THOLONS SERVICES GLOBALIZATION INDEX™

2018

50

DIGITAL NATIONS

100

SUPER CITIES

DIGITAL AT SCALE

Avinash Vashistha
Chairman & CEO
Tholons Inc.

"Intelligent Automation, Machine Learning, Cognitive Computing and Applications moving to cloud is transforming businesses and the services industry. Tomorrow's workforce will be a digital workforce at scale, consisting of digital workers and human beings working together. "

Fabrizio Opertti
Chief
Trade & Investment Div
IDB

"IDB's human capital development programs for services exports in Latin America & the Caribbean, called "finishing schools", have been great drivers of the industry. IDB's ConnectAmericas.com platform is the first social network for small & mid sized enterprises in the Americas and includes a Global Services networking community powered by digital."

Kerry Hallard
President & CEO
Global Sourcing
Association - UK

"A BOT is not the same as what you automated before. It is game changing. If you are going to be a sourcing professional today, you have got to have an insatiable curiosity. You've got to be reading and educating yourself, if not somebody else is going to come in and do it to you."

Richard Jones
Chairman
Proxima

"Robotic Automation could drive the next generation of BPO's. If BPO's do not embrace this new approach to automation, they could get left behind in this very competitive market."

Kitade Y
Managing Director
Global Initiative Inc
Japan

"Digital transformation must undergo business transformation, distinctive thinking, support for innovation and modern business models. Consolidating digitisation of resources and an increased use of innovation to move forward is the priority."

Warren Gallant
Founder, TPI
Member of Board
Tholons

"Digital transformation is a race, and as such, there's a basic parameter: speed. In this era of Big Data. Companies must respond rapidly, to the point where the market changes its behaviour, rather than to be first in market."

Dawn Tiura
President & CEO
SIG

"SIG, world's largest association representing global 1000 companies, is seeing a tectonic shift in clients adopting Intelligent Automation across their businesses. Service providers and consultants need to be strategic partners to clients helping them through their digital transformation journey."

Debjani Ghosh
President
NASSCOM

"IT industry is going to go through a process of Digital Transformation - talent, capabilities in new technologies and strategic partnerships are the three things that are going to pretty much shape the success."

Jonathan De Luzuriaga
President
PSIA/IBPAP

"The Republic of the Philippines would need to embrace developments in Technology and Innovation which includes enhancing the Start-up Ecosystem. We need to leverage our strengths in the services sector as we explore bigger opportunities in product and intellectual property creation."

Michael Barrett
Professor
IT & Innovation
University of Cambridge

"The opportunities are endless, especially with mobile base technology – a platform which allows not just the lead users to discover new application, but also for them to take to develop a new businesses around the platform on their own."

Andrew Wrobel
Chief Strategist
Emerging Europe

"Digital transformation of business is creating a significant demand for innovation, intelligent automation, cloud, analytics, mobility - skills that talent in growth markets in emerging Europe have developed over the last decade."

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Tholons Services Globalization Index - 2018

Tholons Services Globalization Index is the leading touchstone to benchmark the accelerated digital transformation of industries and services globally. The index evaluates ranks and provides location strategies to multinational corporations, countries, governments, multi-lateral agencies, 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. Most of the services will get commoditized for the biggest leaders in services globalization like US, UK, Canada, Europe, India, Philippines, East Europe and Latin America.

Clients are now seeking strategies to digitally transform their businesses, leveraging new age technology like AI, mobility, analytics, cloud, social media, block chain and cyber security. The legacy and traditional busineses need to revisit their business models inorder to harness the power of such technology. Secondly, the intelligent automation of services like application management, infrastructure support, testing and business process management, is reducing or even eliminating the need for manpower. These new forces will push technology and services companies to think differently to sustain and grow.

Tholons introduced innovation, startup ecosystem and digital transformation as key components to define its index for Top 50 Digital Nations and Top 100 Super Cities 2017. Tholons is excited to present its perspective on digital, and how it will change the industry, and the future of economies and growth markets. In our current release of TSGI 2018, we have included, cyber security, digital skills, scale and global competiveness to guage the wider aspects and impact of the digital ecosystem.

Trends shaping the industry

Compelling innovations and models contribute to cost take out and more efficient operations. Platform as a service and cloud has changed the way technology enables the delivery of services. Intelligent Automation is accelerating the disruption of “statis-quo” and legacy eco-systems.

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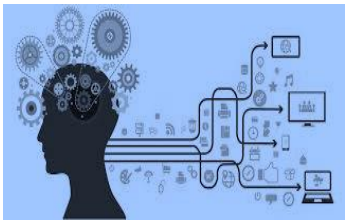
Some of the trends shaping the industry are:

1. Artificial Intelligence (AI)

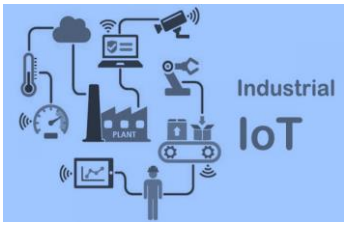


Artificial Intelligence is empowering businesses to work smarter and faster in this rapidly growing digital world. Organisations are looking for dynamic and practical solutions that will improve and establish their operations as the technology and society continue to advance.

2. Intelligent Automation (IA) and Robotic Process Automation (RPA)

IA and RPA boost critical advancement over numerous businesses these days, because it can effortlessly computerize and perform a lot of tiresome, repeatable and boring tasks. Although RPA innovation is still in its early stages, RPA systems are picking up impressive notoriety on this front, and are being invited by organizations that are keen to reduce costs, grow efficiency and be competitive.

