



# TECNO LATINAS

**LATIN AMERICA RIDING THE  
TECHNOLOGY TSUNAMI**

**SURFING  
TSUNAMIS**

**>Nxtp.Labs**

**OVIN**  
Multilateral Investment Fund  
Member of the IDB Group



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## ABOUT TECNOLATINAS\*

The Surfing Tsunamis and NXTP Labs teams have joined forces to propose a new concept that identifies technology companies in Latin America.

With the support of the Multilateral Investment Fund (MIF-IDB), this work seeks to measure the impact these young companies have on the regional economy, as well as the global reach of their innovations.

Identifying them, systematizing dispersed information and presenting them under the same concept, is a key step in the consolidation of a sector that has been sailing for some time and which is nevertheless capable of generating value and employment at scale.

This concept that we propose to designate the innovative talent of Latin America applied to innovation and technology, is also a way of recognizing that the talent that drives these companies are not exceptional, but we are facing a regional movement that is part of the Major industrial revolution of which we have memory.

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*\*Errata will be included on the site: <http://tecnolatinas.com>*



TECNOLATINAS

# LATIN AMERICA RIDING THE TECHNOLOGY TSUNAMI



## WHAT IS A TECNOLATINA?

A technology-based private company born in the region. Most of them are **entrepreneur-driven digital ventures with an international footprint.**



## THE RADAR REPORT\*

**5000+**  
TECNOLATINAS  
IDENTIFIED

123 TECNOLATINAS  
WORTH OVER  
US\$ **25M**

ECOSYSTEM VALUE  
US\$ **37.7B**

  
9 Unicorns worth over  
US\$ **1B**

**62%**

of ecosystem Value comes from Tecnolatinas worth over

**US\$ 1B**



**82%**

of ecosystem value from **Brazil and Argentina**

**48%**

of Tecnolatinas are based in **Brazil**

**73%**

of value of Brazilians players is created with **local footprint**

**80%**

of value of non-Brazilian Tecnolatinas **is created with regional or global footprint**

**58%**

of Tecnolatinas **are worth less than US\$100M**



Latin America is witnessing the emergence and growth of a new species of companies that is transforming our business landscape: Tecnolatinas, i.e. technology-based private companies born in the region. Most of them are entrepreneur-driven digital ventures with an international footprint. They can already be counted by the thousands and are spreading beyond the Internet into new spaces like biotechnology, digital medicine, renewable energy, software security, space tech, fintech and agtech.

This report provides the first map of the most valuable Tecnolatinas and the first comprehensive view of this new phenomenon. Most people are not aware about their strategic relevance, their diversity, their distinctive business practices and their quickly evolving footprint. Our goal is to close that awareness gap and to show investors, corporations, academia, media and governments why they should be dedicating more time and attention to these companies and the opportunities they bring out.

The report aims at providing answers to the following issues:

- > How many Tecnolatinas there are, where they come from and how relevant they are.
- > Why they are strategically relevant and how to identify the sweet spots in their ecosystem.
- > Why they are emerging now. Is this another bubble?
- > What their playbook is and which the toolkit they resort to; how they envision their local/regional/global playground; what approach to management and strategy they use; how they balance entrepreneurial spirit and growth.
- > What the new frontiers and scenario drivers are, and in which of them Tecnolatinas may flourish in coming years.
- > Who the stakeholders are and what they should be doing to make the most of this rapidly evolving trend.

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CHAPTER 1:  
**THE TECNOLATINAS RADAR**

# Latin America Riding the Technology Tsunami

For the first time in history, Latin America is creating technology companies at scale. Over the past months we've been scanning thousands of these companies in the region.

After a thorough process of survey and detailed analysis, we could identify and map on the Radar we created as a result, 123 TecnoLatinas that are already worth over US\$25M and that have a collective worth of over US\$37,7B

Our Radar, introduced for the first time in this Report, is a comprehensive list that presents all the TecnoLatinas -as indicated, private, technology-based companies born and based in LatAm- we were able to identify in the region with a minimum estimated value of more than US\$25M.

This survey is based on all public sources available and on the collective perspective of over 20 experts from different countries in the region (*see **Methodology Box***).

To estimate the value of each company, we multiplied the capital raised in the last round as publicly announced by the companies to the press by a multiple that is consistent with

perceived industry practices. Rather than creating a ranking, we segmented the companies in broad valuation ranges so as to acknowledge the inherent uncertainty in their value. Companies in each value range are presented in alphabetical order. Companies in each value range are presented in alphabetical order.

## Methodology

*The Radar is the result of an extensive research over the past year. Multiple sources were consulted (Crunchbase, LAVCA, Angel List, DealBook, and others) to identify technology companies from the region. Experts were asked to identify the most valuable companies on their personal radars and a comprehensive press search was then conducted to obtain public information about the valuation or their last sources of funding of each company.*

*To estimate the value of each company, the total capital raised in their last equity round made public to the press was factored by a multiple that was dependent on the stage of development of the companies (latter series involved a higher multiple as they typically involve less equity). When revenue was available we used market revenue multiples consistent with the sector of the company. The companies were grouped in five broad segments (US\$25M-50M, US\$50-100M, US\$100M-500M, US\$500M-US\$1B and Over US\$1B) and the list was shared with over a dozen experts from the region for validation. The place of origin or country assigned in the Radar list, was based on whether the company has its headquarter in a country of the region and / or its founders originate in Latin America.*

We are aware that some valuable companies were probably left out of our first Radar. Information in the LatAm startup ecosystem is often scarce. As a result of a culture of secrecy, many companies and investment funds withhold information about valuations and funding rounds, making a valuation range estimate based on public sources impossible. Also some companies never go through a venture capital round.



It must be pointed out though, that the Radar may underestimate the true dimension of the Tecnolatinas ecosystem. Some companies may be beyond our detection capacity. Others may have seen their value grow significantly since the last round. And yet others may have conducted private rounds, thus leaving us without reliable data to trace their valuation. But we believe this first picture of the Radar already provides valuable insights and the best available overall outlook of the players in the regional ecosystem.

## The radar list

SEGMENT	COMPANY	COUNTRY	YEARS	FOOTPRINT
9 companies >US\$1B	B2W	Brazil	17	Local
	Crystal Lagoons	Chile	10	Global
	Despegar	Argentina	17	Regional
	Globant	Argentina	13	Global
	Kio Networks	Mexico	14	Global
	Mercadolibre	Argentina	17	Regional
	OLX	Argentina	10	Global
	Softtek	Mexico	34	Global
	Totvs	Brazil	27	Global
7 companies US\$500M -1B	Etermax	Argentina	7	Global
	HotelUrbano	Brazil	5	Local
	Linx	Brazil	31	Local
	Netshoes	Brazil	16	Regional
	Nubank	Brazil	3	Local
	Taringa	Argentina	12	Regional
	UOL	Brazil	20	Local
35 companies US\$100M -500M	3D Robotics	Mexico	7	Global
	99Taxis	Brazil	3	Regional
	Archdaily	Chile	8	Global
	ASPEL	Mexico	35	Local
	Beleza Na Web	Brazil	7	Regional
	BestDay	Mexico	32	Regional
	Buscapé	Brazil	17	Regional

