



# THOLONS

Consulting | Digital | Research | Capital

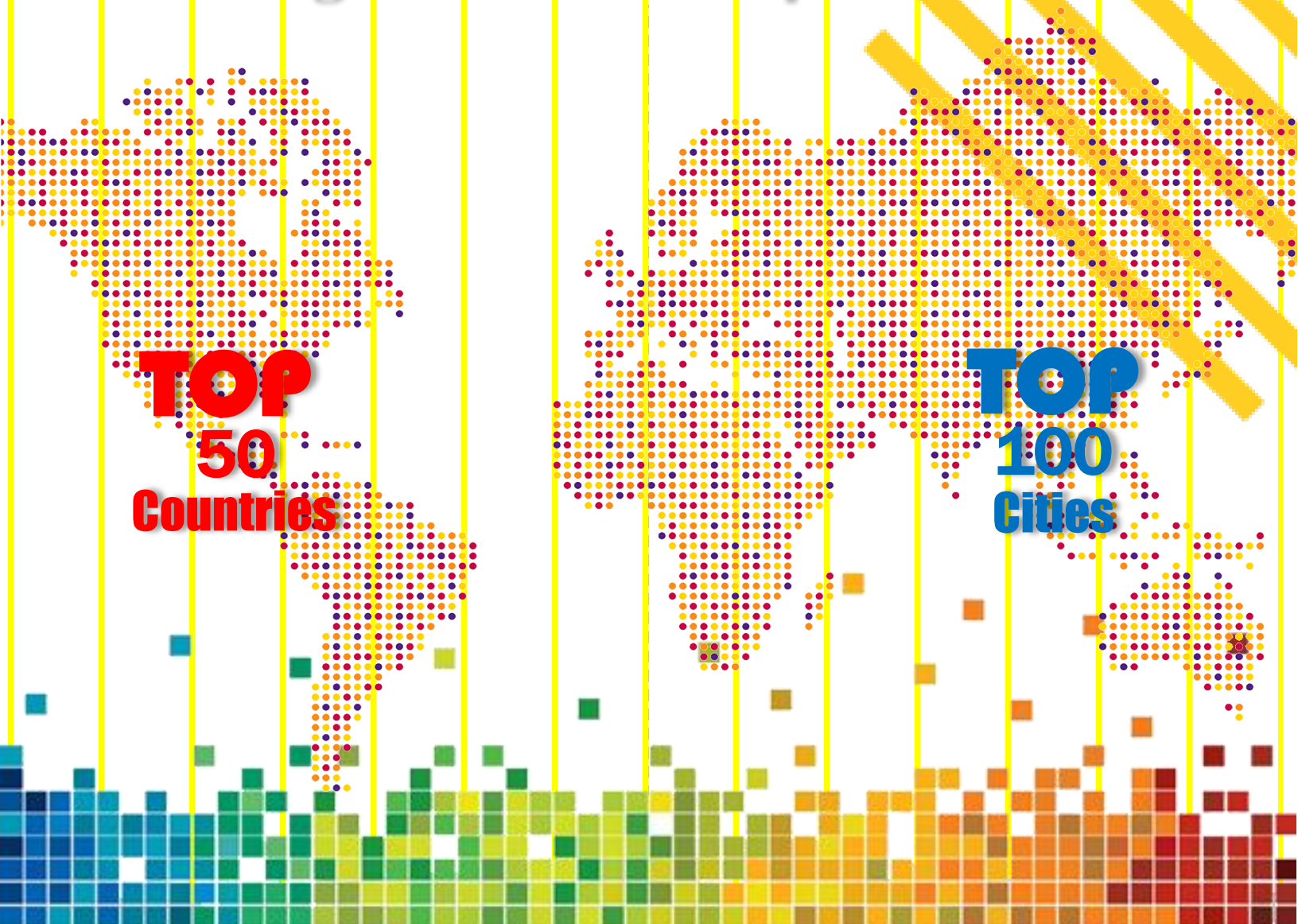
## Tholons Services Globalization Index™ 2017

# DISRUPTION BY DIGITAL

**Digital Nations** & **Super Cities**

**TOP  
50  
Countries**

**TOP  
100  
Cities**





**Avinash Vashistha**  
Chairman & CEO  
Tholons Inc.

Tholons is pleased to present its perspective on how digital is changing the industry and picking leaders, disruptors and innovators that will define the future of economies and growth markets.



**Fabrizio Operti**  
Chief

Trade and Investment Division, IDB

It is good to see Latin America emerge as the fastest growing region globally in services globalization. Entrepreneurs, innovative startups, strong collaboration and support from private, public partnership is driving transformation of industries and business growth.



**Kerry Hallard**  
President & CEO

Global Sourcing Association - UK

Major enterprises across all industries in UK, Europe and globally are looking for partners to help transform their businesses through Digital Innovation. Solution providers that engage with clients on automation, analytics, and artificial intelligence will drive transformation and growth to build smart enterprises.



**Richard Jones**  
Chairman  
Proxima

Innovation and Digital will accelerate transformation of industries. The future of sourcing will be defined by automation, artificial intelligence, collaboration and co-innovation.



**Kitade Y**  
Managing Director  
Global Initiative Inc. - Japan

Countries like US, Canada, UK and Japan are claiming their leadership through Innovation and transformation of industries. Clients look for the ability of consulting companies to help them think through "what" and "why" of disruptive transformation.



**Warren Gallant**  
Founder, TPI

Member of Board, Tholons

I have been at the heart of Outsourcing, Globalization and now Digital Transformation for the last three decades. Digital Innovation is giving clients an opportunity to redefine customer experience and built smart and intelligent enterprises.



**Dawn Tiura**  
President & CEO  
SIG

SIG, the world's largest sourcing association representing global 1000 companies, has seen a tectonic shift in what members are looking from the service providers and consultants to be their strategic partner to grow and help them emerge as leaders in this age of disruption by digital.



**R. Chandrasekhar**  
President  
NASSCOM

India always had all the right ingredients to be the global leader in services; with a robust talent pipeline, strong mentorship and a business oriented outlook; Automation & digital innovation are the flavour of the industry today, and the youth should leverage the opportunities available in the market and skill themselves accordingly. Our various initiatives in digital innovation, transformation and re-skilling will enable us be strategic transformational partner to global and domestic clients, helping us maintain our leadership in the domain.



**Jonathan De Luzuriaga**  
President  
PSIA/IBPAP

The Philippine Software industry / IBPAP has helped transform companies around the world through their Digital Transformation journey. As a nation, we are strongly pursuing Start-up and open innovation initiatives to realize the shift from Services to Products, creating a more compelling value proposition for our country and clients.



## Tholons Services Globalization Index - 2017

Tholons Services Globalization Index has transformed after a decade of thought leadership! The index evaluates ranks and provides location strategies to countries, governments, multi-lateral agencies, multinational corporations, analysts and investors. Digital is now a critical element in disrupting and transforming industries globally. Technology, Business process management companies and multinational corporations need to align with the stark reality of digital innovation and transformation. For the biggest leaders in Services globalization like India, Philippines, East Europe, most of their services will be commoditized. Digital transformation of clients and them asking for new services like mobility, analytics and cyber security cannot be delivered using the traditional business model. Secondly the undergoing automation of work like applications management, infrastructure support and testing, are reducing or in some cases eliminating the need for manpower. These forces will severely affect the IT service companies

Tholons introduces innovation, startup ecosystem and digital transformation as a key component to define its index for Digital Nations (Top 50) and Super Cities (Top 100). Tholons is pleased to present its perspective on how digital is changing the industry and picking leaders, disruptors and innovators that will define the future of economies and growth markets.

## The Big Change



Digital and Innovation are disrupting major industries, challenging incumbents and reshaping markets faster than any force in history. The big change is a certainty! The global digital technology and business process management spend of \$2.4 Trillion is being hammered by digital. There is an additional \$14.4 Trillion opportunity being created by the combination of increased revenues and lower costs that is migrating among companies due to digital technologies. Traditional businesses are becoming technology businesses. prominent examples being Uber and



Airbnb, which are taking revenues away from Taxi services and Hotel industry. This increased innovation and digital transformation will swell up spending annually from \$2.4 Trillion to \$3.8 Trillion giving a significant jump in the opportunity to new age tech companies, new age super cities and digital nations, that have no legacy baggage.

Today, global sourcing spend of \$183 Billion is seeing a significant slowdown. Major technology businesses are seeing employee number growth being disconnected to revenue growth. Yes, nonlinear growth is here! However, clients and service providers seem to be lost as to how best is to bridge disruption into transformational opportunity.

Major digital forces are shaping the opportunity and future. Robotics, Artificial Intelligence (AI), Social Media, Cyber Security Risks, Big data, Mobility and “As a Service” are transforming all industries faster than anyone of us can comprehend, strategize and manage.

More than half of workforce in IT/ Business Processing in leading traditional outsourcing locations will become irrelevant in coming few years unless significant reskilling is done. And for an industry this large, making this gigantic shift will be a challenge.