3. Industrial IoT



Industrial IoT connects data to operations and insights. Industrial IoT is transforming manufacturing, consumer experience, risk and businesses across industry segments.

4. Digital Currencies

Bitcoin, Litecoin, Ethereum, Ripple and Dash have become commonly exchanged monetary standards. Digital currencies and blockchain will transform and enable trust based money exchange, contracts, healthcare, banking, retail, trade, records and many other services.

5. Blockchain

Blockchain supply a series of benefits in terms of communication, proficiency, security, authenticity and transparency. This diminishes extortion, falsification; bringing down operational cost, improving security, effective transactions, cost effective and efficient supply chain and digital manufacturing operations.

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6. Augmented Reality and Virtual Reality (AR/VR)

AR/VR has already transformed medical surgeries by assisting doctors. The extremely efficient yielding exemplary patient outcomes and recovery. VR will transform consumer experience of virtual conference meetings, travel, real estate showcase and re-cognizance missions.

7. Cybersecurity

Cybersecurity is at the heart of every system, data, transaction and what citizens and businesses do everyday. Digital trust between applications is a critical element of applications interfacing and working together. Today's resilient architecture needs to also build in active defense against threats.

8. Big Data Analytics

Data is the lifeline of today's digital supply chain and is the prime driver of competitive advantage. With growing volumes of data, there's a demand for deep knowledge of data science, analytics, key insights resulting in informed business decisions. The coming years will see a gigantic rise in data analytics as a service, an increment in data designing and data science careers.

Digital and Open Innovation Ecosystem – The Future

Businesses are embracing digital technologies and platforms like social media, mobile technology, cognitive computing, machine learning, big data analytics, virtual reality/ augmented reality, intelligent automation, cloud and artificial intelligence.

The countries and the cities are competing in the arena of digital transformation. There is a significant focus on creating an environment of digital skills, culture of innovation and entrepreneurship.

Start-ups are synonymous with the best of innovation. 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 fuelled by government incentives to startups, availability of funds, mentors to guide, corporate accelerators and venture capitalists. Government's role in fostering innovation and startup ecosystem is vital. While there are over 240 unicorns globally, only 153 are represented across the Top 100 Super Cities.

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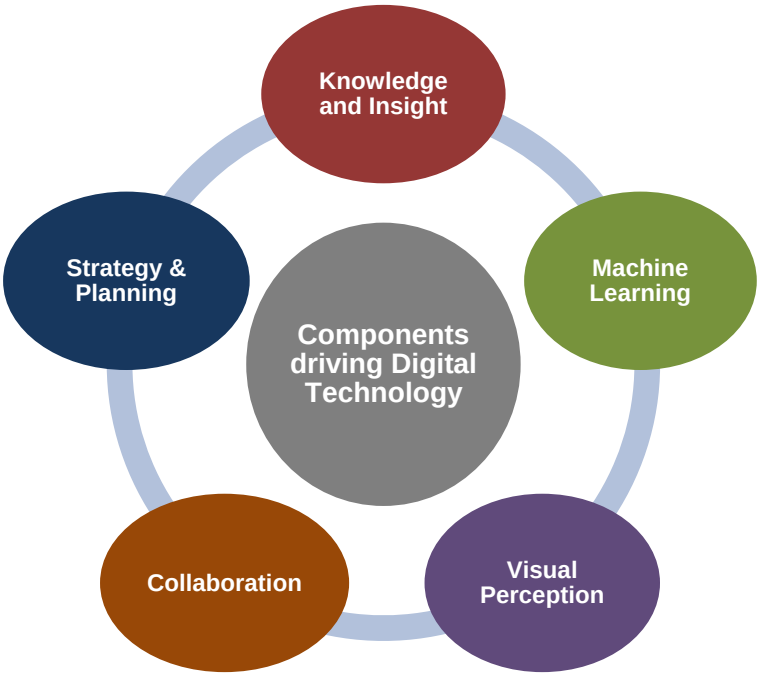
Intelligent Managed Services

Intelligent Managed Services is transforming the digitalization of core businesses and services at scale. Digital financial managed services and digital health care managed services are some of the examples that work on an intelligent technology enabled services platform. The new transformed services platforms possess workflow automation, intelligent searches, intelligent automation and exception handling. Denial management, intelligent claims adjudication, KYC, AML, trade finance are some of the examples of intelligent technology enabled services platforms.



Components driving Digital Technology:

1. Knowledge and Insight

The future digital workforce will be able to understand any language – ability to translate to other language, extract meaning from text – ability to identify specific words or phrases and classify them as names, organizations, places and to other categories, predict the optimal emotional response – ability to understand the emotion from the specific words or sentences.

It will be able to bring together contextual information to support handling of process and present to human as required. The future digital worker scales the digitally transformed business and empowers humans.

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2. Machine Learning

The digital workforce with AI technology has got ability of problem solving with ease. AI can even surpass human ability and intend to create more sophisticated intelligence. It runs on customizing algorithms that might need strong Graphics Processing Unit (GPU) systems.

3. Visual Perception

The digital workforce will be able to analyze and process the images, documents and extract the content from it. It will also be able to intelligently identify and classify the images. The digital workforce will have the ability to interact and interpret screens in the same way as humans. The ability to adapt to the changes like screen resolution, application performance and changes within the application is the key challenge.

