

*Social Inclusion and*

# THE FUTURE OF WORK

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# Prologue

**S**ocial Inclusion and the Future of Work is of interest to those who expect a critical but positive vision of the times we live. Experts explain the situation of the organizations, institutions and regions according to resilience, creativity and digital innovation for the future of work, social inclusion and the Sustainable Development Goals (SDGs). SDGs are considered as the essential guidelines that facilitate the strategic consideration of the future of work and social inclusion, even more in times of pandemic.

Each part of this book was based on empirical real-life evidence from enterprises, universities, governments and institutions. All of these studied organizations are part of the competitive environment. The writers believe in economic progress in line with innovation, resilience, entrepreneurship and international cooperation between regions, countries and corporations.

The authors are from the United States of América, Greece, Spain, Poland, Peru, and Mexico. All of them are experts in Economic and Business Sciences. The universities that participate in this project are the John Jay College, City University of New York, Universidad Andina del Cusco, Universidad Nacional de Educación a Distancia, Universidad Autónoma Metropolitana-X, Instituto Politécnico Nacional, Universidad Autónoma de Nuevo León and Universidad de Guadalajara.

This publication was created following the best practices of scientific edition. Turnitin was applied to favor the originality. The editorial team carefully analyzed the quality and originality of the contents. Every chapter was selected, evaluated, and modified with the support of international peers. Editors and authors hope is that this book will contribute to the advancement of theoretical and practical knowledge

Dr. José Sánchez-Gutiérrez





# Chapter 1

**Employment is more  
than a Job. It Is the  
Essential Pedestal  
Underpinning Social  
Inclusion and  
Democracy Itself**

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# Employment is more than a Job It is the Essential Pedestal Underpinning Social inclusion and Democracy itself

Demetrios Argyriades  
John Jay College, CUNY, USA

“SDG16: Promote Just, Peaceful and Inclusive Societies”

“Peace, stability, human rights and effective governance based on the rule of law are important conduits for sustainable development. The Sustainable Development Goals aim to ... reduce all forms of violence, and work with governments and communities to find lasting solutions to conflict and insecurity. Strengthening the rule of law and promoting human rights are key to this process.”

“Everyone has the right to work, to the free choice of employment, to just and favourable conditions of work and to protection against unemployment”.

Universal Declaration of Human Rights  
[Gen. Assembly Res. 217 (iii), 10 December 1948]

## INTRODUCTION

**T**here is always a silver lining! After four decades of Reaganism, which told us that “Big Government” was the source of all our problems, the effects of the pandemic have been to demonstrate the very polar opposite. We are slowly rediscovering the value of the “public” in Public Administration including a propensity to public-private partnerships, where “public” is in charge. (Nabatchi, 2010:S309)

Suddenly resurrected, the Administrative State became not only a banker or paymaster, but also epidemiologist, employer, engineer, social administrator, and therapist of last resort. *Regulation*, castigated as “bureaucracy” inimical to progress by *laissez-faire* economists, was now restored to prominence, when deadly repercussions of its regrettable absence and the effects of lax controls over “assisted-living” and related nursing homes came into sharp relief.

In just a matter of days, going to work had been subject to restrictions and the right to work itself made conditional on Government’s own definition of what now represented essential as opposed to non-essential forms of occupation and labour.

To be sure, health, information, transportation, food supplies and security were placed in the “essential” category. Holders of other jobs, including shop assistants, workers in nail salons, barbers and hairdressers, as well as professors and teachers at schools and universities were asked to stay away. Many people were furloughed or “fired”.

After years of full employment, with unemployment rates at a historic low around, in fact, the level of 3 per cent, society had to adjust to a crisis brought about, not by paucity of demand or a liquidity shortage but an invisible virus, whose nature and mutations, as well as targets and symptoms are still imperfectly grasped, making its treatment difficult, or the hoped-for “Great Re-opening” a difficult policy option (Barron’s, 2020:A1).

Having proved highly contagious, the challenge it presented has been countered, almost throughout the world, by enforcing “social distancing” and even “lockdowns” in places. In services and trade, there are not many tasks that can be carried out, to the client’s satisfaction, at a distance of six feet - or of two meters. Though digital technology has tried to bridge the gap and, currently, shopping online has spread from books to groceries and far beyond, some services, by contrast were not so fast to follow.

Distant learning made some progress and the onslaught of the crisis, caused by the virus pandemic, created a necessity for the growth of *telemedicine*. Still, in health and education, as well as public management and the administration of justice, most people would agree that physical proximity remains a potent factor, as well as *desideratum*. Enabling and engaging the patient or the student, the citizen or plaintiff remain constructive patterns, for which there is no substitute – no satisfactory substitute; at any rate.

#### **WHAT “JOB” WILL BE A “NEW NORM”? SYSTEMIC FACTORS WILL TELL**

Will there be a *new norm*? What norm? Will the ongoing pandemic produce new patterns and ways in which we live, relate to one another and work? Some people seem to think so. For those of us, conditioned to equate all “change” with

“progress” and this, in turn, with “good”, such cataclysmic crises as the COVID-19 pandemic may be seen as precursors of momentous transformations. Born of an uncommon occurrence, they are often viewed as destined to become *irreversible*. (MPM-GEPS, 2018: 160)

“Forever” is the expression that the corona virus certainly brought into prominence. It had been used extensively by the media and beyond on the morrow of two previous earth shaking events, which deeply marked our era and ways in which most people interpret global trends.

The first was the collapse of the Berlin Wall, which presaged the implosion of the USSR and end of the Cold War. The second was the attack on the Twin Towers better known as 9/11. The last one served to warn us of the immanence of “*Evil*” and, therefore, the need to combat it. The first was said to presage a New International World Order, seen by many as *irreversible*: the Western Liberal Order (Allison, 2020: 30-40; Allison, 2018:124-133; Wertheim, 2020:19-29; MPM-GEPS, 2018: 160).

Dichotomy of the world in two opposing systems, the East and the West, was curiously now given a new lease of life. This cleavage has a history of ten centuries or more. It arguably goes back to the Schism (1054) and the Crusades, which split the Christian Church, as well as the Roman Empire sharply into East and West.

Soon this historic cleavage was invested with significance which clearly transcended both history and geography -- even religion itself. In time, it also acquired political, socio-cultural and even moral dimensions. Gradually, over the centuries, “East” became synonymous with “Evil” and “Retrograde”, while “West” suggested freedom, virtue, morality, order and “civilization”. Equated with the “West”, the “free world” has been treated as virtually synonymous with “civilization”, which some contrast to *barbarism*, “totalitarian rule” by “oriental despots” and *chaos* in the East.

Conveniently until recently, Asians were lumped together as “orientals”. “Bon pour l’Orient” was a common French expression indicating “second-rate”. This totally arbitrary and ill-founded view of the world has served to legitimate the conquest of new lands the subjugation of peoples and conversion of the “pagans” into the “one true faith”.

Furthermore, it lent support and validation to a massive imperial expansion, well into the XXth century, *in tandem* with *exclusion* of the bulk of the world’s population; those considered to be “wards”, for their own good of course, of the “superior” nations, whom Providence had chosen to “take up and to shoulder the White Man’s Burden” (Immerwahr, 2019:64-94). During the 1930s and early 1940s, the West and the rest of the world bore witness to the outcomes of this twisted line of reasoning and *hubris*.

In the early twentieth century, after the “White Man’s Burden”, Europe and North America heard of the “*Yellow Peril*”. It was invoked by Kaiser Wilhelm II, the German Emperor (1888-1918), on the morrow of Japanese victory over the Russian Empire, in 1905. Resurrected in the years of the Cold War, it accounted for expressions, like that of the “Evil Empire”, which certain parts of the “West” equated with the USSR. Under President G.W. Bush, it morphed into the expression “*Axis-of-Evil*”, which included other countries of Central and East Asia. (Newland & Argyriades, 2019:1-30)

The Corona Virus pandemic has given it a new lease of life. Will it serve to extend the life and hegemony of this East-West dichotomy? A recent surge of polemics, targeting China especially, would seem to argue as much. (*The Economist*, April 16, 2020).

Characteristically titled “*Pandemic geopolitics: is China winning?*”, an article appearing in this prestigious journal suggested that invectives have travelled in both directions. On this side of the Atlantic, the press took to referring to COVID-19 as the “Wuhan” or “China” virus, much in the way that the flu, which followed WWI, had become known as “Spanish flu”. It was quickly seized upon as a pretext for wanting to disclaim a massive debt to China or to recoup the losses occasioned by the “lockdown”. “China ought to know its place” were words proffered in London, at the NATO Council meeting, held in this past November. (Haass, 2020)

The dangers of upending a multilateral system set in place by the U.N. on the morrow of WWII (1945), to foster peace and prosperity, may still appear remote. A burgeoning arms race, on the other hand, suggests otherwise. Sabre-rattling goes in hand with diversion of resources from much-needed development programmes outlined in the SDGs of the United Nations.

These ought to have priority. There is still no end in sight to wars in both West Asia and North Africa, which devastate, dismantle or threaten to perpetuate *failed* and *fragile* States. Even the verbal attacks on the WHO, coupled with the threat of withholding funds from that organization in the midst of a global pandemic, bespeak a lack of appetite for constructive cooperation in tackling global issues.

At a time of rampant populism, xenophobia and demagoguery reign supreme. “My country right or wrong” or “my country best and foremost”, become the *rationale* for escapes to ethnocentrism and unbounded unilateralism but also for resisting progressive policy initiatives on the domestic front.

Furthermore, as demonstrated in ongoing public narratives and debates, they point to the marginalization or exclusion of “out-groups” to better shelter “in-groups”. There can be little doubt that the ongoing pandemic will unleash a trove of trends, some clashing, contradictory or pulling in directions that cannot

be foreseen, at this very early stage. There will be a tug-of-war between competing forces and ideas. Which will prevail, may well depend on power; clout vested in some groups, rather than in the intrinsic worth of ideas and the real needs of people.

What this crisis demonstrated, on the other hand, is the primacy of *community* and the ethics of *solidarity* over the rival claims of unfettered individualism, which prevailed for four decades. The words of Mrs. Thatcher "*Society does not exist*" would not have gone down well in the City of New York, in the days of the pandemic, when doctors, paramedics and nurses juggled the rival claims of patients in their care, as they struggled to make do with inadequate equipment and supplies, through more than twelve-hour shifts.

The sight and sounds of people's spontaneous loud applause of such self-sacrifice spoke volumes on survival of values, deeply buried in our conscience and our collective mind, after four decades of "Thatcherism" and the neo-liberal ethic.

## A BROKEN SYSTEM AND MODEL

Like sudden massive earthquakes, the global virus pandemic shook the economic system and socio-political structures to their foundation. But will they stage a comeback? Only time can tell. The system came complete with values and a *mindset*, in which "instrumental logic", utilitarian values and *pragmatism* or opportunism reigned supreme.

A hegemonic model, it sought to exclude all others. Its axioms permeated our language and our policies, exerting a mighty hold on our collective conscience and individual minds. They guided our research and train of thought, but all too often also gave credence to both *myths* and *misinformation*, which have weighed on the decisions and policy guidelines shaping our collective lives.

The corona virus pandemic is unique in the annals of history. In suddenness of onslaught, in sweep and range of outreach, in magnitude of impact, it may have no known parallel, in modern times. At this stage, it is hard to predict when and how it will come to an end. In the United States -- and in New York -- it shuttered an economy, which was on the up and up. The crisis propelled unemployment nationwide, to more than 30 million, in little more than a month (*The New York Times*, 2020, A1 & B1; Chaney & Guilford, 2020; Morath & Chaney, 2020).

It reached 38 million by late-May 2020. Already, more jobs have been lost nationwide than the US economy was able to create since the onslaught of the Recession which begun in September 2008, or indeed the Great Depression of 1929. To be sure, civil society rallied instantly and admirably in support of the numerous victims of this unprecedented debacle.

On the personal level, however, the gravity of the crisis brought into sharp relief the most egregious facets of the system and model in place. Specifically, one case that caught the public eye, concerned a middle-aged staff member of the Metropolitan Transportation Authority (MTA), who died suddenly after contracting the virus.

Overnight, his bereaved family had lost not only a father and breadwinner but also health insurance, a cover and protection that no one can afford to live without. Yet, on the macro-level, as Mr. Sanders noted announcing the suspension of his campaign for the democratic ticket to the 2020 election, this was the common fate of close to a hundred million of people in the U.S. We need to be reminded that this one hundred million hardly represents a cross section of the U.S. population.

In the vast majority of cases, the members of this cohort belong both to the poor and to the black or brown minorities, better known as Afro-Americans and Hispanics. The bulk of “*first responders*” also came from these communities. Not surprisingly, though amounting to only thirty per cent of the New York population, they have so far sustained fully seventy per cent of the casualties of the pandemic.

This is a startling figure, which starkly gives the measure of the *inequity*, the *exclusion* and *marginalization* to which a broken system condemns a significant segment of its adult population. How could we go so wrong (Krugman, 2020:16-30; 123-152; 259-288; Newland & Argyriades, 2019:1-30)?

It hardly befits a professor of Public Administration, who studied Economics at the undergraduate level some sixty years ago, to venture into a discipline he only knows vicariously. However, as a resident, as well as a teacher of public servants in New York, he needs to express alarm at the outcomes of a model, widely believed to be “rational”, which “*habitually overreaches*,” often with disastrous outcomes (Sternberg, 2020: A15; Kay & King, 2020).

The magnitude of this pandemic and the shock waves it produced, compounded by the inequities it brought to glaring light, may help explain the scale, as well as relative speed of the response of Congress, of the Executive Branch and civil society at large with a view to mitigating the rigours of a system deeply flawed, as it plays out, especially at times of mega-crises. There can be little doubt that proximity of the elections, due on this 3rd November, may have added to the alacrity of the response.

But how will it unfold when the worst of the crisis is over? Will it be back to “normalcy”, back to “business as usual”, when the economy rebounds or begins to point to recovery? It needs to be remembered that this system has been in place for more than three decades. It underpinned six presidencies, from both



political parties, survived two major crises and fostered endless wars in parts of Western Asia, the Middle East and Africa.

Disparities, in fact, and endless senseless wars may be the tell-tale signs and trademarks of this system, in place since the mid-eighties. Not surprisingly, this note might sound somewhat uncharitable and, arguably, even biased to some people.

The system did produce – at least facilitate – a huge technological progress, as well as spectacular wealth. Where the system failed demonstrably is in “distributive justice” i.e. the distribution of wealth and dispensation of benefits in health, social protection, housing, food security and education, as well as in the advancement of human rights, protection of minorities and of the poor. It is a system marked not just by grave inequity but also a starkly apparent *ethical* and *democratic deficit*.

The Nobelist Paul Krugman described this broken system, as well as mega-trend and the outcomes it produces, in the following searing terms:

“The skewing of America – the shift of a growing share of income to a small elite – was already clearly visible by the late 1980s. This seemed to many people ... to be a bad thing. Not only did it mean that ordinary families were failing to share in economic progress; it meant a loss of [the] sense of living in a shared society. So, one might have expected a serious discussion of the forces behind rising inequality, and what if anything might be done to reverse this trend” (Krugman, 2020:259).

To be sure, there has been *some* discussion. However, as the primaries have shown, the distance separating so-called “*moderates*” from those whom *they* dismiss as “radicals” and “socialists” – both deemed derogatory terms– leaves little room for dialogue, complacency or consensus; Extremes of wealth and poverty compounded by inequality in every sphere of life take on a special salience in light of the pandemic, particularly on account of the known past passivity of government in this regards.

This is beginning to change. Nevertheless, the chasm that separates the highest from the lowest income levels remains starkly forbidding. It stood at 1 to 20 during the 1970s; it tops 1 to 300 in our days (Krugman, 2020:259).

Worse, it self-perpetuates as it becomes a part of daily life and sights in major cities, where every night the homeless must be removed from subways to which they look for shelter (Appelbaum 2020: SR10).

The homeless have no voice, except for the NGOs, who take up their defence. As for the very poor, they are struggling to be heard. Political elites, who dominate the narratives, would wish them away, invoking the “American dream” but also the “Axis of Evil”, which seeks to explain away the trillions

spent on wars and massive weapon systems. American *exceptionalism* and the “indispensable nation” are also widely invoked. (Marchese, 2020:13)

Language is weaponized, mostly for domestic purposes, in part to “export discontent” but partly also to shield the *status quo* against incipient perils from “creeping, alien socialism”. With an eye to the coming elections, moreover, some of the opinion leaders engage in the-all-too-familiar “blame-game”. It seems as if all ills can readily be assigned to one main source: one individual person, one country or one group. According to this logic, remove that individual, push that “rogue country” back to where it should belong and all will automatically fall back into place (Osgood, 2017:A19).

### **A “SKEWED”, ONE-SIDED SYSTEM AND ONE-DIMENSIONAL MAN: THE HOMO ECONOMICUS**

What people unwilling to look beyond individual symptoms cannot discern is the effect of models and systems in perpetuating beliefs, as well as political narratives and shaping behavioural patterns in ways that deeply influence the course of events in society at large.

Since the mid-1980s, vast swaths of the world and humanity including, in particular, Western countries and the US have lived under the constellation of a skewed model; one which prizes material success and primes one set of values above all else. The embodiment or archetype of this overarching model points to *Homo Economicus*. (Kim & Argyriades, 2015:424-425)

With “Homo Economicus”, the Market Model of Governance signalled the rapid advance of economists, accountants and management consultants, where previously psychologists, sociologists, lawyers and administrators had been manifestly in charge. With the 3Es ascendant<sup>1</sup>, all other values rapidly receded to the background. The “pragmatists” prevailed, claiming that they knew better and were mindful, in particular, of the “bottom line”.

With galloping disparities and maladministration, which trailed the Market Model, important shifts of power vouchsafed to a small minority decision-making influence out of all proportion to the numbers it represented. It was “*the economy, stupid!*”, as Bill Clinton liked to say.

This carried in its wake or definitely favoured some of the salient features of the New Public Management (NPM): support of those in power, intolerance of dissent (“*let the Managers manage!*”), a “pragmatist” dislike for “theoretical” issues bereft of “practical” value, coupled with a penchant for measurable outputs.

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<sup>1</sup> Efficiency, Effectiveness and Economy

A slogan said it all. “*What I cannot measure, I cannot manage*”. There was also “*results over process*”, which posits that success at any price trumps decency and due process. That such results were skewed to favour very few, the pragmatists dismissed as “value-laden”, as overly “theoretical”; arguably, open to “moral” inquiry but not to quantification and, for this very reason, to corrective action accordingly.

Indeed, it must be admitted that “ethics”, in the form of probity and integrity, has loomed large in the narratives of NPM and related policy initiatives; but this has mainly occurred in the fighting of corruption, which has grown exponentially around the world. Ethics has been interpreted as mostly a drive to enforce transparency with accountability in the workplace and as compliance with orders.

With this new set of values, came a new Model of Man. It is conspicuously at variance with models which prevailed from the 18<sup>th</sup> century onwards, through to the 1970s. As pointed out, already the new “neo-liberal” model features *Homo Economicus*, an “independent contractor” and “entrepreneur of self ” (Kim & Argyriades, 2015: 425).

Averse to all forms of “collectivism”, the “*homo economicus*” prefers to be “own his own”. Hostile to social welfare provided by the government, he is also mostly averse to public personnel policies, which take a long-term view of people and their needs.

The entrepreneurial model rejects career development “as pampering pen-pushers”, and as not cost-effective. Equating civil servants with “bureaucrats” cast aspersion on the “*civil*” contrasted to the “*military*” and paramilitary. It certainly took umbrage at public sector unions. The antics of some unions have certainly exacerbated such negative reactions to public sector unions from segments of society. (MPM-GEPS, 2018:176-182)

Still, men and women as “resources” has meant that the employers’ duty to the employee was strictly co-extensive with the latter’s offer of services. “At will” employment practices and automatic severance upon retirement, dismissal or layoff were logical corollaries of “lean and mean”, minding the “bottom line” and “protecting the taxpayer”; this notwithstanding the fact that taxpayers include a sizeable number of public employees, as well as “first responders” (MPM-GEPS, 2018).

There can be little doubt that *homo economicus*, in one of many versions, elicited support from NPM, with narratives and literature contributing substantially to a new, minimalistic approach to public personnel management. “*Reductionism*” was in: from reduction of the notion of the common good, to concepts like morale and motivation. (Dwivedi *et al.* 2007: 121)

Reduced to mere “resources” meant that humans were disposable; viewed instrumentally only. (Argyriades, 2010: 73-104; Argyriades, 2005: 86-102) Though, to be sure, their skills, morale and motivation are what would matter most when they are hired, they are employed “at will”.

They can be “fired” at will, when circumstances change or a pandemic strikes and their utility falters. Priming the “bottom line”; reluctance to commit to long-term contracts and take responsibility for people and their families over the long-haul become the signal features of this newer trend and pattern in *Human Resource Management*.

It claims to be “pragmatic” but really takes no cognizance or very little note of either human needs or human career development, in all their rich diversity. “Work and the Nature of Man” (Herzberg, 1966): employment as *empowerment*, as active participation in the productive process; work as form of inclusion, as well as job security and needed structure receded to the background, as the twentieth century drew to its close.

For more than three decades, *homo economicus* has reigned supreme. He carried in his trail “outsourcing” and privatization: policies and practices, which spread like wildfire world-wide, both to the public and the non-profit sectors.

Even sensitive areas of government like Defence and Foreign Affairs have not been spared, in spite of sub-optimal outcomes (Stanger, 2009). That we persist with such minimalistic notions of human resource management is consonant, in fact, with neoliberal views not merely of Society but also of Human Nature and Human Rights (Sen, 2009:361-364).

“Humans” are viewed essentially as incidental to the process of production and economic activity; “as factors of production”. This means that what their worth may also come and go. Though, to be sure, their skills, input and “needs” are noted and rewarded, they must be subordinated to economic criteria and a cost-benefit calculus. A far cry from the days of Mayo, Rothlisberger, Maslow, McGregor and Herzberg, as well as Herbert Simon and Mary Parker Follett (Mosher, 1981:207-287), Human Resource Management appears to cling to theories more in tune with private sector practice than with traditional concepts of public service, national or international.

The litmus test remains: how consonant these practices may be considered to be with widely accepted values and democratic principles. Increasingly, moreover, we come to recognize that findings of research on “Work and the Nature of Man” have been both contradictory and inconclusive. So far, they have mostly proved unable to sway ingrained assumptions, stereotypes and belief systems propounded and upheld by powerful vested interests (Tingle, 2018; Herzberg, 1966).

Models and systems change. They emerge, they rise and fall – all for a reason; we need to fathom *why*. This chapter tries to argue that, in exploring causes, a *systems* approach is needed; in-depth historical studies, as well as “numbers-crunching”. In one-and-a-half centuries, since Woodrow Wilson’s study of Public Administration and close to a hundred years after Max Weber’s analysis of Bureaucracy in *Wirtschaft und Gesellschaft*, we have seen shift before us three very dissimilar Models of Public Administration and Public Service Management but, also and most importantly, different Models of Government, Society and Man (Weber, 1947).

We started from the Enlightenment and from the 18<sup>th</sup> century. During the 19<sup>th</sup> century, this rationalist model received renewed attention from lawyers and engineers, notably at the height of the Industrial Revolution. After the First World War, it was reshaped perceptibly. It morphed into a new model now fashioned by psychologists, sociologists and anthropologists. It primed human behaviour, interpersonal relations and a range of *human needs*, as most important factors in enhancing motivation and performance in the workplace.

Quite suddenly in the 1980’s and 1990s’, this model came under attack. It was declared obsolete. With *homo economicus* in the ascendant, economists, accountants and management consultants took charge of the debate. Because we must admit that human nature changes *but not so fast*, we must conclude that other major factors have been at play.

During the 1930’s, this in fact had been the outcome of the famous Hawthorne Studies (1927-1932), which paved the way for the rise and triumph of the Human Relations Movement. HRM, as it was known, focused on the *Human Factor*. It shifted the focus of management, away from techniques and equipment to the social dimensions of work. Away from command and compliance, away from hierarchy and discipline, it focused on morale and motivation, as keys to good performance. It primed participation, *inclusion* in the workplace, interpersonal relations, development and growth.

Predicated on the assumptions of the *Homo Economicus*, the model that prevailed with the New Public Management also primes the human factor, but only *instrumentally*, as a “resource” contingent upon need, for a limited period of time. The employee’s development is not a prime concern, especially in the case of “independent contractors”, who come and go “at will”.

We have seen how “at will” plays out at times of crisis or in pandemics, like now. Critically, however, the focus of attention has recently shifted away from the employee to principal *stakeholders*: the CEOs, of course, top management, shareholders, important sponsors, donors and other VIPs, whose influence and support are eagerly solicited; “*philanthropists*” whose names are

prominently featured in the titles of institutions, like hospitals, universities and concert halls.

It is a pattern of governance –and management– which is increasingly challenged in our own days. It has been criticized on grounds of distributive justice and democratic principle but also of its reliance on instrumental reason, utilitarian ethics and reductionist approaches to both work and the complex nature of Man.

Likewise, it is taken to task for failures to consider a range of societal and human needs. Its merits are disputed by those who value equity and the community most. They search for a model of governance and public administration that pays more than lip service to their foundation principles of liberty, equality and fraternity or solidarity.

In light of growing disparities within and between nations, as well as the numerous flaws and maladministration they carry in their trail, many are calling for change, which should be more than decorative and more than scratch the surface. They call for a *paradigm shift*. They call for a new model; one that fully takes account of the systemic properties in governance, society and the economy, as well as a new model of public service management; a model that respects human nature, in all its rich diversity and “leaves no one behind”.

## CONCLUSIONS: WHAT LESSONS CAN WE DRAW?

“Too good a crisis to waste”, or words to this effect has been a current expression among some party activists in the United States. Truly an *oxymoron*, it points to the expectation of short-term political gain that may flow from the crisis, if it is “used” judiciously, from a party-political standpoint.

The author of this paper will use it, nonetheless, to articulate the hope that some good may come out of this challenging experience of a pandemic unique both in its virulence and spread of its effects. Unevenly, the crisis brought into sharp relief the inequities and flaws of the model and system of governance that have been in place since the mid-nineteen eighties. Both have been calculated to optimize the prospects and conditions for wealth creation and progress in a number of areas like science, technology and war.

They represent a system which vouchsafes to very few what it denies to many: access to power and clout with potential to secure, for one’s descendants, enormous wealth and influence. Not only, in other words, is this particular system geared to concentrating wealth in the hands of very few but also, making sure that this system and its outcomes may become *irreversible*.

The system offers *freedom* to an elite but is manifestly deficient when it comes to securing *equality* and the necessary measure of protection and predictability to all citizens and residents. Equality with justice have, since the

Age of Lights, been viewed as cardinal virtues of democracy and good governance; moreover seen as such since the golden age of Athens and the writing of the Proverbs (31-9). That such values are not obsolete but embedded in our culture, the remarkable response of New York civil society demonstrated in many ways, when the pandemic struck.

What the crisis also showed is how unevenly the costs of responding to the pandemic -- or to any crisis in fact -- turn out to be distributed when to a *democracy deficit* is added a lack of capacity to shield and to provide for the weakest and the most vulnerable. (Dror 2001)

That barely 30 per cent of the total population bore the brunt of the burden of coping with the pandemic; indeed, that 80 per cent of all police arrests related to the enforcement of social distancing in New York, targeted blacks and Hispanics can hardly be an accident. It speaks to a *system failure* with deep historical roots. (Krugman, 2020:103-169; Frederickson & Ghore, 2013)

The paper tried to show that, though the very nature of the pandemic was such that no one government agency might have it in its power to swiftly stop from spreading and to contain, emergency preparedness and sound contingency planning left much to be desired. Both represent critical responsibilities that government, on any level, cannot afford to abjure, neglect or outsource. We are talking of the *Public Space* (Timsit, 2013:23-33; Ktistaki, 2013:35-69).

Governments, by their very nature, are both the *first responders* and help of *last resort*. Often used by Harry Truman, the words "The Buck Stops Here" take on a special salience, when it comes to the functions of government, at times of crisis especially.

We live, it has been argued, in an "age of discontinuity" (Drucker, 1968). Uncertainty, in our days, is greatly exacerbated by climate change which, lack of cooperation among the world's Great Powers, is turning into a menace to our Planet and humanity. Other than the obvious need for international governance and inter-governmental collaboration in all spheres of activity, the merits of long-term strategic planning, pluri-disciplinary studies and holistic approaches to issues in critical current affairs stand out as of the essence.

