

As the American economy pivots into the post-recession growth cycle, the 2014 edition of **P.U.M.A.'s Global Trends Report** prepares downtown management organizations, business leaders and local decision makers with an informed perspective on converging trends in demographics, lifestyles and global competition that will shape our cities for years to come.

Beginning in 2006, Progressive Urban Management Associates (P.U.M.A.) conducted ground-breaking research to identify the top global trends impacting American cities. The original "Top Ten Global Trends Affecting Downtowns" was prepared for the Downtown Denver Plan to forecast our hometown's growth and development patterns for the next 20 years. From the findings, we also developed practical recommendations for all American downtowns to anticipate and benefit from change. The **P.U.M.A. Global Trends Report** has subsequently been utilized in many cities to support a variety of downtown planning, marketing and economic development initiatives.

In 2011, the first update to **P.U.M.A.'s Global Trends Report** was undertaken to respond to the impact of economic recession and ongoing changes in demographics, lifestyles and global competition. The 2011 edition reshuffled half of the trends and provided convincing evidence that downtowns and urban areas will continue to benefit from them.

Now, in 2014, P.U.M.A. teams with the University of Colorado Denver College of Architecture and Planning to prepare the second update of **P.U.M.A.'s Global Trends Report**. Research was provided by 22 graduate students from the fall 2013 economic development systems class taught by P.U.M.A.'s Brad Segal and Anna Jones. More than 250 independent sources were utilized, reflecting the latest data and the world's most sophisticated thinkers and urban philosophers. Class research was verified, supplemented and edited by P.U.M.A.'s Rena Leddy and Erin Laetz, and the report was finalized by Brad Segal.

| GLOBAL TRENDS | 2006 | 2011 | 2014 | |
|---|---|---|---|---|
| | DEMOGRAPHICS | | |  |
| | Changing American Demographics Immigration Trends Changes with the "Creative Class" | Changing American Demographics Education, Talent & Jobs Emergence of Young Professional Women | Changing American Demographics Education, Talent & Jobs Influence of Women | |
| | LIFESTYLES | | | |
| Traffic Congestion & Value of Time Trends in Health Care/Wellness/Recreation Growth of Tourism America's Growing Debt Burden | Changing Consumer Behaviors Shifts in Transportation & Mobility Health, Wellness & Urban Form The Age of Austerity | Changing Consumer Behaviors Shifts in Transportation & Mobility Health & Wellness Rise of Regionalism |  | |
| GLOBAL COMPETITION | | |  | |
| Emergence of China, India, etc. Continued Advances in Technology Environmentalism, Sustainability, Climate Change | The Emergence of a Planetary Middle Class Continued Advances in Technology Sustainability Mainstreamed | Shift in Global Wealth Continued Advances in Technology Social Equity – The Neglected Pillar of Sustainability | | |

CONCLUSIONS

Overall, global trends continue to appear favorable to promote growth in vibrant downtowns.

America's population is growing more culturally diverse, as well as younger and older.

Demographic trends in the United States remain favorable to downtown development. The population is growing both older (aging Baby Boomers) and younger (emerging Millennials and Gen Z). Both markets have fueled downtown population growth over the past decade and are poised to continue to populate urban environments, particularly in those cities that offer jobs, housing, amenities and activities that respond to their needs. America will become more culturally and ethnically diverse, creating an advantage for downtowns that welcome, accommodate and celebrate diversity.

Cities need to adapt to an increasingly connected and competitive world.

Broader distribution of information technologies is encouraging "bottom-up" innovation from entrepreneurs throughout the globe. Education will be key in ensuring that America remains competitive and cities that make connections to higher institutions of learning will benefit. Downtowns are poised to continue to be centers of creativity and innovation if they can offer a business climate favorable to the incubation and growth of small dynamic enterprises. The growing importance of women and Millennials in the American professional class creates opportunities for designing, programming and managing vibrant and interactive urban environments.

Resource-intensive lifestyles are not sustainable.