It also helps the workers to work with any type of application like Java, Mainframe and web application. The workforce will be able to interpret the data within the application based on some complex rules or by linking to the digital skills like Knowledge and Insight.

4. Collaboration

Human beings, mobile systems, digital platforms and digital workers will collaborate seamlessly in the world of digital. Digital Duct Tape will be setup on a person's desktop that can perform macro recording, monitor work performance and analyze repetitive tasks. Digital workers understand the working environment and work seamlessly with the co-workers. Collaboration makes it easy for the human workers that has the ability of business processing and can also help humans with repetitive tasks.

5. Strategy and Planning

The digital workforce provides high performance and reliability by careful planning and sequencing. In order to achieve a specific goal, planning and sequencing skills are essential. It involves formulation, evaluation and selection of a sequence of thoughts and actions. The process is designed in a way that can be re-used. The robot can be programmed once and can be used in variety of business processes with ease. The future digital workforce will be completely self-managing.

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Tholons Services Globalization COUNTRY INDEX - 2018

TOP 50 DIGITAL NATIONS

RANK 2018	RANK 2017	DITIGAL NATIONS	TALENT SKILLS & QUALITY	BUSINESS CATALYST	COST	INFRASTRUCTURE	RISK & QUALITY OF LIFE	DIGITAL & INNOVATION	SUPER CITIES	POPULATION
1	1	India	0.74	0.41	0.95	0.38	0.27	0.84	2.00	2.00
2	3	Philippines	0.66	0.39	1.02	0.37	0.28	0.75	1.60	1.43
3	4	Brazil	0.52	0.27	0.67	0.34	0.25	0.86	1.20	1.43
4	16	United States	0.34	0.18	0.18	0.32	0.20	1.06	1.60	1.36
5	5	Mexico	0.44	0.25	0.65	0.33	0.21	0.84	0.80	1.50
6	6	Canada	0.37	0.20	0.27	0.35	0.30	1.16	1.00	1.36
7	11	Russia	0.46	0.19	0.48	0.35	0.26	0.88	0.80	1.43
8	8	Vietnam	0.47	0.27	1.01	0.25	0.24	0.60	0.60	1.36
9	17	Colombia	0.42	0.16	0.85	0.32	0.18	0.71	0.80	1.36
10	12	South Africa	0.35	0.19	0.91	0.25	0.30	0.70	0.60	1.36
11	9	Poland	0.40	0.29	0.74	0.30	0.28	0.82	0.80	0.88
12	7	Chile	0.31	0.24	0.87	0.39	0.26	0.86	0.40	1.16
13	20	Singapore	0.24	0.30	0.34	0.42	0.35	1.43	0.20	1.02
14	13	Argentina	0.54	0.24	0.76	0.36	0.26	0.76	0.40	0.95
15	10	Ireland	0.41	0.36	0.19	0.52	0.46	1.06	0.40	0.75
16	34	Thailand	0.41	0.07	0.90	0.30	0.09	0.87	0.20	1.29
17	22	Malaysia	0.34	0.24	0.79	0.28	0.28	0.90	0.40	0.88
18	18	Turkey	0.36	0.07	0.82	0.30	0.12	0.89	0.20	1.36
19	29	Indonesia	0.25	0.11	0.97	0.33	0.22	0.67	0.20	1.36
20	36	Peru	0.28	0.10	1.02	0.31	0.20	0.64	0.20	1.36
21	37	United Arab Emirates	0.24	0.12	0.79	0.42	0.41	1.02	0.20	0.88
22	15	Czech Republic	0.32	0.33	0.66	0.41	0.33	0.89	0.40	0.75
23	23	Uruguay	0.42	0.36	0.89	0.39	0.37	0.70	0.20	0.75
24	14	Costa Rica	0.34	0.38	0.96	0.34	0.27	0.83	0.20	0.75
25	30	Egypt	0.61	0.13	0.77	0.17	0.08	0.73	0.20	1.36

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26	28	South Korea	0.35	0.09	0.35	0.30	0.24	1.15	0.20	1.36
27	19	United Kingdom	0.43	0.19	0.39	0.32	0.32	0.92	0.60	0.82
28	32	Romania	0.49	0.19	0.75	0.31	0.25	0.72	0.40	0.82
29	31	Hungary	0.44	0.31	0.72	0.32	0.28	0.80	0.20	0.75
30	21	Australia	0.32	0.17	0.19	0.33	0.32	1.00	0.40	1.09
31	42	Taiwan	0.42	0.08	0.63	0.36	0.23	0.70	0.20	1.16
32	24	Sri Lanka	0.43	0.27	1.03	0.22	0.29	0.47	0.20	0.82
33	-	Jordan	0.36	0.09	0.79	0.22	0.15	0.61	0.20	1.29
34	27	Pakistan	0.46	0.11	1.08	0.18	0.19	0.40	0.20	1.09
35	25	Spain	0.12	0.02	0.96	0.30	0.12	0.91	0.20	1.02
36	35	Ghana	0.37	0.15	1.06	0.22	0.26	0.43	0.20	0.95
37	43	Kenya	0.47	0.06	0.97	0.15	0.12	0.66	0.20	0.95
38	38	Bulgaria	0.26	0.18	0.82	0.25	0.29	0.75	0.20	0.75
39	41	Morocco	0.34	0.11	0.96	0.23	0.23	0.48	0.20	0.88
40	39	Estonia	0.26	0.15	0.89	0.25	0.28	0.90	0.20	0.34
41	45	Jamaica	0.46	0.22	0.80	0.24	0.16	0.38	0.20	0.68
42	49	Ukraine	0.22	0.16	0.65	0.27	0.20	0.60	0.20	0.82
43	50	Serbia	0.18	0.11	0.62	0.33	0.29	0.56	0.20	0.75
44	-	Latvia	0.12	0.02	0.96	0.36	0.13	0.69	0.20	0.54
45	44	Panama	0.24	0.18	0.72	0.20	0.25	0.46	0.20	0.75
46	-	Slovenia	0.29	0.14	0.91	0.27	0.25	0.72	0.20	0.20
47	48	Slovakia	0.35	0.16	0.74	0.26	0.29	0.56	0.20	0.34
48	26	Israel	0.24	0.12	0.48	0.36	0.14	0.93	0.20	0.34
49	-	Mauritius	0.08	0.06	0.95	0.25	0.32	0.56	0.20	0.14
50	47	Puerto Rico	0.29	0.26	0.48	0.40	0.22	0.33	0.20	0.32
50	46	Bahamas	0.30	0.22	0.52	0.35	0.24	0.36	0.20	0.31
50	40	Guatemala	0.31	0.24	0.50	0.37	0.27	0.31	0.20	0.30