## **Automation, Robotics, AI, Cognitive Computing**

The workplace has changed. More and more tasks are being automated and there is an emergence of robotics workforce – “Roboland”. Companies that reimagine their workforce and effectively blend humans and technology as partners will establish a strong competitive position in the years ahead. Cognitive computing and Artificial intelligence is a force multiplier in the customer value delivery model. To realize the enormous potential of humans working together with technology, companies must emphasize retraining, helping people gain the skills needed to complement machine capabilities.

## **Digital Trust, Resilient Architecture and Active Defense**

Expectations and responsibilities around digital trust between applications and enterprises are rapidly evolving for consumers, businesses, and governments. Discussion around IT security is now a much broader responsibility for all stakeholders including board members in large corporations. Today’s technology needs to uphold privacy, deliver benefit in exchange for use of personal data, profile and demonstrate accountability. Strong digital trust will help brands attract and retain customers, deliver new products and services and position brands well in the larger value chain of goods and services. Traditional defenses such as antivirus and network firewalls



have failed to stop the continuous stream of breaches. Cyber-security and business risk management is now a board agenda.

## Big Data and Analytics

Big data is the “new oil”. It is the raw material for a digital economy. High volume, velocity and variety of data from company’s websites, Social Media, Sensors etc. has become a tool for businesses to get insight about customer’s needs and behavior. Companies continuously look for data about their products, solutions, customers and employees that can give them an edge over the competitors. Massive inefficiencies in processes can be eliminated using big data analysis. To remain competitive companies are using data to identify opportunities, predict risks and problems before they occur.

## Data Supply Chain

Enterprises data ecosystems have become complex and are in silos. This makes the data more difficult to access across the process, which in turn limits the value that organizations can get out of it. The challenge we face today is linking and efficiently feeding that supply chain. There’s been a lot of focus and innovation on the front and back ends of the data supply chain. Storage, which was once considered a prohibiting factor, has largely been solved thanks to solutions such as Amazon AWS. On the other end, there are hundreds if not thousands of companies creating algorithms and cognitive computing solutions that are focused on Business Intelligent (BI) and AI leveraging big data to drive marketing.

## As-a-Service

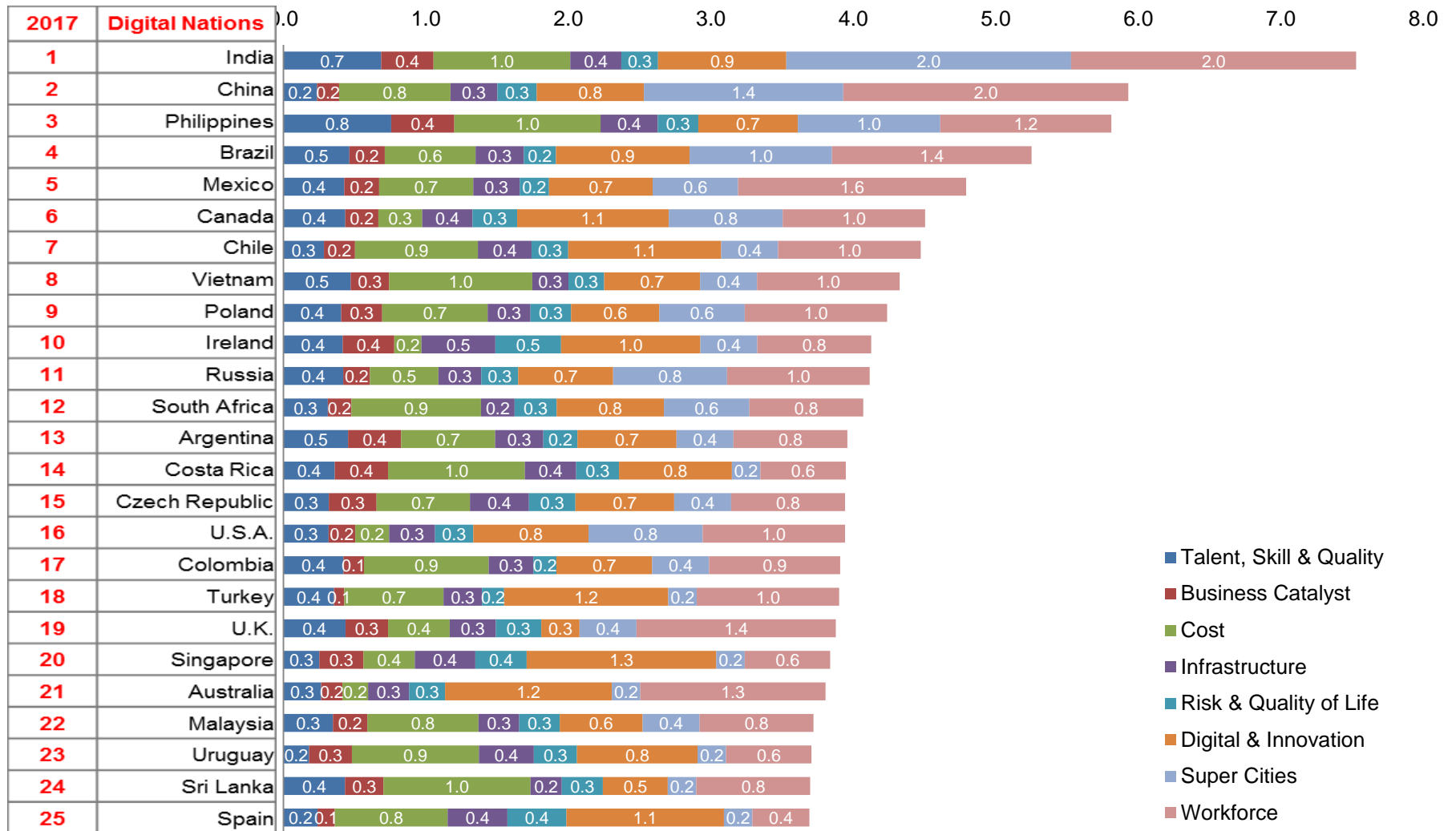
Businesses are increasingly moving to provide utility plug-n-play services through platform. Enterprises can plug into a service experience that delivers high quality, reliable, standardized execution combined with analytical, context-based results. This transition to As-a-Service removes unnecessary complexity and makes way for a smarter way of running a business.

A-a-S can unlock an enormous potential for growth in enterprise services by dramatically expanding the customer pool to smaller and midsized clients, as the costs required to accommodate additional customers and volumes is minimal.



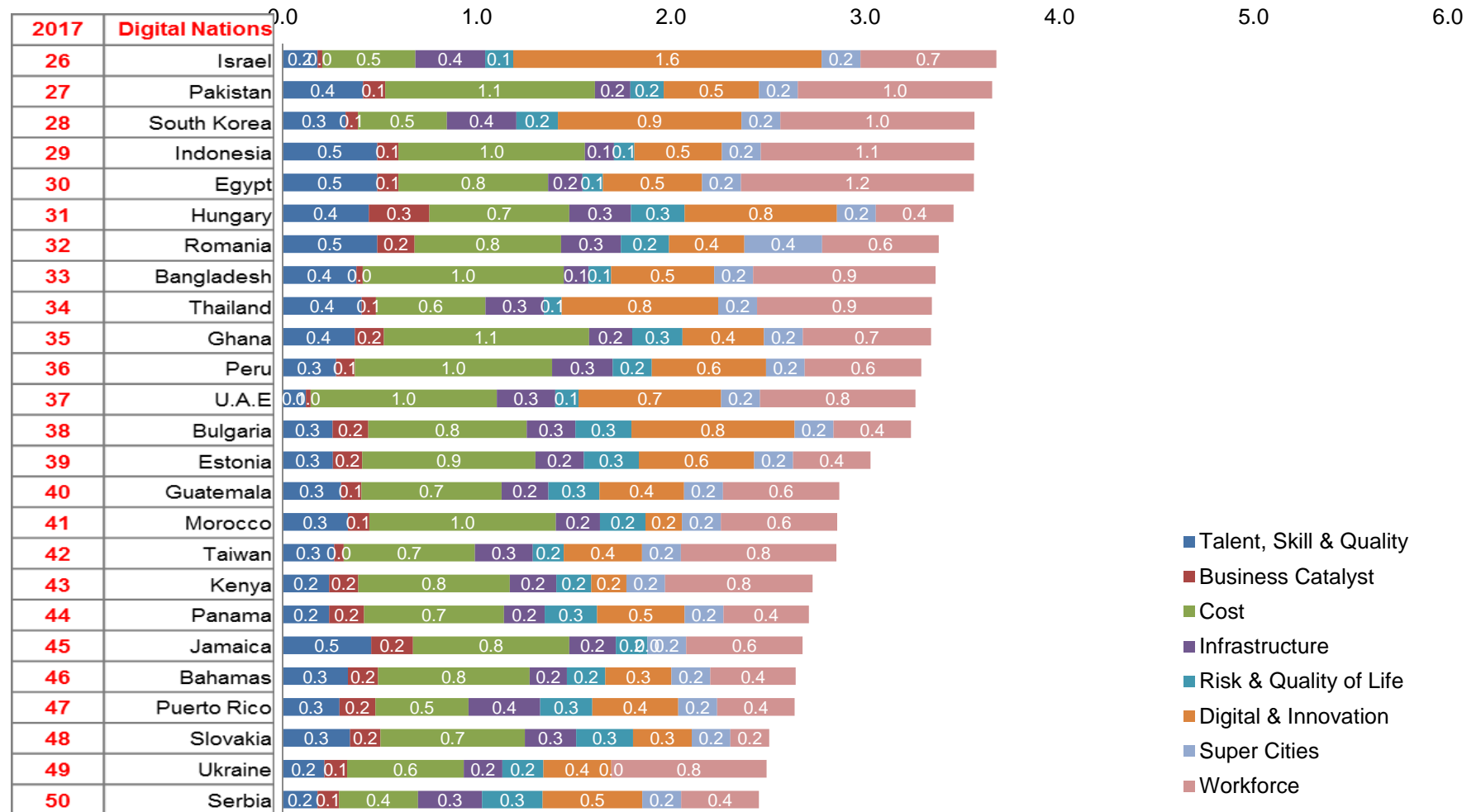


# Tholons Services Globalization Country Index



- Talent, Skill & Quality
- Business Catalyst
- Cost
- Infrastructure
- Risk & Quality of Life
- Digital & Innovation
- Super Cities
- Workforce