They marked the Marshall Plan and Development Decades of an Age of Reconstruction after WWII; they were abandoned later in the 1980s and 1990s. (World Bank 1994:xvi) Notoriously, the challenges to which the world at large must now focus attention require such all-encompassing strategic planning. They straddle many disciplines and touch on diverse needs.

The COVID-19 crisis may be a good example. Not only Health Commissioners and epidemiologists, but also urban planners, lawyers, public managers, economists and educators were asked to lend a hand. To bring all these together demands more than good leadership, important though this is. It

calls for *systems-thinking* and corresponding structures; capacity to govern, which in short supply, because what it requires is coping with complexity and problem-solving skills. It calls for keen awareness of the present task environment; the constraints and opportunities it offers, with both the past and future always in mind. (Dror, 2017, 2014, 2001, 1986)

One may hope that, in due course, multi-disciplinary studies and cross-sectoral research will explore the many facets of this unique experience, which shook us to the core. It brought out strengths and weaknesses; the bright and darker facets of governance and public administration.

On the upside, the way in which society, across the board, has rallied to the challenge, easing the government's tasks, represents a hopeful message. Yet even during this crisis, dark shadows from the past were not slow to re-emerge. Ostensibly, in "Philanthropy, Race is Still a Factor in Who Gets What" (*The New York Times*, 2020).

It cannot be denied that also the government rallied although, given the novelty and complexity of the challenge, the marks of some confusion and lack of advance planning became visible throughout. In an election year, the tendency and temptation to weaponize the virus gave vent to the "blame game", which still goes strong.

How all this plays out and what the virus pandemic eventually brings in its trail, it may still be too soon to tell. Whether, to be specific, it leads to more strategic, more science-based and democratic governance, to a more progressive society and more *inclusive* communities remain to be seen.

For now, it may be argued that the country and the world stand at a watershed. The virus and the crisis exposed for all the see a *broken model of governance* and, underpinning this model, a one-dimensional vision of the economy and society, world-wide (Kim, 2019: xi-xxv; Newland & Argyriades, 2019: 1-30; Pichardo & Argyriades, 2010:15-19, 47-104, 329-341).

Politically articulated by Reagan, Thatcher and others, in the 1980's and 1990's, the Market Model of Governance represented an attack on the Administrative State and the Progressive Movement, which gave us Social Protection and the Public Service Profession. The former it attempted to privatize, proclaiming its intention to "get the government off the backs of the people" and to promote a "Government that Worked Better and Cost Less" (Hood & Dixon 2015).

With close to forty years of this Market Model at work, it cannot be sustained that these goals have been attained. Not even size and cost have been reduced appreciably. Simply, priorities changed and the narratives have been revised to explain and justify a *pivot* from welfare to warfare. In fostering the



objective of “a government that cost less and worked better”, the Market Model primed “deregulation” *in tandem* with downsizing and outsourcing.

Ostensibly in pursuit of efficiency and effectiveness, these strategies were carried to great lengths. It is hardly accidental that, when the virus struck, the only part of government with needed strategic reserves were the Armed Forces.

What will the “new norm” be? Will our collective experience of the pandemic lead us to revisit and revalue our institutions and the ways governance works. Will it force us to revisit our institutions and the way that governance works? Will it force us to revisit the Administrative State and government priorities, as these evolved from the early 1980’s until this very day? The *Gospel of Efficiency*, as Waldo has described it (Mosher, 1981: 61-63), gained momentum in the trail of the expanding tasks of government with the New Deal, during the 1930s. It came with “*faith in Science*” (ibid) but also faith in government and the virtue of public service. (DeVries & Kim, 2014)

Paradoxically, in the eighties and at the turn of the century, a new ideology surged that looked at the State as the enemy and at government regulation as, in von Hayek’s words, “The Road to Serfdom”. Efficiency and effectiveness became goods in themselves. They trumped *all* other values (Harlow 2001). With “instrumental reason” claims of intrinsic value were discounted or dismissed. Even respect for truth and “speaking truth to power” were now questioned and subjected to criteria of expediency, utility and effectiveness.

Highly particularistic, predicated on *utility*, such values and such logic have not availed the public space where, historically, other standards and criteria had prevailed (Sen, 2009: 361-364).

Hallowed over the centuries, values in Education (*Paedeia*) and public service have seemed to fade away, discounted or dismissed by *Homo Economicus*, if they could not contribute to gain in money terms. This reductionist approach *inter alia* entailed erosion not only of public service, but also *public trust* (Newland, 2015:39-68; Kim & Argyriades, 2015:422-426; Caiden & Caiden, 2002).

It underpinned, moreover, the surge of *Social Darwinism*, which may have been a factor, as well as well as possible outcome in both the huge disparities, that have not ceased to grow and endless foreign wars. In the eyes of the elites, unfettered gain and power represent god-given rights; entitlements for self that ought to be perpetuated.

The Neo-conservative Project for the New American Century represented an expression of this mindset and approach. Upended by the virus, utilitarian values and instrumental reason may yet attempt a comeback. Social Darwinism, encapsulated in Mrs. Thatcher’s adage that “society does not exist,” may likewise reappear when the crisis has receded. For all who prize Community, the Administrative State, and democratic values with SDG16, it is time to stay alert

and work towards return to more inclusive governance, nationally and internationally. (Mazower 2012)

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# Chapter 2

## **Innovation for the Future of National Well Being**

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# Innovation for the Future of National Well-Being

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## INTRODUCTION

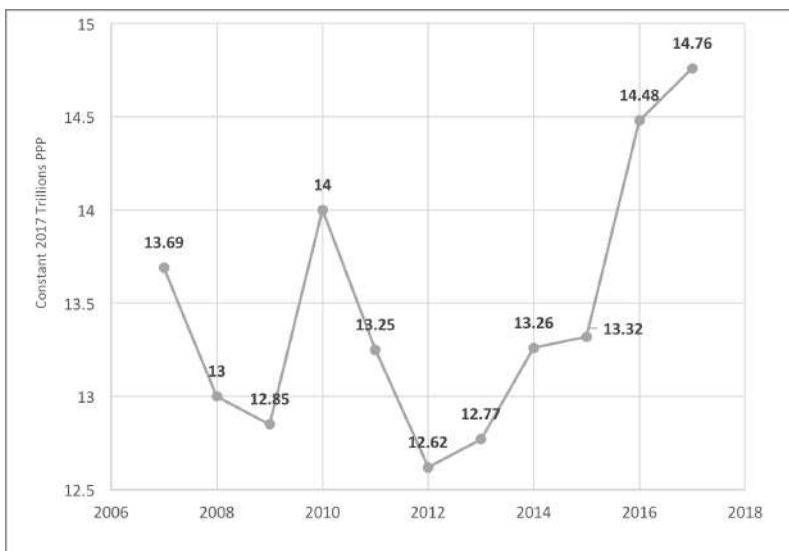
**T**he existence of a social phenomenon that impacts the security of nations, represented by violence and the difficulty of facing it efficiently by countries, joins the current context of low growth and widening of the inequalities experienced by the world economy. The role of innovation, therefore, presents increasing importance in the present and future of national well-being.

The economic impact of this situation worldwide was US \$ 14.76 billion in 2017, measured at constant prices of purchasing power parity (PPP), equivalent to 12.4% of world GDP or US \$ 1,988 per person and annual growth of 2.1%, and which maintains a growing trend since 2012 (Institute for Economics & Peace, 2019) as can be seen in Figure 1.

The largest expenditure incurred as a result of this was the global military expenditure, which amounted to the US \$ 5.5 billion measured with the PPP, which represents 37% of the total in 2017.

The second refers to internal security expenditure, which includes expenditures on the police and judicial systems, as well as the indirect costs associated with imprisonment, which covers 27.4% with the US \$ 3.8 billion and homicides the third component of violence with 16.6%.

Figure 1. Global trend of the economic impact of violence



Source: Institute for Economics & Peace, 2018.

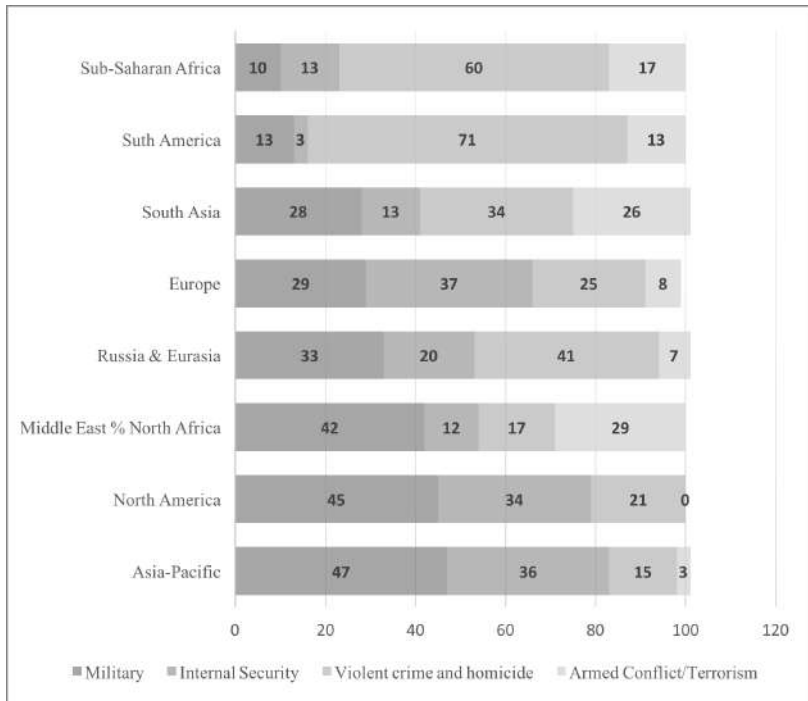
By regions (See Figure 2), the economic costs of violence are concentrated in violent crime and homicide, which represent 71% of the economic cost in South America, 65% in Central America, and the Caribbean, and only 15 % in the Asia-Pacific region. In contrast, military spending is more than 45% in Asia-Pacific and North America, compared to 5% in Central America and the Caribbean.

The proportions of internal security spending also vary significantly between the region with the highest spending (Europe) and the region with the lowest spending (South America) (Institute for Economics & Peace, 2018).

Technological innovation has been in most studies conceived as the application of science and technology to a new or improved product, process, marketing, or organizational method used in the company or that is introduced in the market (Schumpeter, 1944; OECD, 2005).



Figure 2. Cost of violence by region



Source: Institute for Economics & Peace, 2018.

And knowledge or learning is an essential element in innovation (Arrow, 1962; Jaffe, 1989) since every new creation comes from what "people do" (Romer, 1994, page 12). There is a large scientific production that addresses the questioning of the existence of regions with different levels of innovation that inquire about the behavior of these two fundamental elements.

Multiple studies prove the great association between technology and knowledge as drivers of innovation in both advanced countries, as well as the numerous references to the European Union (Buesa, Heijs, & Baumert, 2010; Charlot, Crescenzi, & Musolesi, 2015; Guastella & van Oort, 2015; Miguélez & Moreno, 2015; Rodriguez-Pose & di Cataldo, 2015; and Sanso-Navarro & Vera-Cabello, 2018), and cases such as Russia (Crescenzi & Jaax, 2017), and the United States (Kang & Dall'erba, 2016a, 2016b), as in others of less development (Samandar Ali Eshtehardi, Bagheri, & Di Minin, 2017).

They have shown that it is exceptional that both variables present similar behaviors as in the case of the European Union (Charlot *et al.*, 2015; Sanso-Navarro & Vera-Cabello, 2018).

There is evidence that one of the two presents better performance either in R&D (Guastella & van Oort, 2015; Rodriguez-Pose & di Cataldo, 2015) and specifically the action of business R&D (Samandar, Eshtehardi, Kamran, & Di, 2017), or human capital (Buesa *et al.*, 2010; Miguélez & Moreno, 2015).

There are others where it is shown that one of the two does not present significance in the creation of innovation as in the case of universities in Russia (Crescenzi & Jaax, 2017).

More recently, the approach has incorporated into these models that both technological advancement and knowledge require the existence of a favorable environment for its development (Jaffe, 1989; Porter, Furman, & Stern, 2000).

Those models incorporate a third composite element for the coincidence of governmental, business, social and cultural actors that together create a climate conducive to the development not only of innovation but of competitiveness and economic growth in specific places.

There is evidence that violence or fear of abuse may result in some economic activities not occurring at all (Brauer and Tepper-Marlin, 2009 cited by Institute for Economics & Peace, 2018). That may fundamentally alter business incentives, as in Colombia that between 1997 and 2001 faced with the highest levels of violence, new companies were less likely to survive and make a profit (Institute for Economics & Peace, 2018), which consequently affects long-term growth and therefore to the welfare of societies.

The origin of the study of differences in growth from the local goes back to the definition of Marshall (1931) of industrial districts as the "concentrations of specialized sectors in a specific locality" that favor appropriate labor markets, suppliers, and even a favorable environment.

For Porter, Furman, & Stern (2000), innovation plays a central role in national and regional competitiveness, which implies identifying how a government provides an environment in which its companies can improve and innovate more quickly than their foreign rivals, in a specific sector.

The importance of innovation at the regional level arises with the study of the participation of a variety of actors and internal and external factors to companies that interact with each other (Dosi, 1988), such as the development of collaborations within a geographical area where there are organizations that build and disseminate knowledge, agencies that transfer technology, and a culture of innovation that involves companies and the system as a whole (Doloreux, & Parto, 2004).

Thus, Rodríguez-Pose & Wilkie, (2016) study the importance of making local institutions and society supporters of innovation; Meanwhile, Valdéz Lafarga & Balderrama (2015) and Hudec & Prochádzková (2015), highlight having a government quality concerned with preventing corruption, maintaining the rule of law and improving its efficiency.

Academic interest in the subject is also in the condition of the competitiveness of achieving better standards of living for its population, introducing the importance of the favorable role of the institutions that come from Dosi studies, (1988); Stern, Porter & Furman, (2000); and Doloreux and Parto, (2004) who highlight the relevant role of the government as a guarantor of market protection, the stimulation of interactions that promote learning and the exchange of knowledge and the existence of policies, social and business groups favorable to Competitiveness and innovation improvements.

The difficulty of measuring the environment is addressed by Stern, Porter & Furman (2000) who recognize that the common innovation infrastructure is quite susceptible to measurement but that capturing the aggregate environment for innovation in a nation's industrial groups is difficult because of both the subtlety of the concepts involved and the lack of systematic international data.

In studies carried out in Mexico, one of the factors that appear most in the investigation of the determinants of innovation is the importance of the environment and with it the governmental efficiency and the socioeconomic conditions, (Rodríguez-Pose & Villarreal, 2015; Rodríguez-Pose & Wilkie, 2016; Pérez, Lara, & Gómez, 2017; Ríos & Ocegueda, 2018)

Given the theoretical importance that in various studies maintain the favorable conditions of the environment in which innovation is developed and the uncertainty about the effects that adverse conditions may have on it, the relevance of having approximations to this issue are framed in the strategic intervention of Companies, which may be affected. Taking into account that in 1990, for example, companies financed between 40 and 60 percent of R&D in most of the most developed countries and that in Japan and Switzerland companies financed more than 70 percent of the R&D expenditure (Porter, 2003).

## OBJECTIVE

Identify the adverse effects of violence and crime on innovation in developed and emerging countries. The 5 most competitive countries in the world, Switzerland, Singapore, United States, Finland, and Germany were included; in front of 5 nations in Latin America, Panama, Costa Rica, Mexico, Brazil, and Peru. The information source of the 8 variables was the Global Competitiveness Index (ICG) of the WEF for the period 2011-2016, the method applied was the

econometric panel data and as a theoretical reference the endogenous growth theory.

The selected variables were:

As dependent variable patents.

As regressors, those corresponding to 2 essential indicators in the theoretical bases of the new theory of growth, business expenditure on R&D and availability of scientists and engineers, and two variables grouped determinants of the institutional environment and determinants of government performance.

The institutional environment constituted by commercial costs of terrorism, commercial costs of crime and violence, organized crime, and ethical behavior of companies. Government performance by waste of public spending and burden of government regulation.

The general hypothesis is that the variables corresponding to the technological advancement components (business expenditure on R&D) and knowledge (availability of scientists and engineers) have a positive and significant influence on innovation, while the variables grouped institutional environment and Government performance determinants have a negative and significant influence when there are conditions of violence or inefficiency on innovation measured as the increase in the creation of patents.

## METHOD

The application of this proposal is done through a quantitative methodology that allows us to provide an objective approximation of the differentiated effect that two representative variables of the endogenous growth theory have: R&D and knowledge, and four representatives of the environment characterized by violence, corruption, and Government efficiency.

The first corresponds to pillar 12 called innovation, which according to its methodology focuses on technological innovation and knowledge construction, while the rest are in pillar 1: Institutions (World Economic Forum, 2011-2017).

The approach is based on the method of econometric research that allows integrating the proposals of economic theory and the empirical measurement of economic phenomena, using as a link to statistical inference as one of the definitions of econometrics points out "the quantitative analysis of economic phenomena real, based on the simultaneous development of theory and observation, related by appropriate methods of inference"(Gujarati & Porter, 2010).

A multiple panel data regression model represented by a data set that integrates a time dimension and a cross-sectional dimension of individuals has been used. Considered adequate since it takes into account these indicators that provide information on the degree of effectiveness that the explanatory have on

the creation of knowledge, by overcoming the problems presented by simple linear regressions that prevent the study of individual effects, and the overcoming of the inconsistency and the possibility of unbiased estimators (Labra, & Torrecillas, 2014).

That is, there are repeated observations over time of a selected group of individual units. The regression analysis obtained describes the change of the mean in the different subgroups of the population specified by the values of the regressors, which allows estimating multiple regression coefficients that would not be possible with only cross-sectional data or series data only. temporary (Arellano, 1992).

Baltagi (mentioned by Gujarati, 2010) points out among the advantages of these models the presence of heterogeneity given the existence of specific variables per subject; and due to its transversality, a greater amount of informative data is obtained, more variability, less collinearity between variables, more degrees of freedom, and greater efficiency; allowing to study more complex behaviors.

In this type of econometric approximation, several types of panel data models located, the ones considered most common, are the so-called fixed effects and the so-called random effects.

Fixed effects should be used when the existence of unobservable heterogeneity between each of the units of analysis is assumed, and they do not change over time (they remain fixed). That is, a fixed-effects model examines group differences in intercepts, assuming the same slopes and constant variation between entities or subjects.

Random effects are appropriate when the observed effect can be characterized as randomly drawn from a given population if the unobserved effect is distributed independently of the variables  $x_i$  (Dougherty, 2016).

From this longitudinal cross-section database, it is possible to identify the behavior of the 5 nations with the best performance in competitiveness, compared to the behavior registered by 5 Latin American economies studied throughout the period from 2011 to 2017. The development of the model used STATA 12.0 software.

The model used was as follows:

$$paten_{it} = \alpha_0 + \beta_1 spendRD_{it} + \beta_2 AvailCE_{it} + \beta_3 EntInstvio_{it} + \beta_4 Entinstgub_{it} + u_{it}$$

Where it means:

*patent* value registered by the patents of each country

*spendRD* business spending on R&D

*AvailCE* availability of scientists and engineers

*EntInstvio* Institutional Entity

*Entinstgub* government performance

## RESULTS

The general characteristics of the model correspond to a strongly balanced panel based on the fact that there is no loss of information on the seven variables included in each group of 5 nations for the period 2011-2017.

Being competitive nations with different levels of development, with very diverse social and cultural profiles, it is possible to assume the existence of heterogeneity not observable in Latin American countries, not derived from the model variables between each of the countries.

While given the characteristics of uncertainty and wide lapses in the generation of innovation, it is assumed that unobservable effects do not change over time, which gives the pattern to assume that fixed effects (FE) will be the model that best suits adapt to this group.

When carrying out the autocorrelation and heteroscedasticity tests, the existence of both was verified, so to correct them, the estimators with Standard Corrected Errors for Panel (PCSE) were considered, correcting the model. The results are presented in Table No. 1

In the present study it is observed that in the case of the two groups of countries, the expenditure of companies in research and development has a positive influence and is the most significant variable in both models, with a direct relationship towards the creation of patents.

In the group of more developed the concentration of pertinent quantities of human resources, materials and efficient suppliers maintains the results obtained in recent empirical studies in particular of the European Union as detailed above.

In the case of the variable taken as a reference of knowledge, the availability of scientists and engineers is positive and significant at 10% confidence in the most competitive countries, which is also consistent with previous studies. On the contrary, in Latin Americans, the influence is positive but not significant.

These two variables have a behavior similar to that indicated in the empirical studies that state that it is unlikely to find similar behaviors in both variables.

Table 1. Panel data estimates with corrected standard errors

Variables	PCSE	PCSE
patent	More competitive	Latin American
spendRD	130.4067	1.5259
	0.0000	0.0000
AvailCE	25.4921	0.1186
	0.0910	0.6580
EntInstvio	41.6942	-0.1654
	0.0260	0.4070
Entinsgub	-16.5233	-1.0790
	0.2260	0.0000
_cons	-801.0281	-0.1995
	0.0000	0.8420
R <sup>2</sup>	0.6050	0.6155
Number of countries	5	5
Number of observations	35	35

Source: Own elaboration using Stata 12.

The result obtained in the pooled indicator related to the institutional environment regarding violence in the most competitive countries has a positive influence since its measurement is carried out based on an assessment that is high to the extent that the violent environment is poorly perceived.

Moreover, it positively influences the performance of the country and falls if it influences adversely, its expected result confirmed as significant. In Latin American countries, the influence is harmful for a reason stated above on the valuation of this environment, which reinforces the empirical evidence that points to nations with high quality in the operation of policies that strengthen the peace and state environments of law as those that best create adequate conditions for the development of innovation.

In the case of the grouped variable that assesses government efficiency in both groups, it is negative. What implies that respondents observe a lack of efficiency and waste in government action with the fundamental difference that those developed do not present significance as long as in Latin Americans.

In the case of the grouped variable government efficiency in both groups, it is negative, implies that respondents observe a lack of efficiency and waste in government action. The difference is that those developed do not present significance as long as in Latin Americans, yes, it is.

On the other hand, the variable that has the greatest positive impact on innovation is the private expenditure on R&D that is consistent with the empirical evidence both in countries with higher performance and in those with lower economic progress as indicated by Schumpeter, (1992); Solow, (1957); Arrow, (1962); Freeman, Chris & Soete, (1997) and Dosi, (1988) and empirically the studies of Kang & Dall'erba, (2016) and Samandar Ali Eshtehardi, Bagheri, & Di Minin, (2017)

Likewise, in the case of high-specialty human capital, what is indicated by Arrow, (1962); Pavitt, (2016); Freeman, (1997); Romer, (1994); Nelson & Winter, (1982) on the great influence that this driver of innovation has in particular in the more developed countries compared to the smaller and conditioned ones, to have high-quality institutions, in the countries of lesser development.

The statistical results of the model show a slightly higher adjustment (61%) in both cases. What allows us to identify some behaviors that reiterate the need for policies that attend, not only to the important human aspect but also, to the adverse effect it has when curbing innovation.

From the general hypothesis that the innovation measured by the coefficient registered in patents in the WEF report, was positively and significantly influenced by the expenditure of business in R&D is valid for both groups of countries. While the availability of scientists and engineers is only accepted at 10% confidence in the group of the most competitive, in Latin Americans it cannot be verified as it is not significant.

The results of the institutional environment characterized by violence show that, in effect, the countries with the lowest records of terrorist acts, crimes, and acts of violence, as well as the existence of organized crime and good ethical behavior of companies, correspond to nations with greater competitive performances and that its result is significant for the increase in the creation of patents.

The opposite happens in Latin American countries where the result is an opposite impulse in which the greater increase causes less growth in the creation of patents without significance for the explanation of their creation.

In the case of the grouped variable of government performance, the results are similar in the two groups, the inefficient adverse performance of the government is perceived that plays against the creation of patents, however, in the developed ones the impact is of greater weight but It is not significant, in Latin Americans, on the contrary, the weight is less and very significant.



It is interesting, in this variable, to observe that in the most competitive countries the greatest impact, being positive and significant, is in the institutional environment and even when inefficient government performance is reflected, the impact is less. While in Latin Americans the greatest negative effect on innovation comes from the inefficiencies of the government rather than the effects of the violent institutional environment.

## CONCLUSIONS

The drivers of innovation, technological advancement, and knowledge even in adverse environmental conditions maintain their positive momentum in favor of the growth of innovation.

The element with the best performance is the technological progress, observed in both blocks of countries with the particularity of concentrating on the expenditure made by the businesses. Knowledge is driving only in advanced nations; in Latin American countries it seems to have the obstacle indicated in previous research of the lack of high-quality research centers linked to the productive sector.

Although the results point to the verification that the existence of adverse conditions both in the social environment and in the operation of governments negatively affects the progress of innovation, it is necessary to deepen the issue of the effects that violence and corruption has one of the most important components of competitiveness.

To be able to analyze with more detailed information the components of the commercial costs of terrorism, organized crime, and the ethical behavior of companies, it may give greater elements not only to combat existing phenomena but to curb their expansion and prevent their onset.

To the low government performance due to waste of public spending, the economic valuations of corruption should be added to provide objective elements to the current debate that faces the proposals of whether this is the biggest and most significant problem that slows the growth of smaller nations development.

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# Chapter 3

## **Socioeconomic Development: the Steel Like a Crucial Key**

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# Socioeconomic Development: The Steel like a Crucial Key

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## INTRODUCTION

**T**o measure socioeconomic development and standard of living in any country, the level of per capita steel consumption is treated as one of the most important rates (Pervej & Anjum, 2017).

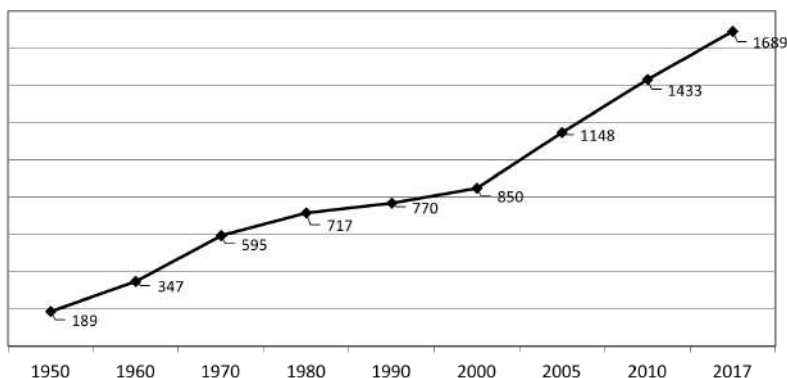
According to Mitra & Dilip (2010), the steel industry is crucial for the development of any economy and is considered to be fundamental support for human civilization.

Steel is a product that has a large technologically complex industry with processes that represent great challenges forward and backward links in terms of material flows and income generation. It has been the key material with which the world is in continuous development. It is also essential for a world with a strong need for transportation, construction, housing, and power generation.

Worldwide, according to the World Steel Association (2018), the steel industry ranks second, after oil and gas, with a gross steel production volume of 1.689 billion tons.

In Figure 1. The evolution of international raw steel production from 1950 to 2017 can be observed, where we can find a gradual increase over the years, which raises the relevance of this industry in both international and national in any country.

Figure 1. Raw steel production 1950 to 2017 (Millions of tons)



Source: Own elaboration in support with World Steel Association (2018).

According to the sustainability indicators data of the World Steel Association on 2016, based on 125 steel companies and 6 associations, the steel industry is essential in every sector of the economy because the new products of steel are lighter and stronger than before, contributing other industries to decrease their environmental footprint.

Likewise, this industry adopted responsibility measures because of the environmental regulations are a requirement for acceptance by society to continuously reduce the environmental impact. In 2016, it contributed around 1.029 billion dollars, 98.8% of its income, to society, directly and indirectly.

Human capital is a key asset worldwide, 6 million people work for the steel industry. In 2016, steel companies provided each employee with 7.0 days of training on average. This has also worked to achieve zero incidents with a frequency rate of 1.0 an improvement of 78% since 2006.

Likewise, as Romanian-German (2016) mentions, the steel sector currently has an important place throughout society, since its demand is very wide and the momentum of the global economy favors its imports and exports, but its maintenance It depends on the identification of new production and alloy techniques, to guarantee the reduction of production costs in the midst of improving the properties and utility of steel.