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Tholons Services Globalization CITY INDEX - 2018

TOP 100 SUPER CITIES

RANK 2018	RANK 2017	DITIGAL NATIONS	TALENT SKILLS & QUALITY	BUSINESS CATALYST	COST	INFRASTRUCTURE	RISK & QUALITY OF LIFE	DIGITAL & INNOVATION
1	1	Bangalore	1.52	1.43	1.35	0.84	1.00	1.49
2	4	Manila	1.50	1.43	1.35	0.83	0.79	1.17
3	2	Mumbai	1.75	1.41	0.90	0.84	0.75	1.38
4	3	Delhi (NCR)	1.71	1.28	1.17	0.83	0.58	1.32
5	5	Hyderabad	0.87	1.20	1.35	0.64	0.77	1.22
6	8	Kraków	1.00	1.13	0.91	0.58	0.88	1.11
7	7	Dublin	0.67	0.95	0.23	0.98	1.18	1.50
8	6	Sao Paulo	1.05	0.87	0.84	0.67	0.68	1.37
9	21	Montevideo	0.67	0.90	1.11	0.71	0.92	0.97
10	10	Buenos Aires	0.99	0.75	0.90	0.76	0.68	1.13
11	12	Cebu City	1.03	1.16	0.98	0.57	0.53	0.95
12	16	Singapore	0.38	0.75	0.43	0.76	0.87	1.99
13	20	Kuala Lumpur	0.75	0.83	0.75	0.66	0.78	1.39
14	14	San José	0.53	0.94	1.20	0.62	0.69	1.15
15	18	Toronto	0.86	0.68	0.23	0.72	0.87	1.78
16	17	Prague	0.48	0.84	0.78	0.83	0.87	1.27
17	9	Chennai	1.14	0.75	1.20	0.70	0.45	0.75
18	11	Pune	0.65	0.87	1.20	0.55	0.53	1.13
19	19	Dubai	0.38	0.30	0.99	0.77	1.04	1.41
20	13	Santiago	0.53	0.64	1.09	0.73	0.65	1.24
21	34	Birmingham, Alabama	0.95	0.34	0.60	0.66	0.87	1.46
22	23	Warsaw	0.59	0.73	0.91	0.58	0.78	1.25
23	25	Budapest	0.70	0.78	0.90	0.58	0.69	1.11
24	15	Johannesburg	0.71	0.64	1.12	0.50	0.76	1.02
25	28	Kolkata	0.81	0.38	1.29	0.51	0.68	1.06

