LOS ANGELES FASHION INDUSTRY:
A DATA SCIENCE PERSPECTIVE

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OVERVIEW

The Los Angeles fashion industry continues to play a vital role in the city’s economy, at the same time adopting a vanguard position in social media, online sales and marketing, and design and manufacturing technology. While New York and London are all about design, Los Angeles is all about “the business of fashion.” LA’s apparel industry success drivers include:

- The pull of design talent
- Favorable cost economics
- The appeal of casual clothing, particularly denim
- Speed to market
- More than $46B in apparel imports comes through LA ports
- Local companies capture more than $18B in revenues and $6.4B flows to local workers

These trends are instrumental to changing the fashion industry. These and other insights are found in the 2016 “Los Angeles Area Fashion Industry Profile” (cit.com/lafashion). The report was commissioned by CIT Group Inc. (NYSE:CIT), a leading provider of commercial lending and leasing services, and the California Fashion Association (CFA). In addition, the profile features the inaugural L.A. apparel industry survey, which includes responses from more than 50 L.A. area apparel executives from a mix of manufacturers and licensors.

The results of the survey depict a picture of the industry that is in direct opposition to what we often see written in the industry trade press. LA fashion is frequently characterized as an industry that is waning in influence, prowess and economic impact. In collaboration with one of the premier fashion marts in Los Angeles – The New Mart – the goal for this guide is to examine the Los Angeles fashion industry from a data science perspective. In this pursuit, we shall use both publicly available and proprietary data sets, coupled with machine learning methods, to establish a much more favorable outlook, one that we believe is more accurate and representative of the industry today.

Social Media

A state-of-the-art manufacturing platform and a well-developed import and export infrastructure, coupled with the savvy use of social media, position the Los Angeles region as a leading global fashion center.

Perhaps not surprisingly given L.A.’s celebrity-driven culture, social media is seen as the marketing innovation that will have the greatest impact on the L.A. fashion industry, according to the report. Related initiatives could involve many of the following: blogger-sponsored e-commerce, new and evolving social media platforms, social media buzz, direct-to-market sales, Internet sales, fashion blogs and analytics-driven technology.

The study also found that Internet-only apparel retail is already common for L.A. retailers that start with just an e-commerce presence. These business concerns can adopt a strategy with which retailers build a following through online sales and then open a brick-and-mortar location. Information system
technology also helps L.A.'s designers and manufacturers stay competitive by shortening product cycles and reducing costs. 3D fitting, 3D printing and virtual reality are all in the mix in L.A.
Other key themes and highlights of the report include:

**DIGITAL DOMINATES L.A. FASHION EXECUTIVES’ OUTLOOK**

- **Social Media Is the Future:** When asked what they saw as the most innovative technology for the future of the apparel industry, 54% of surveyed apparel executives said social media, nearly 1 in 4 (24%) said integrated systems between manufacturers and retailers, and 13% said either 3D fitting or 3D printing.

- **Online Presence Is Critical:** More than half of respondents said the Internet represents the biggest growth opportunity for L.A. apparel companies in 2016 and 2017. A business model which involves opening an online-only store and later adding brick-and-mortar locations, garnered 35% of responses. Online-only selling received 22%.

- **Market L.A. Design on Social Media:** Shifting to marketing, respondents were asked what “Designed in L.A.” marketing strategy would work best. Putting it in the lead by a large margin, social media received 55% of responses. Social media could include promoting L.A. fashion and lifestyles on various online platforms or having celebrities build the L.A. brand using their social media presences.

**FASHION INDUSTRY IS CRITICAL FOR L.A. AREA ECONOMY**

- **Fashion’s Impact by the Numbers:** More than $43 billion in apparel imports were expected to enter L.A. ports in 2015. In May 2014, 4,130 fashion designers were employed in L.A., representing a 9% increase in fashion designer growth over two years. Total L.A. fashion back-end employment, such as manufacturing and wholesale, adds up to 212,923 jobs.

- **Why Los Angeles:** When asked what keeps their fashion business in the L.A. area, 47% of surveyed executives said access to L.A. ports, 37% said access to fashion designers and 31% said fast fashion.

- **Apparel Wholesale Is an Industry Driver:** Over the last eight years in the five-county SoCal area, wholesalers added roughly 1,500 jobs each year. L.A.’s large local market is one reason why apparel wholesaling firms continue to prosper in this area.

**MARKET LANDSCAPE PRESENTS OPPORTUNITIES AND CHALLENGES**

- **China Is Still First Sourcing Choice, but Lead Expected to Narrow:** When asked what countries apparel and textile producers will source from in 2016 and 2017, China leads the field (37%), followed by Vietnam (15%) and India. Beyond 2017, China’s lead shrinks, but it’s still dominant, with 29 responses. Of course, L.A.’s West Coast location and strong port infrastructure facilitates the supply of imports from all of these markets.

- **Costs and Consolidation Are Challenges:** When asked which factors would negatively impact their businesses in 2016 and 2017, 47% of executives said the cost of doing business and 43% said retail consolidation.
• **Tax Exemptions or Incentives Desired:** When asked which proposed policy decisions would help operations the most, 47% cited creating tax incentives for job creation of “new hires,” while 27% would raise the small-business tax exemption from $500,000 to $1 million.