Changes in American lifestyles will continue to be influenced by global trends. The emergence of a planetary middle class will strain the supply and increase the costs of non-renewable resources, making traditional suburban land use and vehicular transportation patterns increasingly expensive and inefficient. At the same time, American lifestyle preferences are favoring more walkable, bike-

able and transit-rich communities. Cities will look to maximize the use of existing infrastructure and promote sustainable development.

Innovation and investment will be more reliant on regional initiative.

An age of fiscal austerity has diminished federal and state resources dedicated to infrastructure, education and innovation, and advanced economies (including the U.S.) are spending less on these economic building blocks than emerging economies with low debt loads and strong central governments. America's economic growth will be led by cities that choose to invest in regional transportation, education and cultural facilities. New public/private financing solutions will be required, ranging from neighborhood-based community venture funds to regional infrastructure banks. A willingness to invest (yes, new taxes) and innovate (public/private partnerships) will keep cities that choose to do so competitive and connected to the global economy. Those that do not choose this path will be left behind and mired in economic stagnation.

Planning for economic diversity is emerging as a priority.

With global trends in their favor, many downtowns are experiencing an economic renaissance that is attracting new investment and high income households. To preserve hope for upward mobility and their historical role in delivering the "American Dream", urban centers need to consider social equity in planning for the future by encouraging a variety of housing and transit options, an enhanced education system, public amenities that promote healthy lifestyles and policies that encourage equity. Vibrant downtowns are well positioned to capitalize on economic opportunities in the global marketplace by offering the advantages of jobs, entertainment, culture, education, recreation, health and livability accessible to all.

IMPLICATIONS FOR DOWNTOWNS

The research and conclusions of global trends offer many implications for the future of downtowns. Highlights, as analyzed by Progressive Urban Management Associates (P.U.M.A.), include the following:

DEMOGRAPHICS

Capture the young skilled workforce:

Downtowns have the edge in attracting the young skilled workforce coveted by employers. To capture this market predisposed to urban living and experiences, downtowns should provide a welcoming environment and information services that make it easy to relocate for jobs and housing. Embracing social tolerance, celebrating multi-culturalism and using social communications tools will invite populations that are increasingly diverse and technologically savvy. Creative incentives, such as subsidizing student loan debt, should be considered.

Create an environment that appeals to women:

The next professional, working and creative classes will increasingly be dominated by young women. Single female Boomers are also having a growing influence in the economy. Downtowns must look for ways to appeal to women in all facets of the downtown experience, including physical improvements, environmental stability (i.e. clean and safe), mixed-use living options, transit and mobility, daycare, retail and entertainment offerings. Encouraging female participation in local policy and urban design leadership positions could create a competitive edge.

Foster education:

Educational institutions are civic anchors, economic stabilizers and incubators of new creative businesses and jobs that should be encouraged to locate and grow in downtowns. Education continuums, connecting local public school systems to colleges and technical schools, should be explored. As cities work to attract and retain young families, the development of quality downtown K-12 schools will be a powerful incentive.

Diverse price points and types needed for housing:

To provide an environment that attracts a multi-skilled workforce and economically-mixed demographics, diverse housing price points and unit types are needed. Zoning codes, development

standards and incentives should be updated to promote opportunities for affordable, flexible, multi-generational and other nontraditional housing types.

Don't forget the Boomers and look out for Gen Z: The Great Recession has reduced mobility options for Baby Boomers and more are projected to "age in place." Urban amenities that appeal to both Boomers and Millennials should be considered, including robust dining and entertainment options, and investments in promoting healthy lifestyles from dog parks to public markets. The eldest of Gen Z are entering adulthood and will be looking for these same amenities.

LIFESTYLES

Implement comprehensive mobility strategies and "living streets": Downtowns need to invest in streetscapes, two-way conversations, connectivity improvements and other ways to implement "living streets" principles that support a variety of modes beyond vehicles with a greater emphasis on design for bicycles and pedestrians. Mobility options are needed as an alternative to congested highways and, importantly, to appeal to younger highly-skilled and educated populations that are increasingly disinterested in automobile use and seeking walkable, bikeable and transit-rich urban environments. Age-friendly universal design standards should be employed to promote accessibility for all, from aging Boomers to young families with infants and toddlers.