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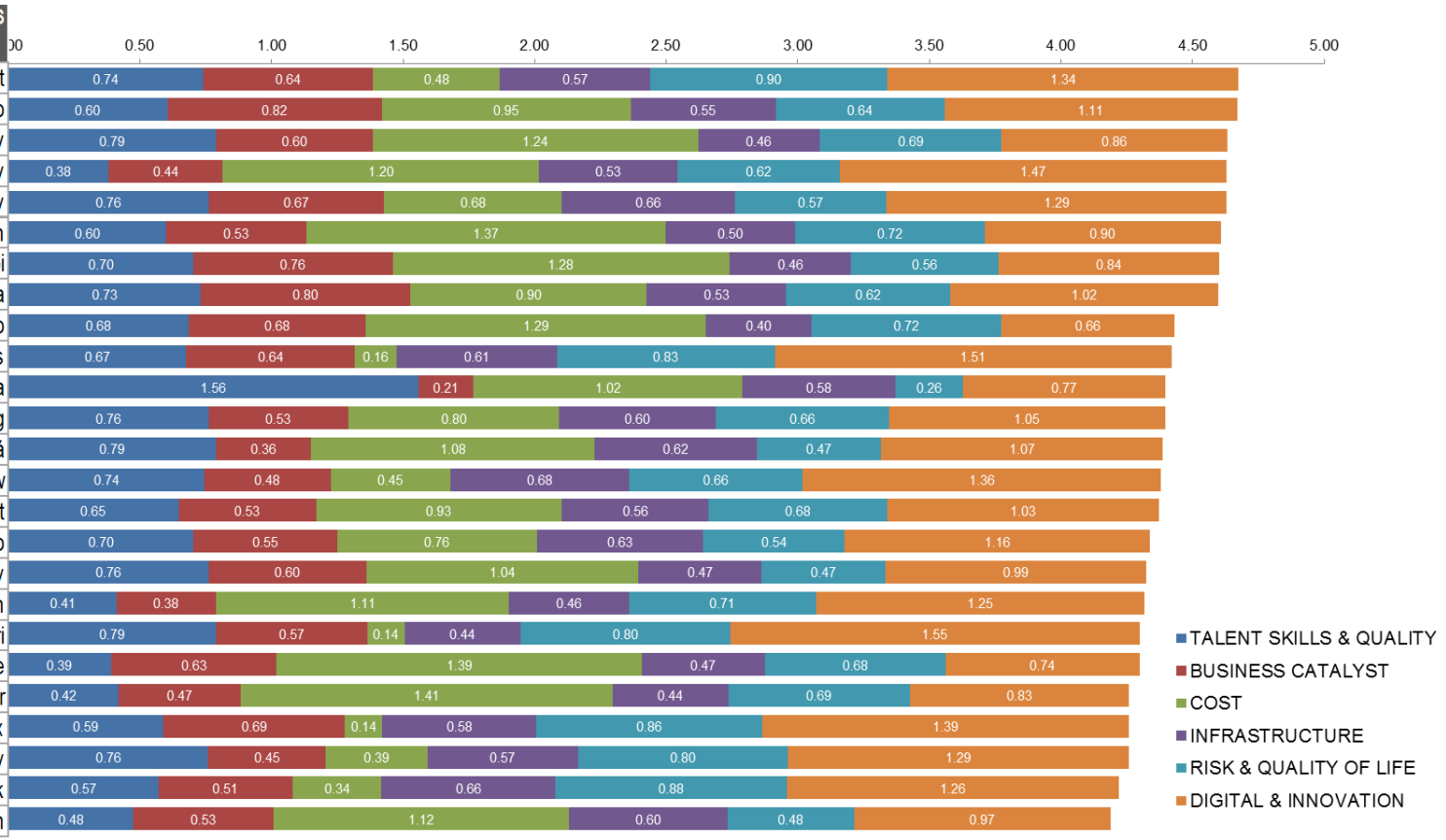
26	74	Belfast	0.74	0.64	0.48	0.57	0.90	1.34
27	48	Brno	0.60	0.82	0.95	0.55	0.64	1.11
28	24	Ho Chi Minh City	0.79	0.60	1.24	0.46	0.69	0.86
29	44	Calgary	0.38	0.44	1.20	0.53	0.62	1.47
30	32	Mexico City	0.76	0.67	0.68	0.66	0.57	1.29
31	27	Chandigarh	0.60	0.53	1.37	0.50	0.72	0.90
32	26	Hanoi	0.70	0.76	1.28	0.46	0.56	0.84
33	40	Curitiba	0.73	0.80	0.90	0.53	0.62	1.02
34	33	Colombo	0.68	0.68	1.29	0.40	0.72	0.66
35	35	San Antonio, Texas	0.67	0.64	0.16	0.61	0.83	1.51
36	46	Cluj-Napoca	1.56	0.21	1.02	0.58	0.26	0.77
37	58	St. Petersburg	0.76	0.53	0.80	0.60	0.66	1.05
38	36	Bogotá	0.79	0.36	1.08	0.62	0.47	1.07
39	38	Moscow	0.74	0.48	0.45	0.68	0.66	1.36
40	52	Bucharest	0.65	0.53	0.93	0.56	0.68	1.03
41	63	Rio de Janeiro	0.70	0.55	0.76	0.63	0.54	1.16
42	49	Monterrey	0.76	0.60	1.04	0.47	0.47	0.99
43	59	Tallinn	0.41	0.38	1.11	0.46	0.71	1.25
44	66	St. Louis, Missouri	0.79	0.57	0.14	0.44	0.80	1.55
45	41	Coimbatore	0.39	0.63	1.39	0.47	0.68	0.74
46	39	Jaipur	0.42	0.47	1.41	0.44	0.69	0.83
47	72	Halifax	0.59	0.69	0.14	0.58	0.86	1.39
48	62	Glasgow City	0.76	0.45	0.39	0.57	0.80	1.29
49	70	Cork	0.57	0.51	0.34	0.66	0.88	1.26
50	50	Medellin	0.48	0.53	1.12	0.60	0.48	0.97