# Tholons Services Globalization Country Index



## “Digital Nations” Leaders

Tholons defines leaders as countries / cities who have established leadership and a sizable revenue base in services globalization over the last two decades.

### India



14 Super Cities

5000+ Start-ups

IT Industry with over US \$150 Billion Revenues

Undisputed Leader in Tech and BPM

India has consistently been a leader with over 10 cities in our Super Cities rankings. It is the undisputed leader in Tech and BPM for clients for over two decades now. It is emerging as the leading location for digital skills and solutions to Multinational corporations (MNC). India has a vibrant startup ecosystem with over 5000 startups. Bangalore is the leading hub in digital, innovation and startups followed by Mumbai and Delhi. The Indian startup ecosystem has seen significant activity in terms of growth of number of startups, funding and emerging unicorns. Government initiatives like Startup India, Digital India and tax breaks, government support being provided to startups will help Indian startup ecosystem to power the competitiveness of India globally. India has 9 startups who have emerged as Unicorn over the last few years. Being supported by angels like Indian Angel Network, accelerators like NASSCOM 10000 Startups and Venture Capital Funds like Sequoia Capital, Accel Partners, the future of startup and digital space in India looks bright. IT Industry is an icon for India with over \$150 Billion revenues. The industry seems to have been jolted and has clearly slowed down in the past year. However, with the global spend moving up from \$2.4 Trillion to \$3.8 Trillion as a result of digitalization of industries, the opportunity is unlimited. India needs to re-imagine its business model to sustain its leadership and accelerate to grab the newfound territory!





## Philippines



Home to major Multinational Corporations & GICs

High Literacy Rate – 95%+

One of the World’s Largest English Speaking Nations

Undisputed Leader in Customer Service & BPM

Philippines has been the undisputed leader in customer service, BPM and is home to major multinational corporations and GICs. English fluency among the youth, cultural affinity to US/UK and the growing influence of MNC operations on the country’s economy is significant. The city of Manila has become the focus of operations for various industries and has long back challenged Bangalore, Mumbai and taken the lead in BPM. Philippines has a high presence of growing youth population. Furthermore, the country has a substantially high literacy rate (95%), an estimated 30% graduates are employable and is one of the world’s largest English speaking nations. Leading MNC and GICs have made Philippines a hub for digital process innovation. A number of companies are leaders in putting robotics workforce and process simplification through digital. Having said this, the industry is probably the most susceptible to the digital onslaught and needs to have a sense of urgency to re-invent itself in this age of digital disruption.



## “Digital Nations” Disruptors

Tholons defines disruptors as countries / cities who have made their presence known by disrupting the leaders’ base and are well positioned to accelerate their growth.

### Canada



Proactive Support from Government.

4 Unicorns

3000+ Startups

Topped Bloomberg’s 2015 Innovation Index

The Startup Culture is well established in Canada. Startups are successively raising Series A, Series B and Series C funding. The availability of venture capital in Canada has changed dramatically over recent times. British Columbia, Quebec and Ontario are progressive provinces leading the charge in venture investments. There are various initiatives by government to nurture and support startups like Investing in Business Innovation (IBI) and SmartStart Seed Fund. The fast growing startup ecosystem of Canada already has 4 unicorns and over 3000 startups. Its competitive cost, ability to attract talent and proximity to the largest economy (US) gives it a significant advantage and is positioned well to challenge and step up to disrupt established leaders.



## Israel



Multiple Successful Startups – A Startup Nation

R&D Hubs in Universities with great Incubation Centres

250 Global Companies / 100+ Fortune 500 Companies

Driving Industry Focused Innovation

Israel, sometimes referred to as a “Start-up Nation”, has made commendable strides in innovation and birth of many successful startups. Research and Development hubs in universities like Hebrew University, Tel-Aviv, and Ben Gurion University are great incubation centers driving innovation. Like the United States, Israel is bringing development and research work done at defense institutions to drive innovation and entrepreneurship.

There is engaging support for entrepreneurs from venture capitalists, accelerators and startup programs like Our Crowd, WeWork Israel, South of Salame (SOSA), CyberSpark etc. With the presence of companies like Huawei and Samsung, there has been a substantial increase in Chinese and Korean players as well. The country has more than 250 global companies that have R&D labs, with over 100 Fortune 500 companies. There is an atmosphere of openness and collaboration which is what start-up eco systems thrives on.



## “Digital Nations” Innovators

Tholons defines Innovators as countries / cities who have demonstrated their innovation capability and are at the verge of significant growth in this transformed world of services globalization.

### Brazil



25% of the workforce are self employed

Potential quality infrastructure with high tele-density

Big companies to open Technology Hubs

Industrial powerhouse of Latin America

Brazil was perhaps been the most exciting growth market for entrepreneurship and tech innovation. Over 25% of the workforce is self-employed and small businesses account for  $\frac{2}{3}$  of private sector job-growth. However, Brazil's fortunes have seen significant turmoil in recent times. Brazil's potential is enormous and a period of stability can return it to return to the forefront of development and innovation.

Brazil's size and quality of infrastructure are the major plus. For one, it has extremely high tele-density. Combined with its large and skilled workforce tele density ensures a reliable pool of top tech talent. Entrepreneurs also have support from the government. The Brazilian government is looking to reduce its dependency on volatile primary resource markets such as mining and coffee, and investing in human capital and small businesses. The Brazilian government understands this and is working with large corporations to open tech hubs in major financial districts like Sao Paulo, San Pedro and Rio. This major investment is also helping stem the brain drain and keeping top talent within Brazil. The country stands to keep driving innovation, entrepreneurship and has the potential to disrupt leaders in growth markets.



## Chile



The “Chilecon Valley” with 1,500+ Start-ups

Government initiated 50+ programs to encourage new business

1000+ Companies from 40 Countries participated in Startup Chile

The Innovation Hub of Latin America

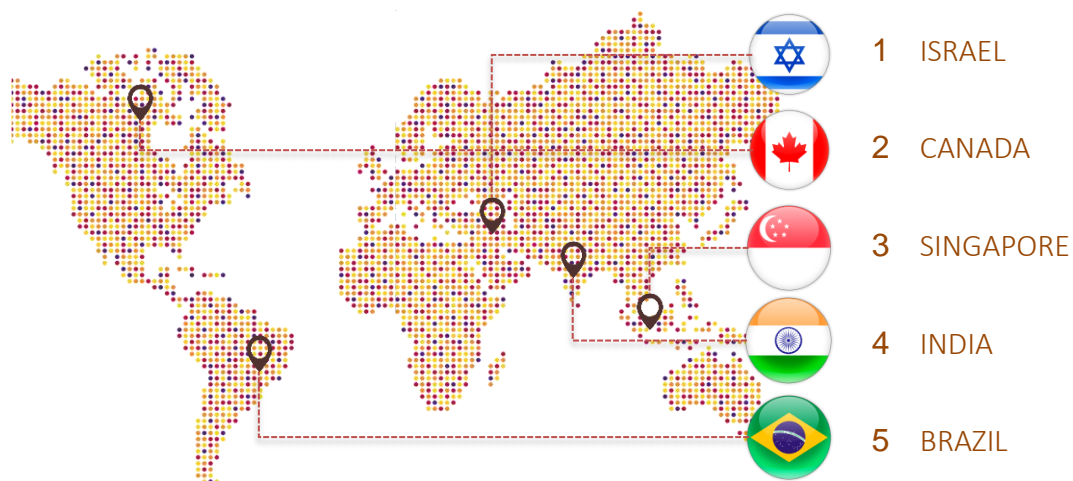
Chile long back established itself as most stable and suitable place to set up and do business in Latin America. The start-up ecosystem in Chile as it is rightfully called — the “Chilecon Valley” has over 1,500 Startups. The Chilean Economic Development Agency (CORFO) provided grants to over 1300 startups. Chilean Government has initiated more than 50 programs to encourage new businesses. Start-Up Chile is one of the most successful initiatives. It offers an equity-free grant and six months mentoring. Over 1000 companies from 40 countries participated in this program. Chile is on a fast track and has a strongest potential to accelerate innovation, entrepreneurship in growth markets.