Ocheri and others (2017) in its studies indicate that the steel industry will continue to serve as a stimulus for the national development of a country since the benefits of having a functional steel industry will translate into a country



with a greater economic contribution. It should also be noted that the steel sector will contribute to all facets of the economy.

In 2017, according to the World Steel Association, the production of raw steel in the world growth 6% compared to 2016. Most of the countries reported positive growth, highlighting Vietnam that went from 5 million to 10, Turkey with a growth of 13%, Argentina and Brazil with 12% and 10% respectively, and finally China, India, and Mexico, which grows at the same level as the world average.

Table 1. Principal steel producers across the world

POSITION	COUNTRY	PRODUCTION (Millions Ton.)
1	China	831.7
2	Japan	104.7
3	India	101.4
4	USA	81.6
5	Russia	71.3
6	South Korea	71.0
7	Germany	43.4
8	Turkey	37.5
9	Brazil	34.4
10	Italy	24.1
11	Taiwan, China	22.4
12	Ukraine	21.3
13	Iran	21.2
14	Mexico	19.9
15	France	15.5
16	Spain	14.5
17	Canada	13.6
18	Vietnam	11.5
19	Poland	10.3
20	Austria	8.1

Source: Own elaboration (World Steel Association, 2017).

China leads the production list with more than 50% of production, as shown in Table 1. Main steel producers worldwide, followed by Japan, India, the USA, Russia, and South Korea, who together represent 80% of steel production.

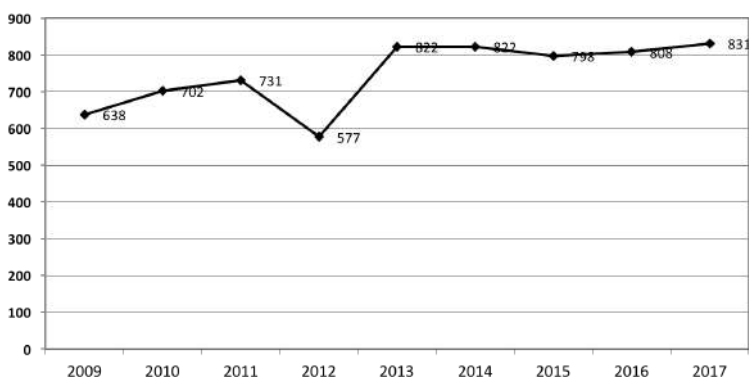
The study of the strategies that China implements in the steel industry is relevant because according to the data of the World Steel Association (2017) its production is incomparable with any other country.

## CHINA IN THE STEEL INDUSTRY

According to IberChina (2017), the steel industry is one of the pillars of the Chinese economy, and it is also one of the sectors with the greatest excess capacity.

In 2015, the country produced a total of 803 million metric tons of steel. 50% of world production. The Chinese steel industry exported 13.7% of the steel produced in 2015. China, with 110 million tons of steel produced in 2015, was the world's leading steel exporter.

Figure 2. Chinese steel production (Millions of tons)



Source: Own elaboration (World Steel Association, 2019).

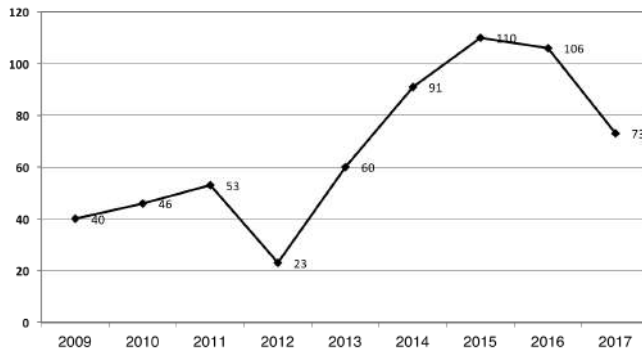
China's raw steel production constantly increased between 2016 and 2018. In 2018, production increased 12% to 928.3 million metric tons of 831.7 million tons in 2017. The gap between production and apparent consumption (a steel demand measure) was reduced to 52.7 million metric tons in 2018.

Between 2009 and 2016 China's steel export as a proportion of production more than triple from 4% to 13.2% before declining in 2017 in 2018, the export share of production was further reduced by 1.6 percentage points to 7.2%.

China is the world's largest steel exporter. In 2018, China exported 66.9 million metric tons of steel, a 9% decrease from 73.3 million metric tons in 2017. China's exports accounted for about 16% of all steel exported worldwide in 2017.

China's volume 2017 steel export was almost double that of the world's second-largest exporter, Japan, and more than double that of the third largest and fourth-largest exporters, Russia and South Korea. In terms of value, steel accounted for only 2.2% of the total amount of assets China exported in 2017.

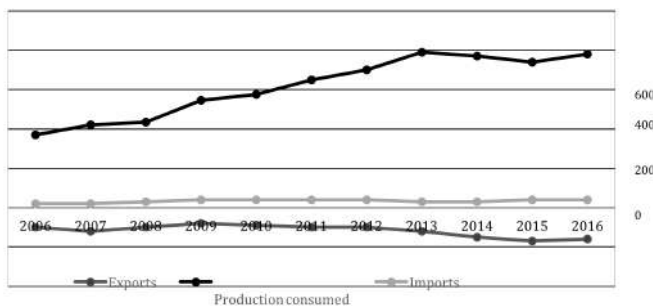
Figure 3. Gross steel export (millions of tons)



Source: Own elaboration (World Steel Association, 2019).

As seen in Figure 4. Around 90% of the production of Chinese plants has been absorbed in the country, but domestic consumption peaked in 2013. As the economic growth in China's growth slows, construction infrastructure and properties reach a saturation point, it seems that more steel is about to flow to world markets.

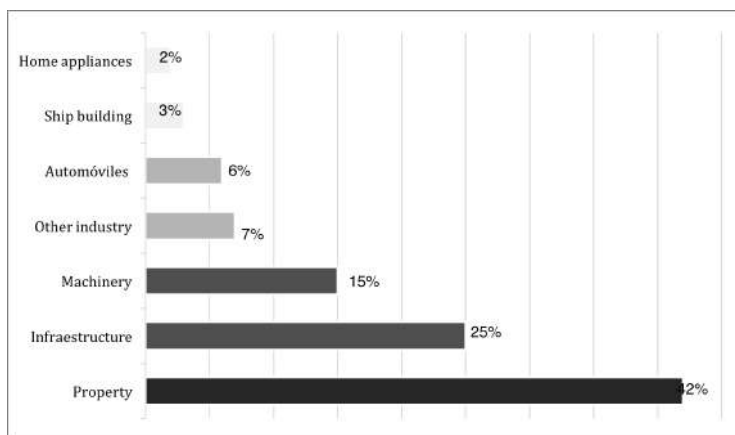
Figure 4. Consumptions and exportation of Chinese steel (Millions of tons)



Source: Own elaboration with data of the World Steel Organization, National Bureau of Statistics, China Custom Administration, Financial Times World Steel Association (2016).

Likewise, it is observed in Figure 5. That of the domestic consumption in the country 42% is destined for the realization of assets, 25% for infrastructure. 15% for machinery, 7% for other industries, 6% for car production, 3% for shipbuilding, and 2% for home appliance production.

Figure 5. Steel consuming sectors in China



Source: Own elaboration (CEIC, 2015).

China Baowu Group (the results of a merger between the Baosteel Group and Wuhan Steel Group) is China's steel production company. China's steel production extends through many companies, with the top 10 producers in the country representing only 310.5 million metric tons, or 37%, of total production in 2017, based on available data.

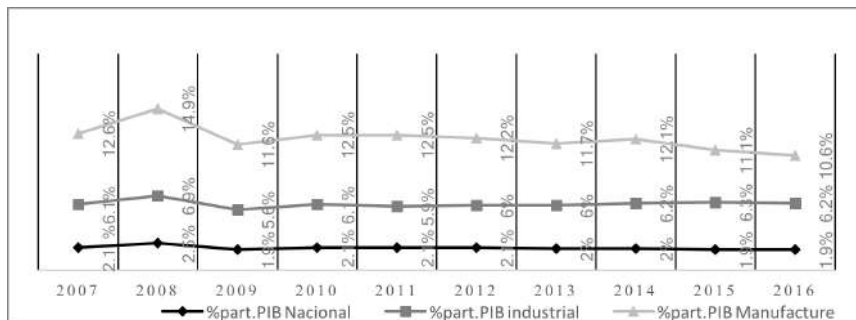
The corrective trade measures in the steelmaking sector have been anti-dumping (AD), countervailing (CVD), associated suspension agreements and safeguards are often collectively referred to as trade remedies.

These mechanisms are internationally agreed to deal with the effects that distort the market for unfair trade or serious damage or the threat of serious damage caused by an increase in imports. Unlike anti-dumping and countervailing measures, safeguards do not require verification of these rights or measures, countries investigate accusations and can remedy or alleviate the damage caused to national production.

## MEXICO IN THE STEEL INDUSTRY

This section describes the statistical information of the Mexican steel industry; the data described below were taken from infographics of the National Chamber of the Iron and Steel Industry (2004).

Figure 6. Participation of the steel sector for GDP



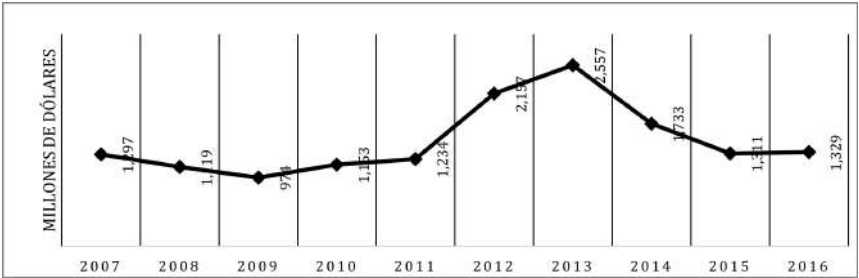
Source: Own elaboration (CANACERO, 2017).

The national steel production from 2007 to 2016 was 18.8 million tons with an installed capacity of 29.6 million tons. The production of steel in monetary terms was 369 thousand 182 million pesos in 2016, which represents 10.6% of manufacturing GDP, 6.2% of industrial GDP, and 1.9% of National GDP as shown in Figure 6.

For investments, until 2006 the sector maintained and investment program aimed at the replacement, rehabilitation updating, maintenance, and expansion of production plants. In Figure 7. Investment of the steel industry according to CANACERO (2018) It is observed that from 2007 to 2009, an investment plan for 3 thousand 363 million dollars was applied.

The growth in investment remained from 2010 to 2013 at 1,110 million dollars. The investments made in the 2007-2016 period total of 14 thousand 83 million dollars.

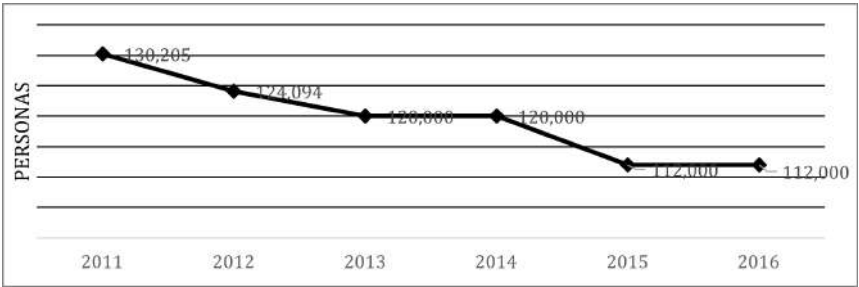
Figure 7. Investment of the steel industry



Source: Own elaboration (CANACERO, 2018).

Likewise, the number of people employed, the total jobs in the Mexican steel industry are observed (Figure 8). From 2015 to 2016 the industry has made enormous efforts to avoid mass layoffs, however, it has a significant decline over the years.

Figure 8. Number of people employed



Source: Own elaboration (CANACERO, 2017).

Figure 9. Steel production by state



Source: Own elaboration (CANACERO, 2017).

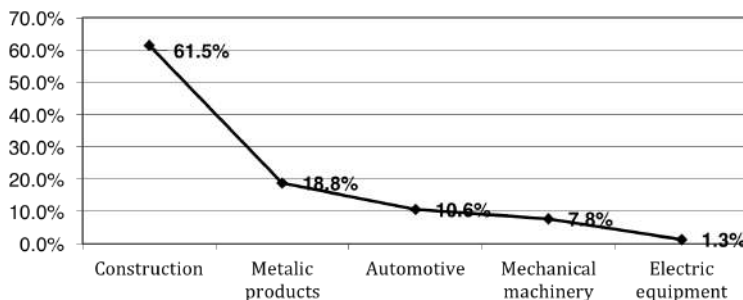
The steel industry in Mexico is of vital importance since its production is closely linked to the dynamics of the economy as a whole; steel products are indispensable in the production chain for the generation of consumer durables.

Also, steel companies constitute a fundamental part of the fixed capital available to the country due to the high investment requirements involved in its operation and production.

Likewise, it has devices distributed in 11 municipalities of the country in which 3 federative entities (Coahuila, Michoacán, and Nuevo León) contribute more than 60% of the production, as can be seen in Figure 9. Steel production by state.

Steel consuming sectors in Mexico, mostly 61.5% correspond to the construction sector, followed by metal products and the automotive industry (Figure 10).

Figure 10. Steel consuming sectors in Mexico



Source: Own elaboration (CANACERO, 2018).

Due to the relevance of the sectors that use this raw material, there is no doubt that the production of this input contributes significantly to both national and international competitiveness.

Mexico experiences a different commercial scenario in comparison with China. The export of Mexican raw materials to that country is small compared to other Latin American countries. Chinese industrial exports grew 441% from 2003 to 2014, which represented a greater boost than total exports. Which grew 435% during the same period. Mexican manufacturer is a strong competitor for its domestic market and the North American Free Trade Agreement (NAFTA) market.

The second is much more important than the first. The enactment of NAFTA in 1994-1995 represented the formalization of a commercial trend already underway between Mexico and the US. China's entry into the WTO marked a slowdown in Mexican exports to the US. As is the case with other Latin American economies, Chinese imports show a two-figure growth, while the corresponding local sectors do not grow so rapidly

## THEORETICAL FRAMEWORK

For an industry to become competitive, it is necessary to go through a series of factors and strategies that provide stability in the market from the beginning of its operations to the present.

For the World Economic Fund (2018), competitiveness is defined as “the set of institutions, policies, and factors that determine the level of productivity of a country. The productivity levels determine the rates of return on investments,



which in turn play a fundamental role in the growth of the economy". In this way, an economy is more competitive when it manages to grow at higher average growth rates than the rest of the economies in the long term.

According to Ivancevich and Lorenzi (1997), competitiveness is the measure that a nation, under free and fair market conditions, is capable of producing goods and services that can successfully pass the test of international markets, maintaining and even increasing the real income of its citizens.

Although it can be affirmed that the idea of the competitiveness concept is similar among the students of the subject, a generalized agreement regarding its definition has not been found, but what is a fact, is that the author of constant reference in the field of competitiveness is Porter (1999), who indicates that competitiveness arises from the productivity in which companies employ in one location the factors (labor or capital) to produce valuable goods and services.

Although the different definitions regarding competitiveness have a microeconomic reference framework, today they include macroeconomic, socio-economic, political and cultural elements that also influence the performance of companies and the standard of living of the population, because they recognize the correlation between the competitiveness of countries and the living standards of their population (WEF, 2004).

One of the first studies on international competitiveness and today's most widespread is the Global Competitiveness Report dating back to 1979 from the World Economic Forum (WEF), hosted in Geneva. As of 2004, the Global Competitiveness Index (GCI) is introduced, which takes into account microeconomic and macroeconomic bases to measure the competitiveness of a nation.

For the WEF, competitiveness is defined as the set of institutions, policies, and factors that determine the level of productivity of a country. Productivity levels determine the rates of return on investments, which in turn play a fundamental role in the growth of the economy.

In this way, an economy is more competitive when it manages to grow at higher average growth rates than the rest of the economies in the long term. The indicator is constructed from 12 factors that explain the competitiveness and positioning of countries and which are grouped into three stages: the first is economies driven by increases in productive factors; the second is economies driven by efficiency improvements, and the third is economies driven by innovation. All are quantified according to the degree of development of the countries through the gross domestic product (GDP) per capita.

Table 2. The global competitiveness model

BASIC REQUIREMENTS: SUBSCRIPTS - (BR)	EFFICIENCY DYNAMIZER: SUBSCRIPTS - (ED)	INNOVATION AND SOPHISTICATION: SUBSCRIPTS - (IS)
Pillar 1. Institutions	Pillar 5. Middle education and training	Pillar 11. Sophistication of business
Pillar 2. Infrastructure	Pillar 6. Labor market efficiency	Pillar 12. Innovation
Pillar 3. Macroeconomic environment	Pillar 8. Development of the financial market	
Pillar 4. Health and elementary education	Pillar 9. Technological capacity	
	Pillar 10. Domestic market	

Source: Own elaboration based on the model published by Schwab (2018).

The WEF study contains 114 indicators where it groups the key factors that lead a country to be competitive. Figure 11 shows the global competitiveness model integrating the subscripts and competitive pillars. These indicators are grouped into 12 pillars, which are divided into 3 subscripts according to BR (Basic Requirements), ED (Efficiency Dynamizers), and IS (Innovation and sophistication).

Under this scheme proposed and developed by the World Economic Forum, aspects such as the macroeconomic environment, the efficiency of financial markets, technological development, and innovation are taken into account, leaving a total of 12 measurable elements or factors for each of the nations.

The WEF study is annual and the information comes from surveys and hard data that are summarized in statistical variables from international sources. According to Huber-Bernal (2017) for the past five years, the GCI has maintained 91.6 percent of its indicators by holding 99, eliminating three, and incorporating 12 new ones. This gives some stability to those who take it as a reference for monitoring public actions undertaken by national governments to raise their levels of competitiveness in the medium and long term.

## METHOD

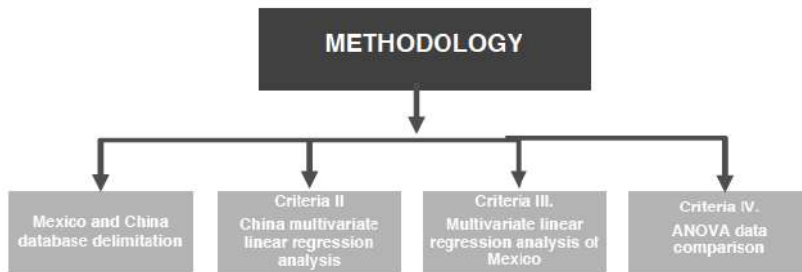
This chapter compiles relevant research from databases such as EBSCO, Scopus, Proquest, Science Direct in the years 2015 - 2019, which were used to develop a theoretical framework of reference in which the research variables are supported, to identify the industrial policies that the countries with the greatest competitiveness studies use.

Additionally, a quantitative analysis work of comparative contrast between the leader of the steel industry and Mexico is carried out according to

the global competitiveness index of 2018, of the development subscripts BR (Basic Requirements), ED (Efficiency Dynamizers), and IS (Innovation and Sophistication) and the productive capacity of these countries measured in millions of tons of steel produced; To find statistical significance, the multivariate linear regression model and the ANOVA model were used in a comparative analysis of China concerning Mexico to have a reference control group.

In Figure 11 the sequence of analysis activities developed for the field study is established. It was possible to identify China as the leading country in the world industry, and based on this the country competitiveness indicators and the incidence was analyzed with its productive capacity to statistically contrast using linear regression and analysis of variance for the indicators of Mexico, achieving the identification of the key elements of competitiveness of both countries as input for the contrast analysis.

Figure 11. Methodology for comparative analysis of steel competitiveness



Source: Own elaboration.

When analyzing the data from China and Mexico, contrasting the vectors of the global competitiveness index concerning the productive capacity in millions of tons, as can be seen in Table 2.

Research results, the statistical data indicate that, for China pillar 1 of the WEF, the competitiveness model is the health and elementary education, and in pillar 11 the sophistication of business factors that influence its competitiveness in the steel industry, however, when specifically reviewing the subscripts there is no coherence in the information since child immortality does not influence the steel industry, which is why this pillar is discarded.

Regarding the competitiveness of Mexico in the steel industry is pillar 8, Development of the financial market in specific regulation of stock exchanges and pillar 11, Sophistication of businesses in specific quality of local suppliers.

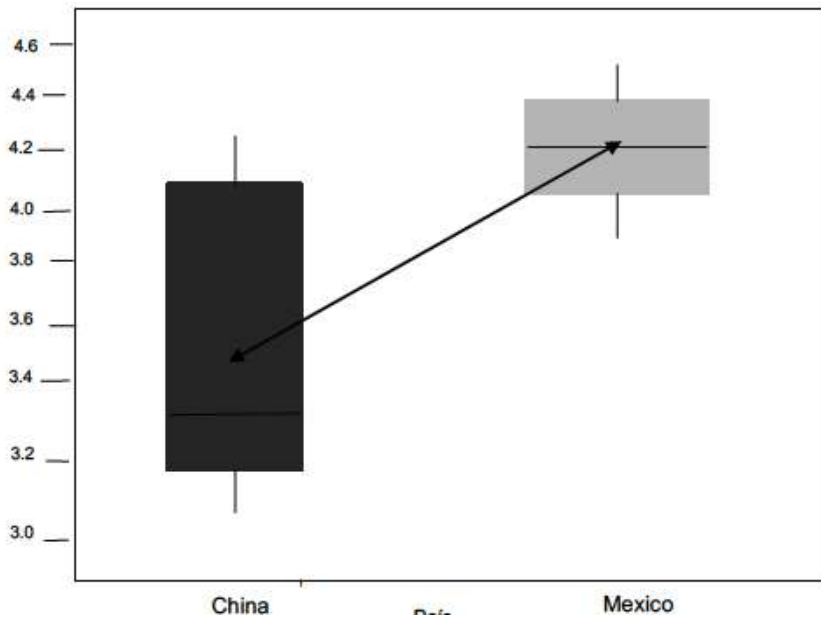
Table 3. Results of the investigation

Statistical Test	Pillar Level Result	Result at Level Index	Implication
China multivariate linear regression analysis	Significant factor P4 with a value of $p=0.000$ , and FIV 1.28 minor effect not significant in multicollinearity.	Significant factor 4.07 with a value of $p=0.009$ , and FIV 2.32 minor effect not significant in multicollinearity.	The analysis indicates that pillar 4, Health and Elementary Education specifically the infant mortality rate and pillar 11, Business sophistication specifically the index of the number of local suppliers and value chain amplitude are significant for the ability to Chinese production
	Significant factor P11 with a value of $p=0.006$ , and FIV 1.28 minor effect not significant in multicollinearity.	Significant factor 11.01 with a value of $p=0.006$ , and FIV 4.10 minor effect not significant in multicollinearity.	
		Significant factor 11.05 with a value of $p=0.002$ , and FIV 3.29 minor effect not significant in multicollinearity.	
Multivariate linear regression analysis of Mexico	Significant factor P8 with a value of $p=0.009$ , and FIV 1.07 minor effect not significant in multicollinearity.	Significant factor 8.07 with a value of $p=0.000$ , and FIV 1.05 minor effect not significant in multicollinearity.	The analysis indicates that pillar 8, Development of the financial market in specific regulation of stock exchanges and pillar 11, Sophistication of businesses in specific quality of local suppliers are significant for Mexican production capacity.
	Significant factor P11 with a value of $p=0.003$ , and FIV 1.07 minor effect not significant in multicollinearity.	Significant factor 11.02 with a value of $p=0.000$ , and FIV 1.05 minor effect not significant in multicollinearity.	
ANOVA comparison China vs Mexico	The value of $p=0.0000$ for pillar 11. The value of $P=0.0001$ for pillar 8.	Pillar 11. Sophistication of business Pillar 8. Development of the financial market	When comparing pillars 8 and 11, there are no significant differences between the leading country and Mexico, however it is observed that China has much more scope and focus than Mexico.

Source: Own elaboration using the statistical program Minitab.

When carrying out the comparative analysis of both countries, similarities are found between Mexico and China in pillar 11, business sophistication for local supplier index, however, the difference between nations is not significant as can be seen in Figure 12.

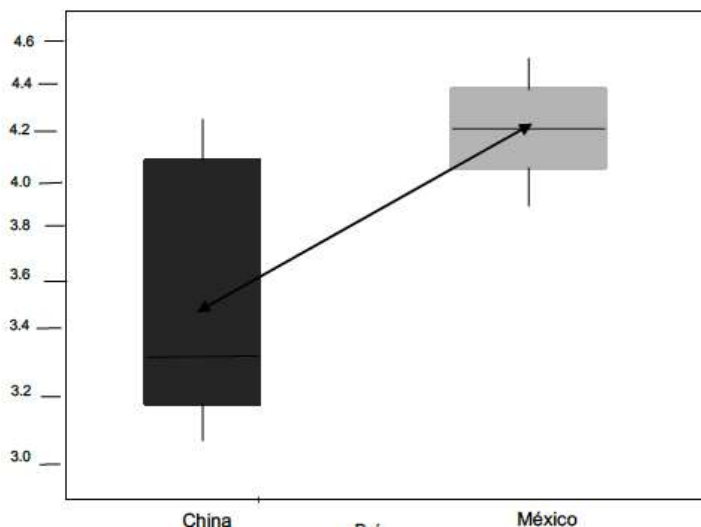
Figure 12. Pillar 11 Business sophistication



Source: Own elaboration using the statistical program Minitab.

On the contrary, as shown in Figure 13. Another of the pillars found in Mexico market development has a difference with China, this factor being above China.

Figure 13. Pillar 8 Development of the financial market



Source: Own elaboration using the statistical program Minitab.

## CONCLUSIONS

Competitiveness is a position that has great relevance in the economy of any country, the objective of the present investigation was to analyze the competitiveness of the steel industry of China and Mexico to find what were the competitive advantages of the leading country, to give development guidelines in the Mexican steel industry. Therefore, according to the quantitative review of the information, there is no significant advantage of China towards Mexico in the steel industry.

Although no significant differences are found, China has a greater focus on its business sophistication policies, which refers to two elements that are closely linked: the quality of a country's general business networks and the quality of operations and Individual business strategies. According to OCEC (2019) when companies and suppliers in a particular sector are interconnected in geographically close groups, efficiency is reinforced, greater opportunities for innovation in processes and products are created, and barriers to entry are

reduced of new companies, so after analyzing the information it was observed that Mexico is on the right track, but it needs more momentum in this pillar.

Given the above, this information encourages further research on how other leading countries such as Japan, India, USA, Russia, and South Korea boost the competitiveness of the steel industry so that Mexico has the opportunity to climb one more step in global competitiveness and thereby contribute to the country's economy.

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# Chapter 4

## **Generation of Employment and Digital Age in the Hotel Sector of Peru**

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# Generation of Employment and Digital Age in the Hotel Sector of Peru

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## INTRODUCTION

**T**his research study was aimed at exploring the actual situation of small- and medium-sized enterprises (SMEs) in the hotel sector in the emblematic city of Cusco, Peru.

The city was chosen because it has a highly significant hotel sector that is geared toward national tourism but mainly toward international tourism and also because it contributes significantly to the economic growth of Peru, with this being a developing country.

As in all these countries, SMEs play a fundamental role in market dynamics: producing and offering goods, creating added value, and contributing to the generation of employment.

At present, SMEs represent a highly significant stratum in the productive and economic structures of the country in terms of both, the number of establishments and the generation of employment, in that in recent years, this sector has acquired a majority presence, and in some areas in the interior of the country, it constitutes the only form of existing business organization on which economic activity revolves.

Peru has a marked cultural and gastronomic diversity that has made it one of the most visited countries in the world. Hence, the hotel sector has been strongly developed to be an important productive business for the country.

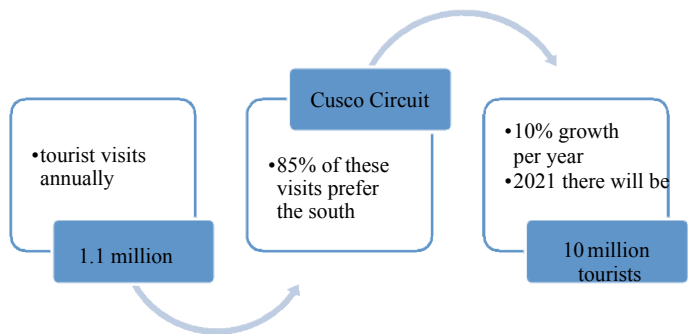
Cusco is a very emblematic city, which is considered to be a cultural heritage of humanity. In particular, one can find in this municipality one of the wonders of the world, that of Machu Picchu, which receives more than 1.1 million tourist visits annually.