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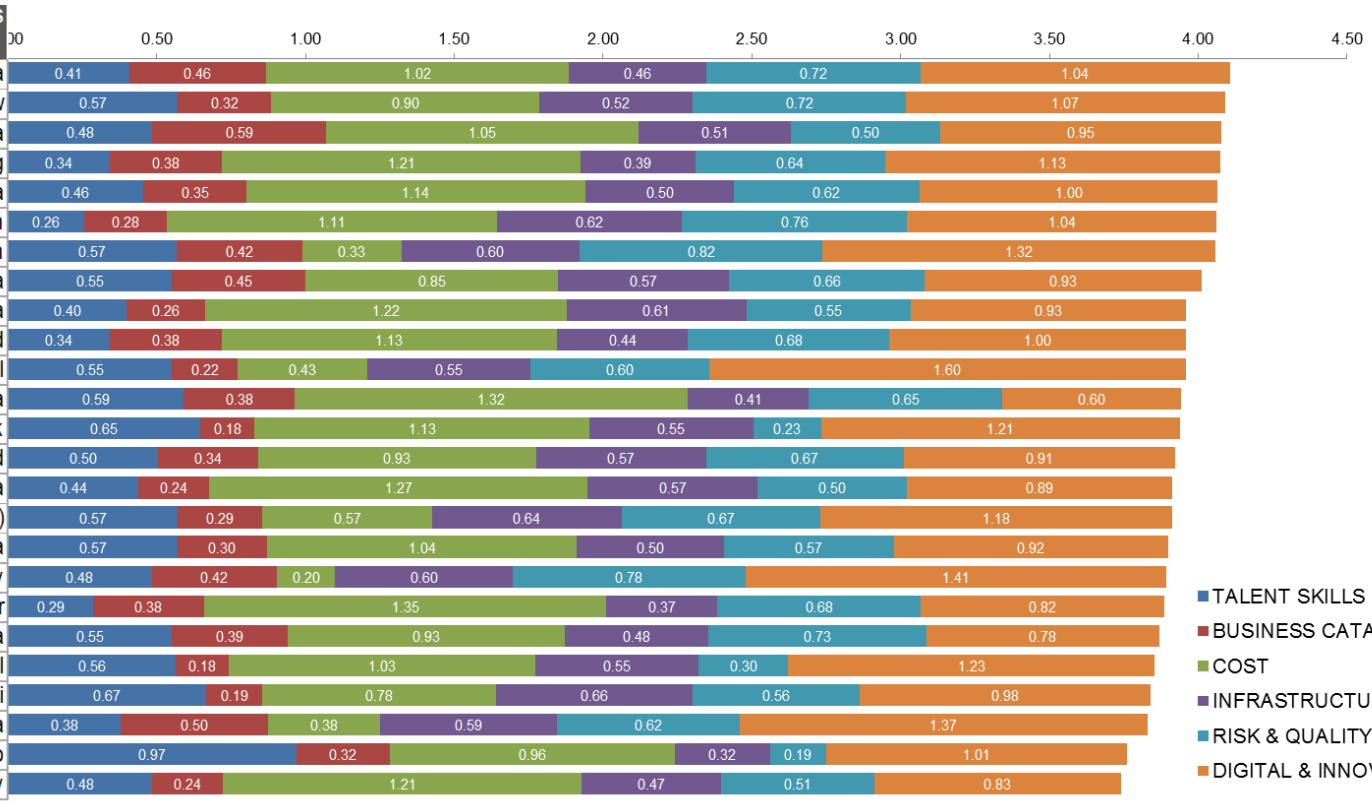
51	43	Sofia	0.41	0.46	1.02	0.46	0.72	1.04
52	78	Wroclaw	0.57	0.32	0.90	0.52	0.72	1.07
53	61	Guadalajara	0.48	0.59	1.05	0.51	0.50	0.95
54	79	Penang	0.34	0.38	1.21	0.39	0.64	1.13
55	82	Ljubljana	0.46	0.35	1.14	0.50	0.62	1.00
56	56	Cape Town	0.26	0.28	1.11	0.62	0.76	1.04
57	94	Perth	0.57	0.42	0.33	0.60	0.82	1.32
58	68	Brasília	0.55	0.45	0.85	0.57	0.66	0.93
59	45	Jakarta	0.40	0.26	1.22	0.61	0.55	0.93
60	37	Ahmedabad	0.34	0.38	1.13	0.44	0.68	1.00
61	54	Seoul	0.55	0.22	0.43	0.55	0.60	1.60
62	51	Accra	0.59	0.38	1.32	0.41	0.65	0.60
63	67	Bangkok	0.65	0.18	1.13	0.55	0.23	1.21
64	83	Nizhniy Novgorod	0.50	0.34	0.93	0.57	0.67	0.91
65	65	Lima	0.44	0.24	1.27	0.57	0.50	0.89
66	-	Leeds (Yorkshire & Humber)	0.57	0.29	0.57	0.64	0.67	1.18
67	81	Córdoba	0.57	0.30	1.04	0.50	0.57	0.92
68	-	Sydney	0.48	0.42	0.20	0.60	0.78	1.41
69	60	Bhubaneswar	0.29	0.38	1.35	0.37	0.68	0.82
70	75	Bratislava	0.55	0.39	0.93	0.48	0.73	0.78
71	55	Istanbul	0.56	0.18	1.03	0.55	0.30	1.23
72	64	Taipei	0.67	0.19	0.78	0.66	0.56	0.98
73	86	Indianapolis, Indiana	0.38	0.50	0.38	0.59	0.62	1.37
74	89	Cairo	0.97	0.32	0.96	0.32	0.19	1.01
75	85	Davao City	0.48	0.24	1.21	0.47	0.51	0.83



