acquisition targets and facilitate licensing of IP portfolios.**



IP Analytics > Discovery > Value Realization

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Understand, Quantify and Maximize the Value from Innovation. *That's the IP Advantage™*

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