Promote the "sharing economy": Grounded with less consumptive values and armed with mobile technologies, Millennials and Gen Z consumers are increasingly seeking opportunities to share, rent or resell goods and services. Bicycle and car sharing will be the accepted norm in downtowns. Localized apps and other accessible technology platforms for sharing consumer goods, workplaces, housing, recreation and social experiences will build a sense of community.

Cultivate partnerships with health care providers: With growing demand for health care services, partnerships with local health care providers will be critical to create a competitive advantage for downtowns. Development and expansion of health care facilities will be important economic stabilizers and create significant business spinoffs. Access to health care, through clinics and retail applications, should be pursued. Health care

providers will also be strong civic partners to help promote healthy lifestyles through urban living.

Capitalize on the healthy places and food movements: Advanced by the Urban Land Institute, a global focus on building healthy places will grow within the real estate development industry. Downtowns can capitalize on this trend by improving the public realm with active green spaces, inviting connections and walkable streets. Several healthy food movements are converging to benefit downtowns. New retail prototypes can serve rapidly growing niches in locavore and organic segments. Urban farming is a trend that can thrive in downtown locations on rooftops and vacant land. Initiatives to eradicate food deserts can bring coveted corner stores and full-service groceries to underserved urban areas.

Keep it fun, entertaining and interesting: Over the past 25 years many downtowns have become hubs for entertainment, culture and sports. To remain competitive and continue to attract a young and diverse workforce, fortifying and expanding downtowns' experiential attractions will be critical. Downtowns should integrate new mobile technologies into marketing and promotions. A variety of cultures and languages should also be accommodated, appealing to an increasingly diverse local population and international tourists.

Be a strong advocate for regional investment and collaboration: Federal and state investment in infrastructure, mobility and education has decreased. Cities that choose to invest in these initiatives will thrive; those that do not may stagnate. Downtowns will need to educate communities on the benefits of regional cooperation and investment. Solutions to increasing challenges related to social equity, including housing affordability, better wages, improved schools and homelessness, will require regional approaches. A new emphasis for downtown organizations may include introducing new skill sets and leadership capabilities to affect policy and foster regional collaboration.

GLOBAL COMPETITION

Entrepreneurship will continue to be a key to job growth: Attracting, retaining and growing small businesses will continue to be a key for promoting job growth and remaining globally competitive. Downtowns should explore ways to broaden support to small

businesses and startups through a variety of means, including technical assistance, co-working and other flex spaces, creative incentives and/or designation of formal "innovation" zones.

Develop innovative public/private financing tools: While Global Trends are favorable for downtown investment, conventional financing will be constrained due to lingering effects of the recession and government austerity measures. Localities will need to develop innovative public/private financing tools, with options ranging from regional infrastructure banks to local community lending and equity funds.

Be technologically relevant: Social communications, in connection with both place-based and business applications, will continue to grow with the proliferation of mobile technologies and the influx of Millennials into the workforce. Downtowns need to make sure that they are technologically relevant, both in providing the infrastructure that supports ubiquitous computing, 3D printing and in developing the creative applications that keep a tech savvy population engaged.

Adaptive reuse will be more affordable as construction costs rise: As global demand continues for building materials, the cost of new construction will increase. The reuse of existing buildings will become relatively more affordable. Beyond traditional historic properties, reuse opportunities will become increasingly attractive for post-1950 buildings, including high rise office buildings that were constructed during the 1970s and 1980s.

Incorporate sustainability as part of the downtown brand: With compact urban environments that include business, education, health, culture and living assets, downtowns offer inspiration and relevancy to emerging generations and the economic model for a sustainable future.