This area, called the tourist circuit of the south, has enabled, according to the PROMPERU statistics of 2014, the reception of 85% of the country's inbound tourism, with an average growth of 10% per year.

Hence, by 2021, tourist growth is expected to be of the order of 10 million tourists, demonstrating strong demand in terms of the receptive tourism that hotel services will avail of. Furthermore, according to the statistics obtained from a study of hotel vacancies in Cusco since 2014, the number of rooms in 2021 is expected to be more than double the existing offer in 2014 (see figure 1).

Also, hotel demand was projected to reach 7,000 occupied rooms by 2021, higher growth in the midscale category of which was expected. (MINCETUR, Tourism Leisure & Sports, 2013; PROMPERU, 2014; MINCETUR, 2014).

Figure 1. Importance of tourism in Cusco, Peru, in 2014



Source: Own elaboration (PROMPERU, 2014; MINCETUR, 2014).

**PROBLEM STATEMENT**

Today, we live in a world submerged in the digital age, where we are connected, and where technology moves us, locates us, informs us, and even determines the way we communicate and behave.

This causes economic, social, political, and particularly technological changes that happen quickly and makes it imperative for companies or organizations to adapt to them and even more so, consider their client trends.

This is particularly because nowadays, they are increasingly connected to using digital technology, and one of these trends is interconnection by the Internet—a new form of interaction between the client and the company—either by the Web or employing cell phone devices (Salamanca, 2011) because the Internet has changed our lives and the way we buy goods and services.

It should be noted that these changes in the environment, technological advances, and new social trends have affected client performance by bringing in new business practices.

Therefore, it is of vital importance to consider the evolutionary and innovative technological advancement and appropriately apply digital marketing strategies to improve the electronic service quality in the hotel sector—above all, those of SMEs, the basis of world economies, many of which have not developed or even survived over time, with others experiencing great difficulties and excruciatingly slow development.

For SMEs, improving electronic service quality in the hotel sector helps to prevent future errors and to design innovative strategies that are essential for success because it increases their productivity and directs the organization toward competitiveness, which is vital for survival in this highly globalized and competitive world.

Therefore, digital marketing factors allow the organization to improve its electronic service quality through technological advances in addition to transmitting the desired image to the consumer public to establish itself as a quality SME and to position itself in a sustained manner in the minds of consumers and/or users.

Therefore, the importance of investigating the incidence of digital marketing as an electronic service in the hotel sector of SMEs is of paramount importance, particularly since no previous studies of this nature are to be found. Therefore, this study will benefit SMEs in the country by showing them that the use of digital marketing can help them grow.

Besides, it should be noted that SMEs are a vital factor for Peru's economy as they are in most developing countries. However, numerous studies show that SMEs have high mortality rates, which, regardless of economy or country, show that approximately 80% of small- and medium-sized enterprises fail before their 5th year and that 90% fail to survive 10 years (Serrano, 2016).

Therefore, the following research question was raised in this study. What are the digital marketing factors that have the greatest impact on improving electronic service quality among SMEs in the hotel sector in Peru?

The overall objective of the investigation: Analyze the digital marketing factors that improve the electronic service quality offered by SMEs in the hotel sector in Cusco, Peru, for the SMEs to use them and be able to: survive, develop, and act successfully in a changing, volatile, and fragile environment; that will help to strengthen this essential sector of the country's economy.

Achieving this objective will create not only new proposals but also guidelines on how SMEs should be developed in a digital era. It will also benefit managers, administrators, and owners of small- and medium-sized businesses in this sector as they can use this methodology to measure factors in their sector, and based on their results, they may execute action plans that influence their commercial management. This could be done to improve electronic service quality, thus maintain a successful competitive environment.

Based on the literature reviewed, it is proposed as a hypothesis and solution to the research question that the digital marketing factors that enable improvements in electronic service quality are as follows: the management of digital social networks (X1), the cell phone application interaction (X2), the quality of the information on the interface (X3), and the handling of client relationships (X4).

## **THEORETICAL FRAMEWORK**

Y=Electronic Service Quality

According to Cervantes and others (2016), quality of service is a key to success because offering services to online customers is increasingly important to obtain competitive advantages in the electronic market and consequently create value.

In this sense, all types of companies, whether they are banks, travel agencies, airlines, employment agencies, real estate agencies, insurance companies, or online publishers of digital information, increasingly choose to offer all kinds of electronic service to be able to meet new customer needs (Castaño & Jurado, 2016).

Earlier, to have good prices and advertising presence was thought to be enough for commercial success; however, today, because of strong competition, prices and presence are necessary factors for survival but are not enough.

Nowadays a key tool to improve client interaction and influence their behavior is the sale of products by electronic means, so much so that one of the main business objectives is to improve the quality of electronic service that companies offer in the sale of their products or services (Garcia, 2017).

Establishing a better relationship between the levels of electronic service

quality and customer relationships leads to greater skill in attracting potential customers, greater enterprise competitiveness, and higher levels of profitability in the long term (Ruiz & Fandiño, 2017).

Electronic service quality has been defined as the extent to which a webpage can facilitate purchases and the supply of products and services efficiently. From the marketing and Internet environment and the traditional literature on service quality, electronic commerce quality is defined as a global assessment of consumers and their judgment on the excellence and quality of electronic services offered in virtual markets (Barzola *et al.*, 2019). This global judgment refers to the total result of visiting a website.

For purpose of the investigation, electronic service quality was defined based on the definitions put forth by the authors mentioned above as consumers' global assessment and/or evaluation of the quality resulting from electronic service interaction offered in virtual markets across an electronic channel.

About the digital marketing concept, authors as Kotler and Armstrong (2017) define marketing as a process by which companies create added value for clients and establish close relationships with them, to receive client value in return.

To discuss technical marketing or marketing, it must be understood, not in the old sense of "talking and selling" but in meeting the needs of the customer. If the marketing management perceives the needs of the consumer well; if products or services are developed that offer superior value; if prices are fixed properly; and if the distribution and promotion system is improved, then products will be sold very easily.

Gutiérrez-Leefmans and Nava-Rogel (2016) highlight the new conception of marketing, wherein the client becomes the focus of the whole business, and how the client wants to interact with the company is the priority. Currently, they interact through digital media, having moved from "acting for the client" to "acting with the client." Marketing has advanced and transformed itself because it has been socialized.

It has extended to all socioeconomic sectors, has become established in all sizes of organizations, and has adapted to changes in the environment, evolving to make other aspects of marketing adapt to the strong global competition, where competitiveness becomes stronger every day (Vicuña, 2016).

Therefore, digital marketing was born, which is considered by several authors as a strategic process that helps to create and distribute products and services at a competitive price for a target market that is continuously harvested on the Internet or through digital tools.

Cuamea and others (2019), Velazco, (2016), Improma, (2017) and Alcaide (2013) and others. Likewise, these authors make some clarifications that should

be considered regarding the factors of digital marketing because of their importance; they are as follows:

### X1- The Management of Digital Social Networks

Virtual social networks or social network sites are a service based on a Web platform through communication, interaction, collaboration, and self-organization ecosystems that enable people to build a public or semipublic profile within a confined system.

However, above all, you can coordinate a list of other users with whom you want to share a connection as well as see and traverse your contact list and those made by others within the system (Boyd & Ellison, 2007; Campos-Freire & Rúas-Araújo, 2016).

All of this means that the main feature of these networks is that they are made in virtual communities that enable continuous interaction between network members and that there are formal and informal conventions, but above all, it means that there is a will of the people to interact at a faster speed that helps to develop close relationships between people, facilitates communication between clients and suppliers, and is amenable to be extended to a global dimension (Fuchs, 2008; López *et al.*, 2018).

### X2- Cell Phone Application Interaction:

As technology advances rapidly, so do new forms of user interaction. Hence, several authors highlight the interaction of cell phone applications as a set of practices that help companies communicate and collaborate with their audiences in an interactive and relevant way through any cell phone device, e.g., smartphones, as well as commercial transactions of products or services through cell phone technology, thus facilitating consumer purchases with no restrictions of time and place (Selzer *et al.*, 2017; The Mobile Marketing Association, 2009).

A former vice president of e-commerce giant “Alibaba” says that the approach to making local online purchases should change to selling products worldwide as many of these will be one click away from users who previously did not have access to them.

Hence, cell phone presence is essential in current times because although having a website on the computer was enough before, how people in emerging countries are increasingly entering and using only their cell phone devices (Velázquez, 2016).

The advantage of this trend is that impulse sales can be created. When traveling with a cell phone in hand, the user can see an ad, look for the product



presented in it, and buy it at that time. This means that companies must adapt to advertise on smaller screens, in this case, those of cell phones, and thus attract attention quickly, which, in turn, entails being able to tell a story in a few seconds.

### X3- Quality of Information on the Interface

These are graphic elements that enable the user to access the contents, navigate, and interact (Aguado, 2018). For Pinto and others (2017), every time we access some of the many sources of information, from simple books to computers, we find that the information they contain is organized in a way such that the contents can be easily accessed.

Following the example of books, the order in which the contents appear is described in the index, which is usually found at the beginning or end of it. Also, the physical form of the book itself and how the pages are organized makes the interface very simple and intuitive. The same goes for the information on cell phone devices: the more orderly it is the better the quality of the interface.

The quality of the information on the website interface serves the purpose of enabling consumers to easily access the contents, interact effectively with all the components, and have constant ease of use. Thus, this is where the company provides appropriate, simple, and consistent information about the products or services offered on its web pages (Fernández, 2017).

### X4- Customer Relationship Management

Ruiz and Fandiño (2017). This concept refers to a set of practices, business strategies, and technologies focused on clients, ranging from small to large companies, who use them to: manage and analyze interactions with their clients, anticipate their needs and desires, optimize profitability, increase sales, and have greater objectivity in their campaigns to attract new customers.

Salesforce (2017) and Valenzuela (2009), points out that the management of client relationships is directed or focused on understanding, anticipating, and responding to the needs of current and potential clients from an enterprise, to make the value of the relationship between both parties grow. It gives the company a valuable opportunity to know clients and therefore to learn how best to serve them.

## METHODOLOGY

This research work is quantitative because a survey was used to collect data that allowed us to test the hypothesis. This is because the results were subjected to statistical rigor.

Regarding the types of research, this study began as exploratory because it began with the analysis of the growth of tourism and the position of SMEs in the hotel industry. It is descriptive because the reality of the problem is described as shown in current conditions and circumstances.

It is of a correlational type because the degree of association between the digital marketing factors and electronic service quality in the hotel sector was measured. Finally, it is explanatory because it seeks to explain the causes of the situation analyzed (Hernández *et al.*, 2014).

This research is nonexperimental because there is no manipulation of the study factors; it is limited to the observation of the facts as they occur. The main techniques used for data collection are documentary, bibliographic, and field.

For the field study, a survey was prepared based on the theoretical framework of the proposed variables. Therefore, several items of other research that measured the proposed variables were integrated and adapted, resulting in a survey of 50 items.

A pilot test was carried out using this tool with 71 guests from different hotels. The results helped to data cleanse items and “tropicalize” them so that they were clear and understandable, and thus, 47 items remained. A Likert scale was used in the tool where 1 is not in agreement, 2 agrees somewhat, 3 does not agree or disagree, 4 agrees, and 5 agrees. The data obtained from the data collection sheet was transferred to Excel and sent to the SPSS program for statistical development.

As for the selected population, a search was performed for the main SME hotels in Cusco, Peru, that had a rating of three (03) stars and above all else that were registered in the DIRCETUR of Peru; hence, a total of 82 formal hotels were found (Ministry of Production, 2014).

The survey was directed toward guests because they are the ones who perceive the service provided, who acquire and reserve, and above all else who have contact with the digital part. To determine the total number of guests to be surveyed, we did the following:

1. First, the daily average of guests was taken as indicated by the PROMPERU (2016) statistics: 12 guests per day.
2. Second, this number was multiplied by the total number of formal hotels registered in the DIRCETUR organization, which was 82, giving a total result of 984 guests.

3. Third, the optimal “n” formula was applied, where the sample size was 200 guests from 3-star hotels in the city of Cusco, Peru.
4. So, finally, on average 2–4 guests were surveyed in each of the selected SME hotels.

It is consequential to mention that the condition of objectivity was met through the standardization of the survey application as everyone was administered the same survey, printed in single ink color, in physical form, the participants were accorded the same personal attention in resolving any queries, and the percentage of participation of the respondents was considered to be equitable and applied at the appropriate times and places.

## RESULTS

The final results obtained from Cronbach's alpha indicate that the tool developed and applied has acceptable internal reliability for the variables under study (see Table 1) because the results are in the range 0.07–0.09, which is highly acceptable for validity, which, in turn, means that in overall terms, the tool measures the variable that it intends to measure (Hernández *et al.*, 2014).

Table 1. Cronbach's alpha values of the tool used

Variable	Cronbach's Alpha
X1: <i>Management of digital social networks</i>	0.806
X2: <i>Cell phone application interaction</i>	0.824
X3: <i>Quality of information in the interface</i>	0.876
X4: <i>Client relationship management</i>	0.852
Y: <i>Electronic Service Quality</i>	0.926

Source: Own elaboration based on the collected field data.

Once the Cronbach's alpha was carried out with the support of the SPSS system, linear regression was carried out in an attempt to explore and quantify the relationship between the variable called dependent or criterion (Y), which, in this investigation, is the variable Electronic Service Quality, and the variables called independent or predictors, which are: X1: The management of digital social networks; X2: Cell phone application interaction; X3: Quality of information in the interface; and X4: Client relationship management, as well as developing a linear equation for predictive purposes.

*Multiple Linear Regression Study*

Once the variables with weighted averages were generated and the linear regression of the independent constructs was carried out, the following results were produced.

The independence of residuals through Durbin–Watson shows the presence of first-order self-correlation in residuals in a regression. Because the Durbin–Watson value generated in the models is 1.620, it ensures that there is no self-correlation in the models, which helps to show a valid linear regression (allowed range 1.5–2.5), with accepted correlation coefficients ( $r$ ) ranging from 0.959 to 0.962 as well as the coefficient of determination ( $r^2$ ) in the range 0.920–0.925 (see Table 2).

Table 2. Lineal regression results.

a. Predictors: (Constant), X1: The Management of Digital Social Networks

b. Predictors: (Constant), X1: The Management of Digital Social Networks;

Model summary <sup>c</sup>					
Model	R	R squared	R squared adjusted	Standard estimation error	Durbin–Watson
1	0.959 <sup>a</sup>	0.920	0.919	0.50163	
2	0.962 <sup>b</sup>	0.925	0.922	0.48992	1.620

X2: Cell Phone Application Interaction.

c. Criterion (Dependent variable), Y: Electronic Service Quality

Source: Own elaboration (SPSS-V18).

The resulting model should not reflect multicollinearity among independent constructs. We can see that the results do not show multicollinearity among independent constructs. Thus the results utilizing the variance inflation factor index (VIF) show acceptable collinearity because they are less than 10 (see Table 3).

Table 3. VIF Index

Model	Co-efficients <sup>a</sup>		Standardized coefficients	t	Sig.	Collinearity Statistics	
	Nonstandardized coefficients	Deviation Error				Tolerance	VIF
1 (Constant)	0.260	0.214		1.215	0.228		
X1: <i>Management of digital social networks</i>	0.956	0.034	0.959	28.152	0.000	1.000	1.000
2 (Constant)	0.362	0.214		1.690	0.096		
X1: <i>Management of digital social networks</i>	0.727	0.115	0.729	6.331	0.000	0.083	11.989
X2: <i>Cell phone application- interaction</i>	0.213	0.102	0.240	2.082	0.041	0.083	11.989
a. Dependent variable: and: ELECTRONIC SERVICE QUALITY							

Source: Own elaboration (SPSS).

### T-Student Study

Regarding the results of the T-student test, an estimated error of less than 5% was considered (see Table 3), which shows that Model 2 is acceptable because the independent constructs that impact significantly on the electronic commerce dependent construct are as follows: X1: Management of digital social networks and X2: Cell phone application interaction with a significance value below 5%. Hence, we can design the linear equation that represents the results of this research:

$$\hat{Y}_1 = 0.362 + (0.727) \text{ Management of digital social networks} + (0.213) \text{ Cell phone application interaction} + \varepsilon$$

### CONCLUSIONS

It is important to highlight the fact that the digital era in SMEs has arrived, particularly in hotels, as the electronic service is increasingly used to make reservations.

Therefore, when the digital era was discussed in the theoretical framework, a series of digital marketing factors were presented, such as social networks, the interaction of cell phone applications, the effectiveness of interface information, and the relationship with clients, which, in turn, are indispensable for SMEs.

This is because digital marketing has grown and spread to all socioeconomic sectors, getting established in all sizes of organizations, particularly SMEs in the hotel sector, to improve the quality of electronic service, which has adapted to changes within the digital era.

Having obtained results, we can conclude that the main objective of the pilot survey was achieved, which was to analyze digital marketing factors that improve the quality of electronic service offered by SMEs in the hotel sector of Cusco, Peru.

The reliability obtained from the factors of digital marketing through Cronbach's alpha shows that the pilot tool used is reliable, which is why armed with the results, we can conclude that of all the independent constructs involved, X1: Social networks and X2: Interaction of cell phone applications are the most important factors for the quality of electronic service.

The social networks proposed to achieve the significance shown for electronic service quality may be given by encouraging the hotel to have a presence on social networks, in addition to making use of promotional publications 24 hours a day, and influencing the reservation of rooms, by using social networks efficiently, such as Facebook, Twitter, and Instagram, and effectively posting campaigns, offers, and advertising as a means for guests to increasingly acquire new rooms and thus increase the quality of electronic service.

Cell phone application interactions proposed to achieve the significance shown for electronic service quality can be given through the hotel's website or blog as it is adaptable to all types of cell phones, such as smartphones, tablets, iPads, and laptops, in addition to the fact that it uses the experience within the website to continue to use these cell phone devices because they are the future in terms of online sales.

Thereby, a large consumer base can be tapped by sending frequent offers through online messages such as those on WhatsApp, among others, so that the client feels safe to make online payments from the hotel.

It is important to continue to study the independent constructs X3: Effectivity of information on the interface, and X4: Client relationships as future lines of research to continue increasing practical contributions in electronic service quality.

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# Chapter 5

## **Digitization of Economic Activities for Job Creation and Social Stability and Competitiveness**

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# Digitization of Economic Activities for Job Creation and Social Stability and Competitiveness

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## INTRODUCTION

**T**he crisis of 2008 had devastating effects on the world economy; however, there was a positive outcome: It allowed to distinguish that the economies with a strong industrial sector were the ones that came out of the crisis the fastest.

The crisis also showed that a source of strength in this sector was the vital presence of companies that incorporated advanced technological innovations in their value chains.

In addition to incorporating technologies from the Third Industrial Revolution, such as information technologies, automation, or new sources of energy, companies progressively added technologies from the Fourth Industrial Revolution, such as advanced digitization, interconnectivity, or cyber-physical systems.

From there, the governments of developed countries strengthened their initiatives to reconvert their industrial sectors: The United States, France, England, and Germany were examples of this process.

In addition to fiscal and financially stimulating the reconversion of companies, the governments promoted technological support platforms and services.

The German government has been developing and participating in the creation of the Platform Industrie 4.0, a model for the digital conversion of the industry since 2011. In the United States, the government promotes advanced manufacturing programs, best known as the process of digitizing the sector in that country.

While in developed countries, governments encourage digital conversion, in Mexico, the actions implemented by the government in the last ten years show a modest interest in digitally converting the industry.

Although there are programs to encourage innovation, these are generally based on technologies before the Fourth Industrial Revolution. Based on the German experience, actions implemented by the Mexican government are presented in this paper to promote the digitization of its industry characterized by a globally competitive environment and the scientific and technological development of the Fourth Industrial Revolution. Possible effects in the country's industrial sector are also presented.

The paper is structured in four sections. The first part points out some elements of the Fourth Industrial Revolution, particularly the characteristics adopted by innovation and competitiveness. The second one points out the importance of digitization to economies, some initiatives by developed countries to promote are quoted as well.

In the third section, based on the German experience, the central government actions to support the digitization of the industry in Mexico are also presented. In the fourth and final section, results and reflections about this paper are shown. Finally, some conclusions are explained.

#### *Objectives and methodology*

The methodology of this chapter is qualitative. The resulting article comes from research based on the documentary analysis. It is based on an exhaustive review of information from international organizations (the European Commission, the Economic Commission for Latin America and the World Economic Forum) as well as national institutions (Ministry of Finance and Public Credit, Ministry of the Economy, National Council for Science and Technology, National Institute of Statistics and Geography).

The primary sources include the Federation's Expenditure Budgets; the programs, calls for incentives and lists of Beneficiaries of Technological Development and Innovation from 2009 to 2018, statistics and official publications, as well as printed and electronic publications on the subject.

Developed countries have a significant technological advance. Its culture, educational system, productive organization, and government action benefit the incorporation of technologies and digitization processes in its various economic activities. One of the most relevant examples is Germany, where the government promotes and encourages innovation.

Is it the same thing happening in Mexico? What is the Mexican government doing to incorporate the productive apparatus into the fourth industrial revolution? Is the Mexican government promoting the digitization of its economy? The Mexican government stimulates and rewards innovation?

This paper seeks to answer those questions. It aims to identify and compare the actions implemented by the German and Mexican governments to promote the digitization of their industries and economies in an environment characterized by global competition and the scientific and technological development of the Fourth Industrial Revolution.

#### **THE FOURTH INDUSTRIAL REVOLUTION (4IR)**

Industrial revolutions result from disruptive innovations in production processes leading to changes in the whole chain of production-distribution of products and generates modifications in the needs and behavior of consumers.

The whole of society is influenced by these changes. An industrial revolution is a turning point in the way it has traditionally occurred. Technological advances are the base of industrial revolutions, which change countries' growth, employment, and competitiveness.

In the first industrial revolution, the invention of the steam engine — used in the locomotive and industrial processes — and the extensive use of other raw materials (cotton, iron, coal, among others) led to the mechanization of tasks.

In the second revolution, new sources of energy (gas, oil, electricity), advances in communication systems (radio, telephone), and transport systems (cars and the appearance of the first aircraft) made mass production and greater specialization of tasks in production processes possible.

The third industrial revolution was influenced by the development of new energy sources (nuclear, wind, solar, water) and the increasing use of information and communication technologies (computers, electronics and telecommunications, Internet, and social networks). Information technology and automation were the main characteristics of the third industrial revolution. (Castresana, 2016).

The economic interest turned into the search for greater efficiency in the productive processes, which acted as an incentive for technological change, from improvement to disruptive innovation, where the development and promotion of science and technology in different areas has been essential.

This interest has led to changes in the lifestyles of society, culture, economy, and social organization. As a result, trade and cities have grown, and the quality of life of the population has improved. (Castresana, 2016).

The industry has a multiplier effect because its growth has an impact on other sectors of the economy as well as in the locations, regions, and countries in which it is inserted<sup>1</sup>. Given the importance of industry for economic growth and recovery in times of crisis, it is essential to strengthening its technological competitiveness. (Del Val, 2016).

## **INNOVATION, DIGITIZATION AND CHANGING CONSUMER NEEDS IN THE 4IR**

As in all industrial revolutions, in the 4IR, there are technological advances, new materials, software, inventions, and innovations, which lead to radical changes in the economy<sup>2</sup>. This paper adopts the definition of innovation from the Oslo Manual:

“The introduction of a new, or significantly improved, product (good or service), process, marketing or organizational method into internal business practices, workplace organization, or external relations” (OECD, 2006, p. 56).

In the 4IR, digital technologies are increasingly applied to virtually all productive and organizational processes and activities in society. This is known as the digitization process, which consists of the implementation of a technological production network where machines, devices, systems, and workers collaborate.

The operation is based on physical systems controlled by computer algorithms connected by a high-speed Internet that allows integrating the machines, Information storage systems, and production equipment capable of exchanging information automatically and autonomously, launching actions, and controlling each other.

Digitization is applied in all phases of the value chain of a company or organization, making it more efficient. By creating new and better products and services available at competitive prices, participants and consumers benefit from the value chain. As a result, consumers tend to change their tastes and preferences.

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<sup>1</sup> When an industry grows, so do other economic sectors “. . . for every euro produced by industry in the European Union, 34 cents come from other sectors. Therefore, the European Union has set itself the goal of increasing the weight of industry in the European GDP from 15.3% to 20% in 2020” (Del Val, 2016, p. 4).

<sup>2</sup> Innovations can be radical, “what Schumpeter calls destructive creation, where a new product or a new technology makes existing products or technologies obsolete.” (Heijs & Buesa, 2016, p. 27).

“New markets are based on customization and the creation of new innovative products and services. Customers demand quality from their products but are more willing to pay for the experience or service rather than for the product itself. Therefore, it is necessary to add new services, individualized experience, update capacity, which means adding IT (software and connectivity) to any product” (Del Val, 2016, p. 4).

## INNOVATION AND COMPETITIVENESS IN THE 4IR

Innovation has been a fundamental part of all industrial revolutions. It contributes to the productivity and competitiveness of organizations and economies; it helps to the growth, efficiency, and competitiveness of companies.

Innovation comes from the need to solve problems and challenges in the market or society, the search for improvements in products or services, the decrease in costs, and the increase of profits, among other things. The environmental aspect also plays an important role today. The technology<sup>3</sup> enablers in the 4IR are the following:

- Smart solutions. Smart products and services<sup>4</sup> capture information from the environment and consumers to use it for different purposes in the value chain.
- Smart innovation. It comes from the use of the information obtained through 4IR technologies in the different phases of the chain, which is processed and generates knowledge leading to the obtaining of innovations. Some are spread throughout the company while others are applied during the life cycle of the smart product connected.
- Smart supply chains. Rapid collaborative networks and connected supply chains.
- Smart factories. They are characterized by the control of decentralized production that is made up of intelligent production units connected to the manufacturing ecosystem. Resulting in a network of agents that make optimized decisions at a local level (Del Val, 2016). Smart factories have machines with machine-to-machine communication capabilities, which can be operated and configured in self-management mode. The machines<sup>5</sup> themselves can also indicate maintenance.

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<sup>3</sup> The technological basis for the operation of these technology enablers are mobile communication, the cloud, Big Data, machine-to-machine communication, social platforms, 3D printing (additive manufacturing), collaborative robotics and augmented reality.

<sup>4</sup> Products and services that have electronic systems, software and connectivity that allow them to operate, reprogram and update different functions. Intelligent services are found in new business models, with Big Data models you can automate the decision-making process.

<sup>5</sup> In recent car models, there are automated digital component check indicators.

The disruptive changes of the 4IR modify the needs of society and, consequently, job profiles. Different skills, competencies, and knowledge are required to handle new technologies; qualified and specialized personnel are needed to operate them. Given the “self-sufficient” operation of intelligent machines, fewer workers are required for their operation, which has a negative impact on the level of employment.

## **GOVERNMENT IMPULSE TOWARDS DIGITIZATION**

With the crisis of 2008, economies with a strong industrial sector were seen to emerge from it faster. There were also positive effects on the other areas in economies where governments had supported their industrial sector, — leading to a review and rethinking of growth-oriented economic policies in the countries affected by the crisis.

With the evidence of the economic importance of the industry, developed countries started to implement different programs aiming at economic impulse. New technology industrial projects were activated. All this helped the development of digitization as a distinctive feature of the 4IR.

The United States was among the first countries to promote the digital conversion of the industry. In 2011 the “Advanced Manufacturing Partnership 2.0” was created for planning and coordinating federal advanced manufacturing research and development programs (US Government, 2011).

In 2016 the “Manufacturing USA” program was designed to ensure technological leadership (US Government, 2017). With these initiatives, advanced manufacturing (best known as the digitization process in the United States) has been strengthened.

The 4RI is taking place in a global context, which, due to globalization, has different effects on economies. Each country faces diverse problems looking to solve them with their resources and capacities. For example, The European Union (EU), launched the Europe 2020 growth strategy in 2010, which has addressed short and medium-term challenges.

For the first countries, structural reforms to stimulate fast growth were implemented in the face of the 2008 crisis; for the second countries involved, they prepared their products and service sectors for the future.

The European Union has tried to address several challenges, including climate change, unemployment, health, an aging population, inefficient use of resources, energy security, and polluting transport (European Commission, 2013).

To do so, it relies on the participation of the most advanced technological segments (nanotechnology, nanoelectronics, photonics, biotechnology, superior materials, among others) with positive results.