35 companies  
US\$ 100M  
-500M

Dafiti	Brazil	6	Regional
Dress&Go	Brazil	4	Local
OpenEnglish	Venezuela	10	Regional
GuiaBolso	Brazil	4	Local
Icarros	Brazil	8	Local
Linio	Mexico	4	Regional
Vivareal	Brazil	7	Local
Easy Taxi	Brazil	5	Regional
ifood	Brazil	5	Regional
IguanaFix	Argentina	3	Regional
Intelisis	Mexico	30	Regional
Intergrupo	Colombia	20	Regional
InvertirOnline	Argentina	16	Local
LANIX	Mexico	26	Local
Navent	Argentina	6	Regional
Onapsis	Argentina	7	Global
Pagar.me	Brazil	3	Local
PedidosYa	Uruguay	7	Regional
Pitzi	Brazil	4	Local
Printi	Brazil	4	Local
PriceTravel	Mexico	16	Regional
PSafe	Brazil	6	Regional
Qubit.tv	Argentina	5	Regional
Satellogic	Argentina	5	Global
Scanntech	Uruguay	24	Regional
YellowPepper	Mexico	9	Global
Webmotors	Brazil	21	Local
Zap.com.br	Brazil	16	Local

31 companies  
US\$50M  
-100M

Apontador	Brazil	8	Local
Auth0	Argentina	3	Global
Bebe Store	Brazil	7	Local
Beleza.com	Brazil	4	Local
Bidu	Brazil	4	Local
Bluesmart	Argentina	3	Global

31 companies  
US\$50M  
-100M

Catho	Brazil	20	Local
Clickbus	Brazil	3	Regional
Comparaonline	Chile	7	Regional
ContaAzul	Brazil	5	Local
Dr Consulta	Brazil	5	Local
Easy Solutions	Colombia	9	Global
Eduk	Brazil	3	Local
Elo7	Brazil	8	Local
Geofusion	Brazil	1	Regional
GetNinjas	Brazil	5	Local
Infobae	Argentina	14	Regional
Kueski	Mexico	4	Local
LatAmautos	Ecuador	7	Regional
Loggi	Brazil	3	Local
Lupeon	Brazil	1	Local
Maplink	Brazil	16	Local
Mercado Eletronico	Brazil	22	Local
NeoWay	Brazil	14	Global
Restorando	Argentina	5	Regional
OQVestir	Brazil	8	Local
PayU Latam	Colombia	14	Global
Technisys	Argentina	17	Regional
Tripda	Brazil	2	Local
Trocafone	Brazil	2	Regional
WebRadar	Brazil	8	Regional

41 companies  
US\$25M  
-50M

Afluenta	Argentina	8	Regional
Agrofy	Argentina	1	Regional
Alto	Chile	13	Regional
Avante	Brazil	4	Local
BankFacil	Brazil	4	Local
Beauty Date	Brazil	5	Local
CargoX	Brazil	3	Local
Contpaq	Mexico	32	Local
Descomplica	Brazil	5	Local

41 companies  
**US\$25M**  
**-50M**

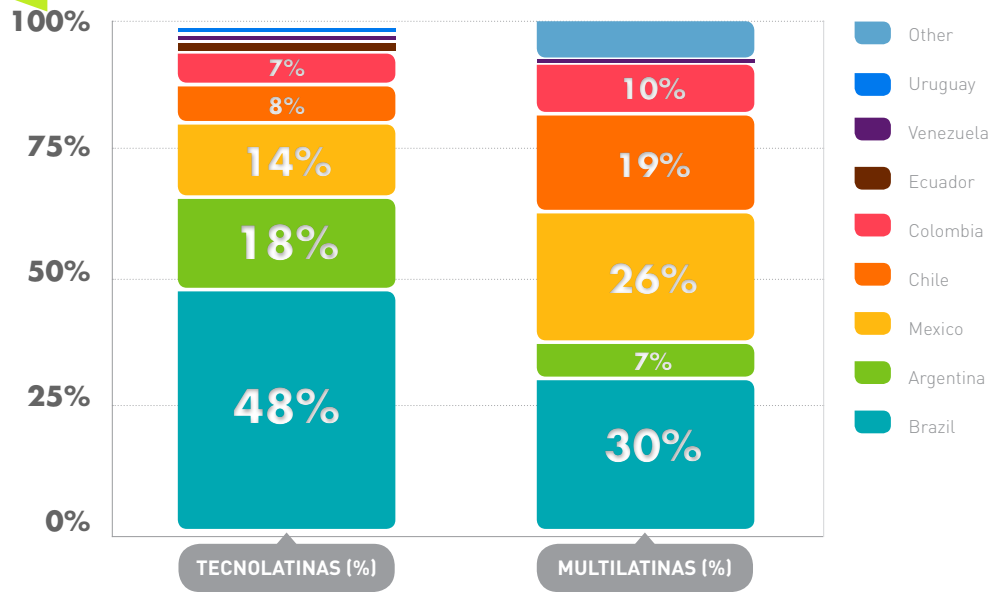
Domicilios	Colombia	2	Regional
EasyPost	Brazil	2	Regional
Emprego Ligado	Brazil	4	Local
Empleo Listo	Mexico	8	Local
Enjoei	Brazil	7	Local
Enlace Operativo- ARUS	Colombia	18	Local
Fluvip	Colombia	3	Regional
Gal&Leo	Chile	7	Regional
Golntegro	Argentina	4	Regional
Ingresse	Brazil	4	Local
IronHide	Uruguay	6	Regional
Jampp	Argentina	5	Global
Kekanto	Brazil	6	Local
Khipu	Chile	5	Local
Konfio	Mexico	3	Local
Koombea	Colombia	9	Global
Kubo financiero	Mexico	4	Local
LocationWorld	Ecuador	8	Regional
Movix	Chile	15	Regional
Ofi	Colombia	2	Local
Passei Direto	Brazil	4	Local
PayClip, Clip	Mexico	3	Local
PetLove	Brazil	17	Local
Portal Inmobiliario	Chile	20	Local
PSL	Colombia	30	Global
Quinto Andar	Brazil	3	Local
Rappi	Mexico	1	Regional
Resultados Digitais	Brazil	5	Local
SaferTaxi	Chile	3	Regional
Trabajando.com	Chile	17	Regional
VTEX	Brazil	17	Regional
VU	Argentina	10	Regional

Tecnolatinas have already proven that Latin America can succeed in creating value in businesses driven by technology. Latin America already has nine (9) companies worth over US\$1B, or Unicorns, as they are normally called in the industry, given their relative rarity in the startup world.

These LatAm Unicorns have a collective net worth of US\$23.2B and represent the bulk of the value of the ecosystem (61%). The majority of them are focused on the Internet space and were born before or shortly after the 2001 Internet bubble bust (except OLX and software companies Softtek and Totvs), showing how digital ventures can create tremendous value creation in a relatively short period of time.

As it comes out clearly from the list, **most of the Tecnolatinas in our Radar are concentrated in Brazil (59), Argentina (22) and Mexico (22). It also shows the map of Tecnolatinas is very different from the map of Multilatinas**, i.e. the multinationals from Latin America, mostly in traditional sectors), **thus showing that the key success factors in this space are very different from those of the traditional sectors.**