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TOP 100 SUPER CITIES

RANK 2018	RANK 2017	DITIGAL NATIONS	TALENT SKILLS & QUALITY	BUSINESS CATALYST	COST	INFRASTRUCTURE	RISK & QUALITY OF LIFE	DIGITAL & INNOVATION
76	99	Novosibirsk	0.61	0.25	0.84	0.47	0.55	1.01
77	71	Vancouver	0.19	0.20	0.30	0.57	0.89	1.59
78	57	Lahore	0.72	0.29	1.35	0.33	0.47	0.55
79	76	Thiruvananthapuram	0.11	0.32	1.35	0.54	0.62	0.73
80	88	Casablanca (Dar-el-Beida)	0.53	0.28	1.20	0.42	0.58	0.66
81	96	Kingston	0.72	0.54	1.01	0.44	0.41	0.53
82	92	Campinas	0.38	0.38	0.97	0.51	0.50	0.88
83	73	Danang	0.57	0.45	1.35	0.28	0.38	0.58
84	69	Nairobi	0.74	0.15	1.22	0.27	0.30	0.92
85	42	Tel Aviv	0.38	0.30	0.60	0.66	0.36	1.30
86	-	Valparaíso	0.18	0.32	1.06	0.57	0.59	0.87
87	100	Santa Rosa, Laguna	0.52	0.28	1.05	0.39	0.50	0.85
88	-	Recife	0.54	0.30	0.89	0.45	0.56	0.85
89	97	Bacolod City	0.26	0.23	1.28	0.42	0.55	0.85
90	-	Barcelona	0.19	0.06	1.20	0.55	0.30	1.26
91	-	Dallas-Fort Worth	0.53	0.41	0.16	0.59	0.37	1.49
92	-	Iloilo City	0.27	0.26	1.36	0.41	0.44	0.83
93	-	Oklahoma City, Oklahoma	0.38	0.41	0.30	0.59	0.54	1.33
94	-	Atlanta	0.53	0.42	0.16	0.57	0.37	1.48
95	-	Bucaramanga	0.34	0.33	1.06	0.53	0.47	0.76
96	-	Montreal	0.40	0.34	0.25	0.58	0.50	1.42
97	-	Gdańsk	0.34	0.60	1.05	0.44	0.17	0.90
98	-	Port Louis	0.12	0.15	1.19	0.46	0.79	0.77
99	-	Cali	0.62	0.30	0.93	0.44	0.39	0.82
100	-	Querétaro	0.30	0.33	1.20	0.51	0.24	0.89

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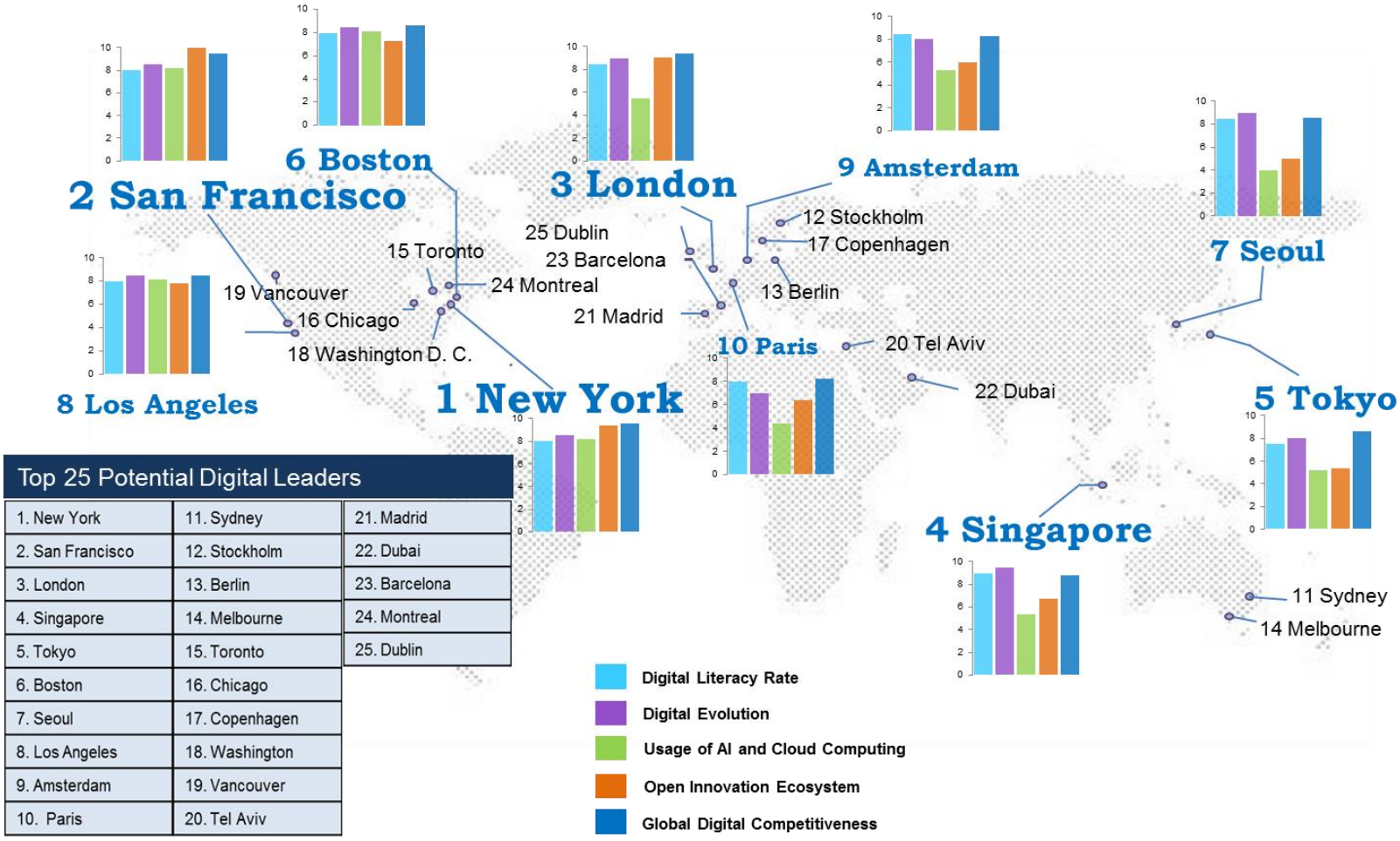
Potential Digital Leaders