**DATA SOURCES**

The continued advance of so-called “Big Data” technologies provides an increasing number of valuable data sets with which we can derive an analytics-driven perspective of the LA fashion industry. Proprietary data sets provide one view of the state of fashion in Los Angeles, while public data sets coming from Open Data Repositories sponsored by local, state and federal government agencies provide yet another valuable perspective. This paper includes data from both classes of data set.

**U.S Bureau of Labor Statistics**

The U.S. Bureau of Labor Statistics maintains a vast repository of publicly available data that describes in detail the fashion industry across the nation. This paper uses data from this source to determine the number of fashion businesses in the L.A. region. This source also includes wages paid data. Website: http://www.bls.gov/data/

**Los Angeles Open Data Repository**

The Los Angeles Open Data Repository is a relatively new (opened in 2015) data source that provides industry data at the municipal level. This paper uses data from this source to determine the number of fashion business starts in the L.A. region. This source also includes revenue data. Lastly, this source includes longitude and latitude data items for new business starts, allowing us to perform geospatial data analysis. Website: data.lacity.org
Proprietary Data

To serve as an example of the national and global wholesale buyer reach for Los Angeles fashion, we have collaborated with The New Mart, one of LA’s premier fashion marts located at “The Intersection” (Los Angeles Avenue & 9th Ave) which is considered to be the epicenter of LA’s fashion industry. The New Mart collects detailed wholesale buyer data during each of the five market weeks occurring each year.

State of California Employment Development Department

The Labor Market Information Division (LMID) is the official source for California Labor Market Information. The LMID promotes California’s economic health by providing information to help people understand California’s economy and make informed labor market choices. LMID collects, analyzes, and publishes statistical data and reports on California’s labor force, industries, occupations, employment projections, wages and other important labor market and economic data. Website: http://www.labormarketinfo.edd.ca.gov/

NAICS Codes

The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. The first version was released in 1997, with updates in 2002 and 2012. Still, the NAICS standard has not kept pace with the rapidly changing fashion industry with respect to technology. For example, is a pure play e-commerce fashion business considered a “clothing store” or a “technology company?” The NAICS system needs revisions to accommodate the burgeoning “fashion tech” sector.

Table 1 contains the NAICS codes into which the fashion industry can be divided. This paper’s data visualizations categorize the data sets using these codes. The LA fashion industry should advocate for new NAICS codes to allow for more precision in analyzing market niches and trends. For example, a
new code for “Fashion Tech” is needed to accommodate innovation in the fashion industry that is coupled with technology.

<table>
<thead>
<tr>
<th>Industry Code</th>
<th>Category Description</th>
</tr>
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<tbody>
<tr>
<td>44831</td>
<td>Jewelry stores</td>
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<tr>
<td>44819</td>
<td>Other clothing stores</td>
</tr>
<tr>
<td>44821</td>
<td>Shoe stores</td>
</tr>
<tr>
<td>44814</td>
<td>Family clothing stores</td>
</tr>
<tr>
<td>44811</td>
<td>Men's clothing stores</td>
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<tr>
<td>44815</td>
<td>Clothing accessories stores</td>
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<tr>
<td>44813</td>
<td>Children's &amp; infants' clothing stores</td>
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<td>44812</td>
<td>Women's clothing stores</td>
</tr>
<tr>
<td>44832</td>
<td>Luggage &amp; leather goods stores</td>
</tr>
<tr>
<td>315</td>
<td>Manufacturer</td>
</tr>
<tr>
<td>4243</td>
<td>Apparel, piece goods &amp; notions</td>
</tr>
<tr>
<td>313</td>
<td>Textile mills</td>
</tr>
</tbody>
</table>

Table 1 – Apparel industry codes and descriptions

**BUSINESS ESTABLISHMENTS**

The data visualization in Figure 1 below shows the number of apparel industry business establishments by industry code by quarter for the years 2012-2015. Referring to the industry codes in Table 1, we see that Apparel, piece goods & notions (code 4243) has the greatest number of business establishments, while all the others show a consistent level during the reporting period. The exception is Manufacturer (code 315) which shows a slight drop from 12Q1 to 15Q3.

The data comes from the U.S. Bureau of Labor Statistics.
TOTAL WAGES

The data visualization in Figure 2 below shows the total wages by industry code by quarter for the years 2012-2015. Referring to the industry codes in Table 1, we see that Manufacturer (code 315) has the greatest wage levels, while all the others show a consistent level during the reporting period. The only exception is Apparel, piece goods & notions (code 4243) which shows an upward trend.

The data comes from the U.S. Bureau of Labor Statistics.
BUSINESS STARTS

The data visualization in Figure 3 below shows the number of new business starts by industry code for the years 2006-2015. Each horizontal stacked bar represents a different NAICS code, whereas the total number of business starts are shown on the x-axis. The color legend on the right-side of the chart defines the years that constitute each stacked bar. Referring to the industry codes in Table 1, we see that Manufacturer (NAICS code 315) has the greatest number of business starts overall (5,581 starts) with the year 2014 seeing the largest number of starts for an individual year (978 starts).