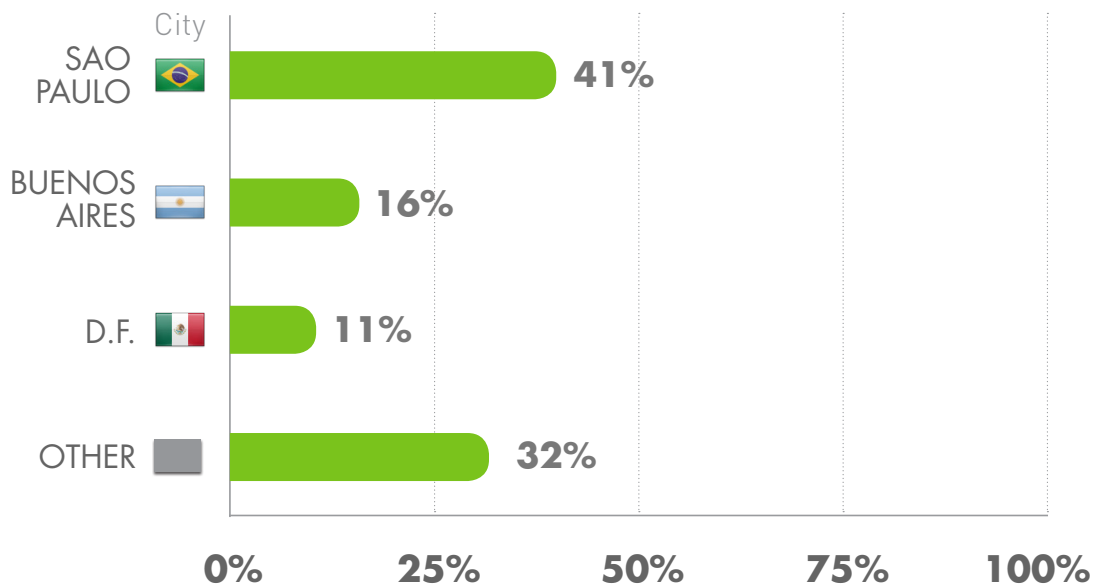
Brazil and Argentina cluster 37% of the Multilatinas but a whopping 66% of the Tecnolatinas (and Argentina accounts for 37% of the regional ecosystem total value). On the other hand, Mexico, Chile and Colombia account for 55% of the Multilatinas but only 29% of the Tecnolatinas.



Source: TecnoLatinas Report  
AmericaEconomía Intelligence.

Most of the TecnoLatinas are based in the largest megacities of the region: Sao Paulo (51), Buenos Aires (20) and Mexico City (13) represent 68% of these companies and 87% of the ecosystem value creation, highlighting the value of a large and diverse pool of talent and early successes. While still young and far from reaching their potential, Sao Paulo and Buenos Aires have already created a significant portion of the ecosystem value.

## PERCENTAGE OF TECNOLATINAS PER CITY



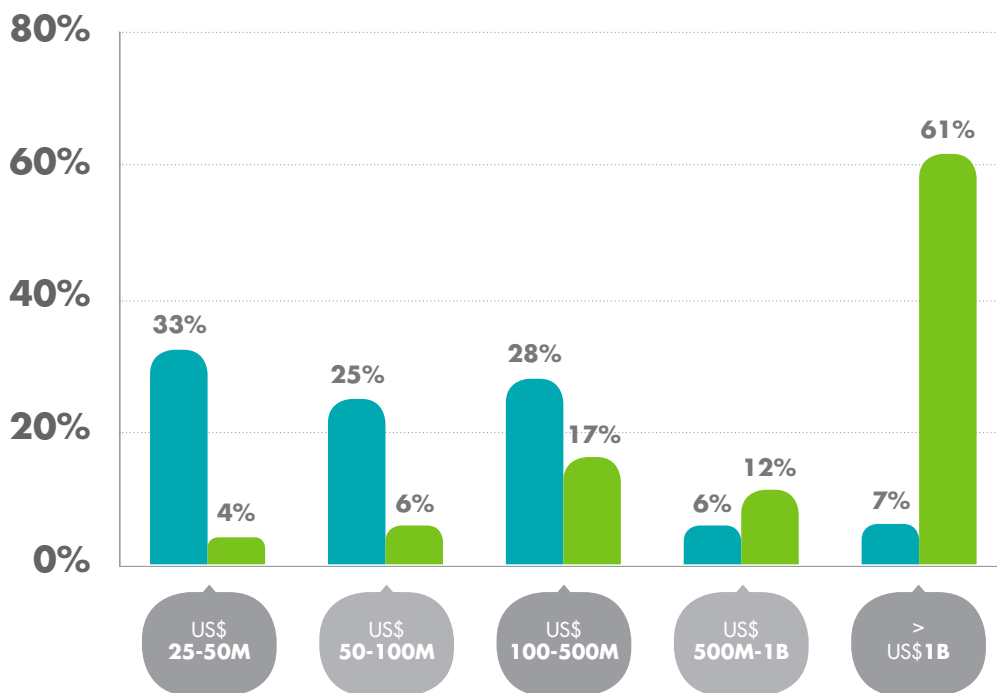
Source: TecnoLatinas Report

Number of Companies (%)

While still young and far from reaching their potential, Sao Paulo and Buenos Aires have already created significant ecosystem value. Meanwhile, Colombia, Chile and Mexico, are rapidly growing as ecosystems for the digital economy industry thanks to the dynamism of their markets and policies to encourage the creation of startups and financing sources. In all the region, “since 2012, the promotion of start-ups has shifted from an experimentation to a scaling up phase”.

Most of the TecnoLatinas in our Radar (62%) are worth less than US\$100M but, as we mentioned above, most of the value is concentrated in the most successful companies: Unicorns (worth over US\$1B each) represent 62% of the total ecosystem value. The conclusion is twofold. On the one hand, it confirms the winner takes all nature of digital markets and startup portfolios; on the other, it reflects the fact that most of them are still young and also that making it to the top league is not easy and takes time.

## PERCENTAGE OF TECNOLATINAS AND ECOSYSTEM VALUE BY VALUATION SEGMENT










Source: TecnoLatinas Report

■ Companies  
■ Value

The vast majority of TecnoLatinas are new (67% are less than ten years old) and were created by young and daring entrepreneurs. They are the result of a rapidly blossoming supportive ecosystem that includes NGOs, universities, investors, governments and service providers. Their cultural reference is Silicon Valley. They keep themselves updated on global and regional market trends using the most advanced digital technologies. They are constantly experimenting with the latest business practices like the business model canvass, A/B testing and crowdfunding. They are out to change the world and in many cases they are proving that is not such a far-fetched aspiration but a real possibility.

## PERCENTAGE OF TECNOLATINAS BY AGE SEGEMENTS

Country	<1995	1995-1999	2000-2004	2005-2009	2010-2015	Total
 Brazil	2%	6%	3%	7%	29%	48%
 Argentina	0%	2%	3%	4%	8%	19%
 Mexico	5%	0%	2%	2%	5%	14%
 Colombia	1%	2%	1%	2%	2%	7%
 Chile	0%	2%	2%	3%	2%	7%
 Venezuela	0%	0%	0%	1%	0%	1%
 Ecuador	0%	0%	0%	2%	0%	2%
<b>Total</b>	<b>9%</b>	<b>11%</b>	<b>11%</b>	<b>22%</b>	<b>47%</b>	<b>100%</b>

Source: TecnoLatinas Report

Most TecnoLatinas are focused on the consumer internet space, but many are going beyond. The most common strand is made up of consumer Internet regional players that replicate and localize the model of successful US players that have yet to set a foot in the region. They focus on spaces where there is local friction (ie. need for distribution, contracts, payment solutions). They create value by developing what will later often become building blocks for global players, accelerating penetration of powerful solutions in the region. But many TecnoLatinas are having success in other fields such as games (Etermax), space (Satellogic), software (Globant) or the Internet of Things (Bluesmart).





## CHAPTER 2: **Why Now**

Technology-driven companies have existed in Latin America for some decades but the region only began creating private technology companies at scale in the last fifteen years with the rise of the Internet. Most of the early pioneers were sponsored by government policy, being either directly created by the public sector (like Embraer and INVAP) or born within special free trade zones such as Manaus in Brazil or Tierra del Fuego in Argentina.

While these companies remain relevant players, in order for Latin America to become a modern 21st century innovation-driven economy, we need a surge of privately funded entrepreneurial technology startups that can compete internationally without depending or relying on government protection.

The rise of the Internet brought the first wave of startups of that kind (i.e. players like MercadoLibre and UOL). The accelerated growth of cloud and mobile technologies powered the second wave of Tecnolatinas. As a result, the combination of emerging technologies and favorable conditions is fueling a historic opportunity for exponential growth.