Stay on the leading edge of social equity issues: With income inequality a growing national concern, and urban areas prospering from global trends, there will be increased pressure on downtowns to plan for and participate in social equity solutions. By bringing private sector perspectives, downtown management organizations are in a unique position to offer balance in the social equity dialogue that will include housing, wages, education, homelessness and other topics. Downtowns can bring leadership, research capabilities and policy options to this emerging trend.

TOP 10 GLOBAL TRENDS AFFECTING



DEMOGRAPHICS

1 Changing American Demographics

There are now four generations shaping American cities, including Baby Boomers (born from 1946 to 1964), Generation X (1961 to 1984), Millennials (1977 to 2003) and Gen Z (1996 to present). Each generation has been influenced by historical events, technology and other environmental factors.

- America's 76 million Baby Boomers are better educated, healthier and wealthier than all previous generations. Given their sheer numbers, they have created an unprecedented boom in American production and consumption.

Now they are entering their retirement years, and while they are more physically active than prior generations, they will create enormous demands on the health care system. Recent erosion in home equity and retirement fund values have reversed past mobility trends for Baby Boomers, and now more are expected to retire later and to "age in place."

- The 53 million individuals of Generation X, once known as the "slacker generation" for their cynicism and bitterness toward Baby Boomers, are maturing with the majority of them now married with children. Generation X households have the most post-recession disposable income and now comprise the largest group of recent home buyers. Generation X is approaching its prime time with opportunities to move into leadership and decision-making positions as Baby Boomers start to retire. Employment prospects are good for Gen X'ers, given that this generation is two-thirds the size of the Boomers.

- America's 77 million Millennials, brimming with optimism and a strong sense of social activism, are now

Millennials, who today comprise 36% of the workforce, will make up 50% of the workforce by 2020.

aiming to build careers. Connected to technology from the crib, Millennials are true multitaskers and drivers of technological innovations that include social communications and smart phones. Millennials are used to a wide variety of choices and the ability to personalize and customize, not only consumer goods but ideas as well. Millennials are the most culturally diverse generation and are a factor in increasing racial diversity and acceptance in American cities. Fifty eight of the largest 100 American cities are now majority minority, compared to 43 in 2000.

- The Gen Z's eldest are now entering college, and where Millennials are optimistic, Gen Z are more realistic. They've grown up in a post 9/11 world, the Great Recession and continuous reports of school violence. These events make them more cautious, however they are inspired to improve the world. Gen Z is ushering in the most dramatic demographic shift in American history; the displacement of whites as the majority racial group resulting in the shift to a society without a clear majority group. By 2018, children under 18 will be majority-minority and there will be no racial majority in the U.S. by 2042.

Other notable demographic shifts find Hispanics emerging as the largest ethnic group in American cities (26% of urban dwellers are Hispanic vs. 22% for African Americans).

2 Education, Talent & Jobs

The connection between education, talent and jobs emerged in the last edition of P.U.M.A.'s Global Trends Report. While there are plenty of available workers in the post-recession economy, employers are having trouble filling certain types of jobs due to widening skills gaps. Sought after employees are becoming harder to find; the labor pool is shrinking because experienced Baby Boomers are beginning to retire and the rate of immigration has slowed. Twenty million jobs will be created through 2020, creating more jobs than there are skilled workers to fill them.

A competitive advantage is already placed on "the talent dividend," or the concentration of highly skilled employees in cities. Cities that cultivate and are able to fill mid- and high-wage

jobs are in the best position to economically flourish. Increasingly, young highly educated adults are choosing to move into cities. Since 2000, in more than two-thirds of the nation's largest cities, the young college-educated population grew twice as fast within three miles of the urban core as in the rest of the metropolitan area. Companies will be under increased pressure to consider operating in city centers as the limited supply of this talent niche becomes more urbanized. Additionally, Millennials, who today comprise 36% of the workforce, will make up 50% of the workforce by 2020.

Communities that are home to large educational institutions will enjoy economic advantages. During the recession, foreclosure and unemployment rates were generally lower in college towns. Educational institutes can also help bridge the skills gap in the cities in which they are located.