Top 25 Potential Digital Leaders		
1. New York	11. Sydney	21. Madrid
2. San Francisco	12. Stockholm	22. Dubai
3. London	13. Berlin	23. Barcelona
4. Singapore	14. Melbourne	24. Montreal
5. Tokyo	15. Toronto	25. Dublin
6. Boston	16. Chicago	
7. Seoul	17. Copenhagen	
8. Los Angeles	18. Washington	
9. Amsterdam	19. Vancouver	
10. Paris	20. Tel Aviv	

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Tholons Research Methodology

Methodology

Tholons Services Globalization Index is the leading touchstone to benchmark the accelerated digital transformation of industries and services globally. The index evaluates, ranks and provides location strategies to multinational corporations, countries, governments, multi-lateral agencies, 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.

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 and various statistics and economic related data from governments, global institutions & agencies, and monetary bodies.
- **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.

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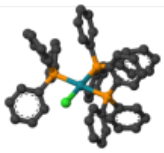
Following are the metrics used to evaluate location attractiveness. The relative weights of each metric are based on their importance to the location decision, again derived from client experience and industry surveys. TSGI's 2017 ranking was published with traditional factors having 80% weightage and digital with 20% weightage. TSGI's 2018 ranking puts traditional with 75% weightage and digital with 25% weightage.

Talent Skills & Quality	Business Catalyst	Cost	Infrastructure	Risk & Quality of Life	Digital & Innovation
• Total Population • Non-Technical Graduates • Technical Graduates	• Employed in BPO Sector • Employed in ITO Sector • BPO Providers • ITO Providers	• BPO Salary Cost • ITO Salary Cost • Real Estate Cost • Bandwidth Cost	• Airport Connectivity • Leased Line Providers • Mass Transport systems • Hospitals & Educational Institutes • Availability of Class-A IT Parks/Bldg	• Political Risk • Social Risk • Natural Risk • Commercial Risk	• Open Innovation Ecosystem • Startups, Diversity & Maturity • Innovative Policies & Incentives • Unicorns • Cyber Security • Global Digital Competitiveness • Digital Skills/ Scale/ Attractiveness
					
19% Skills and Scalability	**15% Ease of Doing Business**	**15% Operations / Costs**	**11% Business Environment**	**15% Risk to Business Quality of Life**	**25% Digital Transformation**

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 fulfil 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 were among the host of related components considered when generating the Talent, Skills and Quality Score.

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Scoring: *10 = High scale and quality 1 = Low scale and quality*

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. Current industry performance including the top service providers and captives, location's headcount and revenues, etc. Number of Employees in ITO & BPO, Number of ITO & BPO Providers and ease of doing business are among the critical sub-components.

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

Cost

Cost includes relevant payroll and non-payroll costs in a location. Real Estate cost, basic outsourcing industry salary costs 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 = Low cost 1 = High cost*

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, Number of Hospitals, Number of Educational Institutes and airport Connectivity.

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. 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, 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.

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

Digital & Innovation

Digital and Innovation is the lifeline of today's businesses. Businesses must embrace digital technologies and platforms like social media, mobile technology, cognitive computing, cloud and artificial intelligence to cater to the changing demands.

Following are the parameters considered for Digital and Innovation:

Open innovation ecosystem, number of startups, startup diversity and maturity, innovative policies and incentives, unicorns, cyber security, global digital competitiveness, digital literacy rate i.e. the number of people using internet, digital evolution, digital talent and high tech patent grants, business agility, usage of RPA/AI/cloud, investors and ease of doing business.

Scoring: *10 = High digital and innovation 1 = Low digital and innovation*

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 2018 among the Top 100 Super Cities.

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

Workforce/Total Population

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 total population of the country that is derived from the population of the cities present in top 100 list for a given country.

10 = High workforce 1 = Low workforce

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Countries Exiting from TSGI 2018

- In this digital age, innovation is key. However, it's very important to collaborate among Clients, Network of Startups, Mentors, Venture Capitalists, System Integrators and Platform Builders. China seems to have closed their borders for collaboration with outside world and thereby rendering themselves irrelevant to the globalization of businesses outside of China. We believe, China is not relevant to our Top 100 Super Cities or Top 50 Digital Nations. China is exiting our Index this year. There are few countries who have not been able to make the minimum benchmark and standards to qualify in TSGI 2018 or been disqualified like China, as mentioned above. The country which has also exited this year from TSGI 2018 is Bangladesh.

Countries Entering TSGI 2018

- There are few countries who have shown exemplary movement in embracing digital and being relevant to the globalization of services. These countries are: Jordan, Slovenia, Latvia and Mauritius. Tholons welcomes their entry into the league of Top Digital Nations.

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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 2018 Tholons Services Globalization Index.

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About Tholons

THOLONS is a Global Strategic Consulting, Digital Industrial Innovation and Investment Advisory group serving Fortune 500 / Global 2000 clients, multi-lateral / development agencies and countries. Tholons has over two decades of experience and an unparalled network of clients, mentors, startups, system integrators, technology partners and venture funds

Tholons helps clients maximize returns on their innovation, digital transformation, business growth and global expansion. MY SPACES, the Enterprise Innovation global network, powered by THOLONS is the global leader and platform in collaborative ecosystem of Co-work | Co-innovate | Co-invest.

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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