Ever since the launch of that strategy, the EU acknowledged that it was necessary to promote the integration of these segments into a technological ecosystem that enhances benefits. This strategy has demanded more significant government intervention, both at the EU level and in individual countries as well.

Operationally, technological integration is built through an in-depth process of digitizing the value chains of all industrial branches. Thus, in 2013, France implemented the “*Novelle France Industrielle*”, an initiative to modernize and lead the industry towards digitization (Raffour, 2016). England implemented “*See Inside Manufacturing*” in 2013, which aimed to create jobs and contribute to economic growth by transforming industry (UK Government, 2014). In 2012, one of the most critical initiatives in industrial digitization, the “*Plattform Industrie 4.0*,” also known as *Industry 4.0*, was launched in Germany.

The purpose was to identify trends and develop joint recommendations for different areas of advanced manufacturing in a scenario of digital reindustrialization (Kagermann, Wolfgang & Helbig, 2013).

This process is not only taking place in EU countries, with different levels of intensity; it is also promoted in other developed and developing countries. Digitization will undoubtedly contribute to solving countries’ economic and social problems.

## PROMOTING DIGITIZATION IN MEXICO

The essential reference for industrial digitization is the German case. *Industrie 4.0* is seen as a model to follow in the efforts to join the new technological streams of 4IR. Therefore, it is essential to know what it consists of, implementation structure, and how the government has promoted it, to identify the actions implemented in Mexico subsequently.

In 2012, the “*Plattform Industrie 4.0*” or *Industry 4.0 (I4.0)* initiative was launched by German associations of engineers from the electrical, electronic and digital industries to identify trends and develop joint recommendations for different areas of advanced manufacturing, in a context of digital reindustrialization.

Design-wise and implementation of I4.0, five working groups were created to supervise: reference architecture, standards, and norms; research and innovation; network systems security; legal framework; work, education, and training (Kagermann, Wolfgang & Helbig, 2013). In 2013, the business associations BITKOM, VDMA, and ZVEI, which together comprised more than 6,000 companies, launched a joint project to implement the I4.0 as part of the German government’s high-tech strategy.

In 2015, sectoral associations, companies, trade unions, scientific centers, and the Ministries of Economy and Energy, as well as Education and Research were added. By 2018, 140 companies and institutions were represented.

The I4.0 marks Germany's vision of industrial development in the new century. It is based on the concept of the Smart Factory, which, according to Kagermann, Wahlster, and Helbing: "It is an ecosystem where end-to-end digitization, intelligent processes, and products and enabling technologies coexist." (Kagermann, Wolfgang & Helbig, 2013).

The initiative consists of the implementation of an intelligent production technology network for machines, devices, systems, and workers to collaborate. The operation is based on physical systems controlled by computer algorithms connected to the Internet called Cyber-Physical Systems (SPS) that allow the integration of intelligent machines, information storage systems and production equipment capable of exchanging information automatically and autonomously, launching actions, and controlling each other.

The implementation of I4 in Germany is based on three organizations: Platform 4.0 (P4.0), the Laboratory Network 4.0 (RL4.0), and the Standardization Council 4.0 (CE4.0). P4.0 consists of the implementation of an intelligent production technology network for machines, devices, and systems to collaborate.

It combines the real world along with the virtual world in factories, so they control and optimize work procedures in the value chain of a global company. The RL4.0, allows the members of the P4.0 to know the new technologies, innovations, and business models in which they work.

Test the technical and economic viability of the new products or services before they are launched onto the market. Since the development of Industry 4.0 is gradual, and specific technical solutions differ between industries and even between companies, the CE4.0 defines common digital standards and technology platforms that facilitate communication between them. This activity benefits the linkage between different links in the productive chain, reduces costs, and increases the competitiveness of the companies.

The German government encourages technological innovation and research projects with public funding. In this sense, the Ministry of Economy and Energy mainly targets small and medium-sized enterprises (SMEs), and the Ministry of Education and Research aims to public-private research and development programs. Public support is primarily directed to software development since it concentrates the added value.

The disruptive technological changes that occur in different economic activities have effects and influence on the daily activities of people in all countries. Governments implement actions to improve the insertion of their economies into the changing international division of labor.

A fundamental aspect of achieving this objective is to identify the main problems they face. At the World Economic Forum 2019, it was stated that the main problems for Mexico are: low productivity, limited infrastructure, systematized corruption, persistent inequality, violence and insecurity, organized crime, limited trade diversification, and limited energy reform, among others (World Economic Forum, 2019).

The crisis of 2008 generated adverse effects on the Mexican economy that persisted in 2019, including a decrease in the country's growth rate, an increase in unemployment and poverty, and a decrease in the purchasing power of most of the population. In other words, some problems have not been solved, and that needs to be addressed because of the changes that the 4IR implies.

Despite the country's macroeconomic achievements, inequality is an issue in the Mexican economy that is evident in many aspects, including income distribution, in the country's regions, in the cities, among companies, whether industrial, service or linked to agriculture.

There are great disparities in many ways in the country. Although there has been progressing in terms of infrastructure (roads, industrial parks, and inland ports aimed at supporting productive activity), it is still insufficient for what is required by a country the size of Mexico. It is necessary that production for export is diversified and that new markets are open to not depend, as has been the case up to now, on what has been the main destination of sales abroad, the EU.

Corruption, insecurity and organized crime affect economic activity because they imply extra "costs" to companies and the population in general and discourage investment for fear of facing extortion problems or difficulties in undertaking projects.

Another important problem is the productivity of companies. Here is the disparity once again. Very different companies coexist in Mexico, from micro to large companies with more than 250<sup>6</sup> workers, all with different characteristics. The gap is very large between companies in the same economic activity<sup>7</sup> and those located in different regions of the country. The larger ones have economic, human, and technological resources that allow them to face the challenges of

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<sup>6</sup> There are national private capital companies and foreign capital companies.

<sup>7</sup> They are available with modern and mature technology.

competition in an open and globalized economy, while others are very limited in resources of all kinds; there are even subsistence ones.

A study by the Economic Commission for Latin America and the Caribbean (ECLAC) shows that in 2012 in Mexico, the difference in productivity between large companies and MSMEs is very large. In the case of Germany, the difference is small (ECLAC, 2013, p. 21), see Table 1.

Table 1. Relative productivity of companies in Germany and Mexico, by size in 2012 (Percentages)

Source: Own elaboration (ECLAC, 2013).

Country	Company size*			
	Micro	Small	Medium	Big
Germany	67	70	83	100
Mexico	16	35	60	100

The size of enterprises in Germany doesn't correspond to the same number of employees or sales amount of Mexico. In 2012 in Mexico, the productivity of the micro-enterprise represented 16% percent of the large enterprises, meanwhile, in Germany, it was 67 percent.

The ample productivity gap in Mexico is explained, among other causes, for unequal, sectoral and regional economic growth, insufficient development poles, and limited corporate growth.

Regarding the connectivity issue, the number of internet users in Mexico, as a total percentage of the population shows growth: in 2015 was 52.1 percent and in 2016 of 53.6 (INEGI, 2019), see Table 2. This data places the country below the values of the Organization for Economic Co-operation and Development (OECD) from which Mexico is part of.

Table 2. Penetration and gaps of internet users in the OECD and Mexico in 2015 and 2016

(Percentage of people who uses the internet regarding the total population)

Region and Country	2015	2016
OECD	78.8	80.9
Mexico	52.1	53.6
Gaps (Percentage points)		
Mexico-OECD	-26.7	-27.3

Source: Own elaboration (INEGI, 2019; ECLAC-UN, 2018).

In Mexico, e-commerce is increasing. The Gross Added Value of Electronic Commerce (VABCOEL) grew in real terms between 2014 and 2017 (see Table 3). Its most significant variation occurred between 2015 and 2016.

Table 3. Mexico. GDP and Gross Value Added of Electronic Commerce (VABCOEL), 2014-2017  
(Actual values for 2013 in millions of pesos)

Concept	2014	2015	2016 <sup>R</sup>	2017 <sup>P</sup>
PIB	16,733,655	17,283,856	17,786,911	18,163,490
VABCOEL Total	574,581	597,120	686,317	801,827
VABCOEL / PIB (%)	3.4	3.5	3.9	4.4
Variation of VABCOEL (%)	---	3.9	14.9	16.8

Notes: *R* Revised figures, *P* Preliminary figures.

Source: Own elaboration (INEGI, 2019a; INEGI, 2019b).

In this context, in 2018, the Ministry of Economy stated that the challenges faced by Mexico to implement the I4.0 were (Villareal, 2018):

- Encourage greater investment in science and technology.
- Improve the training of young people to acquire the necessary skills and abilities in the face of rapid technological change<sup>8</sup>.
- To bring the academy and research centers closer to the productive sector.
- Allocate resources to projects with greater growth potential.
- To promote research and innovation centers.
- Facilitate technology transfer.

These aspects are important because in Mexico the generation of innovations is insufficient and, despite the adoption of technologies from the third industrial revolution, few micro, and small enterprises have made substantial changes in their organizational, productive and service systems.

There are still a few companies that allocate resources to research, technological development, and innovation. It is the big companies, mainly multinationals, that are doing this; they are the ones that are reconverting technologically.

<sup>8</sup> It will be important to have a dual training in which, in addition to the academy, they are linked to the productive activities of the companies.

Some already have digital platforms and resources that allow them to optimize their processes and reduce costs, better understand the characteristics, needs, and desires of their clients and, at the same time, influence their tastes and modify their preferences (Ponce, 2016, p. 11). This is the case of companies such as Bosch, Honeywell, Nissan, Intel, or KIA<sup>9</sup>.

The issue of labor and the capitalization of its knowledge are key factors for the company. The processing of information and the generation of new insights into the production process leads to better results, favors the conditions that allow innovation. In this dynamic, training, recognition of work, entrepreneurial culture, and the economic capacity of the company, among other factors, are fundamental for the adoption of new technologies.

### **GOVERNMENT ACTIONS TO PROMOTE DIGITIZATION IN MEXICO**

In Mexico, the strategy to convert the industry to digitization is being implemented through the Intersectoral Committee for Innovation (CII) headed by the Ministry of Economy (SE) and the National Council for Science and Technology (CONACYT).

It has the participation of other federal government agencies, state governments, and the country's business, scientific and academic sectors. In 2011, the CII implemented the National Innovation Program (PNI) to promote and strengthen the productivity and competitiveness of the national productive apparatus through innovation (Secretaría de Economía-Comité Intersectorial para la Innovación, 2011).

The PNI integrated several programs of previous administrations and developed the Program for Stimulation of Research, Technological Development and Innovation (PEI) (CONACYT, 2019a).

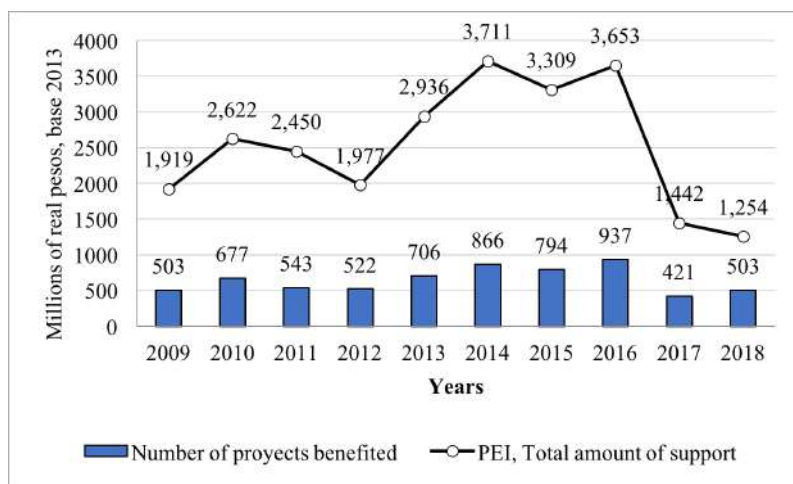
Through this program, CONACYT allocates resources to companies to promote technological innovation projects, which are complementary to the amounts that companies allocate for this purpose.

The number of projects benefiting from the EIP in 2017 was lower than in 2009. The total amount of support also fell, even less than in 2009, in 2018 it fell, even more, see Graph 1.

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<sup>9</sup> KIA Motors arrived in Mexico in 2016, it has a production plant in Pesquería, Nuevo Leon, which includes M2M processes and robotic processes. With its flexible production line it can produce one unit every 53 seconds "The most modern plant of the global KIA Motors system, has an installed capacity of 400,000 units per year, its plan is to supply the compact cars for the American continent"; (González, 2018, p. 26).

Graph 1. PEI. Number of projects benefited and total amount of support for 2009-2018  
(Millions of real pesos, base 2013)



Source: Own elaboration (CONACYT, 2019b).

In the same way, the fiscal resources granted to Branch 38 National Council of Science and Technology (R38 CONACYT), referred to as the support of technology and innovation activities, as well as postgraduate scholarships and quality support, also decreased. In 2015 they were 31,404<sup>10</sup> million pesos (DOF, 2014) and by 2018 they were reduced to 21,683 million pesos, (DOF, 2017) which translates into a decrease of 30.95 percent.

<sup>10</sup> The Federation's Expenditure Budgets are prepared at current prices. To compare the figures of various years, in this work the figures of 2009 to 2019 were converted to real prices of 2013. Each figure at current prices was divided by the corresponding implicit price index of the Gross Domestic Product (GDP), base year 2013. The formula used was:

$$PRI_{2013} = \left( \frac{PCi}{IPI_{2013}} \right) 100$$

Where:

$PRI_{2013}$  = Budget at real prices of year  $i$ , base year 2013

$PCi$  = Budget at current prices of year  $i$

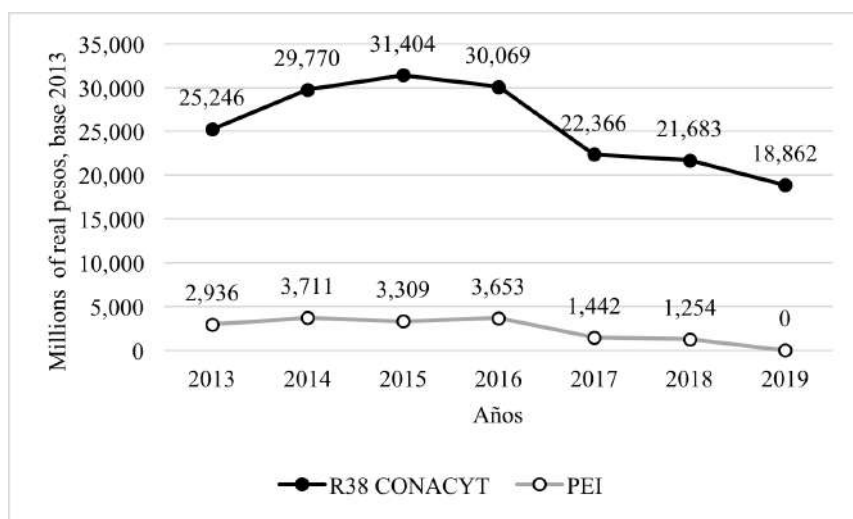
$IPI_{2013}$  = Implicit price index of GDP of year  $i$ , base year 2013

The source of  $IPI_{2013}$  is (INEGI, 2019).

With the arrival of Andres Manuel Lopez Obrador to the presidency of Mexico, it was thought that the trend would change and that support for innovation would increase, however, this was not the case, the fiscal resources allocated in 2019 to the above-mentioned sector were reduced even further, remaining at 18,862 million pesos (DOF, 2018), see Graph 2, which meant a reduction of 13.01 percent compared to the last year of Enrique Peña Nieto's administration. With that budget reduction, it was anticipated that the stimulus to innovation would also decrease, but the result was more serious.

The 2019 call of the PEI was canceled due to insufficient budget<sup>11</sup>, which means the abandonment of a policy of stimulating innovation, so important for the development of new products and processes needed in a competitive global world with great technological changes.

Graph 2  
Fiscal resources granted to Branch 38 CONACYT and PEI, period 2013-2019  
(Millions of real pesos, base 2013)



Source: Own elaboration (DOF, 2012, 2013, 2014, 2015, 2016, 2017, 2018; CONACYT, 2019b; INEGI, 2019).

<sup>11</sup>On December 18, 2019, the CONACYT informed the companies with proposals entered to participate in the 2019 PEI call that "...the 2019 Call was cancelled, as there was not enough budget for its operation..." (CONACYT, 2019c).



## RESULTS

The study on the actions implemented by the Mexican government over the last ten years shows the modest interest in converting the productive apparatus towards digitization that characterizes the 4RI. In Mexico, we have sought to support innovation with pre-4RI technologies.

One of the characteristics that differentiate the processes of technological innovation in Germany and Mexico is that in the European country the actions are directed to reconvert its industry towards digitization, a fundamental characteristic of the 4RI.

On the other hand, in Mexico, more than digitizing the economy, it has sought to adopt or adapt technological improvements to make processes more efficient, reduce costs, increase productivity, and improve competitiveness.

This is the case, for example, with improvements in mechanical processes, energy savings, or the inclusion of information and communication technologies in production processes.

Nevertheless, the importance of industry and the economy to make changes in line with the technological advances that are quickly incorporated into a large number of productive activities and services in various areas of the economy in the world, in Mexico the resources allocated to research and innovation activities have been decreasing. The situation is further aggravated in the case of the PEL, as in 2019 it was reported that that year's Call was canceled.

Industrie 4.0 is a successful model of digitization. In order for Mexico to implement it, it would require coordination of efforts so that, in addition to technological reversion and financial support for innovation activities, it would promote the development of platforms for its implementation, a network of testing laboratories and definition of standards, which would facilitate intercommunication between companies.

Doing so would promote the correlation between different links in different production chains, reduce costs, and increase the competitiveness of enterprises. This, however, is far from happening in Mexico.

## CONCLUSIONS

Industrial revolutions have led to profound transformations in economic systems and social structures. The life of societies has changed with the irruption of new productive paradigms.

The 4RI constitutes a paradigm change from conventional forms of production. There are new technological advances, materials, software, and

innovations in the value chains. Manufacturing operates with cyber-physical systems.

Robotics and nanotechnology are becoming everyday occurrences, the same thing happens with the functioning of intelligent machines, which self-regulate, self-diagnose, and communicate with each other. Machines move human work; activities, open and interconnected, are performed by machines in shorter times.

Governments of developed countries have implemented digital conversion programs. The I4.0 platform is a successful example of digitization driven by the German government. In the case of Mexico, one might ask: how the current government intends to promote the digitization of the industry as a distinctive feature of the 4IR? In the country, programs and funds have focused on technological innovation regardless of whether or not it is from the 4IR.

The country faces challenges in the 4IR: low productivity, limited infrastructure, poor human resource training and education, low-paying jobs, corruption, poverty, and inequality. Important conditions for this technological revolution are certainty and security, a climate of social peace, free of crime and corruption, as well as information security.

The current government is responsible for several activities. One of the first is that it formulates an operational program for science, technology, and innovation policy that gives certainty and coherence to its actions.

It should improve the institutional regulatory environment for the development of all activities involved in the digitization of industry and the economy in general, with clear, transparent rules, without discrimination, that gives legal certainty and confidence to investors so that, in principle, the connectivity infrastructure is expanded and standards for interoperability and cybersecurity are developed.

Stimulating scientific and technological innovation requires stimulating technical cooperation in the use of shared services, cloud computing, hardware, and software security, electronic signatures, among others; the government should make progress in stimulating and regulating this.

There is also a need to attend to and equip educational and research institutions to create skills and knowledge in students for their insertion in the 4IR scenario. For now, this seems distant, since in 2019 the current government has reduced the fiscal budget granted to the 38th National Council of Science and Technology and canceled the 2019 Call of the PEI. This implies a precarious interest in industrial digitization and the competitiveness of the country.

The new government needs to build a real stimulus strategy for the digitization of economic activities. The efforts that have been made so far are limited. In addition to improving the digital infrastructure, educational and

research institutions at all levels must be provided with the necessary equipment to build students' skills and knowledge for their insertion into the 4RI.

Progress is also needed in establishing clear laws and operating rules that give certainty and confidence to investors. Failure to make progress in the above-mentioned areas will have serious consequences for business competitiveness, job creation, and social stability.

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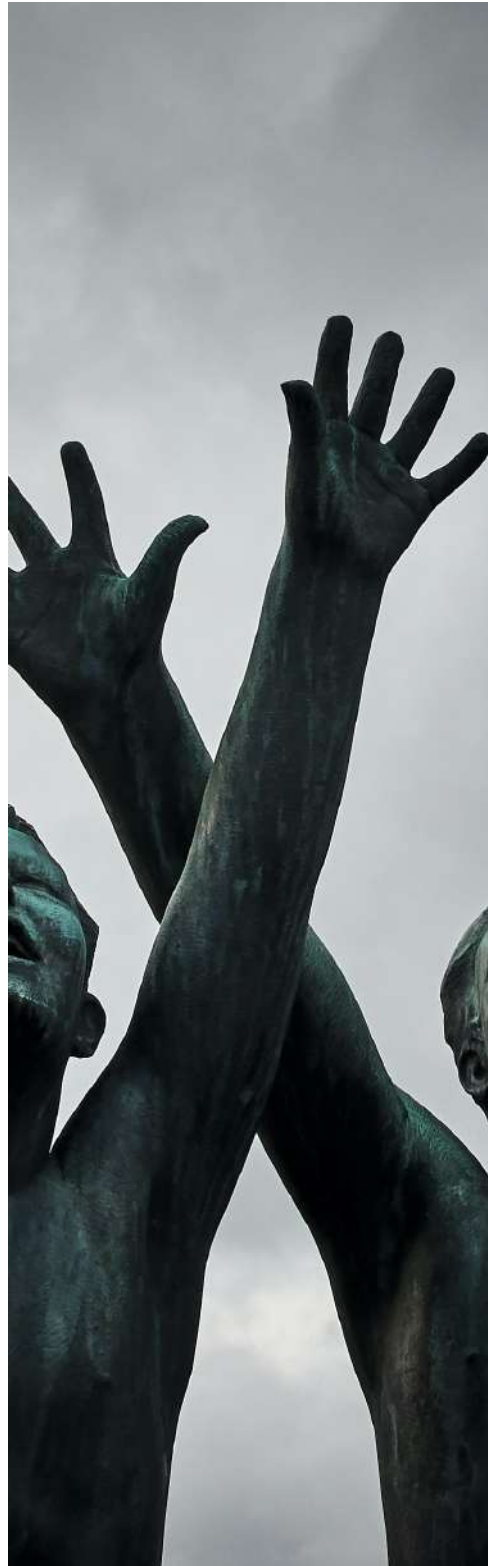
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# Chapter 6

## **Film Industry International for the Future of Work and Social Inclusion**

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# Film Industry International for the Future of Work and Social Inclusion

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## INTRODUCTION

**T**he global economic environment is progressively making us rise the question of the importance of value creation to adapt to the new reality. It also shows that the future of work is increasingly determined by the climate change and not only by the technological advances. (Burch, 2010).

Meanwhile, the covid19 pandemics teaches us that the transcendental changes in human history do not necessarily lie nor in economy, neither in technology. In this sense, the future of work is addressed as a great challenge. While there is huge uncertainty regarding the future that humanity, it is a great challenge to envisage employment or other meaningful living and fulfilment ways for people.

This places greater emphasis on learning from more complex and less competitive economic sectors, as their cases have shown ways in which economic agents develop their ability to adapt (Amin, & Cohendet, 1999; Berkhout, Hertin, & Gann, 2006; Dervitsiotis, 2006; Pike, Dawley, & Tomaney, 2010).

Nowadays, it is impossible to address social inclusion and the future of work (Pearce & Randel, 2004) while ignoring this adaptive capacity. What is

more, there are sectors which can be considered native of future of work, as the ways they are operating since their very beginning are subject to the current conditions assigned to the future of work.

This is very true for artistic and cultural sectors, as well as care or house services. Furthermore, especially the cinematographic industry, represents an art which itself was made possible due to the technological advancements of last centuries. Furthermore, it is deeply affected by recent technological innovations and the growing globalization.

Cinematography, like all elements of art and culture, has been subjected to transformation processes, just to mention the evolution from the product towards the service (e.g. in the sense of transition from DVDs to streaming services acquisition). Processes that have involved the destruction of considerable part of jobs and gains for artists and the emergence of new activities (Nichols, 1988; Benjamin & Jennings, 2010).

The present analysis should convince the reader that cooperation — creation of value to and through sharing it (Sáez & Cabanelas, 1997)— is a fundamental principle in economic activities in the face of the world crisis, both due to the great depression and the global pandemic. (Grigoryev, 2020).

Covid-19 has the potential to destroy individual livelihoods, businesses, industries and entire economies (Grigoryev, 2020; Laing, 2020). The primary impact on the sector has been a dramatic contraction in demand as industrial production, and construction (Laing, 2020).

Creating value to share is a strategic principle that companies in difficult environments have used to maintain their position in the markets, benefiting local development (González & Martín, 2013; González, Cabanelas & Cabanelas, 2016).

Creating value in order to share it, is a strategic principle that companies in difficult environments have used to maintain their position in the markets, benefiting also local development (González & Martín, 2013; González, Cabanelas & Cabanelas, 2016).

In this way, the authors of this chapter consider that the creation of value to share it (Sáez & Cabanelas, 1997; Vives, 2012), is fundamental for a future of work that guarantees greater well-being and inclusion for those who have remained marginalized by the system. The analysis of the film industry and the results achieved in terms of cooperation are developed and studied through the lens of this idea.

“People who have the knowledge and skill needed to perform the job well and who value opportunities for growth and learning will be internally motivated to perform such jobs, which over time should result in greater overall job satisfaction and higher quality work outcomes.” (Oldham & Hackman, 2010, p. 465)



Starting from the international trade liberalization, the film industry struggles between liberalization and protection of culture. On the one hand, the film industry in the free international trade environment is an industry that sells and allows profits generation.

On another hand, the film industry as a cultural expression requires protection against free-of-charge trade or piracy (Fuentes, 2011). Two contradictory situations. Despite this debate, the internationalization of this industry has not been hindered.

Formal use of the term Creative Industries is quite recent (1994), marking the digital era of cultural industries and creativity (Moore, 2014). The film industry is part of the cultural and creative industries (Beck, 2005; Moore, 2014).

It contributes massively to the world economy. The cinematographic industry is a key factor in the digital economy. This industry creates millions of jobs, enhances the attractiveness of cities, and improves the quality of life, both in high- and low-income countries (Unesco, 2015). For these reasons, there are several questions that arise. What is the future of work in the film industry? What about social inclusion in the international business cooperation in the movie industry?

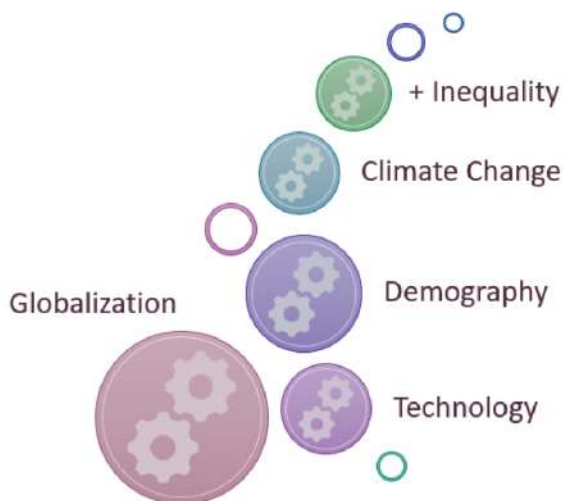
## **FUTURE OF WORK AND SOCIAL INCLUSION IN THE INTERNATIONAL BUSINESS COOPERATION NETWORK**

The subject matter of future of work concerns above all, but not exclusively, the reconfiguration of socio-ecological dynamics of the labor market (figure 1) that emerges from current trends such as (Kubus, 2020):

- Globalization, understood as the acceleration of exchanges, in terms of time, but also space. It implies a greater number of interconnections, but not but not necessarily their higher quality.
- Demographic change, i.e. the reversed age pyramid of population, with a large part of it in advanced age, especially in developed countries. This demography changes both the vision of the individual's working life, as well as the demand for jobs and care. It also affects the availability of pensions, hardly sustainable with the reversed age pyramid and current tax regimes, especially when related to matters of tax evasion of large capitals or transnational companies.
- Technology is the revolution that has been considered the most, in two terms. First, because of the employee's own ability to adjust to the new reality of the labor market. Second, through the automation a large part of jobs, which implies (supposedly) creative destruction of an important part of jobs.