Immigration, one of our top trends from P.U.M.A.'s original Global Trends Report, will continue to be a factor in building a highly skilled labor force. College educated immigrants now outnumber those without a high school diploma in 44 of the 100 largest metropolitan areas. In 2005, foreign-born individuals represented one in eight Americans. That number is anticipated to increase to one in five by 2050.

3 The Influence of Women

Since the first edition of Global Trends, the influence of women on shaping cities and downtowns has continued to grow. The year 2009 was a landmark, marking the first time that more women were employed in the U.S. labor force than men. In the following year, two-thirds of family households had women who were either breadwinners or co-breadwinners.

Women are anticipated to dominate professional occupations in the future and have been outpacing men in educational attainment since the 1970s. In 2011, women received 57% of all bachelor's degrees, 60% of all master's degrees and 51% of all doctorate degrees. To fortify their position as hubs for commerce, downtowns must offer environments that appeal to professional women. Vibrant mixed-use environments can fulfill diverse needs that include shopping, socializing, grooming, childrearing and other household activities.

TECTING DOWNTOWNS

Single Boomer women are emerging as an economic power, as they outlive their spouses or have separated from them. Many are favoring cohousing or house sharing, where two or more singles move in together as housemates. With homeownership being very important to Boomer women, they are the second largest segment of homebuyers in the U.S. and account for 20% of home purchases.

Despite the growing importance of females in the workplace, they have not yet achieved comparable significance in the corporate, political and design-related professions that influence the shape of cities. The percentage of female mayors of cities with over 30,000 people is 17%, only 18% of lawmakers in Congress are women and six states have female governors. In the design professions, less than 15% of architects and 37% of planners are female. However, these imbalances are subject to change as 45% of master degrees and 46% of doctorate degrees in architectural and planning services were received by women in 2012.

The national and international political landscape is expected to change as more females are drawn to elected office. Female political priorities differ from those of men with an emphasis on economic development, environmental issues and health care.



LIFESTYLES

4 Changing Consumer Behaviors

The Great Recession has ended and while consumer expenditures have reached pre-recession levels, consumer confidence remains low. The

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pre-recession era of impulse-driven conspicuous consumption appears to be over, replaced by more practical and deliberate spending. The factors determining value now include quality, functionality and convenience, environmental and social considerations.

Boomers are facing the prospect of working longer and retiring with smaller nest eggs than they expected pre-recession. Those in Generation X are in the process of rebuilding their wealth while at the same time supporting households. With their entrance into the workforce and their desire to live in an urban setting, Millennials will be the driving force behind consumer spending and the sharing of goods and services in downtowns.

Technology is changing the shopping experience and will continue to do so as businesses adapt new technologies to make shopping more convenient. Mobile payment applications, location based coupons, and in-store virtual dressing rooms are creating an improved experience for the customer. While online sales are increasing, they still account for a small portion of total retail sales. In 2013, online sales only accounted for 6% and are expected to account for 10% by 2017.

The growth of the "sharing economy," where social networks allow individuals to share, rent or resell their belongings, is flourishing in high density urban areas. Sharing applications now include cars, workplaces, hotel lodging and household tools and appliances, and are expected to grow over time.

As downtown populations increase, the demand for a wide variety of retail has grown. This has influenced big-box retail companies to re-examine their store formats. Grocery retailers are starting to adapt as more consumers (especially Millennials) living in downtowns demand more organic and natural foods.

5 Shifts in Transportation & Mobility

P.U.M.A.'s first Global Trends Report focused on traffic congestion and the value of time. Since our second report in 2011, we've seen significant changes in transportation preferences. Congestion remains a significant factor on

American highways as the average commuter in the 100 largest cities loses an average of 39 hours per year sitting in traffic going nowhere, compared to 14 hours in 1982. Congestion has stabilized in the past several years and vehicle miles traveled has for the first time decreased between 5% and 9% from 2006 to 2011, a factor of the recession, telecommuting, aging Boomers and emerging trends in mobility.