A set of powerful forces are driving and will continue to drive the growth of Tecnolatinas: low entry barriers, access to a large regional market and a pool of quality talent, a growing interest in entrepreneurship as a career option, increasingly friendly and better funded ecosystems, inspiring success stories and the growth of new opportunity spaces driven by the rise of new technologies.

Both the cost and the time required to test new concepts and to build and scale a startup have fallen dramatically. The regional and global playing field is becoming flatter than ever before. Only a few years ago, starting an Internet company required a minimum investment of US\$1M in servers and equipment. Today, a host of cloud services enable any team with a bright idea and a few thousand dollars to build and scale a born-global company at exponential speeds without needing major capital expenditures. They can also outsource the design of their products to armies of freelancers from around the world via sites like Freelancer, 99Designs or Workana.

The cost of acquiring clients has also fallen thanks to social media. The cost of accessing innovation-enabling technologies such as 3D printers (for rapid prototyping), laser cutters and biotech lab equipment is also falling, opening new doors and even enabling DIY innovation. Instead of spending years building factories, startups like Bluesmart are quickly outsourcing their production to Chinese factories, and their logistics to Amazon. At the same time, they are leveraging social media, shared assets, communities and platforms to scale their businesses overnight.

Global invention and entrepreneurship are being democratized. The playing field has never been so leveled and large. Today entrepreneurs and inventors from Latin America have access to almost the same information, tools and customers than their peers elsewhere.

Only a decade ago, most entrepreneurs in Latin America had major disadvantages relative to their peers in Silicon Valley. They had limited visibility on market trends; Internet penetration in the region was very low; starting a business required millions of dollars, and funding was unavailable. Today, they can create a global startup with less than US\$10,000, access capital like never before, and instantly reach billions of connected consumers.

Technology entrepreneurship is becoming global. In fact, the emergence of TecnoLatinas is part of a broader phenomenon: We are witnessing the emergence of full-fledged startup ecosystems in every continent, including cities like Shanghai, Bangalore, Austin, Seoul, Tallinn, Singapore. But what are the underlying forces driving the emergence of TecnoLatinas in particular?

**As the largest industrial revolution unfolds, opportunities for entrepreneurship are exploding. Today a startup can reach a growing market of over three billion connected consumers from anywhere on Earth.**

E-commerce is sizable and growing. App markets provide access to extensive markets at the touch of a button to startups like Etermax, an Argentine gaming company that created apps like Apalabrado, a company that reached a global audience of 60 million people in only a few years, and now has annual revenues of more than US\$150 million. New markets are developing at an accelerated pace. To take one, the Internet of Things, for example, is expected to grow from around 11M connected devices in 2014 to more than 28M by 2020.

**Startups are creating value and generating inspiring success stories at record speeds.**

Relatively new companies like Uber, Snapchat, Oculus Rift or Whatsapp, achieved valuations in excess of US\$1B in less than two years, which is ten times faster than the pace of the most successful traditional companies in the past. Every month for more than 100 months, a new startup has achieved a US\$1B valuation.

These valuations are still uncommon in the region, but talented youth are watching these success stories and realizing they can repeat them and transform an idea into a successful business that will contribute to make the world a better place.

**Entrepreneurship is becoming the preferred career option for top talent with business and engineering backgrounds.** This is partly because the value creation upside can be life changing. There are plenty of successful entrepreneurs quickly reaping fortunes. But also because the overall career proposition is better aligned with the values, aspirations and preferences of the Millennials. This new generation aged 15-35 wants to learn, flexible hours and upside in the value they are creating. They open to change.

**The regional ecosystem is evolving, making it easier for new entrepreneurs to succeed.** Some countries already have several generations of successful entrepreneurs who provide role models and are ready to help those coming up the ranks. A network of institutions (notably, Endeavor) provide coaching, financial support and improved access to the international business community. Venture capital funds, angel investor

networks, crowdfunding sites and accelerators are growing rapidly, providing new funding options and gradually covering capital needs from seed to growth stage.

Collaborative working spaces are providing flexible office space, tools and supporting communities. A growing host of conferences, hackathons, startup weekends and courses targeted to new entrepreneurs are weaving the fabric of the ecosystem. The notion of networking goes beyond the idea of social or professional relationship. Service providers are developing and transferring know-how.

Governments are increasingly aware that startups are a vital force for the development of the information economy and of an ever growing array of new positions and jobs. They are beginning to support them with capital, grants, improved business environments and special incentives.

Most people fail to realize the magnitude of the phenomenon and its strategic implications. But it's undeniable that with appropriate support and steering, the TecnoLatinas can become the dynamo the region needs to generate a future of abundance.

## The Bubble Issue

**Our view is that the growth of the TecnoLatinas ecosystem may have ups and downs but is here to stay.** The combination of driven and talented entrepreneurs, low entry barriers, massive opportunities for disruption, scalable business models and increasingly supportive ecosystems is explosive. We believe we are in the very early stages of a positive revolution and the best is clearly yet to come.

**The untapped potential is clearly huge.** Consider that, despite recent accelerated growth, Latin American startups raised only US\$0.6B in 2015 versus the US\$3.6B raised in the same period by startups in Israel, a country with a population of only 8 million people (vs. roughly 600 million in LatAm).

The clear implication here is that Israel is investing 400 times more on a per capita basis than countries in Latin America are. Can't part of this gap be closed? Our region spends US\$28 billion in R&D every year and hires hundreds of thousands of researchers. What would happen if we changed mindset and inspired these scientists and engineers to create startups and connect with entrepreneurs?

**Some skepticism may be expected – not at all unreasonable.** Low global interest rates, cash availability and stories of quick astronomical valuations create an incentive for market entry and potential capital misallocation. The lion's share of technology startups in the region are also copycats from US models, making their claim to value more fragile. Finally, most of the companies are very young and will require investment and support to make it through the valley of death. A global financial crisis or a significant market correction that shifts sentiment towards risk and cuts access to fresh capital would likely result in a carnage.

**There is a risk of a global correction in case US interest rates rise.**

President-elect Trump is expected to carry out a series of policies that may result in an increase in interest rates. If the Federal Reserve were to increase interest rates, this is likely to negatively impact the startup funding scene. The situation could be compounded by possible external financial crises (for example, in Europe) or economic shocks negatively impacting the global technology ecosystem.

**But the fundamentals for long-term value creation are stronger than ever.** The cost of launching a technology startup in Latam has come down by more than an order of magnitude.

The Internet has grown from 40 million users to more than 3.3 billion and is expected to grow by another 2-3 billion in the next ten years. Time spent on the Internet grew from 2.7 hours in 2008 to 5.7 hours in 2016 and US e-commerce and adspend multiplied by over 15 times since 1999 and still has plenty of room to grow with only 6% of US retail revenue penetration.

In LatAm, e-commerce went from essentially nothing in 1999 to over US\$70B in 2015. And there is huge space for value creation as mobile penetration continues to grow and startups begin to enter in rapidly growing disruptive technology spaces such as augmented and virtual reality, artificial intelligence and robotics, the Internet of Things and synthetic biology.

**Differently from the 1990s, when it was common to see Latam startups focused on local plays, today most players target regional or global markets from the outset, particularly when born outside Brazil.** The ecosystem around technology companies is much better developed, with accelerators, venture capital funds, budding makerspaces, collaborative hubs and government support programs.

There are also more potential exit options, including well-capitalized US players and stronger regional capital markets. Links with Silicon Valley have proliferated, with local subsidiaries of US internet giants like Google and venture capital firms like Accel Partners and Redpoint; with the presence of Latin entrepreneurs in the US, and thanks to regular missions in both directions supported by organizations like 500 Startups, SV Link, universities like DiTella, FIESP, TechBA, ITESM and even governments.