## Pure Play “Digital Nations”

Services Globalization has been dominated by players like India, Philippines and China over the last two decades. This leadership has been defined by scale and cost of skilled talent pool. This has also created thousands of “Pure Play” IT/BPM companies across the globe. Digital has disrupted the business of Pure Play IT/BPM service providers. The future of services globalization will be defined by “Pure Play” Digital Nations.

According to Tholons research, the top 5 “Digital Nations” will be Israel, Canada, Singapore, India and Brazil.



### 1. Israel



Israel has several unique advantages over other offshoring countries. Its close ties with the American government and American companies means that it has a very large pool of investment capital. This also has a positive effect on the quality of its education, which ensures the constant outflow of tech talent for the startup and innovation industries. This relationship is further fostered by the Israeli government who have established large incubation centers in central universities to help encourage entrepreneurship from young talent. Furthermore, huge government spending and foreign aid, especially in defense, is partially filtering through to the tech sector as developments in the former can be used by the latter. These advantages have made it a regional base for several large technology MNCs. Over 250 top MNCs have R&D labs here, including 100





of the Fortune 500 companies. The presence of these established giants ensures the presence of valuable mentorship for entrepreneurs in tech.

## 2. Canada



The Startup Culture is well established in Canada. Startups are successively raising Series A, Series B and Series C funding. The availability of venture capital in Canada has changed dramatically over recent times. British Columbia, Quebec and Ontario are progressive provinces leading the charge in venture investments. There are various initiatives by government to nurture and support startups like Investing in Business Innovation (IBI) and SmartStart Seed Fund. The fast growing startup ecosystem of Canada already has 4 unicorns and over 3000 startups. Its competitive cost, ability to attract talent and proximity to the largest economy (US) gives it a significant advantage and is positioned well to challenge and step up to disrupt established leaders.

## 3. Singapore



Singapore being the leader of Asia's financial markets has a vibrant finch ecosystem. It has been ranked highest in ease of doing business by World Bank. Multinational venture capital firms like Wavemaker partners, Sequoia Capital and East Ventures and GIC, Tamasek and multiple developmental funds and initiatives have made the ecosystem very attractive to entrepreneurs and investors

## 4. India



India has long been a leader in BPO and tech outsourcing, and has the right resources to take advantage of the digital disruption. This is helped by the large emphasis placed by the government on technological growth for business and rise in tele-density for citizens. The government is currently investing billions to convert its many metropolises into "smart cities", which should have the dual effect of helping businesses establish themselves with supportive infrastructure, as well as increasing tech knowledge amongst the labor force.

The government is also seeking to help business directly with initiatives like Startup India, Digital India, and various tax incentives and tax-free zones. This has led to a concentration of India's top tech talent in its major cities of Bangalore, Mumbai, and Delhi. All of the investment and focus on tech entrepreneurship is paying off: India has 9 startups who have achieved unicorn status, and over 5000 successful startups operating in over 10 "super-cities."



## Brazil



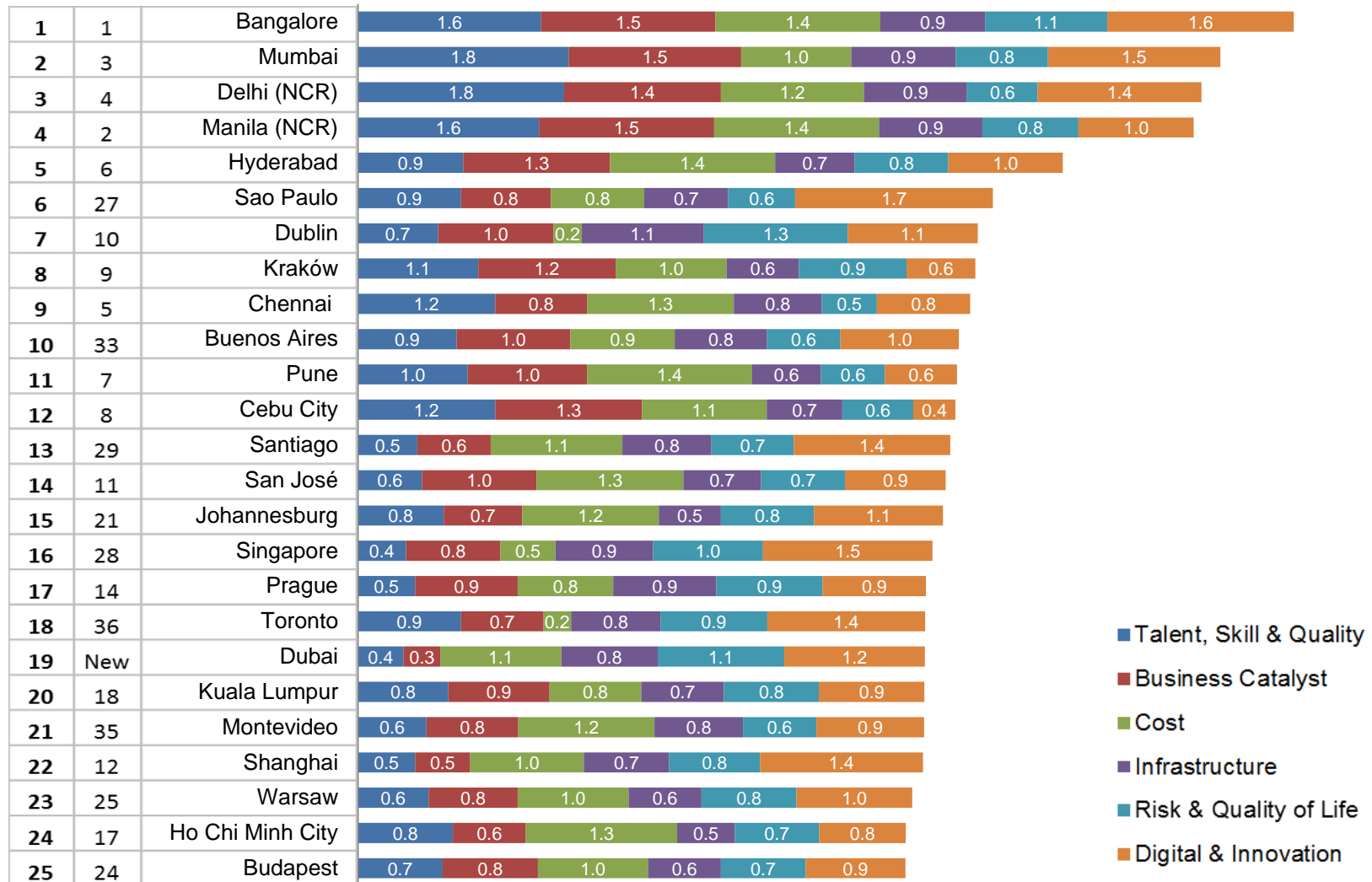
Although Chile is generally thought of as the leader in Latin America when it comes to innovation and entrepreneurship, the digital disruption favors Brazil and can allow it to become a serious contender for Chile's coveted position. The basis of this strength in the technology sector is the large pool of tech talent and the entrepreneurial culture prevalent in Brazil. Over 25% of Brazil's workforce is self-employed and small businesses account for 67% of private sector job-growth.

The other major factor in Brazil's strength in the technology sector is investment by the government in supportive infrastructure. Brazil has historically relied heavily on volatile primary resource markets such as mining and coffee, as well as declining heavy industry such as steel. Now the government is engaged in solidifying Brazil as a leader in tech and is thus funding many accelerators and low-tax zones for new companies. Brazil is thus the hottest destination in Latin America right now for tech entrepreneurship and may be able to use its strength in this sector to topple Chile's dominion over the field of Latin American innovation.