Vehicle expense and demographic changes are shifting behaviors away from autos.

Car and bike sharing programs have been adopted in many cities across the globe. Today, 500 cities in 49 countries host modern bike share programs, the fastest growth of any mode of transport in the history of the planet. Value premiums are being placed on urban living environments where residents can walk, bike or take mass-transit to work, shopping and recreation. "Walkable real estate" can command value premiums of 50% to 100%. Increasingly, cities are using their "walk scores" as a measure of economic competitiveness.

America's two largest demographic groups – Baby Boomers and Millennials – are primarily responsible for changing transportation habits. Boomers are simplifying and downsizing households, often moving to walkable urban areas. Millennials, many of whom grew up being taxied in the back seat of their parent's car, are seeking walkable and social environments. The share of automobile miles driven by persons in their 20s has dropped precipitously over the past 15 years: this age group accounts for nearly 21% of all automobile miles driven in 1995, but less than 14% by 2009.

Local, state and federal transportation priorities are changing to favor bike lanes, more walkable communities, light rail, high speed trains, streetcars and the like. In 2012, 130 communities adopted "Complete Streets" policies that encourage modes beyond cars, bringing the national total to nearly 500. Public transit continues to be an economic building block as more than 80 cities in the U.S. and Canada are exploring new streetcar and/or rail systems.

"Walkable real estate" can command value premiums of 50% to 100%.

6 Health & Wellness

Prior editions of P.U.M.A.'s Global Trends Report focused on the growing imbalance between the demand for and supply of American health care. As the number of people over the age of 65 is expected to grow to 70 million by 2030, greater demand will be placed on the health care profession (persons age 65 and over generate three times more doctor visits than younger persons). With half of U.S. doctors over the age of 50, their pending retirement coupled with declining enrollment in health care education is expected to create a shortage of health care professionals. The Affordable Health Care Act and expansion of Medicaid is accelerating this imbalance, adding an estimated 32 million persons to insurance rolls by 2020.

The health care industry will continue to experience significant growth and have an increased economic impact on cities. Employment opportunities and upgraded infrastructure will strengthen the role of health care institutions as economic anchors and civic leaders.

The connection between health and the built environment is an emerging trend, propelled by a national awareness toward the rise of chronic conditions such as obesity. The real estate market is catching on to the preferences of Millennials and Baby Boomers for healthier lifestyles, demonstrated by the Urban Land Institute's global focus on building healthy places. Cities are responding with policies and incentives to shape walkable and bikeable communities, eradicate food deserts and improve access to healthy food.

Creating opportunities for cities, the locavore movement continues to grow, and studies find that the overwhelming majority of urban dwellers will pay a premium for locally grown food. The concept of urban agriculture is being embraced, community gardens are increasingly popular and agricultural conversion is a viable option in shrinking cities and suburbs.

7 Rise of Regionalism

When we first published P.U.M.A.'s Global Trends Report, the share of the national debt for each American was \$29,000. Seven years later, that number is nearing \$55,000 and growing. And while policymakers are focused on corralling America's debt burden, the demographic imbalance between retiring Baby Boomers and working Gen Xers and Millennials makes this a daunting task. Medicare and Medicaid obligations continue to grow as the

largest share of the federal budget. To support Social Security, the second largest share of the federal budget, there were 16 workers for each pension recipient in 1950, and by 2030, there will be only two workers for each recipient.

Acknowledging the debt burden and its role in constricting the ability of the federal government to invest in infrastructure, education and innovation, this trend was renamed "The Age of Austerity" in the 2011 edition of P.U.M.A.'s Global Trends Report. Today, a dysfunctional and polarized political climate in Washington adds the dimension of paralysis, prolonging an ominous trend for limited federal response.