**Finally, many TecnoLatinas have better fundamentals than those of Latam traditional companies.** They are attackers with disruptive and scalable business models supported by exponential technologies. They are focused on large and rapidly growing markets. They are lean, agile and unencumbered by legacy. They leverage start-of-the-art tools and business practices. They are attracting and motivating the dynamic young talent coming out of universities with their epic, flat organizations and value-driven incentive systems.



### CHAPTER 3: **The Strategic Relevance**

The strategic significance of this phenomenon cannot be understated: Tecnolatinas are the living proof of the capacity of Latin America to take part in the new technology revolution. In a world starving for growth and value creation opportunities, technology-enabled innovation will stand out as the most solid avenue for value creation and economic development in coming decades.

The gravity pull of massive debt, climate change and global instability is poised to have a negative impact on global growth for a significant time. In a world marked by secular stagnation and accelerated technology disruption, value creation is bound to be driven by innovation and entrepreneurs who are decided to leverage new technologies to challenge the status quo with superior experiences and business models.

The Tecnolatinas provide a gateway for Latin America into the largest industrial revolution in history and a platform to build the economy of the 21st century in the region. Only innovation provides an engine powerful enough to escape the middle income trap. We need to follow the example of Israel, which went from being bankrupt in 1985 to more than double income per capita by betting on a knowledge economy driven by entrepreneurial innovation. It's always been the entrepreneur, rather than the incumbent, who would come up with an idea and would strive to create the business that would lead each industrial revolution.

The car industry was dreamt and built by people like Henry Ford and not by carriage makers. The personal computer revolution was led by the likes of Steve Jobs and Bill Gates rather than engineers from IBM or NEC. So if Latin America wants to ride this new revolution, it absolutely needs the fresh, energetic will and power of innovative entrepreneurs.

Tecnolatinas are positioned to transform the regional business landscape in coming decades. They can generate entire huge new industries in areas such as biotech, agtech, internet of things and renewables. They can ride the huge wave of technology-driven value creation, and quickly achieve scale and visibility when successful. They can also redefine the region's insertion in the technology space. They are positioned to transform the market dynamics and consumer behavior across the board, from finance to consumer goods, from real estate and agriculture to entertainment.

Tecnolatinas will be a critical job creation engine. They are entrepreneurial by nature, they focus on fast growing market spaces, they tap into global demand, they generate high value jobs. The region is much better off with them than without them. A recent study of job creation in the US economy during the last fifty years led by the shows that new businesses account for virtually all net job creation, because existing companies destroy as many jobs as they create in their constant pursuit of efficiency.

Tecnolatinas can also create platforms of opportunity: MercadoLibre not only created thousands of jobs, it also generated the conditions for over 100,000 people to live from selling goods through their platform and supported the development of dozens of startups. Every year tens of millions of young Latin Americans enter the job market. Tecnolatinas will never make up for that gap, but their contribution is certainly valuable and absolutely necessary to push further development.



Tecnolatinas can breed a new and novel generation of business leaders. Their leaders are and need to be entrepreneurial, innovative, ambitious in their aspiration and drive for impact, dynamic and global in their outlook, and willing to take risks and give back to their ecosystem. Innovation demands that from them and also their cultural reference to Silicon Valley, where all of these values are not only prevalent but critical. They also need to work with high ethical standards to be able to attract capital and grow freely, without clientelistic links to government. This is a step-grade improvement relative to the traditional operating model on the Latin America business scene that can help inspire our youth, providing valuable role models.

Tecnolatinas provide an opportunity for traditional companies to engage in open innovation and ride the technology tsunami. Wired for control and predictability, most corporations will struggle to catch-up with the speed of change and will be increasingly cornered into reactive adaptation and defensive plays. A massive reshuffle in business leadership is to be expected over the next 10 to 20 years. 40% of the Fortune 500 companies will not be on the list ten years from now. Traditional companies, particularly those in Latin America, are simply not equipped to keep up with accelerated change.

Innovation is not one of their core capabilities and most of them are not sufficiently nimble, agile and customer centric to navigate an era of global disruption. Nevertheless, there is a lot corporations can bring to the table if they decide to collaborate with startups and complement their capabilities. That is what leading companies around the world such as Google, GE, IBM, Procter & Gamble, among others, are already doing. A report by shows that, in recent years, there has been a surge of corporate accelerators and venture capital funds which, we believe, shows the way to companies in our region.

Tecnolatinas are an attractive opportunity for investors. The value creation potential is huge and the ecosystem is underfunded. In Silicon Valley, capital is considered a commodity and investors flock to fund talented entrepreneurs, who choose among a wide array of proposals the one they consider the best. In Latin America, talented

entrepreneurs and inventors still face an uphill battle to get access to capital, mentorship and guidance for their projects. That means investors can cream the market. And it also explains why survival rates in early stage portfolios are often above 70%, a rate that's consistent with the experience in Israel, where success rates for the funds of the landmark Yozma Program, for example, were above 50%. Under-explored opportunity spaces like synthetic biology are not uncommon in the region.

A new relationship between talent and capital is fleshing out. Even though the market is still underfunded, the emergence of TecnoLatinas is creating the conditions for a much healthier balance of power between talent and capital. Today a talented entrepreneur addressing a regional or global market can easily benefit from grants and capital from multiple countries and can even resort to crowdfunding. Instead of working for pay as if they were employees, they can choose to work for equity, capturing a much larger share of the value they are creating.

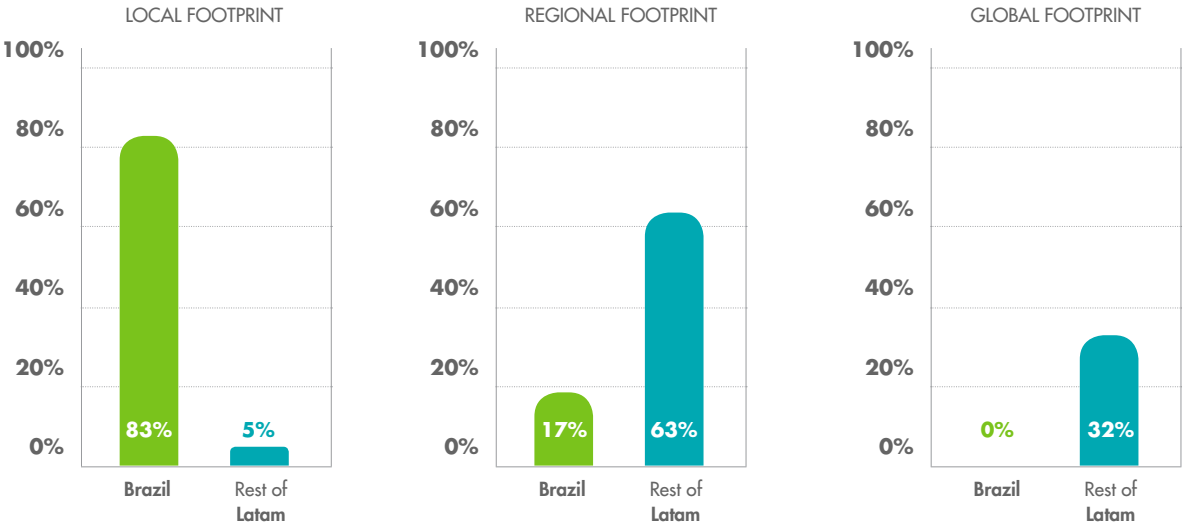
A change of outlook and organization of some kind are needed if the region is to leverage this opportunity. Latin America needs to make the most out of the TecnoLatinas phenomenon to move forward in the path of sustainable development. This opportunity is open to every nation in the region, regardless of their scale. But not only a new mindset is needed, but also a shift in strategic priorities. Entrepreneurial and creative talent is by far the most valuable resource in the region. We need to nurture and protect it so it can flourish. And the best way to do this is through candid collaboration throughout the region with a mindset of abundance. In the entrepreneurial innovation space the success of neighbors makes the regional ecosystem stronger and benefits all actors involved with learnings, inspiration, confidence and resources.