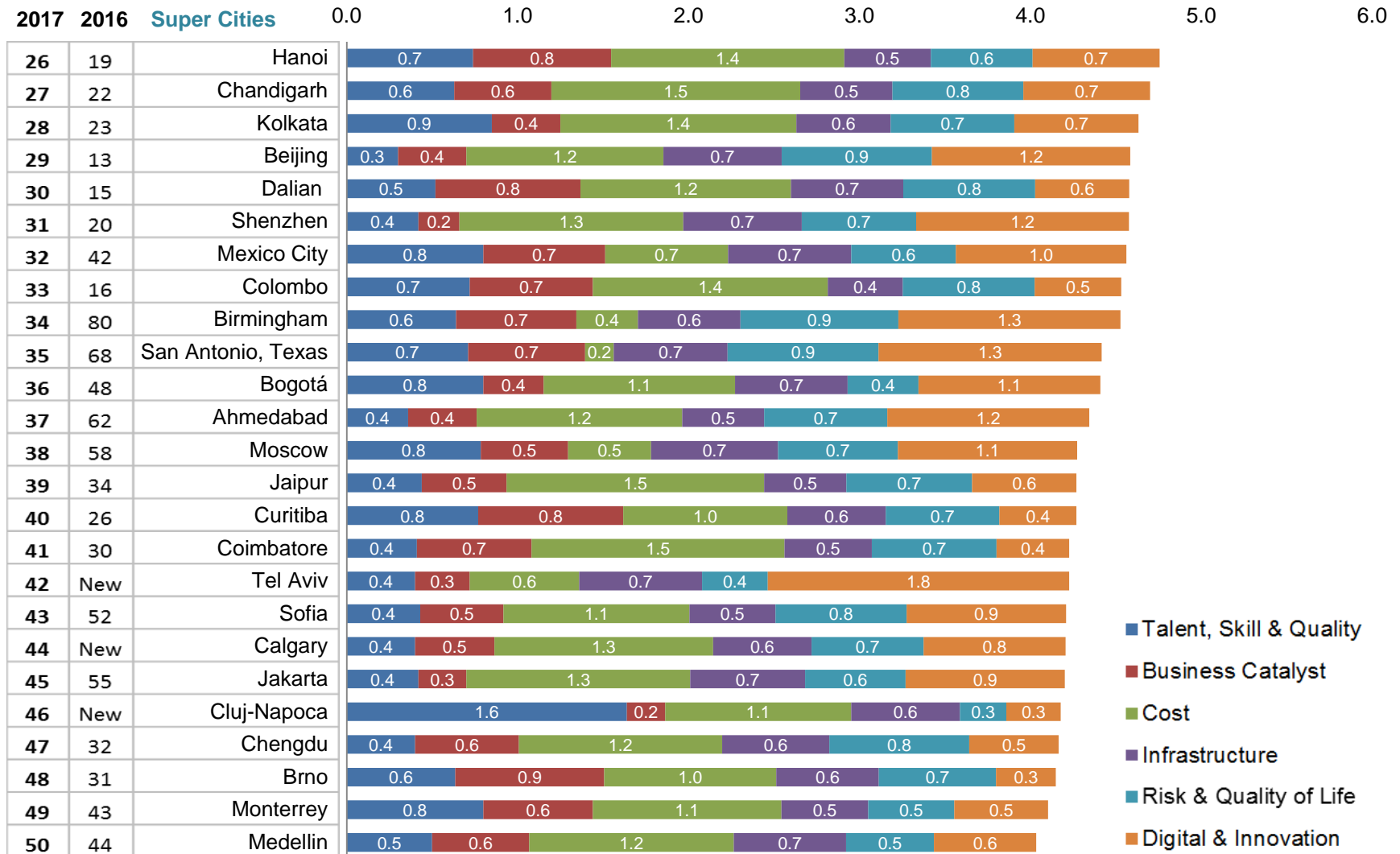
# Tholons Services Globalization City Index

2017 2016 Super Cities 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0

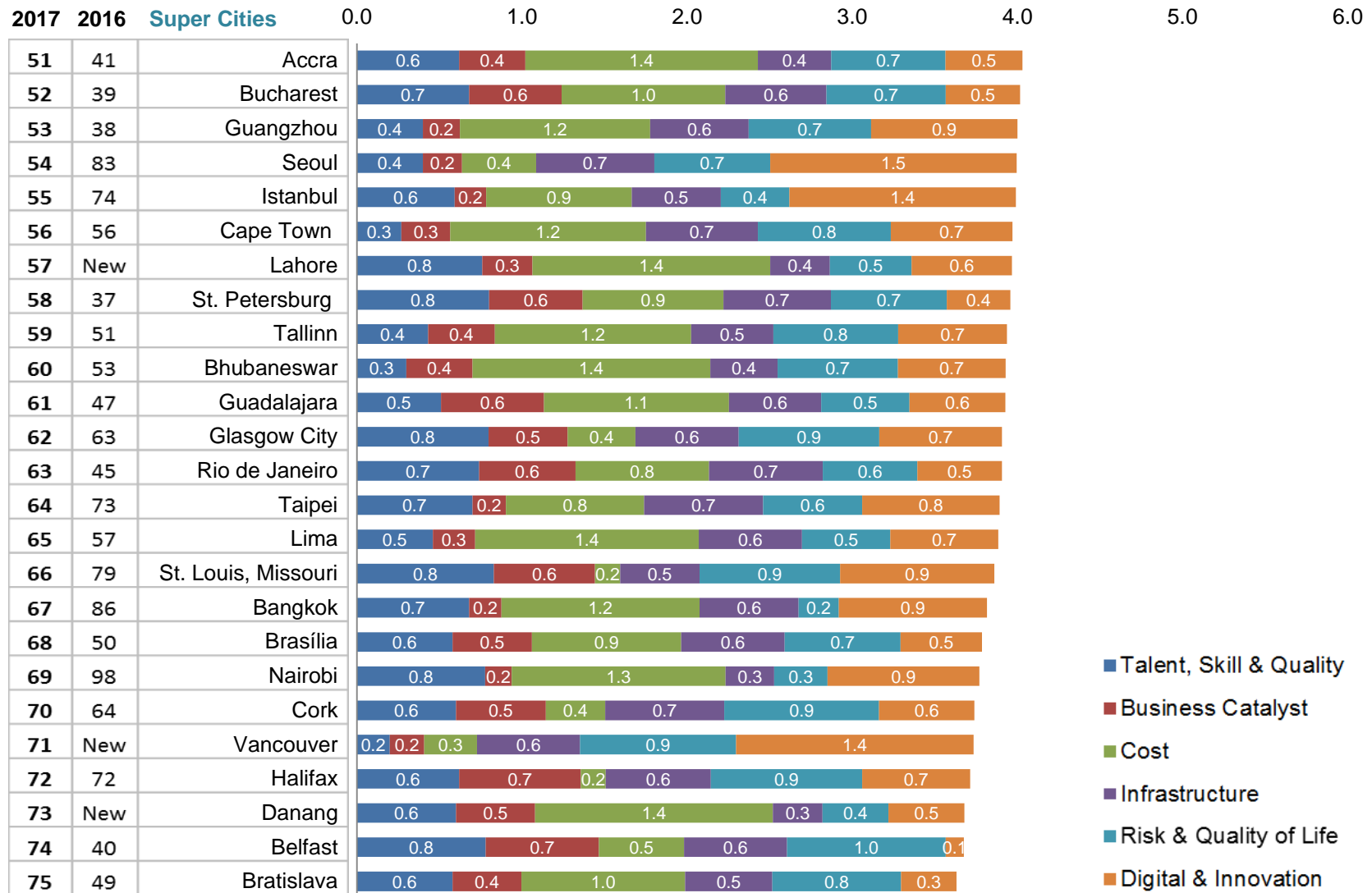


- Talent, Skill & Quality
- Business Catalyst
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- Digital & Innovation

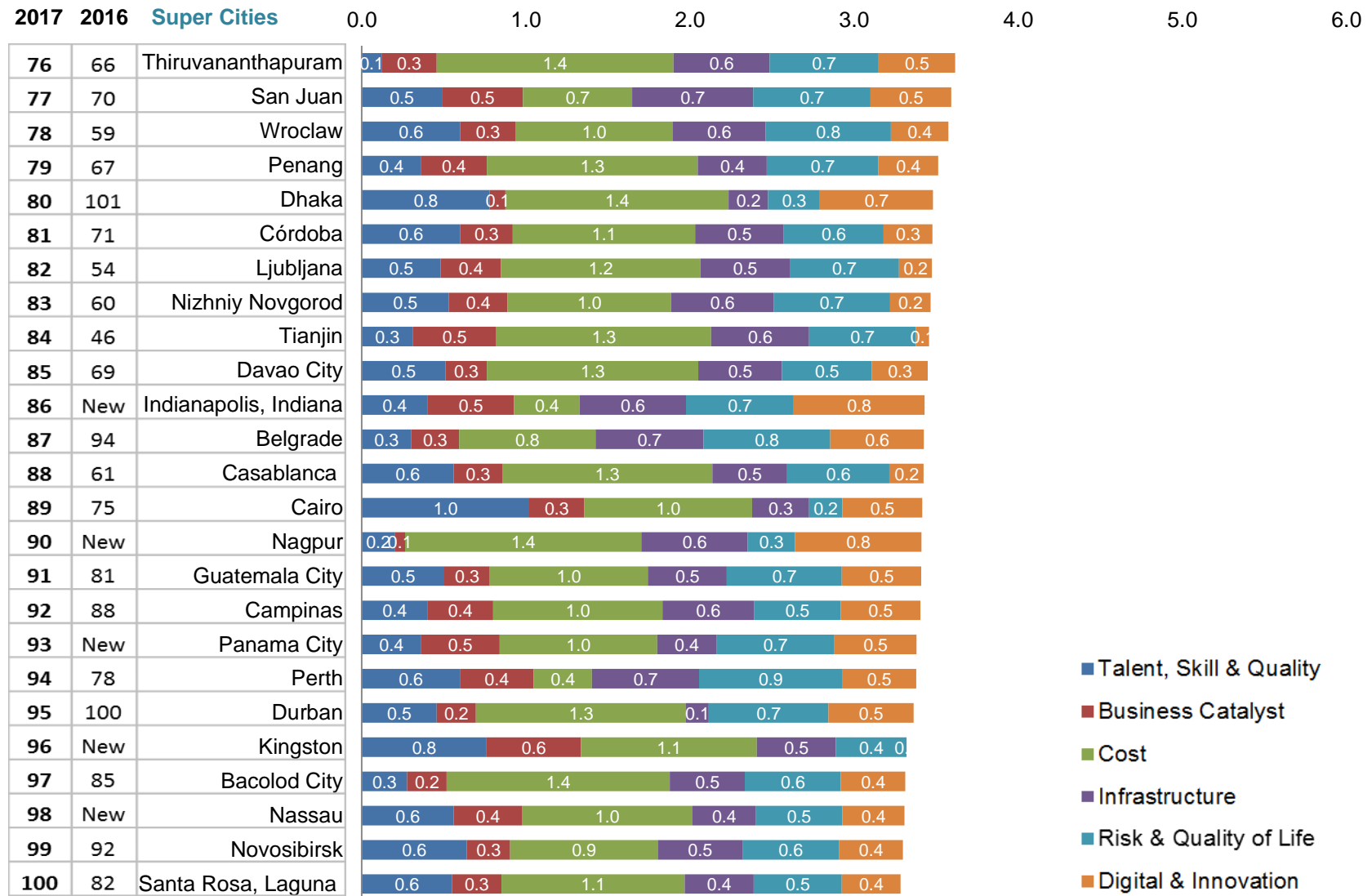
# Tholons Services Globalization City Index