Unlike the federal government, most states and local governments must operate with balanced budgets. Cities and counties are partnering with private companies, universities, hospitals, unions, and other institutions in order to make things happen. An emerging trend of regional collaboration and investment marks a historical shift in taking on responsibilities once reserved for higher levels of government. For example, cities like Los Angeles, Denver and Chicago are largely self-financing their regional transit systems instead of waiting for federal funds. A variety of tools are being mobilized to finance local and regional investments in infrastructure, education and innovation. Regional bond and tax initiatives, infrastructure banks and public/private partnerships are reshaping how public works are constructed.



GLOBAL COMPETITION

8 Shift in Global Wealth

In prior editions of P.U.M.A.'s Global Trends Report, we looked at consumption patterns in China, India and other emerging economies around the world and their impact on American cities. As the global economy

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recovers from the economic downturn, a dramatic rise in personal wealth is creating a rapidly growing international middle class. In a world of interconnected parts, America's ability to chart its own destiny continues to diminish.

The recession accelerated the relative growth of emerging economies (led by China,

India and Brazil) while creating a prolonged period of economic stagnation in advanced economies (U.S., Europe and Japan). China eclipsed Japan as the world's second largest economy, and as its middle class grows, individual purchasing increases and its population continues to urbanize. China's relative consumption of global commodities continues to increase (59% of global concrete in 2011 vs. 47% in 2005, and more than 24% of global car sales in 2011 vs. less than 1% in 2000).

It's not just China that is becoming wealthier. Rapidly rising consumption patterns are also evident in Brazil, Mexico, Indonesia, South Korea, Turkey and Russia as well as other emerging economies. 20% of the world's people in the highest income countries account for 86% of total global private consumption - the poorest 20% only represent 1.3%. The size of the "global middle class" will increase from 1.8 billion in 2009 to 3.2 billion by 2020 and 4.9 billion by 2030. A majority of this growth will be centered on Asia, with 66% of the global middle class living on that continent by 2030.

Emerging economies are largely unencumbered by debt and most are led by strong central governments that will invest heavily in infrastructure, education and innovation. Continued global growth will also place upward pressure on the prices of commodities and resources, making land use patterns that promote sprawl and vehicle use increasingly expensive.

9 Continued Advances in Technology

As cited in the 2011 edition of Global Trends, the expansion and advancement of mobile technologies continues to have profound implications for cities. The projected number of mobile connections (7.4 billion) is expected to be more than the projected global population (7.2 billion) by 2015.

The ubiquity of mobile devices has resulted in an emergence of apps for real-time, up-to-date information. For example, mobile apps allow drivers to change their routes in real

time and to show current parking availability throughout cities.

Municipalities are capitalizing on mobile apps and the Internet to provide transparency in public processes and better engage with citizens. "Digital meeting halls" are likely to be used increasingly as Generation X and Millennials become more involved in planning and other civic pursuits.

Mobile devices are continuing to diminish the importance of static office locations, allowing for connections anywhere anytime. Office space configurations are changing, with reduced space needed to conduct business, plus greater utilization of space beyond traditional eight-hour workdays. To attract young skilled employees, office design will increasingly combine business and social functions – a growth of mixed-use principles within buildings as well as outside of them. The growing popularity of "co-working" spaces are reflective of these trends.

Tech giants are experimenting with augmented reality products, providing computer-generated sensory input such as sound, video, and GPS to enhance one's own environment. Smart technologies will supplement mobile devices, cars, buildings, and other elements of the built environment to enhance the quality of life in cities. With real-time data-intensive smart technologies, apps, cloud storage, and sharing, cities are under pressure to make high-speed Internet access faster and free to the public, similar to over-the-air television.

Advances in 3D printing technology may radically change manufacturing processes, adding another advantage to clusters of innovation in cities. Traditional manufacturing relied on testing of prototypes and the creation of massive industrial infrastructure for production. 3D printing allows for customization in both prototypes and production, drastically cutting manufacturing costs and timing.