### CHAPTER 4: The Playbook

Tecnolatinas’ preferred playground is Latin America. Most of them are local (51%), but a significant and growing segment have either a regional (35%) or a global footprint (14%). Brazilian players focus on their local market (75%) while Tecnolatinas from Spanish-speaking countries choose regional (44%) or global plays (27%) because they face local subscale markets.

#### PERCENTAGE OF ECOSYSTEM VALUE BY COMPANY FOOTPRINT



Source: Tecnolatinas Report

**Both born-regional and born-global companies are radically leapfrogging the typical growth model of the Multilatinas, which used to start by building a local stronghold and then slowly moving onto internationalization.** This is an unprecedented opportunity for Latin American companies to tap into huge global value pools. In fact, some TecnoLatinas focus exclusively on international markets, just like Israeli startups do, and completely disregard their local markets because they are not relevant in the context of global opportunities.

**Today TecnoLatinas can count on a powerful toolkit -facilitated by new technologies and services- that empowers them to create born-global startups from anywhere.**

Inventors and businesspeople from the region can instantly keep their finger on the pulse of market trends through online publications; watch inspiring talks from leading experts; share experiences with peers, experts and influencers in a wide variety of groups and networks; and even take courses from top universities on their mobile devices.

They access infinite on-demand computing and storage cloud services. They engage with clients and build communities using social media and create powerful sites and videos with minimal investment. They create holding companies in jurisdictions with reliable legal systems, like Delaware or the British Virgin Islands, within the day and for under US\$1,000 thus providing a trustworthy destination for investors while retaining talent (and payroll) in their home countries. They test and validate concepts and access capital through crowdfunding sites like Indiegogo or Kickstarter. They communicate and collaborate seamlessly with global teams and business partners using free tools like Skype or Whatsapp. They can charge clients using Paypal or Mercadopago. All the elements of the value chain are being reinvented, becoming more global and demonetized.

**TecnoLatinas are leveraging these tools to become exponential organizations.** Salim Ismail, highlights in his book Exponential Organizations that Unicorns (i.e. startups worth over US\$1B) and innovative incumbents are able to achieve a ten-fold performance improvement over their peers through a series of new techniques. TecnoLatinas are

adopting many of their practices. They are leveraging some attributes of exponential organizations to manage growth, creativity and uncertainty:



**ON-DEMAND STAFF:**

Tecnolatinas actively resort to external people not only for simple or clerical work (like translating content, for instance) but also for mission-critical tasks (such as designing their apps or creating their communication materials), and quite often through online platforms such as Workana or Freelancer.



**COMMUNITIES:**

Most startups in the region are actively building and leveraging online communities through social media like Facebook, LinkedIn and Twitter using tools like Google Ads. Etermax, for example, grows the library of questions of its TriviaCrack games by inviting users to share locally relevant questions and answers. Entrepreneurial ecosystem communities are also critical for their success. Trust and collaboration are common factors in these networks.



**SHARED ASSETS:**

Latin entrepreneurs know they don't need to acquire an asset to use it. They use shared assets for everything, from office space (coworking spaces), transportation (like Uber), accommodations (like Airbnb), coding (Github), cloud services (like Amazon Web Services), to logistics (Amazon Logistics) and manufacturing (by identifying suppliers through platforms like Alibaba).



**ALGORITHMS:**

Some startups are already using artificial intelligence tools to create value in ways that would not be available otherwise. For example, Etermax constantly refreshes the contents of their localized games by screening and selecting millions of entries from their community using artificial intelligence. Others are using services such as Quantum from Socialmetrix to monitor social media activity.

**GAMIFICATION:**

Some TecnoLatinas are mobilizing their users through gamification, reputation systems and incentives. The reputation system of players such as MercadoLibre, Workana SegundoHogar are critical for their marketplace. Others are using badges to reward users when they try a new product or feature.

## **TecnoLatinas also develop other attributes focused on order, control and stability:**

**EXPERIMENTATION:**

Most TecnoLatinas are young companies in new, unexplored and highly dynamic market spaces where whoever learns faster wins so, they are constantly experimenting to improve their products and business models. They use new conceptual tools and frameworks, which are significantly different from those traditionally taught at business schools. They design business model canvasses to think, work on and revisit their business models, and then conduct real-life experiments to test their hypothesis with Lean Startup methodologies. They apply design thinking to create products that matter to people. They quickly and cheaply prototype new products with A/B testing tools, 3D printers, laser cutters and Arduino boards. And, they do question their business model regularly, thus making evident a defining trace of their profile,

In some cases, like Acamica, Tecnolatinas are born in Startup Weekends, where participants have to take an idea, connect with others and build teams, learn from mentors, so as to come up with a prototype, demo, or presentation for a new business. The exploratory mindset celebrates and embraces failure, a rather unusual approach in traditional corporate culture. People get together in “fuck-up nights” to share their stories of failure to exorcise themselves and their communities from success mania. The code is “fail often, fail fast”. Even large Tecnolatinas are constantly experimenting and reinventing themselves. Marcos Galperin, founder and CEO of Mercadolibre, constantly keeps challenging his teams to look at the white space in front of them and to challenge the status quo.

**INTERFACES:**

Most Tecnolatinas are digital startups and have applications that turn their offering scalable, and provide them with the capacity to bring in new customers at zero marginal cost. These interfaces also allow them to serve global markets, not a minor detail taking into account some startups have only 1% of their revenues coming from Latin America.

**CONTROL PANELS:**

To monitor performance at a fast pace, most startups define customized key performance indicators (KPIs). They can track their business on a daily basis: initially with focus on user growth, traction (frequency of use, churn) and company’s cash burn-rate, later with a wider focus on monetization and profitability. Some focus deeply into the unit economics of specific segments and cohorts, thus evaluating their present value to ensure profitable growth. Others adopt more aggressive strategies and indicators focused on accelerated and preventive client acquisition. Whichever the approach, most of them pay little to no attention to accounting.

**AUTONOMY:**

The organizational models of Tecnolatinas are flatter and, provide more autonomy and opportunities for fast-paced learning than typical corporations. They focus on results, use open spaces and informal clothing and provide equity incentives to their key staff. They have open cultures that look up to Silicon Valley for inspiration and provide a value proposition for talent that is much better tuned to Millennial expectations. Naturally, younger companies are much more open to experimentation on this front and roles tend to become better and more clearly defined as the business model becomes more stable.

**SOCIAL:**

Tecnolatinas are early adopters of social tools that are constantly testing and adopting the latest collaboration tools the world has to offer. In fact, Latin markets have high adoption rates for social tools, enabling some startups like Mural to create cutting-edge collaboration tools that are used by global clients like IBM and Ideo

In sum, Tecnolatinas are not only early adopters but quite frequently creators, of cutting-edge business tools and practices that are redefining the way businesses operate and create value in Latin America. They can be powerful sources of insight and best-practices for more traditional companies and governments alike.





## CHAPTER 5: **The Frontiers**

We believe there are huge untapped market opportunities for Tecnolatinas. A technology tsunami is transforming the global economy, creating rapidly growing market spaces. So far, most Tecnolatinas have focused on mobile and Internet related businesses.

In a way, the regional ecosystem looks like a pack of young kids playing soccer, running behind the ball and their peers rather than making full use of the court and strategically anticipating where the ball will be going in the next couple of shots. But the early success of some Latam startups in other spaces, the rapidly decreasing costs of some technologies and the availability of a large untapped scientific talent pool make us believe we are only at the beginning of the revolution.