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## “Super Cities” Leaders

### Bangalore



Capital of the Southern state of Karnataka - Bangalore is Asia's fastest growing cosmopolitan city. It is a hub for tech jobs and is also known as the Silicon Valley of India because of its position as the nation's leading IT exporter. Bangalore is home to many well-recognized colleges and research institutions in India, numerous public sector heavy industries, software companies, aerospace, telecommunications, and defense organizations. Venture capital funds have also favored Bangalore over most other cities, investing over USD\$5 billion in recent times, a 4x rise in the amount of funding. Bangalore is clearly home to a thriving startup ecosystem with over 1500 tech startups and 4 unicorns. The ability to attract tech talent because of the presence of major IT giants and biggest multinational corporations has helped Bangalore achieve the top position.

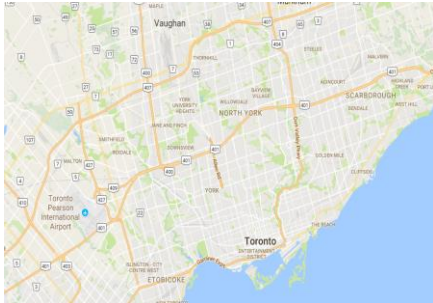
### Manila



Manila is well known as the focal point of business process operations in the Philippines. Operations has played a major role in increasing employment opportunities and contributing significantly to the country's overall economy. Manila's positive business climate and supportive government regulations help fuel the tech boom. Although the startup density is currently relatively low, with around 100 notable startups, the future is bright as the Philippines government has unveiled a blueprint for the building of a thriving ecosystem by 2020. The goal is to have over 500 startups with a valuation of 2 billion USD. Philippines support for ICT has been extremely strong and is expected to continue to foster an entrepreneur culture in Manila as the country cannot afford to risk over USD 20 billion export revenues from the sector.

## “Super Cities” Disruptors

### Toronto



The financial capital of Canada is making inroads in innovation and is set to use its investment resources to bolster a fledgling tech ecosystem. With one major government incubator and 4 large private incubators, Toronto is making its mark with startups. Its location as a base for many international financial companies gives it an advantage in both connectivity and access to funds.

To show Toronto's commitment to fostering tech startups, the mayor has organized a working committee on innovation, comprising VCs, startup CEOs, tech executives, and mentors. This committee formulates policy and connects business leaders to government to ensure a very supportive ecosystem for business. Generous tax credits for new business and the expansiveness of the city make the cost of infrastructure and essential capital like buildings low.

### Singapore



Singapore being the leader of Asia's financial markets has a vibrant finch ecosystem. It has been ranked highest in ease of doing business by World Bank. Multinational venture capital firms like Wavemaker partners, Sequoia Capital and East Ventures and GIC, Tamasek and multiple developmental funds and initiatives have made the ecosystem very attractive to entrepreneurs and investors.

### Buenos Aires



Buenos Aires is attracting more start-ups than ever before because of city's low cost of living and high quality of technology talent. Buenos Aires alone, houses three of the country's most respected technical universities and a new crop of coding schools including Digital House. Buenos Aires has become one of the top cities that outsource mobile development services to companies worldwide. BA

accelerator, Wayra, NXTP Labs and Founders Institute are the major business accelerator programs in Buenos Aires. Buenos Aires has over 500 tech start-ups. Clippate, Tambero, Trideo, Mural.ly ,3dar, Acamica are few of the most successful and innovative startups fostered in Buenos Aires.



## “Super Cities” Innovators

### Sao Paulo



Sao Paulo, the financial capital of South America, is also Brazil’s primary center of commerce, fashion, food, music, industry and sport. Compared to the rest of Brazil and most other major cities in developing countries, Sao Paulo is very well positioned to take advantage of the tech boom. It is the most international business center in South America, a place where foreign businesses go to do business in Brazil, and where Brazilian businesses go to establish an international presence. Sao Paulo has long been a nexus for young talent in South America. It’s strong educational reputation has earned great dividends, creating a reliable outflow of qualified graduates able to work in tech. This reputation has also made it the South-American base for many famous global tech companies such as Google, Uber and Airbnb. The labor quality itself is enough to make it a formidable force in entrepreneurship. Innovation can come from the universities or from the engineers who work in many of the top tech companies there. These engineers are well positioned to start their own companies.

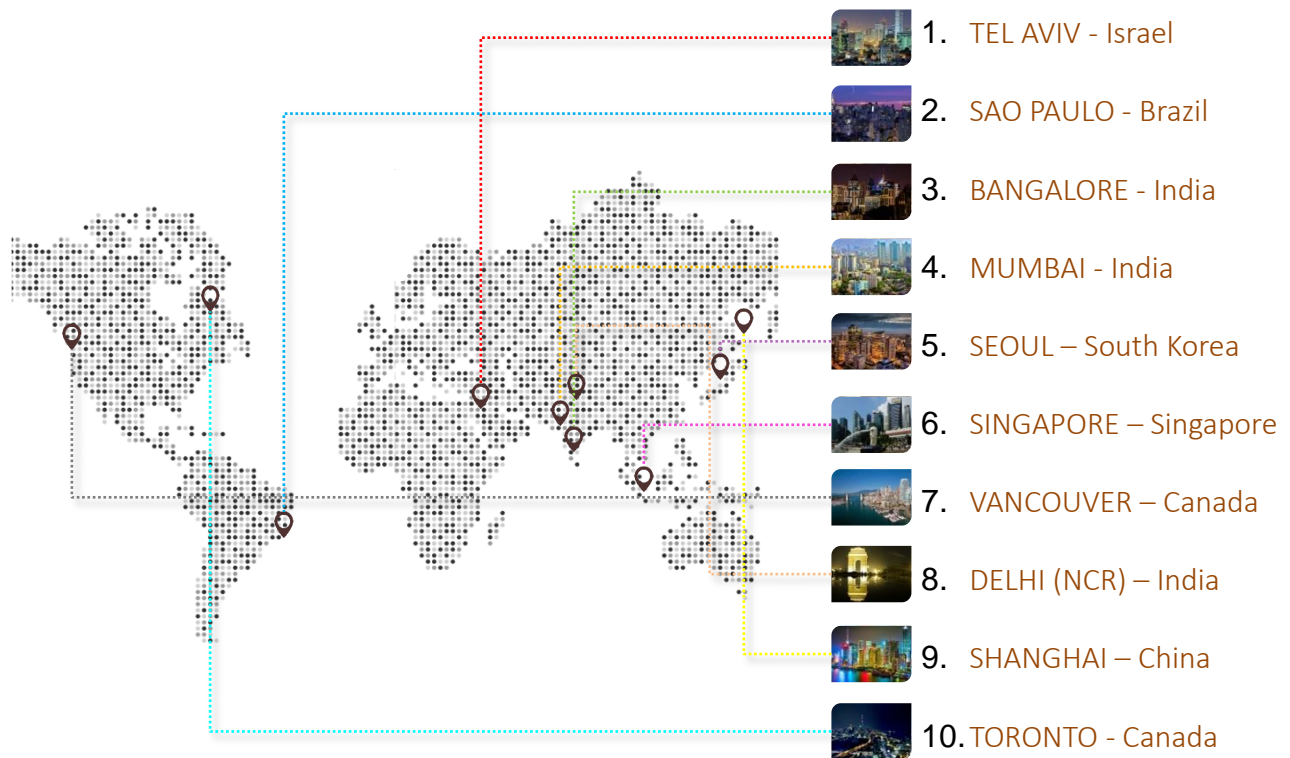
### Santiago



Santiago’s ecosystem is fragmented and competitive. The program Startup Chile helps entrepreneurs to scale up their business ideas by awarding selected entrepreneurs an equity-free government grant of 20 Million Pesos. Foreign entrepreneurs are expected to contribute 10% of the total grant’s value and are incentivized to employ local talent. Santiago Startups have an average pre-money valuation of over \$3.1 Million. The city ranks 13th in our Super Cities Ranking.