The data comes from the Los Angeles open data repository.
The data visualizations in Figure 4 and 5 below show the total LA fashion industry revenue reported for the years 2006-2015. Figure 4 shows the industry codes associated with retail businesses, while Figure 5 shows manufacturers. We see a dip in retail revenue from 2008-2010 due to the Great Recession, while manufacturer revenue is only flat during this same period. There is an average 2.5x separation between retail and manufacturing revenue.

The plot calculates the regression curve, shown in red, along with the associated confidence band – the 95% confidence level interval for predictions from a linear model (if we were to repeat the sampling over and over, 95% of the regression curves would be inside the grey zone).

The data comes from the Los Angeles open data repository.
GEOSPATIAL DATA ANALYSIS

The data visualization in Figure 6 below shows a geospatial representation of business starts for the years 2006-2015. The figure is for Women’s Clothing Stores (NAICS code 44812) only. The legend
indicates the range of business start densities for different areas around Los Angeles. Notice that the highest density (the light blue color) is in Downtown LA. The Appendix for this paper includes geospatial visualizations for the other industry codes. DTLA remains dominant location for business starts as we see density clusters overwhelmingly in the neighborhood.

The data comes from the Los Angeles open data repository.

Figure 6 – Women’s Clothing Stores (industry code 44812)

**U.S. BUYERS REACH**

In collaboration with The New Mart, the data visualizations in Figure 7 and 8 show the U.S. distribution of wholesale buyers for The New Mart. As indicated by the scale provided, states colored in darker blue have a greater number of buyers who have visited The New Mart during a recent fashion market week. The exception is California which is not included in the distribution since a majority of buyers come from California. The only states not represented are Kentucky, South Carolina, and West Virginia.

The data comes from The New Mart’s private, internal buyer’s database. The buyer distribution for the three other primary fashion marts may or may not be similar to that of The New Mart.
Figure 7 – Number of wholesale buyers by state, with California represented

Figure 8 – Map of wholesale buyers by state, without California represented

GLOBAL BUYERS REACH

In collaboration with The New Mart, the data visualization in Figure 9 shows the global distribution of wholesale buyers for The New Mart. As seen using the scale provided, countries colored in darker red have a greater number of buyers who have visited The New Mart during a recent fashion market week.

The data comes from The New Mart’s private, internal buyer’s database. The buyer distribution for the three other primary fashion marts may or may not be similar to that of The New Mart.
SOCIAL MEDIA DATA PIPELINE

In collaboration with The New Mart, AMULET Analytics developed technology to assess the strength of brands under The New Mart umbrella – 106 showrooms and hundreds of clothing lines. The technology, called the “Social Media Data Pipeline,” uses data science methodologies including machine learning to use social media as a data source for ranking the lines in terms of strength and reach. The data pipeline uses a special fashion database maintained by AMULET Analytics and collects vast amounts of unstructured social media data that is fed into an analytical process. The process ranks the clothing lines and yields a weekly “top 10 ranking.” Top performers are those who consistently receive mentions in various social channels. Further, both sentiment and credibility analysis is performed on the social data to contribute to the ranking.
SUMMARY

Through the analysis of both publicly available and proprietary data sets, a positive single-truth describing the economic power and health of the LA fashion industry can be derived. In this report, the data tell an important story – business starts, number of business establishments, revenue, wages, brand reach, and geographic distribution all depict an industry travelling on an upward trajectory.

A new analysis from real estate website Trulia has designated that L.A. is America’s fashion capital. The rationale is that more clothing is manufactured in L.A. than anywhere else in the United States. Trulia analyzed the number of fashion businesses (in part by using Yelp data) and real estate opportunities in several American big cities to crown the "most fashionable" city in the United States — Los Angeles. L.A. beat New York, which came in at No. 2, but the details included other areas in Southern California – No. 3 Anaheim and No. 4 Riverside. Austin, Texas, came in fifth. While New York rose to prominence on the backs of its designers, Los Angeles continues to rise on the shoulders of its factories. With changing markets, comes new opportunities and Los Angeles is poised to cash in.
APPENDIX

This appendix contains the geospatial analysis visualizations for the rest of the industry codes.

Figure 10 – Jewelry Stores (industry code 44831)

Figure 11 – Other Clothing Stores (industry code 44819)
Figure 12 – Shoe Stores (industry code 44821)

Figure 13 – Family Clothing Stores (industry code 44814)
Figure 14 – Men’s Clothing Stores (industry code 44811)

Figure 15 – Clothing Accessories Stores (industry code 44815)
Figure 16 - Children’s & infants’ clothing stores (industry code 44813)

Figure 17 - Luggage & Leather Goods Stores (industry code 44832)
Figure 18 – Manufacturers (industry code 315)

Figure 19 - Apparel, Piece Goods & Notions (industry code 4243)
Figure 20 – Textile Mills (industry code 313)
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AMULET Analytics is the consultancy of LA-based data scientist Daniel D. Gutierrez. Daniel is a long-time data science and machine learning practitioner, educator, author and journalist.

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