Until now most Tecnolatinas have been content to replicate the successful models of more advanced markets. But as born global startups like Satellogic show, Latam entrepreneurs can aim higher and break into new global markets with truly innovative solutions and business models. Anticipating the next waves of disruption and appropriately timing an entry is critical for success.

## Seven technology spaces stand out for their huge growth potential and their accessibility by TecnoLatinas:

### 1 FINTECH.

New technologies and innovative outsiders are about to deeply transform the financial industry. Driving this change are mobile payments, the blockchain, crowdfunding, peer-to-peer lending and artificial intelligence, coupled with smartphone global penetration expectedly moving from 2 to 6 billion in the next five years. The fintech sector is still tiny relative to the size of the industry, but growth will be accelerated. Investments in fintech went from just over US\$2.8B in 2013 to \$13.8B in 2015. A recent McKinsey report estimates that digital technologies open an opportunity for financial services companies in emerging markets to create US\$3.7T in value by 2025, incorporate 1.6B people to the financial sector, enable US\$2.1T in loans and generate 95 million new jobs across all sectors of the economy by providing services that are 90% less expensive and creating new business models. TecnoLatinas have a huge opportunity to thrive in this space. Players that create disruptive solutions for financial inclusion in the region could extend their products to global markets.

### 2 AGTECH AND FOOD TECH.

The global food industry is the largest in the world, representing 10% of the global GDP (a US\$8T sector) and plays a strategic role in the economy of the region. There is a massive need for change: our current food paradigm is destroying our health and our planet. But the global food innovation system is too small, too linear and too

attached to the status quo. Food-related venture capital multiplied in recent years but it still represents less than 3% of global activity. As Kimbal Musk says: food is the next Internet. The opportunity is so massive that it will dwarf much of what we have seen in the technology space: food is more than ten times bigger than the global software sector. There are emerging opportunities in areas such as food e-commerce, urban agriculture, drones and robots for agriculture, satellite imagery, big data analytics, biofortified crops, cultured meat, cloning and animal protein substitutes. The biggest obstacle that prevents the region from taking a leading role in this revolution is mindset.

### **3 ARTIFICIAL INTELLIGENCE AND AUTOMATION SOFTWARE.**

Artificial Intelligence is exploding and is expected to go from US\$420M in 2014 to US\$5B by 2020, growing at a CAGR of 54% fueled by massive investments by global players like Facebook, Microsoft, IBM and Google, and the availability of vast amounts of new data which makes deep learning approaches more viable and effective. Much of the market opportunity will concentrate in the creation of applications for these technologies. AI is increasingly available in open platforms, making them accessible to TecnoLatinas. Today, any innovative Latin American developer can create an application that leverages the power of IBM's Watson and runs in the cloud and reaches billions of Internet users around the world. Similarly there is an attractive opportunity in robotics. According to The Boston Consulting Group, the robotics industry will multiply by at least a factor of 10X in the coming decade (from US\$27B in 2015 to 67B in 2025) due to rapidly lowering costs and increasing flexibility and ease of use due to new functionalities such as human-friendly interfaces and enhanced machine vision.

#### 4 SYNTHETIC BIOLOGY.

The rapidly decreasing cost of reading, editing and synthesizing DNA is putting unprecedented power in the hands of small creative teams. The cost of a biotechnology lab has come down dramatically and, today, a skilled scientist with less than US\$1,000 in equipment can begin editing life with the latest CRISP-Cas9 techniques and biohacker labs such as Biocurious are able to provide. US startups are leveraging synthetic biology to produce in vitro beef, shrimp, leather, vegan cheese and a host of other disruptive potential products for industries such as food, energy and medicine. New accelerators based in Silicon Valley like IndieBio are churning out biostartups with only US\$200,000 of investment with truly revolutionary potential: think milk and meat without cows, egg whites without chicken and cheap natural sweeteners to replace sugar. Latin America has a large pool of talented bioengineers. It is time entrepreneurs connect with them to change the world.

#### 5 RENEWABLE ENERGIES.

Every hour more solar power hits the Earth than that the world consumes in a year, the global solar market is doubling roughly every two years, the cost of solar energy has fallen by more than 70% in the past five years and new technologies like perovskite cells promise to keep powering that trend. Latin America is a global laggard in the development of renewable energy despite having some of the best conditions in the world for solar and wind energy deployment. Solar and wind are expected to dominate two-thirds of the US\$12T energy investments in the coming fifteen years. Only a handful of startups, like Semtive, are developing innovative technology products and business models in this area, in which trillions of dollars will be created. We see large countries in the region, like Brazil and Argentina, just waking up to the opportunity, accelerating investments and creating opportunities for new players.

## 6 VIRTUAL AND AUGMENTED REALITY.

The emergence of virtual and augmented reality devices like the Oculus Rift and Hololens is expected to generate a new \$150B market by 2020 starting from a base of only around US\$5B in 2015. After years of development, this industry is beginning to take off, reinventing the way we play games, learn, entertain ourselves, communicate and buy things. Major global players like Microsoft, Facebook, Samsung, Sony, Google, are placing multibillion dollar bets on this opportunity. On the higher end, Magi Leap is expected to come out soon with revolutionary augmented reality headsets. On the lower end, Xiaomi recently announced a US\$30 headset for virtual reality. More than 60% of that market is expected to be related to content, software and commerce, making virtual and augmented reality just as accessible to TecnoLatinas.

## 7 INTERNET OF THINGS (IOT).

In the coming decade the physical world will be digitized. We are going to see an explosion of objects and ever smaller and cheaper sensors and actuators being used to connect homes, wearables, cities, energy and transportation networks to the Internet. Today, Gartner estimates there are around 5 billion connected objects in the world, by 2020 that number is expected to jump to 21 billion devices. McKinsey estimates this will unleash up to US\$11.1 trillion per year by 2025 (a sizable portion of this value will be captured by users). This will open huge markets just like the smart mobile revolution did and we believe TecnoLatinas could address this market, particularly from a software angle.

**Other spaces include digital medicine, 3D printing and nanotechnology.** Entry barriers into these spaces are bigger because the cost of innovation is higher, the intellectual capital environment is more challenging and our regional ecosystem is not so well prepared to support hardware startups. Nevertheless we already see early successes from Latin America in each of these spaces.

Technology is changing the world and TecnoLatinas are positioned to benefit from the new unfolding industrial revolution. The incredible transformative power of the digital revolution continues to grow and is moving from bits to atoms. The exponential development of digital technology that transformed our lives and the business landscape is contagious and is spreading to new fields like robotics, additive manufacturing, biotechnology, nanotechnology, digital medicine and neuroscience. Again, the impact on our lives will dwarf what we have seen to this point. Reality shows that, as Peter Diamandis pointed out in his book “Abundance: The future is better than you think”, technology will enable us to tackle the grand challenges of humanity, like access to water, food, health, shelter and education. It will also result in massive value creation and a pace of change that, no doubt, will be difficult to accommodate with for many.

**And there is more: technology innovation will open the door for new products and business models that combine different technologies in ways that deliver still superior value to clients. TecnoLatinas are just getting started!**



## CHAPTER 6: **The Call to Action**

We believe Latin America should spur the rise of Tecnolatinas to take part in the ongoing industrial revolution, build the economy of the 21st century and build a path to abundance. Tecnolatinas have already proven that our region can innovate, create value and compete in the emerging technology spaces.

But they've only scratched the surface. With consistent and deliberate action, the region and its players can take the game to a whole new level and make entrepreneurial innovation the core engine of a growing creative economy. On that line, we see four broad levers to achieve this goal.

**The most immediate area of opportunity is boosting the investor ecosystem.** We need to make smart capital abundant for entrepreneurs throughout Latin America to enable them to successfully pursue their projects, stand and move in a playing field more comparable to that entrepreneurs outside the region do.