## Pure Play Digital “Super Cities”



Today we have 7 Super Cities from Top 100 which are digital leaders in Asia, one from North America and one from Latin America. Over the coming years we expect to see new cities take digital leadership and be in Top 10 from countries like US and UK as well.

### 1. Tel Aviv



funds.

Access to talent, innovation flow from military intelligence and understanding of critical security threats has earned Tel Aviv a status of being a global cyber security hub. Tel Aviv is Asia's most startup dense city. It houses more than 4000 tech startups and more than \$6 Billion flows into the country through exits. It currently has over 70 active venture capital





## 2. Sao Paulo



Sao Paulo is the home of the top educational institutes in Brazil. This combined with its position as a leader in culture and industry make it a natural home for top talent. Furthermore, the availability of this talent makes the city an attractive option for MNCs looking to set up regional bases. This is why Sao Paulo is the base to more major MNCs than

any other Latin American city

## 3. Bangalore



Bangalore is the home of the tech industry in India and has several advantages that make it the biggest player in the IT industry in Asia. It is the base of several top MNCs, which attracts top talent to the city. The city has experienced a large economic boom because of its reputation in IPO, and hence has access to plentiful investment.

Bangalore has mastery in all 3 fields in the trinity of technology capital: plenty of investors, a large pool of tech talent, and a large pool of clients (from the MNC base). This coupled with the fact that Bangalore is home to some of India's top universities makes it the best place for young aspirants to enter tech and the best place for both established and newer companies to make a mark.

## 4. Mumbai



Mumbai has always been home to small and medium scale companies bootstrapping in the retail, manufacturing, finance, and hospitality sectors. Entrepreneurship is rooted in the culture. The abundance of venture capitalists, growth funds, educational institutions and incubators has propelled Mumbai's growth in the startup ecosystem. There are over 900 startups operating in tech with 2 unicorns. Being the financial capital of the country, Mumbai is the headquarters of banks like SBI, HDFC, ICICI and regulatory bodies like RBI, SEBI and Bombay Stock Exchange. There is a mature talent pool here in the financial sector. Mumbai's startup ecosystem depends more on experienced professionals in the financial sector rather than on pure tech talent. With an airport right in the center of the city, Mumbai's connectivity to the rest of the world is also a big advantage for doing business here.



## 5. Seoul



Seoul does not have a history of fostering investment, and as recently as 10 years ago had only 1 tech accelerator and a handful of startups. However, both government officials and top industry players have realized the potential of the city to become a leader in provision of technological provision, and there has been a huge boom in both private and public investment in the sector recently. Seoul is the single best placed city in the developing world to take advantage of the digital disruption. The citizens of South Korea are very technologically adept and there is a large pool of talent for all types of companies.

Best of all is the serious investment made in this industry by the city government. Seoul has made strides and set milestones; the city's investment of over USD 3.7 Billion in fostering tech entrepreneurship in the last few years has inspired many and created a vibrant startup ecosystem. Seoul has over 1000 technology startups with two unicorns in a very short span and is on an accelerated runway to become one of top startup hubs globally.

## 6. Singapore



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to entrepreneurs and investors.

## 7. Vancouver



The closest Western city to Japan and Eastern China, as well the closest international city to Silicon Valley, it is no surprise that Vancouver is a hub for innovation and investment in tech. Vancouver has a lot of resource benefits that help it in "the race" to becoming a major business hub. For one, the city is renowned for its excellent education. With 3 of Canada's top colleges, and 2 colleges in the top 25 colleges worldwide for tech. Vancouver has a more-than-reliable supply of highly trained tech graduates. Although the city has a smaller presence of larger corporate tech companies, there is a reason it is referred to as 'Silicon Valley





North.’ This is not only because of its proximity to Silicon Valley, but because it has the most thriving startup culture and infrastructure and quality of graduates matched by no other city in Canada.

Vancouver city itself has 3 unicorns – an amazing accomplishment. The city is experiencing the housing market boom and a good inflow of foreign investments. This should spur venture investments in startups.

## 8. New Delhi



New Delhi, the national capital of India is one of the top three digital hubs of India along with Mumbai and Bangalore. The NCR (National Capital Region) that consists of Delhi, Noida and Gurgaon has a number of Multi-national and software based companies .It serves as an industrial and technological hub and is rated highly on education, research and healthcare services. The Digital India Mission which was unveiled by the Prime Minister Narendra Modi on 3<sup>rd</sup> July 2015 has led to an overhaul of operations and procedures for a vast variety of commercial sectors. According to sources from the IDC (International Data Corporation), New Delhi generates the maximum demand for smartphones in India. Highest social networking traffic comes from Mumbai and New Delhi .Home of unicorns such as Snapdeal, Zomato and 1000+ startups, New Delhi has consistently served as a strong example on India’s stride towards a digital economy. A lucky draw for Indians who make digital payments was announced by Prime Minister Narendra Modi at "Digi Dhan Mela" , a two-day camp in New Delhi which was held to create awareness on digital payments. Along with the policies and procedures adopted by the Government to encourage digital stardom, New Delhi’s digital prowess would assist cities in bringing major changes towards future growth and development.

## 9. Shanghai



Shanghai’s development as a digital hub has been nothing but impressive. Digital unicorns have accelerated many leading enterprises to adopt “the digital way of thinking” The Chinese government has encouraged the shift to digital through flexible policies and less stringent tax reforms. The adoption of digital has made key impacts on the Chinese economy’s productivity and efficiency. Besides creating economic momentum, open innovative ecosystems and diverse startups in healthcare, fintech, e-commerce etc. has changed the model of innovation through re-imagination of customer experiences.



## 10. Toronto



The financial capital of Canada is making inroads in innovation and is set to use its investment resources to bolster a fledgling tech ecosystem. With one major government incubator and 4 large private incubators, Toronto is making its mark with startups. Its location as a base for many international financial companies gives it an advantage in both connectivity and access to funds. To show Toronto's commitment to fostering tech startups, the mayor has organized a working committee on innovation, comprising VCs, startup CEOs, tech executives, and mentors. This committee formulates policy and connects business leaders to government to ensure a very supportive ecosystem for business. Generous tax credits for new business and the expansiveness of the city make the cost of infrastructure and essential capital like buildings very low.



## Disruption by Digital: “Super Cities” and “Digital Nations”

The Globalization industry has been knocked by digital forces. Robotics, Artificial intelligence, Social Media, Mobility, Big Data, Digital supply chain, Digital Trust, As a Service will continue to punch established players. The outsourcing industry has been shaken at the core; big industry leaders are slipping from top positions. We have Pune, Cebu City out of top 10 while Sao Paulo and Buenos Aires have made moved into the top 10 showing significant inroads made by Latin American cities. Similarly among the Digital Nations Canada, Chile and Ireland have moved into top 10.

“Digital Nations” and “Super Cities” disruptors and innovators will continue to challenge the established leaders. Pure Play “Digital Nations” and “Super Cities” will define the future of services globalization.

The opportunity of growing \$2.4 Trillion technology spend to \$3.8 Trillion by accelerated transition of legacy businesses to digital is not to be missed. It is good news for innovative startups, super cities and digital nation to claim the territory. An engaged focus in digital innovation at enterprise level will lead to emergence of new leaders. These new players clearly stand a great chance to be the winners given they are not saddled with legacy and big transformational effort and cost. We feel jubilant ringing the bell to dawn of certainty, opportunity and this new found world.