- Climate change, which affects the different countries and social strata unevenly, accelerating migration flows.
- Inequality or peripheralization, in terms of means of production with the predominant role of capital, as compared to labor and land. Lately, some include data with a relational disposition towards capital because they provide the energy/learning for artificial intelligence.

Figure 1. Future of Work - Impact Factors

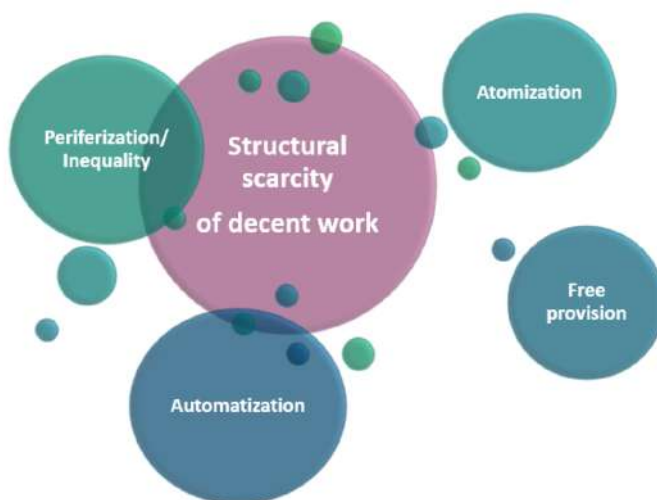


Source: Own elaboration (CID-N).

The conditions of the labor market in the global scenario have the following characteristics: a structural scarcity of decent work, robotization and automation, atomization, and many times expected free provision of value, for instance when contributed collectively, as is the case with open source platforms (Figure 2).

The world scenario in terms of future of work presents challenges that require economic agents to have a long-term vision, focused on creating value. This vision could allow turning threats into opportunities and weaknesses into strengths.

Figure 2. Future of Work – Work Conditions



Source: Own elaboration (CID-N).

It is a scenario that fosters international collaboration between companies. The long-term collaboration between companies from different regions is conceived as an international business link (Lafer, 1973; Abdenur & de Souza, 2013; Bueno & Saraví, 1997; Tabares et al., 2014; Yoguel & Bercovich, 1994; González, 2007; Quiñones et al., 2019).

Companies establish international cooperation links in search of greater competitiveness through market expansion and cost reduction (Liendo and Martínez, 2001; Donovan et al., 2004; Tkachuk, 2004; Kulfas, 2009; Velásquez, 2004; Galdeano-Gómez, 2016; Yoon et al., 2018; Prashantham, & Birkinshaw, 2019).

Cultural, geographic, and legal barriers become almost nil when agents from different regions interact under the cooperation mechanism (Asia, Europe, Eastern Europe or Latin America).

This does not mean that these barriers disappear. It rather implies that the agents who have decided to cooperate strive to overcome them in an attempt to link up and achieve synergies. So that, these synergies can translate into new

resources, improved capacities, and, finally, competitive advantages in constant transformation.

Synergies that translate into new resources, better capacities, and, finally, competitive advantages in constant transformation. The cooperation is essential for the new reality, when would require radical change of widely shared managerial values. We summarized those constraining values as follows:

“The increasing popularity of self-managing teams, re-engineering, and sundry other organizational innovations, coupled with the increased flexibility in work arrangements made possible by advances in information technology, has expanded considerably the scope, challenge, and autonomy of front-line work. Professional jobs, on the other hand, appear to be shrinking, which is perverse because professionals are the people we rely on to make wise decisions in uncertain circumstances.” (Oldham & Hackman, 2010, p. 467)

The creation of cooperative links fosters the creation of value. Regarding future of work, remuneration and benefits must be associated with the creation of value in society. Unfortunately, and when it comes to capital, many times it is not focused on the contribution to the real economy.

Originally paid work does not have to be linked to value creation. Thus, work by itself does not guarantee social inclusion. On the other hand, the work that results from cooperation strategies, creating value to share it, fosters social inclusion.

Paid work does not have to be necessarily linked to value creation, there are so called absurd jobs (Kubus, 2020). What is more, work by itself does not guarantee social inclusion for workers. From another perspective, the work that results from cooperation strategies, creating value to share it, is more prone to fosters social inclusion and thereby contributes to building a more humane future of work.

The logic of the network cooperation system is characterized by the following points:

1. The cooperation mechanism tends to be the binding factor.
2. Agents have learned to see failure and opportunism as part of learning; and thus, it does not stop them in the search for new collaborators.
3. The economic agents involved are convinced that cooperation further increases benefits and offers them new competences.
4. They have in place a permanent negotiation process.
5. They consider the counterparty as partners that help them achieve their objectives and generate synergies.

These are the characteristics of the international business cooperation network, the object of this analysis. Together with the international business cooperation network, social cohesion is articulated around the work that establishes the network of connections and interrelations. This is an important

question that allows for determination of the status of people in society, in addition satisfying their basic needs.

It brings along a sense of identity, belonging and purpose, but workplace can also be a trap, causing exclusion (also due to lack of work), and trap the person, both physically and emotionally. The work in the context of the business cooperation network encourages inclusion rather than labor exclusion.

Additionally, international support programs such as AI-Invest, free trade, and global value chains were factors that triggered these international networks led by smaller (Liendo & Martínez, 2001; García & Moreno, 2007; Perego & Marteau, 2007; Luna, 2009; Capó-Vicedo et al., 2009; Ferraro & Stumpo, 2010; Pla-Barber & Escribá, 2010; Moncayo, 2010; Fernández % Revilla, 2010; Albizu et al., 2011 ; Fernández-Jardón, 2012).

Companies operating in the film industry have exhibited very specific behavior in the face of the existence of international business cooperation networks. Their strategies are different from those of other sectors (environmental, agro-industrial, automotive, artisanal, and textile). These strategies focus on a minimum number of opportunities that have had to be reinforced with public policies and regional agreements.

This leads to questioning. What strategies have been followed by companies located in the film industry in the face of international business cooperation ties? What they are looking for in view of the possibility of becoming a part of an international business cooperation network?

The answers to these questions make it easier to respond the inquiry stated at the beginning of the document. What is the future of work in the film industry? Is there social inclusion in the international business cooperation corresponding to the cinematographic industry?

## **INTERNATIONAL COOPERATION IN THE FILM INDUSTRY AND FUTURE OF WORK. DISCUSSION OF RESULTS**

The film industry emerged in the United States. It started as an industry when cinema is considered from a business and a product perspective. Production, distribution, and exhibition are essential for the film industry. What started as art, soon also became a digital age business (Cousins, 2005; Sadoul, 1977). Furthermore, it continues to embrace the complex articulation of various forms of work - artisan, technical, artistic-creative (Bulloni & Del Bono, 2019).

The film industry has a different characteristic for each region. The United States is the first consumer market of digital content. Europe is number one in advertising. Latin America and the Caribbean are characterized by their television consumption. Africa and the Middle East represent fast-growing

markets. In Asia, the cinema occupies a second place because in the first position are video games. (UNESCO, 2015).

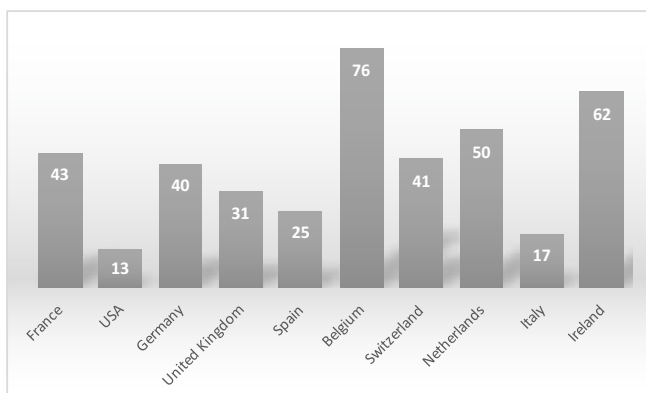
Table 1 shows the main European states that are co-producers of feature films for the years 2012 and 2013, along with the United States. France, the United States and the United Kingdom maintain the highest participation in this type of business relationship in absolute numbers.

Table 1. Main countries co-producers of feature films, 2012 and 2013

Countries	N° co-productions		N° feature films	
	2012	2013	2012	2013
France	129	116	279	270
USA	115	94	738*	738*
United Kingdom	84	88	326	223
Germany	82	74	220	241
Spain	56	57	182	231
Belgium	48**	53**	55**	70**
Netherlands	39	42	79	103
Switzerland	39	34	93	68
Italy	37	29	166	167
Ireland	26	21	38	34

Source: UNESCO (2016).

Graph 1. Percentage of co-production by country with respect to the total production of feature films in 2013



Source: Own elaboration (UNESCO, 2016).

However, when comparing the number of co-productions with the total number of feature films produced, significant changes can be noticed (Graph 1). The United States produces more than seven hundred feature films a year. Thus, compared to the total, the percentage of US co-productions is low, barely over 10 percent. On the other hand, the European States such as Belgium, Ireland, and the Netherlands, which in absolute numbers have few productions, maintain a high level in what respects to the percentage of their co-productions. There are states in which the film industry depends more on this type of business ties.

The statistical data presented in 2017 by the European Audiovisual Observatory refers exclusively to the European States. These data present very similar results to those of UNESCO in 2016, although they include Spain. In absolute terms, the States of the European Union with the highest number of co-productions in the 2007-2016 period are France (556), Spain (460), Germany (411), and Switzerland (221). (European Audiovisual Observatory, 2017)..

Asian co-productions show strong regionalism, converging in collaboration between Hong Kong and China (68.5%). This intersection is also observed between Great Britain and the United States, as well as between Spain and Argentina. However, in the Asian case, the result is more evident. Regarding the European States, only Germany registers co-productions with China. In the same way, in the film industry there are no Latin American companies that have been linked with China. (Table 2).

Table 2. Co-production of China with other regions (2002-2012)

Country	N° co-productions	% *
Hong Kong, China	293	68.5%
Taiwan, China	50	11.7%
USA	37	8.6%
Japan	21	4.9%
United Kingdom	18	4.2%
Korea	11	2.6%
Germany	7	1.63%
Singapore	6	1.4%
Australia	5	1.2%
Canada	5	1.2%

Source: MPA (2016).

Technological advancement and the internationalization of the media have led to the globalised film industry. This industry has become fragmented, it is becoming increasingly more plural and multiculturalist (Lipovetsky, & Serroy, 2009).

An inherent characteristic of this industry is diversity, seen from three perspectives: sources, supply, and the exposure of audiences (UNESCO, 2016).

- Sources: diversity of producers and distributors of content, and in the workforce hired by the acting companies (UNESCO, 2016).
- In the featured films: diversity of film genres; demographic diversity - racial, ethnic and gender characteristics of the people involved in the full-length movies - and diversity of ideas - points of view of different social, political and cultural perspectives - presented in the feature films exhibited (UNESCO, 2016).
- Audience exposure: diversity of horizontal exposure - related to the distribution of audiences through the available films at any given time - and diversity of vertical exposure - related to the diversity of content consumed by a particular individual or social group over time (UNESCO, 2016).

The diversity of this industry hinders its internationalization, even when there are regional agreements with policies that encourage distribution between different countries. Such is the case of Mercosur, as well as of the agreement between the European Union and Mercosur. (Fuentes, 2011; Moguillansky, 2010). Due to the obstacle of diversity, co-production is the key form of cooperation for internationalization in the film industry.

While in other sectors the most favorable form of cooperation is representation/presence and sales abroad, for the film industry these two forms are unfavorable.

Co-production is how companies in the film industry cooperate for internationalization. It has spread since the commercial opening of the last century. It is almost always carried out between companies that share a historical, cultural, or linguistic background (UNESCO, 2016). For example, the circulation of Ibero-American cinema both within the region and in the EU is not very significant, with the exception of the co-production feature film (García, 2010).

Unfortunately, co-production is not one of the decisive links in the value chain in the film industry. The decisive links in the value chain are both distribution and exhibition (González, 2019). Hence the importance of subsidy and financing mechanisms throughout regional or national policies (Amiot-Guillouet, 2019).

Some governments have promoted co-production with other countries through international programs. One of them is the *Ibermedia Programme*, created in 1996, for the Ibero-American space (UNESCO, 2016). Among the Ibero-



American countries, the three that grant the most funds to the film sector are Mexico, Brazil and Argentina, with subsidies, tax incentives, promotion plans and screen quotas being the most widely used mechanisms (García, 2010).

The co-productions are transnational, with narratives aimed at a global audience. Co-production implies the hiring of workers from different countries, thus obtaining multinational recognition. Co-production promotes social inclusion because it encourages job creation for people with different backgrounds. It also promotes and make available the access to and understanding of different, in many cases marginalized cultures and subcultures.

In this way, benefits are obtained in all the countries that intervene in production, increasing fundraising, while ensuring marketing and screen quota for each of the countries involved in the co-production (González, 2019).

Brazil and Argentina are an example of this. Both countries have decades of experience in regulating and promoting cinema. These two countries have a series of co-production and cooperation agreements. The agreements between Brazil and Argentina multiplied ties and strengthened film integration for both countries, despite language differences (González, 2019). These agreements fostered multicultural and inclusive work. Multiculturalism and inclusion are correct responses to the challenges of the future of the job and collective intelligence development.

Information was obtained on the events organized by the Nafin Eurocenter<sup>1</sup> in the period 2002-2009 (16 meetings with a total of 2,724 participating companies). One of these events was for the Film Industry (172 companies from different countries). Companies that had disappeared by 2019 were eliminated. Only companies that maintain links with companies from other regions were investigated.

When the objective is to obtain as much information as possible about a certain problem or phenomenon, a representative case or a random sample may not be the most appropriate strategy (Flyvbjerg, 2006). Studying 172 cases facilitates the identification of atypical or extreme cases. These types of cases reveal more information because they activate more actors and more basic mechanisms in the situation under study.

From an understanding- as well as an action-oriented perspective, it is often more important to clarify the root causes of a given problem and its consequences than to describe the symptoms of the problem and how often they occur.

Random samples that emphasize representativeness rarely produce this kind of knowledge. It is more appropriate to select some cases due to their

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<sup>1</sup> Nacional Financiera and European Union Trust created on June 1st, 1995

validity (Flyvbjerg, 2006: 45). In this study, these are 172 cases. Although it should be mentioned that this type of research is usually slower and more expensive.

Regarding 172 companies that are the object of this study, these correspond to Spain, France, Germany, Mexico, Argentina, Brazil, and Uruguay. The strategies of these companies have been oriented mostly towards co-production (83%), with special emphasis on financing (Table 3).

Table 3. Cooperation in the film industry within the framework of AI-Invest

Co-production	Distribution	Others	Co-production linked to distribution
143	56	16	39
83.13%	32.55%	9.3%	22.67%

Source: Own elaboration based on the result achieved in the project.

22.67 percent link co-production with the distribution. The rest associate co-production with financing, omitting the benefit of co-production brought by the presence in various consumer markets. There are nine percent of companies that overlook the possibility of establishing cooperation links through co-production and focus on very different forms of linkage which are shown in the table below (Table 4).

Table 4. Other interests to link

Author / screenwriter looking to sell original feature film script
Sale or exchange of material is offered. As well as files for use.
Offered the artistic and technical realization of the NANO series of microprograms in 3D animation of 12 chapters, lasting 3 to 5 minutes.
It offers comprehensive soundtrack recording services (music, effects, dubbing, etc.).
Technology transfer.
Marketing.

Source: Own elaboration based on the result achieved in the project.

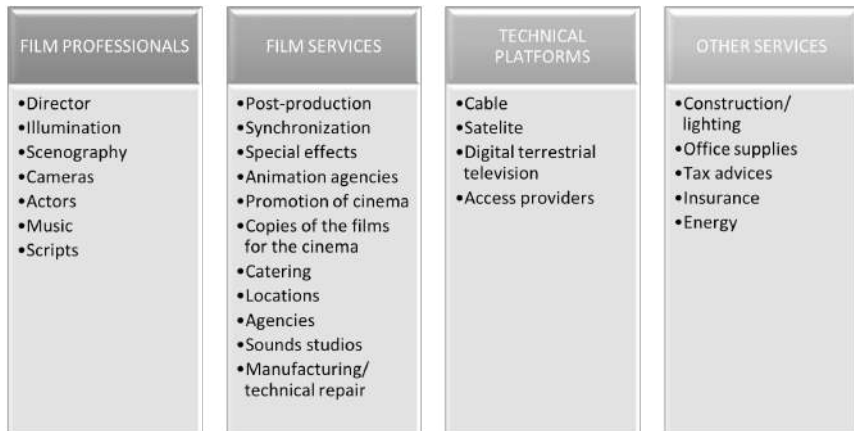
An important element to deepen the analysis of the future of work and social inclusion in co-productions is the intermediate demand. Careers in project networks of the film industry, local networks with international networks (Scott, 1984; Jones, 1996).

“Career patterns are changing. As fewer people attach their long-term fortunes to the fates of a single organization, more and more people follow a free agent route. The free agent scrambles, bee-like, from opportunity to opportunity without regard to boundaries. While this career scramble is new to most industries, it has been common to the film industry.” (Jones & DeFillippi, 1996).

The film industry operates with subcontracting. The production model was changed to the flexible independent system with cross-border co-production (Szeto & Chen, 2013). This subcontracting is defined as intermediate demand. Intermediate demand is the link for a better understanding of business cooperation and the future of work (Graph 2).

In many case, there is an asymmetry of decision-making powers between the buyer (s) and the subcontractors (De Propriis & Hypponen, 2008). In other cases, the situation shows more details. The social networks of the industry in Hong Kong and relationships at multiple scales – across national boundaries, within local settings, and on production sets – were examined, revealing their critical role in contributing to the health of the film industry (Kong, 2005).

Graph 2. Intermediate demand for services in the film industry



Source: Own elaboration.

The risks faced at various steps of the production, marketing, and distribution process are ameliorated by trust relations, built up through time between social actors in spontaneous ways (Kong, 2005).

## CONCLUSIONS

What strategies have companies in the film industry followed in face of international business cooperation links? Co-production. What are they looking for in view of taking part in an international business cooperation network? Based on the 172 cases presented, they search for financing and distribution.

Companies in the film industry show a very specific behaviour facing the existence of international business cooperation networks. Their strategies focus on a minimum of opportunities that have had to be reinforced with public policies and regional agreements. Since co-production is not part of the decisive links in the value chain, a high percentage of participating companies directly associate the need for financing with co-production.

The Intellectual Property Rights require an adjustment due to the new conditions brought by technology and globalization, thus we should welcome the recent enforcement of the World Intellectual Property Organization (WIPO) Beijing Treaty on Protection of Audiovisual Performances, however a lot of work is still pending for their implementation by different geographical areas and countries.

Business cooperation as a strategic principle for value creation can contribute to greater social inclusion and diversity. Concerning the future of work, it is envisaged that greater cooperation, leads to creation of jobs, better adaptation of work to new realities, and greater well-being at work. This last statement is open to new lines of research that facilitate and deepen the study of the future of work and business cooperation in sectors negatively impacted by changes in the environment and new scenarios.

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# Chapter 7

## **Impact of Open Data on the Creativity for Innovation**

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# Impact of Open Data on the Creativity for Innovation

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## INTRODUCTION

**T**he advent of new information and communication technologies (ICTs) has led to the emergence of the so-called large database economy (BGE) (Cuquet & Fensel, 2018; Fosso *et al.*, 2018), in which organizations can collect large amounts of information on the behavior of ICT users from their online operations.

This chapter focuses on the study of the impact of open data on the creativity of individuals and organizations, as a scientific study approach in the process of consolidation in the field of social sciences.

This means that the open data generated by governments is a relatively new tool for individuals and organizations, due to the opening made in 2009 by the US government - during the administration of Barack Obama - to make available to the public the information held by the government in an exercise of transparency and access to public information in the framework of the "Memorandum on Transparency and Open Government" (Lee, Almirall, & Wareham, 2015).

Beginning with the U.S. government initiative in 2009, many governments around the world set to work on developing legal frameworks to operationalize open data initiatives according to the information and technological possibilities then available to them, to make public the information that the different operational areas of governments had at their disposal and that could be used by the public for new uses (Kassen, 2018; Lee *et al.*, 2015).

Creativity is another variable that is intertwined for the understanding of the innovations produced by the openness of data produced by governments,

starting from the fact that innovations may have different patterns to a point of reference, but not mean something creatively stimulating or interesting.

Creativity is conceived as an inherent function of man; it is coined from the history of the Bible, in Genesis (creation of the world), to the contemporary approaches that theoreticians such as Joseph A. Schumpeter have given to the management of innovation (Hammershøj, 2017; Schumpeter, 1961). What is certain is that creativity can be approached from different perspectives in reality, especially because it is part of the so-called "Creative Economy" (CE), where value creation arises from the intellectual contribution that people can give to things within organizations (Bolisani & Brătianu, 2018).

For this work, creativity is the whole process of generating new original ideas (which links the concept, as many types of researches point out, to the term innovation) for the solution of problems. Therefore, creativity must possess three key factors (or components) to be considered as such: originality, usefulness, and surprise (Simonton, 2018).

Making use of one of the advantages of the BGE, this work carries out bibliometric analysis using the free access software VOSviewer (Van Eck, & Waltman, 2020), which, by downloading indicators from the scientific database of great prestige in this context, Scopus (Elsevier, 2019), carries out the analysis of semantic variables that make it possible to identify clusters of topics that are mostly dealt with in said repository according to the search patterns of the topics that are described in the methodology of this article.

## **PURPOSE**

This chapter seeks to perform a bibliometric analysis of the good practices documented by the scientific community in the development of applications based on open data between 2008 and 2018, to identify the most solid semantic relationships and their temporal evolution in organizations.

It seeks to contribute by giving a first look at the first period (five years) of scientific documentation of the phenomenon of open data and how individuals and organizations have developed creative concepts to make use of these open repositories of governments around the world, to provide solutions to the absence of information for decision making or the inability to interpret them.

## **CREATIVITY AND INNOVATION**

The raw material of this work is creativity, which has been understood as a series of mental processes that allow the generation of totally new ideas, which in turn, give rise to the creation of value for organizations (George, 2007; Jauk, 2019; Wang, 2019).

However, this term in many of the dissertations of scientists is linked to innovation, by the simple and obvious connotation of the generation of the new, also, as a term linked to the knowledge economy (KE), in which the know-how (knowledge of the matter) is fundamental to generate value in the organization (Hammershøj, 2017).

The economics of creativity (or orange economy) (EC) is a recently emerged technical framework in which "ideas are transformed into cultural and creative goods and services whose value is or could be protected by intellectual property rights" (Benavente & Grazzi, 2017). This framework is very important for today's economy, due to the preponderance of the generation of value from people's ideas and the proliferation of ICTs.

Innovation is, then, all those processes that contribute to the addition of value to products, services or ideas, which can range from the primordial in functionality to the aesthetic and represents a great contribution to economic activity, due to the impact that improvements have on the economic performance of the portfolio of organizations that, for example, in Latin America constitutes the 5.20% contribution that the region makes to the world Gross Domestic Product (GDP) (Benavente & Grazzi, 2017).

According to Keeley and others (2013), innovation can be done in three dimensions: configuration, offer, and experience. The configuration is made up of the business model, the network of contacts to generate value, the operational structure and the composition of internal processes; on the other hand, the offer is what refers to the performance of the product and the system that makes up the product (such as complimentary products) and; experience is everything related to the service around the product, the distribution channel, the brand, and its loyalty.

The scientific community debates the co-occurrence of creativity and innovation as phenomena that influence or are necessary for the competitiveness of organizations today (Derdowski *et al.* 2018; Echeverri, Lozada, & Arias, 2018; Moreno & Munuera, 2014). The nature of these variables leads us to the reasoning about how two phenomena with particular characteristics between them cannot be understood without the interrelation they imply. The dissertation is very necessary to understand the phenomena that imply these variables.

## **CREATIVITY AND OPEN DATA**

This section seeks to compile scientific evidence documenting the use/development of mobile or web applications on the use that has been given to open data for solving problems of information gaps for decision making of people and / or organizations.

Based on the search made in Scopus and according to the display based on the order of appearance of the results according to the most recent publication date in the first place, was found an interesting application of open data for the solution of the serious problem with the public transport infrastructure in the Italian city of L'Aquila, which was severely affected by an earthquake in 2009 and which, with the help of an application using a georeferenced algorithm made information on local public transportation infrastructure ("infostructure") more accessible to the population and visitors (Falco *et al.*, 2018).

The search also yielded another case of digital inclusion of elderly people in the district of Bremen-Hemelingen (Germany) by generating a map that acts as a mobile digital guide co-created with the information that elderly people shared in their social networks, which allowed the creation of a sensitive app with the capabilities of this population group carried out by the European Project Mobile-Age (Berker, Reins, & Heck, 2018).

Another example of scientific research on co-creation through the use of open data is presented to us by Emaldi and others (2017) through the WeLive platform, which is formed as a quadruple helix (companies, government, citizens and universities) that generates a collaborative ecosystem for innovation through the use of open data.

Lyu and Zheng (2017), conducted an interesting review of the open data policy of the government of Shanghai (China) since its launch in 2014 and how the applications arising from it contributed to the creation of value in society.

The main benefits of the open data in this case and other examples found focused on solving urban problems by attracting talent and investments in the subject (Martínez, López, & Pastor, 2014; Sandoval, Gil, Luna, Luna, & Rojas, 2012).

Creative activity has no limit and can come from different sources, for example, "hackathons", events in which software developers come together to collaborate in the generation of applications that empower discriminated groups by opening access to information that is generally in the hands of a few, for exploitation for the common good. Although its nature has barely been empirically explained at the scientific level, it is now being increasingly researched to inform knowledge of these events (ICEIS, 2017).

In educational terms, the review of scientific literature on Scopus showed a case of creative app development whereby students can learn about economics, society and the environment in a globalized world with data updated in real-time, making Globe-Town.org an application that contributes knowledge on the above topics with very close references to reality (Townsend *et al.*, 2013).

Open data has also had an impact on the creativity with which new forms of business are formulated, since nowadays, multiple business applications for

marketing products and services using platforms based on open information, such as Uber<sup>1</sup>, Rappi<sup>2</sup>, or Netflix<sup>3</sup> (Alt & Smits, 2014; Wijnhoven, 2014; Vasa & Tamilselvam, 2014).

The search found at a glance a large number of scientific documents whose themes showed a growing application of open data studies in the development of applications for urban development. This is quite likely due to the importance of ICT in urban areas and the ease of accessing and sharing data that exists.

### **MEXICO: CASES OF DEVELOPMENT OF APPLICATIONS BASED ON OPEN DATA**

After reviewing some of the cases of development of applications based on open data, the present work is given to the task of documenting as an interesting contribution, the cases of use of open data for the generation of useful applications for various purposes, for people and organizations.

The first example that is particularly interesting to present in this review of the literature, comes from one of the experimental applications that the National Institute of Statistics and Geography of Mexico (INEGI, 2018) developed to know the mood in —practically— the real-time of a part of the Mexican population, who use the social network Twitter, called: "mood of the twitters in the United Mexican States".

This application of "data science", according to the technical documentation that the institute makes available to visitors to its microsite, consists of the use of non-traditional data sources (such as social networks), of which pre-classified information is collected (according to geolocation patterns), stored, re-labeled (with the help of a semantic relationship algorithm) and re-processed, to be disseminated in an interactive application hosted on the INEGI website (INEGI, 2018; Picazo *et al.*, 2017).

This application allows you to know the mood of Twitter users in Mexico in real-time from the INEGI website, which is represented by a point on a graphical plane that expresses the average value between positive and negative tweets. Also, the graphical application allows information to be disaggregated by states or in the national conglomerate (INEGI, 2018).

Besides, INEGI has developed other applications with the help of other institutions of the Mexican government (51 at the time of this study), including

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<sup>1</sup> Private transport service based on geolocation

<sup>2</sup> Home distribution application for multiple products and services such as food or money

<sup>3</sup> Online multimedia content distribution platform

the climate change microsite<sup>4</sup>, and the application for mobile devices for calculating electricity consumption<sup>5</sup>, RadarCiSalud for the identification of the closest places to the location of individuals where free medical attention can be received<sup>6</sup>, the microsite and applications for mobile devices for the consultation of statistical information in the country, "México en Cifras"<sup>7</sup>.

## METHODOLOGY

To analyze the objective data of this work, a bibliometric analysis was carried out, which has been used since 1969 since its use was documented by the British scientist Allen Richard, who sought to statistically analyze the bibliography, which implies the identification of patterns of variables through the keywords, words contained in the summaries that keep the scientific repositories, names of authors and the references of the consulted bibliography (Liang & Liu, 2018; Liao *et al.*, 2018).