The experience of innovation hubs such as Silicon Valley and Israel shows that startup ecosystems take off only when venture capital develops. It also shows that it can be quickly achieved with the right policies in place. Local early-stage financing is particularly critical, it is easily within reach and it is a space where new funding models are constantly being developed.

Later-stage capital, on the other hand, can be more easily found abroad and requires more mature capital markets.

Governments need to remove legal and tax hurdles for angel investors and funds and enabling equity crowdfunding. At the same time, investors need a new mindset, by coming to grips with and learning how to identify attractive opportunities early on; by focusing on long-term value creation and, by sharing value with talented entrepreneurs with a capitalism 3.0 mindset.

**A second avenue is connecting the dots.** Although Latin America has many of the pieces of the entrepreneurial innovation puzzle, they are disconnected. There are tens of thousands of entrepreneurs and scientists, but the opportunities for them to connect with each other efficiently are still to be created. The region spends US\$28B on R&D every year, but the connection with market needs is not really there. Because there are no effective technology transfer units and legal frameworks in place and true incentives for corporate innovation to happen are still a pending assignment. Corporations and startups in the region largely ignore each other because they still have not really figured out the value of collaborating through open innovation models. Another reason to explore collaboration with more intent is that innovation is not sufficiently connected with the needs of the bottom of the pyramid and with regional environmental challenges because the power of connecting, interacting, collaborating with each other is still under appreciated and frequently subdued by individual initiatives or collective interests.

**A third path is establishing a friendlier environment for startups.** Most LatAm countries present unfriendly business environments for entrepreneurs. Creating a company often takes months. Navigating highly complex tax and bureaucratic systems generally consumes inordinate amounts of time. Company failure is punished with years of legal quagmire and social stigma. In some cases, capital restrictions, complicated foreign exchange schemes and high inflation make international operations a nightmare, thus scaring investors. To support, retain and attract the best entrepreneurs so they can create jobs and successful businesses, it is critical to make things friendlier for entrepreneurs and investors. This can be attained by fostering a culture that celebrates risk taking and embraces failure as an opportunity for growth and learning. Success is to be celebrated, including all misses and mistakes there could have been in the process.



**Another massive opportunity is expanding more aggressively into emerging market spaces.** Today most TecnoLatinas are Internet players because entry barriers fell and markets expanded more rapidly there. But as some leading startups are proving, TecnoLatinas can also tap into other promising, though less visited, opportunity spaces where similar dynamics are taking place. Advanced robotics, synthetic biology, additive manufacturing, artificial intelligence, the Internet of Things, blockchain-based services, augmented and virtual reality, renewables and digital medicine will generate value pools worth trillions of dollars in the next decade. Only a few years ago these markets were negligible and difficult to access, but today they are all large, approachable and rapidly growing, with a few startups in the region. This is explained by mindset, the biggest barrier to entry. We can develop entirely new spaces, particularly through technology, product and business model innovations to attend sensitive ignored or disregarded needs of the vast majority of the population in Latin America.

**Finally, another opportunity to tackle is the strengthening of the talent pool.** For instance, by creating pathways for women to build startups. We can also show our most talented youth that entrepreneurship can be an attractive career path and an interesting option to access the ecosystem. We can provide visibility to role models so that they can show others how fulfilling, impactful and gratifying being an entrepreneur can be. It is to be expected a significant increase in the presence of women in the ecosystem. Schools and universities can equip students with entrepreneurship skills and promote STEAM courses (Science, Technology, Engineering, Art and Math) by making them more attractive and relevant. MOOCs can also be used to provide free quality educational content such as The Art of Entrepreneurship developed by Surfing Tsunamis and Acamica or the How to Build a Startup lectures by Y-Combinator and Stanford. We can push the envelop by multiplying the percentage of people who finish high school and university studies. We can build world-class learning and research institutions focused on technology that become innovation powerhouses.

**To unlock this tremendous potential, the region needs leadership and a new mindset.**

Business, government and opinion leaders must put talent, entrepreneurial innovation and the creative economy at the center of their economic strategies. It is necessary to put behind the illusion that natural resources are the only driver that can propel the region and the countries within into an era of abundance, when we are in an age of accelerated technological progress. The results of an approach like this will take time: the ecosystem needs it to mature. That's why all efforts in that direction should be sustained -even though hard times- so as to be fruitful. The opportunity is unique: the power of innovation to create lasting value has never been so great or so close to reach. A final requirement: regional leaders in all arenas will need to overcome the temptation to protect the past and optimize the present and work on creating space for building the future. All players, public and private, have a role in making this happen.

**Parents can educate themselves and expose their children to new technology fields and applications.**

They should explore together career paths that are relevant for the future and should be open and supportive about their preferences and choices: becoming an entrepreneur or a game developer can lead to a happy and prosperous future.

**Schools should rethink their curriculum, approach and methods to equip students with 21st century skills such as creativity, communication, collaboration and critical thinking.**

They should engage students with project-based learning experiences and expose them to the entrepreneurial world. They should familiarize them with exponential technologies and explore both the opportunities and challenges they will bring so as to create a future of human-centered and planet-friendly abundance, inclusion and regeneration. They should develop new ways to instill values such as curiosity, courage, ethics and leadership.

**Students should take ownership of their future, follow their passion and embrace the notion that they will live in a future of accelerated change which they can shape if they choose to.**

They can study the lives of entrepreneurs, they can learn to code with online courses, they can become makers and hack old devices, they can create their

own websites, apps and even startups, and they can find new ways of using these technologies to save the planet and change the lives of us all, but most importantly, of the most vulnerable.

**Universities should make TecnoLatinas and the ongoing technology revolution a new field of study and research.** They should strengthen their innovation and technology transfer programs, create opportunities for students from different fields to connect and interact, and they should launch accelerators (like Stanford and Harvard did) where students can learn entrepreneurship by doing and create makerspaces where students can even build new products or services. They can make their study projects come alive by making business relevance a requirement and thus paving the way for new startups, with appropriate coaching, mentoring and funding programs .

**Investors should rethink how they invest in startups and explore this space by placing limited bets until they have gained sufficient knowledge to make bolder moves.** The investment mindset, the tools, the criteria and the process are totally different from what they've learned in business schools and applied in traditional opportunities, including in the private equity space. They should understand that to succeed they should have a mindset of abundance and should serve and learn from the entrepreneur rather than patronize and exploit him. Here high-power teams -rather than business plans- are critical for success. And it's fact that early stage investment decisions should take just a few interactions. This is a high trust environment where reputation is a hard asset and collaboration is the norm.

**Corporations should realize that global leaders around the world are creating open innovation frameworks to collaborate with startups, thus recognizing that disruption is more likely to come from outside their organizations.** They should realize that their teams can become more effective by interacting with startups and learning from their playbook. They should be actively experimenting with hackatons, accelerators, makerspaces, co-working spaces and corporate venture capital funds. They should realize that the balance of power between David and Goliath is changing, that opportunities for collaboration exist and that the best course of action is to join forces.

**Governments should realize that the TecnoLatinas are key to build a dynamic 21st century economy and be more aggressive in pursuing strategies to foster their development.** Just five years ago, only one of the top five most valuable companies in the US was technology-based (Apple) and represented US\$376B in value. Today all five are technology-based and represent a collective value of US\$2.323B. Much has been done in recent years, but there is still a lot to be done for more comprehensive transformations in areas such as education, regulation and incentive development activities.

**In sum, the TecnoLatinas revolution has just started. Latin America has a historic opportunity to leapfrog its way into the 21st century and these companies provide a unique vehicle to accomplish this goal. TecnoLatinas also open the possibility of a cultural transformation that will lead to a future of meritocracy, collaboration, sustainability and constant reinvention.**

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Ariel Arrieta

**Aprender a Emprender**