# Tholons Research Methodology

## Methodology

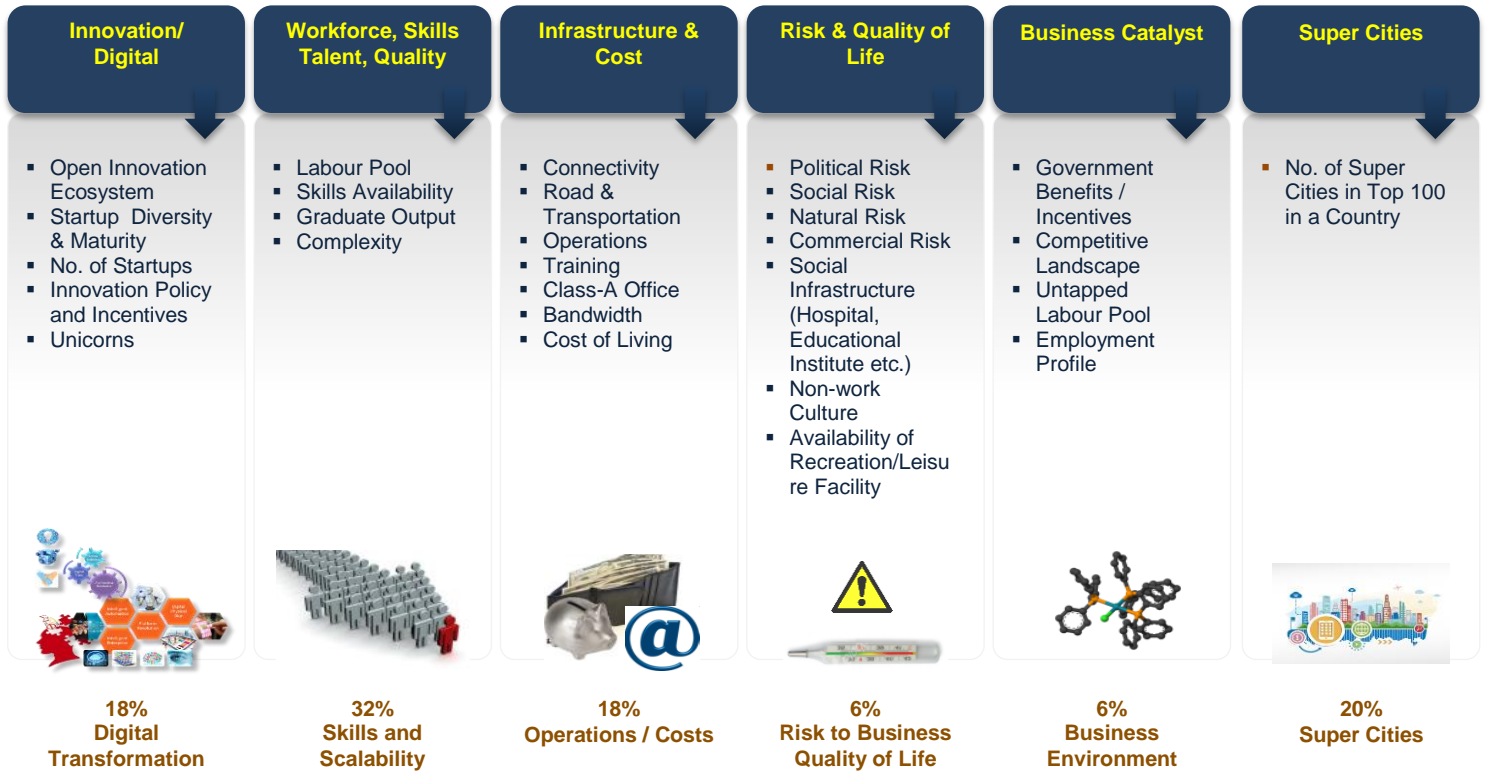
Tholons 100 Services Globalization Index has transformed; after a decade of thought leadership in evaluating, ranking and providing location strategies to countries, governments, multi-lateral agencies and multinational corporations. Digital is a critical element in disrupting and transforming industries globally. Technology, Business process management companies and multinational corporations need to align with the stark reality of digital disruption.

Tholons location assessment methodology integrates both primary and secondary research.

- **Primary Research.** Tholons utilizes surveys and interviews with service providers and buyers. These surveys are used to determine delivery and consumption trends for globalization services in specific destinations. Primary data gathering interviews were used to determine market and labor sizes as well as expansion strategies of leading service providers. Tholons utilizes its extensive network of industry stakeholders including buyers and suppliers of services, governments, trade bodies and associations to collect and validate data and analysis.
- **Secondary Research.** Tholons utilizes secondary research methodologies to gather volumes of historical data from governments, global institutions and agencies, and monetary bodies were used to provide various statistics and economic related data.
- **Quantitative & Qualitative Analysis.** Tholons employs a combination of quantitative and qualitative analysis in developing the weighted rankings. Our proprietary ranking framework continues to evolve to align with most of the current market realities and demand. Further, qualitative analysis was implemented to provide perspective to the quantitative results of the report. Tholons carefully considered numerous variables when providing final rankings, validated by senior thought leaders from Tholons and industry leaders globally.



Following are the metrics used to evaluate location attractiveness. The relative weights of each metric are based on their importance to the location decision, again derived from client experience and industry surveys. This is our maiden rankings with Digital and innovation having a significant weightage to reflect the disruption to the industry by digital technology.



## Innovation in Digital

Digital is the Y2K of this era. Businesses must embrace digital technologies and platforms like social media, mobile technology, cognitive computing, cloud and artificial intelligence. As start-ups are synonymous with the best of the innovations it becomes imperative to study start-up ecosystem of a location. Technology startups are key to development of digital talent in a city. Number of startups in a city is an indicator of government incentives to startups, presence of startup ecosystem, availability of funds and mentors to guide. And a city with healthy number of corporate accelerators, incubators, venture capital firms and government support represent a startup ecosystem with potential to attract entrepreneurs and establish new means of revenue. Government's role in fostering innovation and startup ecosystem is vital. While there are over 180 unicorns globally, in our rankings we have only about 65 unicorns.

Following parameters are taken in to consideration to come up with Innovation and Digital:

- Number of Start-ups.
- Ecosystem
- Startups Diversity
- Government Incentives and Policies
- No. of Unicorns

## Talent, Skills and Quality

Refers to the overall talent pool availability in a particular location and in relation to the capability of the labor pool to meet staffing demands and fulfill outsourced services from both scale and quality perspectives. Total population, demography, labor pool size, annual tertiary graduate output, both in technical and non-technical background and skills proficiencies like average TOEFL scores were among the host of related components considered when generating the Scale and Quality Score. Current methodology focuses on digital skilled talent also. Countries that want to be competitive should significantly focus on creating an environment to get digital skills training and have experienced talent migrate into these locations to catalyse and develop these hubs. Ex: Singapore in biotech and financial services.

**Scoring:** 10 = High Scale and Quality    1 = Low Scale and Quality





## Cost

Cost includes relevant payroll and non-payroll costs in a location. Office space rent, basic outsourcing industry salary costs, electricity costs, and cost-related trends are among the factors considered to generate the Cost Score. With the internet now being indispensable, the bandwidth cost has also been included.

**Scoring:** 10 = *Most cost competitive* 1 = *Least cost competitive*

## Business Catalyst

Business Catalyst measures industry-related activity as well as the degree of organizational support present in a location, which is geared to develop the services outsourcing industry. Government incentives and regulations, current industry performance (including the top service providers and captives, location's headcount and revenues, etc.), presence and support of industry-related organizations and ease of doing business are among the critical sub-components

**Scoring:** 10 = *Strong business catalyst* 1 = *Weak business catalyst*

## Infrastructure

Infrastructure refers to the availability of physical and technological platforms/systems, which are required to host outsourcing operations from a location. This considers the availability of office space, number of special economic zones or IT parks, mass transports systems, number of leased line providers, and airport infrastructure. In the Yesteryears, physical infra was the key. However in the digital economy, the ability to do video conferencing, social media collaboration in businesses, presence of co-working spaces, availability of Wi-Fi hotspots and internet zones, is creating a social environment that is conducive to the way millennial work and live.

**Scoring:** 10 = *Capable infrastructure available* 1 = *Inadequate infrastructure*



## Risk & Quality of Life

Risk encapsulates the qualitative perceptions and measurable occurrences of natural and socio-political risks which in turn affect the Quality of Life, where quality of life refers to non-operational considerations and ecosystem components that may affect living and working conditions, and the productivity of the labor pool in a particular location. Risk is quantified according to the propensity of events to impact personal safety and the overall stability of a location to hosting business operations. The overall Risk and Quality of Life Score is generated from the identification of social infrastructure (such as educational institutions and health care facilities), non-work culture, and availability of leisure and recreational facilities, among others and from the identification of factors such as economic, political, natural, social and also cyber and digital risks in a location.

**Scoring:** 10 = Low risk & High quality of life    1 = High risk & low quality of life

## Super Cities in Top 100

Super Cities in Top 100 refers to the number of cities from a given country that are ranked in Tholons Services Globalization City Index 2017 among the Top 100 Super Cities.

**Scoring:** Number of cities in Top 100 Super Cities Index.

## Workforce

Workforce is a measure of the size of the workforce population in a given country and is an indicator of a talent pool available that can be skilled/re-skilled to serve cross industries in services.

**Scoring:** The score will be proportion of the working population verses countries like India and China being the benchmark of score – 10.



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## Research Stakeholders:

We would like to thank the various industry associations, investment and promotion agencies, global clients, leading technology service providers, multi-lateral agencies and Tholons global research team for this 2017 Tholons Services Globalization Index. We would like to specially mention the excellent work by our Research Analysts - Abhishek Karn and Maneet Dharwal.

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## About Tholons

Tholons is a global strategic consulting and research firm for country strategies, IT/BPM and digital serving Fortune 500 / Global 2000 clients, multi-lateral / development agencies and countries. Tholons has over two decades of experience and an unparalleled network of clients, mentors, startups, system integrators, technology partners and venture funds.

Tholons advisors engage with senior management of client organizations to develop strategies for global expansion. We have deep understanding of key industries like Financial Services, Banking, Healthcare, Insurance, Media and Entertainment, Manufacturing, Retail, Telecom, Education, Utility, Oil and Gas and Technology.

Tholons draws upon the considerable experience of a handpicked team, which has successfully formulated and executed globalization and digital strategies to unlock value. Service providers leverage Tholons expertise to optimize their global delivery model. Tholons advisors engage with government bodies to build compelling strategies for making countries attractive destination for technology, digital, innovation and business process management.

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