For this research use is made of the scientific database Scopus, particularly with the results of the search between titles of articles, the abstract of them and their keywords based on the combination of terms: "Open Data", "Applications" and "Apps" (contraction widely used the word "Applications"), which yields 47 scientific documents that have been published on the subject in the last five years (from 2012 to present 2018).

Once the database was obtained from the results export function provided by Scopus in CSV format (database format that supports the software used for the analysis), the base information obtained by the bibliometric data analysis software was analyzed using graphic representations: VOSviewer (Van Eck, & Waltman, 2020; Van Eck & Waltman, 2014).

## RESULTS AND FINDINGS

Under the methodological approach for analyzing the bibliography using the graphic method of semantic relations using VOSviewer, the database obtained from the search described in the Scopus repository was executed, obtaining the following conglomerates and interpretations, Diagram 1.

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<sup>4</sup> <https://cambioclimatico.datos.gob.mx/tab1.html>), the application for mobile devices for calculating electricity consumption (<https://datos.gob.mx/herramientas/calculo-consumo-hogar?>

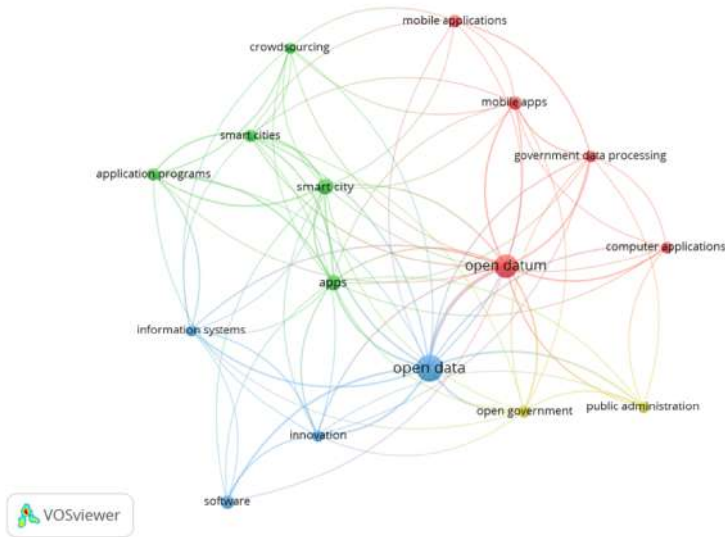
<sup>5</sup> <https://datos.gob.mx/herramientas/calculo-consumo-hogar?>).category=web&tag=salud

<sup>6</sup> <https://datos.gob.mx/herramientas/radarcisalud?category=movil&tag=salud>

<sup>7</sup> <https://datos.gob.mx/herramientas/mexico-en-cifras?category=movil&tag=geoespacial>), among many other applications



Diagram 1. Network visualization of variable sets in bibliographic records of the terms "Open Data", "Applications" and "Apps" in Scopus between 2012 and 2018.



Source: Own elaboration.

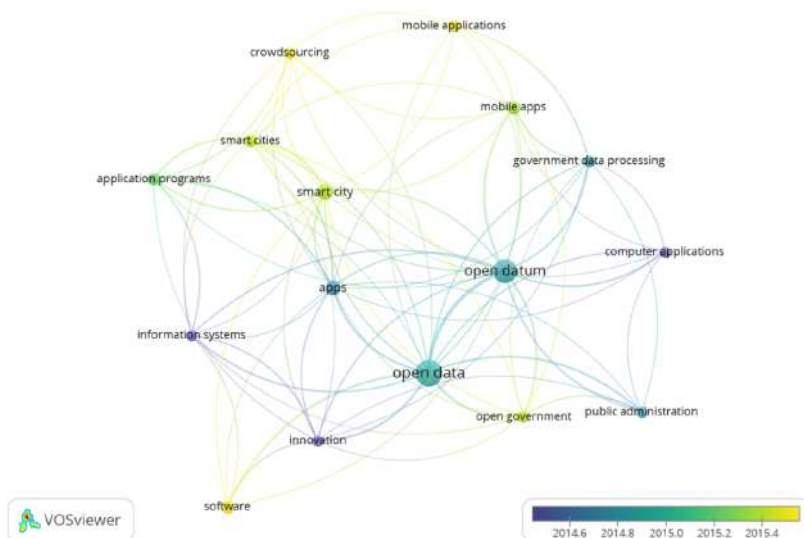
The network of relationships found from the graphical output offered by VOSviewer shows interesting correlations in terms that —can be inferred— relate open data to the social aspect related to government, mainly to the variables of open government, public administration, public data processing, intelligent cities, and innovation. This last term, inherent to creativity, was not included within the bibliometric exploration variables in order not to alter the richness of the search results (see Diagram 1).

From the findings, the terms directly related to creativity from open data (observed as less important variables) are mobile and desktop application development, crowdsourcing, innovation, and software development (see Diagram 1).

Another interesting function of the VOSviewer is the possibility of observing the data from its temporal evolution, which adds to our dissertation the variable time, then, can be observed as the semantic terms of greater persistence in the history of scientific research to the term "Open Data", in a middle term to the "development of applications" and as terms of recent use or

appearance to the "intelligent cities", the "crowdsourcing" and the mobile applications. Innovation remains a present term since the beginning of the scientific documentation of the subject (see Diagram 2).

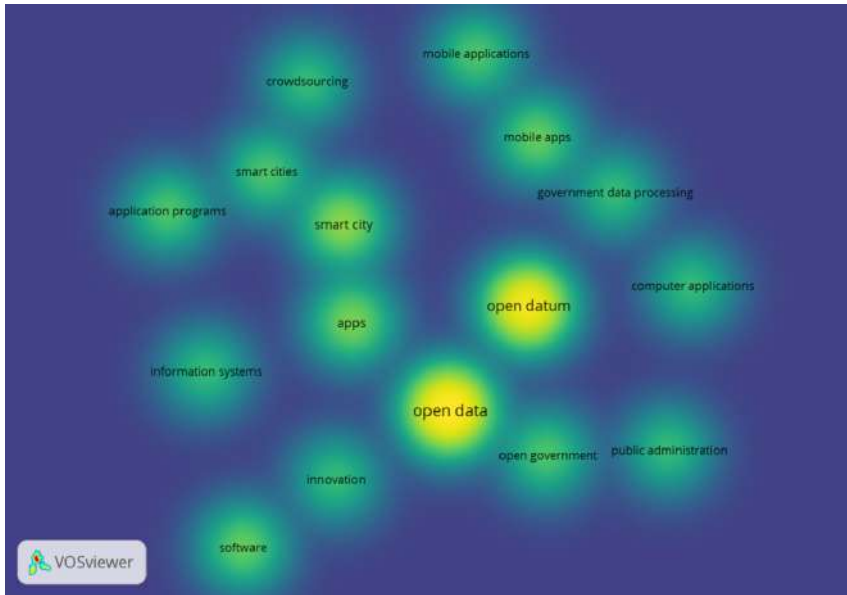
Diagram 2. Visualization of the temporal evolution of the network of variable sets in bibliographic records of the terms "Open Data", "Applications" and "Apps" in Scopus between 2012 and 2018.



Source: Own elaboration.

Finally, Diagram 3 shows the density of each of the variables in terms of the appearance in scientific research work within Scopus, which leaves the main search term —Open Data— as the majority present, followed by the terms discussed above and which appear with relatively lower weights—which does not mean less important— on the map.

Diagram 3. Density display of variable sets in bibliographic records of the terms "Open Data", "Applications" and "Apps" in Scopus between 2012 and 2018.



Source: Own elaboration.

## CONCLUSIONS

The importance of this study lies in the realization of a first approach to the early history of open data from the vision of creativity in the development of applications for decision making and problem-solving.

The history can be qualified as early, due to the lack and recently documented appearance of scientific studies in the matter (with only six years of having mentioned the first term with the search variables explained in the methodology).

The undeniable relationship between creativity and innovation is present in the analysis of bibliometric data, this, by the appearance of this last variable within the clusters of topics that were most used in the scientific work on the subject collected.

As noted in the direct review of each of the search results, the 47 documents submitted for analysis by the VOSviewer software as a whole confirm

the prevalence of the term "Smart Cities", due to the boom in open data as a window for solving urban problems.

However, the uses for crowdsourcing, the development of software and mobile applications as variables temporarily considered in the most recent scientific work, could be a consistent indicator of the interest they are taking for the community, although not entirely accurate, due to the short history of the subject in the work of researchers.

The nature of the topic obliges the governmental linkage and its responsibility in the generation of mechanisms that improve the appropriation of open data by the community, for example, with the call made by the government of Mexico through INEGI to promote tools such as the one that allows knowing the mood of the country's Tweeters.

The maturity that open data policies must have in countries in the medium term will be of great importance for the development of the same, due to the opportunities for creative innovation that this will bring to all social sectors, especially the less economically favored and, above all, in a global context that prepares for the Internet of things and a flood of data to understand and exploit strategically.

## RECOMMENDATIONS

The study of Open Data is recommended before other variables that may be of interest to the scientific community in terms of semantic analysis, mainly as an element of a retrospective on the direction this phenomenon is taking in its short life of study by scientists.

Issues such as the formats that open government data should adopt as a homogenization measure for the exploitation of these repositories, as well as the social, ethical, and environmental implications that the use of Open Data is having for the societies of the countries, were left out of this study.

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# Chapter 8

## **The Trust on Social Networks and the Increased Social Commerce**

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# The Trust on Social Networks and the Increased Social Commerce

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## INTRODUCTION

**T**he use of social media has seen a tremendous increase in the last few years. Social media platforms have played a major role in content marketing by sharing information and opinions about products and services (Cha, 2009), users are motivated by fulfilling emotional, social, functional, self-oriented, and relational needs (Davis, Lang & San Diego, 2014). These social media platforms are based on openness, cooperation, co-creation, trust, and commitment between users (Constantinides, 2014).

Recently, social commerce (s-commerce) gained major attention from both academics and practitioners. Numerous studies have been conducted to understand s-commerce and examine their impact. Since 2010 the published studies on s-commerce increased.

Busalim and Hussin (2016) conducted a systematic review of s-commerce research and identified 110 studies that address s-commerce published from 2010 to 2015. The results from their study show that the studies addressing s-commerce increased during the last 6 years.

They observed that the current studies covered numerous research themes under s-commerce, such as user behavior, business models, s-commerce website

design, adoption strategy, social process network analysis, and firm performance. Social media usage may be a good strategy for businesses to increase sales by retaining current customers and developing new customers (Hajlia *et al.*, 2015; Eikelmann, Hajj, & Peterson, 2008).

In today's challenging business environment, social media tools have been actively used for firms to present their business online and achieve marketing values (Stephen & Toubia, 2010; Gefen, 2000). For example, firms may have a fan page on Facebook that allows management to interact directly with customers to improve and manage customer relationships.

As such, social commerce has facilitated new channels that enhance communications between business enterprises and customers, thus, providing an innovative approach for changing business practice (Kera & Kaynak, 1997; Lin, Le & Wang, 2017).

## **SOCIAL MEDIA**

The emergence of Web 2.0 applications transferred the human approach to the web and interconnectivity among users (Mueller *et al.*, 2011; Drury, 2008).

Nevertheless, the terms Web 2.0 and Social Media are new terms in the Internet and Marketing lexicon and there is no consensus as to their exact meaning (Constantides, 2014). O'Reilly (2005) popularized the term Web 2.0 as the next stage in the Internet evolution by referring to it as a wide collection of online applications sharing several common interactive characteristics.

According to Constantides (2014) "Web 2.0 is a collection of interactive, open-source and user-controlled Internet applications enhancing the experiences, collaboration, knowledge and market power of the users as participants in business and social processes.

Web 2.0 applications support the creation of informal users' networks facilitating the flow of ideas, information, knowledge, and promote innovation and creativity by allowing the efficient generation, dissemination, sharing, and editing of content".

The meaning of the term Social Media is different from the meaning of Web 2.0 although the terms are often used interchangeably (Kim & Bae, 2008; Constantides, 2014).

Social media can be defined as any form of online publication or presence that allows interactive communication, including, but not limited to, social networks, blogs, Internet websites, internet forums, and wikis (Akman & Mishra, 2017).

The use of social media sites is gradually increasing and, over the past few years, social networking has attracted people in such a way that it has become a daily part of their daily lives (Gayathri, Thomas & Jayasudha, 2012).

Progressively, the use of social media evolved and many social media-based businesses have emerged, giving rise to social commerce. Social Commerce refers to “the delivery of e-commerce activities and transactions via the social media environment, mostly in social networks and by using Web 2.0 software.

Thus, social commerce “is a subset of e-commerce that involves using social media to assist in e-commerce transactions and activities” (Liang & Turban, 2011, p. 6). It enables businesses to reach global and distant customers and to build a good relationship with them (Cho *et al.*, 2014).

Social media represents one of the most important platforms for electronic e-commerce and amplifies the ability for communication with large numbers of consumers – be it organization to consumers or consumer to consumers (Mangold & Faulds, 2009; Sago, 2010; Evans, Bridson. & Rentschler, 2012).

It has one of the most metamorphic impacts on business (Aral, Dellarocas, & Godes, 2013) and remarkably revolutionizes the way the consumers and organizations interact (Todri & Adamopoulos, 2014).

Social media tools provide improved communication and collaboration between firms and their stakeholders (e.g. customers, suppliers, business partners) (Culnan, McHugh, & Zubillaga, 2010), an innovative way for firms to identify products with high selling potentials (Liang & Turban, 2011), and a better channel for attracting and retaining online customers (IBM, 2018).

The rapid growth of social media has made it also challenging to follow the trend and understand the operating of the different social media platforms to perform business tactics.

For instance, there is a lack of information on how the perception of the platform usage, influences the purchase behavior, whereas there are endless social media platforms for different usages and unique characteristics (Hajli *et al.* 2017; Peters *et al.*, 2013). Thus, there is an urgent need to understand social commerce shoppers’ shopping behavior while considering the specificity of the social media platform.

Social media represents an important platform for e-commerce and has one of the most metamorphic impacts on business. Therefore, investigating the usage of s-commerce concerning important behavioral factors could provide valuable information for companies in establishing policies and strategies.

It could also be useful for management studies and researchers in understanding the consumers’ attitude towards the usage of social media for commercial purposes. S-commerce creates opportunities for firms. Based on findings this research provides insights with major implications for marketers, who would like to generate direct sales on social network platforms.

## **SOCIAL COMMERCE**

The social interactions of people on the Internet, especially in social networking sites (SNSs), have created a new stream in e-commerce. This new stream is social commerce (Mahmood, 2013).

The concept of social commerce emerged through Web 2.0 in 2005 amid the growing commercial use of social networking sites and many other social media websites (Curty & Zhang, 2011; Liang *et al.*, 2011). It ushers a new form of e-commerce (Wang & Zhang, 2012).

Social commerce is often considered as a subset of e-commerce (Curty & Zhang, 2013; Liang *et al.*, 2012), however, unlike traditional e-commerce where consumers usually interact with online shopping sites separately, social commerce involves online communities that support user interactions and user-generated content (Kim & Srivastava, 2007).

Prior research has broadly characterized s-commerce with two essential elements: social media and commercial activities (Liang *et al.*, 2012; Kim & Park, 2012).

Stephen and Toubia (2010) defined s-commerce as a form of Internet-based social media, which enables individuals to engage in the selling and marketing of products and services in online communities and marketplaces.

Dennison, Bourdage Braun and Chetuparambil (2009) adopted a definition provided by IBM and explained it as the marriage of e-commerce and electronic word-of-mouth (eWOM). Marsden and Chaney (2012) conceptualized social commerce as the selling with social media websites, such as Facebook, Twitter, LinkedIn, Pinterest, and YouTube (the “Big Five”), which support user-generated content and social interaction.

According to Liang and Turban (2011) and Chen, Su and Widjaja, (2016), s-commerce is the use of Web 2.0 and social technologies to support interactions in an online context to support consumers’ acquisition of services and products on the Internet.

Social commerce can also be defined as word of - mouth applied to e-commerce (Dennison, Bourdage-Braun & Chetuparambil, 2009), and it involves a more social, creative and collaborative approach than is used in online marketplaces (Parise & Guinan, 2008; Jiang *et al.*, 2014).

Recent research identified two major types of social commerce: (1) social networking sites that incorporate commercial features to allow transactions and advertisements; and (2) traditional e-commerce websites that add social tools to facilitate social interaction and sharing (Huang & Benyoucef, 2013; Liang & Turban, 2011).

In s-commerce, consumers are active and they have social relationships with other friends, members of other communities, and e-vendors. They

communicate, rate other products, review others' opinions, participate in forums, share their experiences, and recommend products and services (Mahmood, 2013). The progressive development of technologies suggests that the era of s-commerce will eventually become the mainstream for marketing, following the success of SNS (Marsden, 2010; Stephen & Toubia, 2010).

Additionally, the benefits gained from s-commerce depend on the behavior of individuals on online platforms and the information that is shared or spread publicly via such platforms. Therefore, s-commerce has become an important area of exploration for university and industry researchers interested in online technologies and their impacts on consumers and businesses (Lee & Phang, 2015).

To analyze this commercial phenomenon, researchers have focused on finding factors that affect social commerce (Kim & Park, 2013; Wang & Zhang, 2012; Zhang, Zhang, & Hans-Dieter, 2013) and there have been several published studies seeking to understand the relationship between social commerce factors and consumer purchase intentions.

Previous studies have shown that platform technological services (Curty & Zhang, 2013; Huang & Benyoucef, 2013; Wu & Wang, 2011), interaction/information communication (Gabriela, Hor-meyll, & De Paula Pessôa, 2014) and relationships (Liang, Ho & Li, 2012; *Welbourne et al.*, 2006) have a significant influence on consumers' purchase intention.

## TRUST IN SOCIAL MEDIA CONTEXTS: A MODEL

The perception that leads to purchasing consumer behavior in social media context as approached in this study is in agreement with the concepts stated in the Theory of Reasoned Action (TRA) model by Fishbein & Ajzen (1975), the Theory of Planned Behavior (Ajzen, 1991) and the UTAUT2 (Unified Theory of Acceptance and Use of Technology 2) Model (Venkatesh, Thong, & Xu, 2012).

The identification of consumer motives is important for marketers and retailers to use to enhance the probability that the products and experiences they develop and provide satisfy consumers' needs (Kang & Johnson, 2015).

In light of these developments, the main objective of this study is to investigate the usage of s-commerce mediated by intention regarding behavioral factors that enhance trust as a key factor that influences shopping intention. These factors were selected to be in line with the available literature.

Trust is a concept studied in different disciplines such as philosophy, economics, sociology, management, and marketing (Jim *et al.*, 2014; Blois, 1999; Rousseau *et al.*, 1998).

Trust can be considered as a function of the degree of risk inherent in a certain situation (Koller, 1988). Many researchers argue that trust is a crucial issue

in online shopping environments where there may be lots of uncertainty (Pavlou, 2003; Mutz, 2005; Gefen, Karahanna & Straub, 2003).

It has been shown that trust plays an important role in the e-commerce adoption process (Aljifri, Pons & Collins, 2003), also, consumers who trust e-commerce may not necessarily trust s-commerce. Bansal and Chen (2011) claimed that consumers are more likely to trust e-commerce sites than s-commerce sites.

Trust is more important in social commerce platforms where uncertainty is higher due to the lack of face to face communications and the high level of user-generated content (Lin & Lu, 2010; Featherman & Hajli, 2015), and because it reduces “transaction cost” in business interactions (Mutz, 2005; Piller & Walcher, 2006).

It reduces the tendency to monitor other parties’ activities and is an element in sanctioning systems as reliable (Mutz, 2005). Many different practitioners and researchers on e-commerce believe that social trust is a key component in a country’s economic expansion and whether they can benefit from economic potential introduced by e-commerce (Mutz, 2005).

Previous studies have emphasized the important role of trust in s-commerce. Moreover, It has been confirmed that trust has a significant role in a customer’s intention to buy (Shin, 2010; Han & Windsor, 2011; Lin & Lu, 2010) Having confidence in the provider and with less perceived risk, a customer will search for new items or services in the online environment and be more likely to make a purchase (Hassanein & Head, 2007; Shin, 2010).

Some authors argue that s-commerce and the emergence of Web 2.0 can help customers to reduce their risk and increase social trust. Applications on Web 2.0, such as customer ratings and review, would be a good solution to overcome this barrier. Social technologies enable consumers to have social activities in SNSs (Han & Windsor, 2011), where interactions among the connected users can increase trust among the participants (Han & Windsor, 2011; Swamynathan *et al.*, 2008).

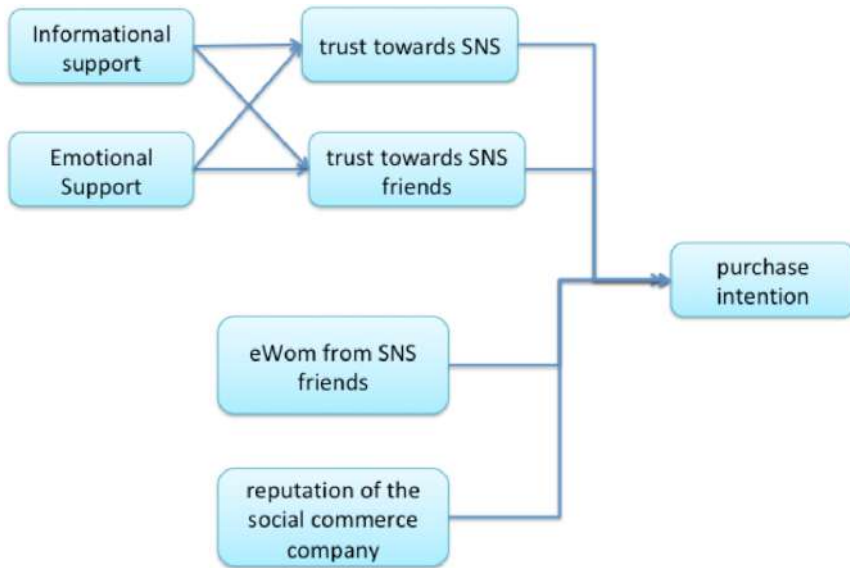
Trust is an important determinant in considering a consumer’s intention to buy (Roca, García, & De la Vega, 2009; Han & Windsor, 2011). The more trust the consumers have, the more likely it is that they will buy (Han & Windsor, 2011).

Hence, it is important to investigate exhaustively the role of trust in a social commerce adoption system. Trust can come from different sources. Linda (2010) claimed that various factors such as information quality, communication, and WOM effects could make s-commerce trustworthy because consumers themselves create them.

Kim and others (2005) claimed that gaining consumers’ trust is a key factor in s-commerce and found that various constructs such as the reputation and size of the s-commerce site.



Figure 1: Conceptual research model



Source: Own elaboration.

Figure 1 demonstrates a model for research. This research model includes five constructs: informational support, emotional support, trust to SNS, trust to friends in the SNS, eWOM from friends in the SNS, the reputation of the s-commerce company are the independent variables, and purchase intention is the dependent variable. The variables included in the research model are hypothesized as follows.

#### *Social support*

Social support, a notion from psychology is defined as the social interaction of individuals in a network that is cared for, answered to, and supported (Ali, 2011; Albors, Ramos & Hervás, 2008).

Strong social support makes a user feel connected to friends as well as builds trust with others in an online community (Crocker & Canevello, 2008; Weber, Johnson, & Corrigan, 2004).

Social support refers to the perception of a member of a group or organization of being helped, responded to, and cared for physically and psychologically by others in the group or organization (Crocker, 2008).

In s-commerce, social support is useful in building close relationships among users and enhancing users' well being in organizations (Obst, 2010).

On social media platforms, the user receiving shared information perceives others as being caring and helpful when they provide useful life or product information.

After receiving such information, the user will be willing to acquire or share valuable shopping information with others. Frequent sharing of supportive information can enhance friendship and trust among users; which may further increase the intention to conduct commercial activities (Liang & Turban, 2011).

Previous studies have also revealed that social support exists in three forms: emotional, tangible, and informational (Schaefer, Coyne & Lazarus, 1981).

#### *Emotional support*

Emotional support includes being able to confide in and rely on another person, contributing to the feeling that one is loved or cared about or even that one is a member of the group and not a stranger. In social commerce, emotional support is present when users perceive themselves as being cared for or empathized with based on the information provided by other users. Taylor and Heejung (2004) found that the emotional support provided by others in the group may reduce stress.

Emotional support will help members open up and look for help from other members of the community. In particular, some scholars have demonstrated that caring is the basis for trust development (Ommen *et al.*, 2008).

Therefore, through emotional exchange and connection with other members within the community, people will develop their trust toward other members and the social commerce community. Therefore,

Hypothesis 1. Emotional support is positively related to trust toward SNS friends.

Hypothesis 2. Emotional support is positively related to trust toward SNS.

#### *Informational support*

Informational support refers to providing information and advice that could help another person. The various forms of UGC, including recommendations, advice, and knowledge, are all manifestations of information support.

Coulson (2005) found that information, particularly factual evaluation information, posted in response to queries by members may help to solve problems. It is not difficult to understand that if people can consistently obtain instrumental assistance, such as valuable advice and immediate help from their

online friends or the focal community, they will be more likely to have confidence on the other side's benevolence, integrity, and ability, and further form a feeling of trust toward the information providers (Pralhad & Ramaswamy, 2004; Porter & Donthu, 2008; Chen, Xiao-Liang, & Shen, 2015). Based on this reasoning, the following hypotheses emerge:

Hypothesis 3. Informational support is positively related to trust toward SNS friends.

Hypothesis 4. Informational support is positively related to trust toward SNS.

#### *Trust toward SNS*

Trust toward community refers to one's perception of the focal community as a reliable and predictable place for social interaction. Online communities often have commonly accepted standards to ensure mutual and reciprocal benefits for its members.

As the reciprocal nature of communication lying in the center of the virtual community (Chen, Zhang, & Xu, 2009; Yadav *et al.*, 2013), the extent to which community can follow the established rules will directly determine members' participatory activities in the community.

Besides, the benevolence and integrity of a community will smooth away users' worry about opportunistic behaviors, such as deceptive advertising or inappropriate use of personal information.

The relationship between trust toward a community and customers' loyalty was well established in the literature (Schaefer, Coyne, & Lazarus, 1981; Salo & Karjaluoto, 2007; Chen, Zhang, & Xu, 2009; Wu & Chang, 2006; Shen, 2012). Therefore,

Hypothesis 5. Trust toward SNS is positively related to social shopping intent

#### *Trust toward SNS friends*

In this study, trust toward SNS friends is defined as an individual's willingness to rely on the words, actions, and decisions of friend's members in a social commerce community.

Prior studies have found that trust toward members positively affected online participatory behaviors, such as getting and giving information in the focal community (Shen, Lee, & Cheung, 2014; Ridings, Gefen, & Arinze, 2002), this is especially true if these members are also friends.

This is because, in a trusting environment, people tend to help each other and further engage in shared social activities. In particular, information obtained from credible sources is usually regarded as more useful and thus will be used as a decision aid (Sussman & Siegal, 2003).

In a similar vein, people prefer to share their product/service consumption experience when the other side has some trustworthiness attributes (i.e. benevolence, integrity, and ability). This will let them converse easily based on common knowledge background and help to reduce possible opportunistic behaviors. Therefore,

Hypothesis 6. Trust toward friends in the SNS is positively related to social shopping intention.

#### *eWOM*

WOM theory was first developed by Arndt (1967). The original WOM theory assumes that WOM information is an indispensable experienced source created by individuals or marketers, and is then diffused by consumers or marketers to their consumers (Arndt, 1967; Engel, Kegerreis, & Blackwell, 1969).

The relationships between WOM-related constructs and consumer purchase behavior have been well illustrated in the existing literature (see Cheung & Thadani, 2012).

WOM information aims to help consumers fully understand a service or a product before its consumption and might also shape expectations of service (Wang & Chang, 2013; Bansal & Voyer, 2000; Zeithaml & Bitner, 1996).

WOM referrals refer to online activities in which consumers exchange information or experiences to help others make purchasing decisions (Kim & Prabhakar, 2000; Park, Chaui, & Lee, 1998;).

The phenomena of eWOM show that online consumers can share their experiences, opinions, and knowledge with others on popular topics (Huang, Hsieh, & Wu, 2014; Prendergast, Ko, & Yuen, 2010), and eWOM appearing in SNS can deliver brand messages to millions of SNS users, and that will reap the potential to retain existing customers and attract new consumers (Chu & Kim, 2011; Shanmugam *et al.*, 2016).