10 Social Equity – The Neglected Pillar of Sustainability

Since the first edition of P.U.M.A.'s Global Trends Report, the majority of the planet now lives in cities, as opposed to rural areas. Cities today house 3.5 billion people and an additional 3 billion will urbanize by 2050, resulting in more than two-thirds of the world population living in cities. Resource consumption at current levels could result in annual demands of 200% of the Earth's overall bio-capacity, its ability to meet human needs with biologically productive lands and oceans, by 2050.

Cities provide a beacon of hope for encouraging more sustainable patterns of development. Currently, America's 100 largest metropolitan areas account for 75% of the nation's economic output with 56% of the country's carbon emissions. American cities are innovators in sustainability policies, encouraging LEED and "Net Zero" certified buildings and innovation in green technologies.

While there is broad understanding of the economic and environmental aspects of sustainability, its third pillar, social equity, is largely neglected. As global trends have benefited cities in recent years, we have seen a migration of largely upper income professionals to live in downtowns. At the same time, income inequality in the United States is at its most extreme since 1928. Today, the top 1% of American households earn 22.5% of pre-tax wealth, while the lower 90% of American households earn less than 50% of pre-tax wealth for the first time ever.

Economists debate whether income inequality impedes overall economic growth, but it can pose challenges for cities. Many urban areas are on the verge of becoming enclaves of the rich, unable to house or sustain service workers or middle income professionals such as teachers and nurses. Young skilled Millennials, the raw material needed to grow a professional downtown workforce, are finding it increasingly difficult to afford urban lifestyles.

Cities, once the gateway for the "American Dream" of upward mobility, may have difficulty in delivering this hope in the future. A landmark 2013 study found that income mobility is more problematic in sprawling economically segregated cities than in high-density urban areas with mixed incomes. Downtowns may need to be more proactive in promoting affordable housing, better wages and quality schools, or expect a rising tide of civic activism to demand them.



Researchers for Global Trends

Research for P.U.M.A.'s Global Trends Report 2014 was undertaken by 22 graduate students in the fall 2013 economic development systems class at the University of Colorado Denver College of Architecture and Planning, Master of Urban and Regional Planning (MURP) program. The MURP program counts over 1,300 alumni and is the largest planning program in the Rocky Mountain region. Located in the heart of Downtown Denver, we use Colorado as our classroom and emphasize experiential, hands-on, real-world learning. Our teaching, research and community engagement center on three issues at the forefront of planning practice: Healthy Communities, Urban Revitalization, and Regional Sustainability.



From left to right: Brad Segal, co-lecturer, Elizabeth Fuselier, Watkins Fulk-Gray, Ryann Anderson, Hamad Basaeed, Matthew DuBose, Bradley Boland, Dylan Grabowski, Preston Nakayama, Tim Camarillo, Eugene Howard, Clayton Cross, Jose Juarez, Lisa Steiner, Adam Rolstad, Brandon Shaver, Riley LaMie, Matthew Christoff, Cory Hoerner, Craig Fisher, Elizabeth Gwinn, Kent Wimbush, Robert Ng, Anna Jones, co-lecturer

Research was verified, supplemented and edited by P.U.M.A.'s Rena Leddy and Erin Laetz. P.U.M.A.'s Brad Segal finalized the report. Supporting research for P.U.M.A.'s Global Trends Report 2014 and information on public presentations are available by contacting us at www.pumaworldhq.com

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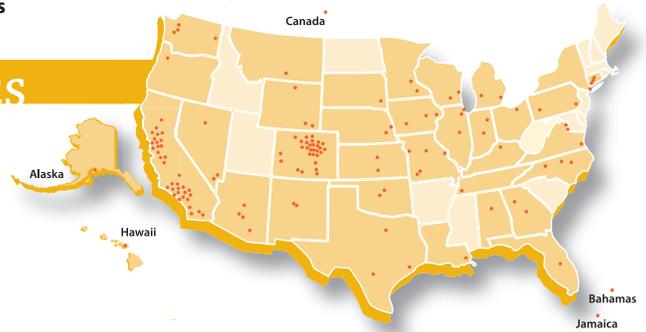
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