That is, online buyers, play a crucial role in promoting products or services for s-commerce firms through WOM referrals. In online shopping, as consumers do not have the first-hand experience of a product, such as touching it or smelling it, reviews provided by other customers become ever more valuable, especially if these customers do have hands-on experience of the product or service (Do-Hyung & Kim, 2008).

Their comments, reviews, and ratings become vital supports for other potential customers (Do-Hyung & Kim, 2008). Consumers are more likely to value others' information and opinions than advertising when purchasing products or services (Park *et al.*, 1998).

Previous studies of trust have demonstrated that online buyers influenced by WOM referrals are likely to have a positive trust propensity. For example,

Brown and Reingen (1987) claimed that WOM referrals represent a major factor influencing individuals' behaviors through unofficial communication channels.

Kim and Prabhakar (2000) demonstrated that WOM referrals play a major role in increasing the level of trust in e-commerce. Kuan and Bock (2007) found that WOM referrals in SNS settings are more likely to inculcate consumers' trust in online environments than in offline environments. S-commerce makes use of SNSs for WOM referrals, which differentiates s-commerce from other forms of e-commerce. S-commerce users are likely to trust other users' experiences and opinions concerning certain products and services or s-commerce sites.

Therefore, WOM referrals may play a more important role in inducing consumers' trust for s-commerce than for other forms of e-commerce. In this regard, the following hypothesis is proposed:

Hypothesis 7. eWOM referrals have a positive effect on consumers' intent to purchase in s-commerce sites.

*The Reputation of the s-commerce company*

The Reputation of the s-commerce firm, defined as the extent to which consumers believe that a firm is honest and concerned about its customers (Doney & Cannon, 1997; Wang & Yu, 2017).

A firm with a good reputation or image enjoys a higher level of customers' trust (Doney & Cannon, 1997; Jarvenpaa, Tractinsky & Vitale, 2000). Also, a good reputation is a valuable intangible asset for many e-retailers and provides consumers with potential cues for enhancing trust (Park, Gunn & Han, 2012).

Thus, creating a positive reputation is particularly important for those companies to be successful. Koufaris and Hampton-Sosa (2004) claimed that consumers' perception of the reputation of an e-commerce site plays a key role in building their trust in that site. Therefore, a good reputation has to be forged to increase consumers' trust.

Also, the reputation of a firm is often shared among consumers and thus plays an important role in fostering their trust (Chen, 2006; Teo & Liu, 2007). Besides, the reputation of an s-commerce firm (or a small/medium-sized firm) indicates the level of consumers' trust in the firm.

In this regard, the perceived reputation of a s-commerce firm has a positive effect on the formation of the relationship between the s-commerce firm and its customers and becomes a key determinant of trust (Jarvenpaa *et al.*, 2000; Park, Gunn, & Han, 2012; Teo & Liu, 2007).

Previous studies of e-commerce have demonstrated a close relationship between reputation and trust (Casaló, Flavian, & Guinaliu, 2007; Janda, Trocchia, & Gwinner, 2002).

S-commerce users are likely to consider a firm's reputation as an important factor in evaluating their trust in the firm when purchasing products or services. In this regard, the following hypothesis is proposed:

Hypothesis 8. A s-commerce firm's reputation has a positive effect on consumers' intent to buy in SNS.

#### *Intention to buy*

Intention to buy is a construct of the technology acceptance model (TAM), one of the most successful theories in predicting an individual's intention to use a system (Pavlou, 2003).

There are two core theories to test and predict an individual's intention to utilize information systems (Mathieson, 1991). These two theories are TAM and the theory of planned behaviour by Ajzen (1991).

TAM is a core theory in e-commerce studies (Martins, Oliveira, & Popović, 2014; Park et al., 2009) and many authors developed this model (Hsiao & Yang, 2011). Intention to buy in the present study is defined as a customer's intention to engage in online buying in social networking sites.

### **RESEARCH METHOD**

To test the stated hypotheses, a questionnaire was developed to measure the constructs in the research model and all questionnaire items were measured on a 5-point Likert-scale, with 5 equivalent to "strongly agree" and 1 to "strongly disagree."

We implemented an online survey, which was run through the Survey Monkey web site. Survey respondents were randomly selected among Facebook users in Mexico. Facebook was selected, since, among numerous SNSs, Facebook has the largest number of users Worldwide at 2,320 million, followed by YouTube at 1,900 million, WhatsApp at 1,600 million, Facebook Messenger at 1,300 million, We Chat at 1,098 million and Instagram at 1,000 million (Statista, 2019).

Facebook not only assists communication and exchanges information but also enables businesses to facilitate and execute sales transactions. Facebook commerce (f-commerce), a form of s-commerce, refers to the buying and selling of goods or services through Facebook (Marsden, 2010).

Table 1. The operational items

Constructs	Measurement Variables
Informational support	<ol style="list-style-type: none"> <li>1. On Facebook, some people offer me suggestions when I need help.</li> <li>2. When I have a problem, some people on Facebook give me information to help me overcome it</li> <li>3. When I face a difficult situation, some people on Facebook help me find the cause and give me suggestions</li> </ol>
Emotional support	<ol style="list-style-type: none"> <li>1. When I face difficulties, some people on Facebook are on my side</li> <li>2. When I face a difficult situation some people on Facebook have comforted and encouraged me.</li> <li>3. When I have a problem some people on Facebook have expressed their interest and concern for my welfare.</li> </ol>
Trust in SNS	<ol style="list-style-type: none"> <li>1. Facebook's performance always meets my ex Facebook's performance always meets my expectations</li> <li>2. Facebook is a good social networking site.</li> <li>3. Facebook is a reliable social networking site.</li> </ol>
Trust in SNS Friends	<ol style="list-style-type: none"> <li>1. Facebook friends always try to help me if I have trouble.</li> <li>2. Facebook friends always keep their promises.</li> <li>3. Facebook members are sincere when dealing with others.</li> </ol>
e W O M propensity	<ol style="list-style-type: none"> <li>1. I like to present new brands and products to my Facebook friends</li> <li>2. I like to help my Facebook friends, providing information about many types of products.</li> <li>3. My Facebook friends ask me to get information about products or places to go shopping.</li> <li>4. My Facebook friends consider me a good source of information when it comes to new products or sales.</li> </ol>
Reputation of s-commerce company	<ol style="list-style-type: none"> <li>1. I buy at a s-commerce site because it is well known</li> <li>2. I buy at a s-commerce site because it has a good reputation</li> <li>3. I buy at a s-commerce site because it's an honest company</li> <li>4. I buy at a s-commerce site because I am acquainted with the company.</li> </ol>
Intention to purchase	<ol style="list-style-type: none"> <li>1. I consider the buying experiences of other Facebook members when I need to buy something.</li> <li>2. I ask other Facebook members to give me suggestions before buying.</li> <li>3. I am willing to buy products recommended by other Facebook members.</li> </ol>

Source: Own elaboration.

No restrictions were set for age, sex, educational level, or profession. Respondents were 305 young Mexicans. The mean age of the group was 24.65 years, the standard deviation of 1.257 years. We believe it is representative of Mexican Facebook users as young cohorts are the most active and frequent users of social media (AMIPCI, 2014). The operational items used to measure the problem-solving approach construct are presented in Table 1.

## DISCUSSION OF DATA ANALYSIS AND RESULTS

To assess H1 to H8, a Structural Equation Model (SEM) was utilized. Our analyses followed Anderson and Gerbing's (1988) two-step approach whereby the estimation of a confirmatory measurement model precedes the simultaneous estimation of the structural model, as described next.

### *The Measurement Model*

Confirmatory factor analysis was performed using EQS 6.2 to confirm the variables measuring the constructs in the model. The reliability of the measurement model was examined by calculating Cronbach's alpha coefficient for each of the constructs separately.

We also report the composite reliability and AVE of the constructs because it is generally acknowledged that composite reliability is a better measure of scale reliability than Cronbach's alpha coefficient (Bagozzi & Yi, 1988).

Table 2 shows that the alpha coefficient value for all the constructs is greater than 0.7, which is considered to be acceptable for the constructs to be reliable (Hair *et al.*, 2006).

The composite reliability values of all the constructs are greater than 0.6. Following recommendations from Bagozzi and Yi (1988), this further strengthens our assessment of reliability for all the measured constructs.

The measurement model indicates an adequate model fit of the data (Bagozzi & Yi, 1988, Bearden, Sharma & Teel, 1982, Bentler, 1990). ( $\chi^2 = 557.568$  df = 208, NFI = 0.884; NNFI = 0.907; CFI = 0.923; and RMSEA = 0.074).

### *Convergent Validity*

Convergent validity was examined by calculating the average variance extracted (AVE) and the factor loadings of the measurement items on respective constructs in the model (Fornell & Larcker, 1981).

Table 2 shows that all the measurement variables had significant loadings onto the respective latent constructs ( $p < 0.05$ ) with values ranging between 0.453 and 0.881. Also, the AVE for each construct is equal to or greater than 0.50, but for three of the constructs ('Informational support', 'Trust in SNS' and 'Trust in SNS Friends'), which further supports the convergent validity of five of the constructs.



Table 2. Reliability and convergent validity

Constructs	Measurement Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
Informational support	IS1	0.453	0.844	0.702	0.451
	IS2	0.794			
	IS3	0.720			
Emotional support	ES1	0.714	0.708	0.757	0.509
	ES2	0.728			
	ES3	0.699			
Trust in SNS	TS1	0.650	0.750	0.710	0.450
	TS2	0.697			
	TS3	0.664			
Trust in SNS Friends	TF1	0.662	0.670	0.605	0.407
	TF2	0.698			
	TF32	0.543			
eWom propensity	EW1	0.629	0.858	0.768	0.410
	EW2	0.709			
	EW3	0.576			
	EW4	0.506			
Reputation of s-commerce company	RSC1	0.604	0.909	0.867	0.574
	RSC2	0.881			
	RSC3	0.762			
	RSC4	0.636			
Intention to purchase	IP1	0.619	0.853	0.700	0.439
	IP2	0.648			
	IP3	0.716			

Source: Own elaboration.

*Discriminant Validity*

Discriminant validity was assessed in two ways. First, as suggested by Fornell and Larcker (1981), it was assessed by comparing the average values of variance extracted for each construct with the corresponding inter-construct squared correlation estimates.

Table 3 shows that most of the AVE values are greater than the inter-construct squared correlations; two squared correlations are slightly larger than correspondent AVE –eWOM/Intention to purchase and Informational support/Trust in SNS, while Emotional support/eWOM shows a high difference to its correspondent AVE, showing with this, a problem of discriminant validity.

Table 3. Reliability and convergent validity

	2	3	4	5	6	7	8
Informational support	<b>0.451</b>	0.460	0.083	0.271	0.130	0.069	0.143
Emotional support	0.84/0.51	<b>0.509</b>	0.187	0.745	0.276	0.097	0.191
Trust in SNS	0.40/0.18	0.66/0.38	<b>0.450</b>	0.328	0.270	0.169	0.291
Trust in SNS Friends	0.48/0.24	0.37/0.15	0.50/0.25	<b>0.407</b>	0.300	0.128	0.204
eWOM propensity	0.59/0.28	1.06/0.67	0.69/0.36	0.46/0.16	<b>0.410</b>	0.323	0.460
Reputation	0.60/0.27	0.73/0.42	0.67/0.37	0.55/0.27	0.70/0.38	<b>0.574</b>	0.612
Intention to purchase	0.71/0.39	0.50/0.22	0.61/0.30	0.73/0.41	0.85/0.50	0.97/0.60	<b>0.439</b>

Note: The upper triangle has the values of squared inter-construct correlations and the lower triangle has the inner construct correlations values with a confidence interval of 95 %; the diagonal elements are the AVE values (bold).

Source: Own elaboration.

This may be due to problems in translating the meaning of the items but further research is needed. Second, to test whether the inter-construct correlation was significantly different from unity, we used the chi-squared difference tests (Bagozzi, Yi, & Phillips, 1991).

Chi-squared difference test was performed by estimating the measurement model by constraining the inter-construct correlation to unity and then the same model was estimated freely, estimating the inter-construct correlation.

The test statistic is the difference between the chi-square values of 14 more degrees of freedom, and all changes in chi-square obtained were significant at  $p < 0.05$  level of significance. In this case, eWOM/Trust in SNS show constructs overlap. Overall, we believe measurement scales utilized are reasonably reliable and valid except for the aforementioned. The Structural Model and Hypotheses Testing

The proposed hypotheses were tested using structural equation modeling using EQS 6.2. Results indicated an adequate model fit with a significant chi-square statistic (Bagozzi & Yi, 1988, Bearden, Sharma, & Teel, 1982, Bentler, 1990). ( $\chi^2 = 557.568$  df = 208, NFI = 0.884; NNFI = 0.907; CFI = 0.923; and RMSEA = 0.074) also indicated an acceptable fit of the structural model with the data.

Table 4 shows the parameter estimates of the structural model. Seven of the hypotheses were supported. Results show that the path coefficients between Informational support Trust towards SNS, Emotional support Trust towards SNS, Informational support Trust towards SNS friends, Emotional support Trust

towards SNS friends, Trust towards SNS friends Purchase Intention, eWOM propensity Purchase Intention, and Reputation of the s-commerce site Purchase Intention are positive and significant at  $p < 0.05$  while the path Trust towards SNS  $\rightarrow$  Purchase Intention, is not significant  $p < 0.05$  supporting H1, HIII, and HV. Hence, seven linear relationships in the model were supported.

Table 4. Estimated path coefficients

Hypothesized paths		Path coefficients	Results
Informational support	Trust towards SNS	0.259*	H1 (Accepted)
Emotional support	Trust towards SNS	0.219*	H2 (Accepted)
Informational support	Trust towards friends	0.224*	H3 (Accepted)
Emotional support	Trust towards friends	0.578*	H4 (Accepted)
Trust towards SNS	Purchase Intention	0.054	H5 (NOT Accepted)
Trust towards friends	Purchase Intention	0.202*	H6 (Accepted)
eWOM propensity	Purchase Intention	0.254*	H7 (Accepted)
Reputation of S-C site	Purchase Intention	0.538*	H8 (Accepted)

Source: Own elaboration.

## LIMITATIONS, IMPLICATIONS ANDS FUTURE RESEARCH DIRECTIONS

There are some limitations of this research, which needs to be considered while interpreting our research findings. First, these findings need to be qualified with some cautionary notes due to several limitations of the research design: this study was based on a “snap-shot” questionnaire instead of a longitudinal study.

The quantitative analyses were developed from psychometric measures obtained by a self-reporting questionnaire, which allowed an empirical test of the proposed model based on statistical significance.

Investigating the usage of s-commerce concerning important behavioral factors could provide valuable information for companies in establishing policies and strategies.

It could also be useful for management studies and researchers in understanding the consumers' attitude towards the usage of social media for commercial purposes. S-commerce creates opportunities for firms.

Based on findings this research provides insights with major implications for marketers, who would like to generate direct sales on social network platforms. Future research should use other moderating variables that may affect the shopping intention in social media commerce sites.

Further studies could apply a variant of research methods to include other techniques such as interviews, which allow for a deeper understanding of the problem and issues

## CONCLUSIONS

This study investigates the factors influencing purchase intentions in social commerce and develops a research model to study this type of commerce. Seven significant linear relationships were supported to influence s-commerce adoption among Mexican Facebook users.

Through this study, the theory that trust is a determining factor in the process of adopting electronic commerce and in the intention to purchase is confirmed.

It is expressed that the behavioral factors that are related to the purchase intention in social media are: informational support, emotional support, trust in social networking sites, which are areas in which companies and marketing specialists should give them the main interest.

Consumers are content creators, they form their brand communities in which with the information they generate, they can positively contribute or harm the brand image of companies once it becomes viral content; therefore, companies being aware of behavioral factors can take advantage of user-generated content in their favor.

It was found that users trust the informative and emotional support from other users on Facebook and that they trust the social network site as a means of communication and information and this, in turn, guides users to make a purchase, consequently the adoption of social commerce increases.

These relationships must be understood to observe the behavior of consumers, monitor what they say about companies, create strategies that generate interaction, creation, and viralization of content, stimulate trust and finally these actions lead to the realization Shopping; that in a broader sense it contributes to brand recognition, positioning and new methods and ways of purchase that have been developed through the advancement and use of technologies.

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# Chapter 9

## **Adaptability of Small and Medium-Sized Businesses and E-Commerce**

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# Adaptability of Small and Medium-Sized Businesses and E-Commerce

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## INTRODUCTION

**H**umanity from its origins has been characterized by being in permanent evolution, that is why the world is also distinguished by being in constant change.

Although, certainly in recent decades we have witnessed how these changes that have been occurring in society are becoming faster. This phenomenon also affects the business world, so companies must also be prepared for such changes and have the capacity to adapt to them.

Specially, because markets around the world are characterized by being increasingly competitive, so companies to be successful and be able to stand out in those markets must have the ability to adapt to the changes that occur in the market.

That is why the managers of any company have a central role in the organizations they lead since they are the ones who determine the course to follow, which is why they must be able to have a clear vision of the future that they want to their company and the way to achieve it.

So, it is very important to study the process of organizational change in companies, because, this allows to know what factors influence in the process of change, as well as to know the obstacles that must be resolved to achieve it, such as the resistance to change, which is a very common phenomenon that occurs in the company personnel.

The e-business perspective indicates that there must be managerial effectiveness that implies management effectiveness and efficiency, in other words, of all those who have decision-making power, within organizations to join the change in the new logic of the digital economy.

The vertiginous changes that we live in the business world motivate the entrepreneur to prepare themselves adequately to face the strategic action, which is already assimilated as a concept of modern management.

Small and medium-sized businesses are more flexible to adapt to change and the needs that appear by the contingent phenomenon. No matter how small a company is; its owners, managers, and professionals must be prepared to develop an organizational growth strategy.

## **THEORETICAL FRAMEWORK**

The procedure by which any process of organizational change is established turns out to be quite complicated since firms need to face a variety of obstacles of a different nature than hinder or make their implementation impossible.

Carrying out an analysis of an organizational change is highly relevant since companies are in an incessant metamorphosis, therefore the importance of understanding as best as possible how companies change and the reasons why these changes are made or not.

The arrival of the Internet dramatically changed the world. This is because the Internet is not only an efficient way of exchanging information. The Internet has become the core part of e-business.

Electronic business has experienced considerable expansion thanks to the emergence of the Internet, which has provided excellent business and commerce opportunities for all kinds of organizations, facilitating the possibility of extending its portfolio of buyers everywhere.

Along with this phenomenon, there is the trend that occurs throughout the world, which follows a path towards the commercial opening and the globalization of international markets, specially in the last twenty years of the 20th century and the beginning of the 21st century. International trade has generated a series of links around the world, causing companies to operate in a virtual market, and not only in physical markets.

The emergence of a new economy, which rests on a new class of company, production models, and technological supports, has its greatest elements on the Internet and in electronic business.

E-business is for companies, something that overcomes technological organizational change. The challenges that a company must face when joining the virtual business arena require adopting specific management skills and

tactics that must be provided by the company's organizational culture. It is a very revealing evolution in systems and in the way of organizing work and methods.

The increase in the use of the Internet throughout the world has enormous potential, since it decreases costs of distribution of goods and services, and overcomes the geographical boundaries, facilitating the exchange between suppliers and consumers (Gangeshwer, 2013). This development has stimulated the emergence of new business models, among which, stand out the digital marketing, e-commerce, and electronic business.

Since the beginning of the 21st century, research on electronic business has been a topic of international relevance, Libu and others (2016) and Zeng and others (2017) point out that 2010 to 2012 stand out for the studies on this topic. Currently, electronic business is considered a very important subject of study due to its impact on economic and social development.

E-business or electronic business is defined as a concept in the process that details the procedure of buying-selling, or exchanging information, goods or services through computer networks that involve the use of the Internet (Janita & Chong, 2013).

Whereas for Jarvenpaa and Tiller (1999), electronic business is the automation of transactions, communication, and interaction using ICTs. According to Damanpour (2001), electronic business is any business activity that modifies external and internal relationships, generating value and exploiting the opportunities that arise in markets influenced by the new rules of the interconnected economy in which we live.

Electronic business refers to the impact of electronic commerce on business, understood as a series of activities carried out in the organization by which a series of inputs are transformed into outputs that create value for a customer.

It redefines an organization's methodology by interconnecting it with shareholders, consumers, and vendors (Hackbarth & Kettinger, 2000). Therefore, the company must be reorganized; so that the company exchanges products, services, capital, and Know-how digitally, that is, using Internet-based ICTs.

1 Inputs: all kinds of resources received from the external environment.

2 Outputs: product or result of the organization's activity. Results.

SMEs have structural, organizational, and economic characteristics that put them at a disadvantage compared to large companies, a situation that can be balanced with the use of electronic business (Erum, Rafique & Ali, 2017).

Electronic businesses can help promote the development of SMEs (Kurnia *et al.*, 2015; Ueasangkomsate, 2015), by selling directly to the end customer or other companies. While Freathy and Calderwood (2016) indicate that e-business has enormous benefits for customers.

In turn, Gallego, Bueno and Terreño, (2016), mention that the buying and selling operations of business firms through e-business are increased. Electronic business drives the economic development of both companies; as from underdeveloped and developed countries (Gutiérrez & Nava, 2016; Moon et al., 2017).

E-business is a young type of commerce. The first indications of the electronic business date back to 1948, but it was in the 1970s that financial companies standardized their use, having great growth in the 1990s, due to the emergence of new ICTs, and bringing new niche markets. (Fernández *et al.*, 2015).

These new technologies had an impact on companies, causing organizational changes that improved productivity, organizational structure, effectiveness, decision-making, competitive advantages, and processes through their simplification. (Ganga & Aguila, 2006).

The field of electronic business can be studied and analyzed from different perspectives such as technology, economics, marketing, and new processes, infrastructure, electronic links, value creation through information, market-making, legislation (Shaw, 2000); as well as, strategic, organizational, and social. (Águila & Padilla, 2001). The adoption of e-business and digital marketing is a topic widely studied by several authors (Chen & Holsaplle, 2013; Wong & Yazdanifard, 2015; Abed, Dwivedi & Williams, 2015; Libu *et al.*, 2016).

The study of organizational change and its relationship with electronic business covers various aspects, such as electronic commerce and organizational change, the impact on organizations of the use of information and communication technologies (Reix, 2002), strategic alignment and business operation (Bergeron et al., 2002), challenges and effects in new information systems, understanding of business models and strategies (Afuah 2003).

Águila & Padilla (2001) and Fresco & Álvarez (2000) study the process of organizational change, taking Electronic Business as a starting point for their study and analysis.

According to the Chuang model (2005), Enterprise Resource Planning, Supply Chain Management, and electronic commerce are systems that incorporate business processes that result in greater flexibility and better response time by reducing barriers between functional departments.

It stands out in this axiom that electronic commerce is a process that interacts exclusively with the buyer since the supply procedures are linked to the Supply Chain Management process.

This reflects that electronic commerce is a subsystem of electronic business. Due to the importance of electronic business, it is essential to carry out digital marketing activities. To do this, you must have adequate e-commerce solutions that ensure the success of the company (Gerrikagoitia *et al.*, 2014).

Electronic business is defined as the use of Internet technologies to link employees, buyers, sellers, and business partners, using at least some of these cases: (a) e-commerce Internet sites that provide sales transactions, (b) Internet sites to serve customers, (c) business information portals, (d) supply chain extranets, and (e) IP-based electronic data interchange. (Wu *et al.*, 2004).

E-commerce is a particular type of electronic business and refers to all business activities that use the Internet to change business relationships and take advantage of business opportunities, influenced by an interconnected economy.

E-commerce takes advantage of the Internet as a profitability factor. This stage is called the electronic business and covers all the applications and processes that allow a company to carry out commercial transactions. In addition to including e-commerce, electronic businesses consider both internal and external applications of the company.

Thus, electronic businesses deal with e-commerce transactions, Internet sales, and purchases; They are strategies that redefine the old way of doing business, with the help of technological innovations, increasing buyer value, and profits. Electronic businesses seek the path to profitability. (Kalakota & Whinston, 2001).

Concerning the review of the bibliography, Chan & Swatman (2000) discover that the study on the implantation of computer systems and information technologies in previous research, suggests that the use of theories of diffusion of innovation or administration of the change, help to understand the procedure of adoption and implementation of the change.

There is research that is based on the theory of innovation, which highlights the adoption of technology. (Drury & Farhoomand, 1996; Pfeiffer, 1992). On the other hand, some works are based on theories of change, which emphasize the phases involved in the implementation of change. (Ginzberg & Shulz, 1987; Zand & Sorensen, 1975; Zmud & Cox, 1979).

Through a meta-analysis, a significant relationship was found between the organizational adoption of technological innovations and various potential determinants. Among those that stand out are the attitude of the leaders, centralization, idle resources, internal and external communication, and attitude towards change. In turn, 4 types of moderators were studied: organization class, adoption phase, innovation class, and range of innovation. (Damanpour, 1991).

Additionally, organizational factors affect the sophistication of ICT management, helping to increase the adoption rate of electronic businesses (Jones, Motta & Alderete, 2016).

Ndeta, Katriou and Siakas (2015) point out that a limitation of traditional workflow systems is that they can only support simple, static and predictable

processes, but not dynamic and complex processes found in many e-business companies.

These workflow systems bring together explicit product models and processes, requiring a fully specified workflow design that can be modified to show organizational change every time it occurs. Such workflow design patterns can be seen as generalized solutions to recurring problems in e-business. Proven solutions can be reused to solve recurring problems in the e-business environment characterized by uncertainty and variations.

For his part, Pare´ and others (2011), indicate that change, clarity of vision, organizational flexibility, the effectiveness of change, project validity, and collective self-efficacy are indicators of readiness for organizational change, eventually leading to the adoption of changes based on ICTs. Smith (2016), points out that, among the best possible opportunities to face change, are technological solutions, which support their business vision of the future, since they would be the basis for that change.

Both the presence and the philosophy of leadership in ICTs have a positive effect on organizational transformations that use technology as a tool for change. Leavitt's Model of Organizational Change indicates that the information and knowledge generated by the new solution can be used to make the company do new and innovative things.

While Perdigón, Viltres, and Madrigal (2018), establish that technological progress causes an important organizational change in the international business field and fortifies its intervention in the digital age through the possibilities that the Internet and ICTs give in the business environment.

Change is a reality for all types of companies. The forces driving this need for change come from different sources. As part of the internal forces, it can be mentioned from a redefinition of the strategy or variations in the workforce.

Additionally, the external forces of the company such as the market itself, government legislation, labor market turmoil, technology, and economic changes, help drive the need for change (Robbins & Coulter, 2000).

One of the forerunner studies in the field of organizational culture change was proposed by Lewin (1951). The model he formulated for cultural change is made up of three stages that have been adopted in subsequent research on this topic. The 3 stages proposed are: thawing, changing, and freezing.

Collins and Porras (1994), studying the practices of successful and visionary companies, found that the companies that survive are those that are based on stable values and that are flexible to adapt to changes in the environment around them.

The change in organizational culture is required for the company to subsist and in this context, the internet is a stimulus for this new organizational culture and a facilitator of it. The role of leaders is crucial, therefore the role that the senior change managers have had in the organizational culture change of successful companies must be emphasized.

Correct change management will give the organizational flexibility that the company requires to adapt to the changes; the speed that the Internet economy requires, and the courage to accept taking risks is the beginning for innovation; in turn, collaboration and teamwork will produce revenues through new business models.

In summary, the orientation of the electronic business perspective postulates that there must be managerial effectiveness, which in turn needs executive efficiency. It is essential that the management of a company is efficient and efficacy, so these characteristics must be possessed by all the members of the company; since it is essential that the organization be effective in its performance.

## RESEARCH METHODOLOGY

To carry out the present study work, two stages had to be carried out: in the first instance, an analysis of a theoretical nature was made, within which a search was carried out concerning the theoretical framework of the subject studied; secondly, an empirical analysis was performed.

As part of the empirical analysis, a compilation of the information obtained in this research project was made, for which a questionnaire was designed, which was made up of a series of closed questions, which covered the response alternatives to each questioning, so, this questionnaire is the research instrument used for the present investigation.

### Unit of Analysis

Within this study project, business organizations whose characteristics were:

1. Being Small and medium-sized businesses were investigated (1 to 250 employees).
2. Entities of the Economic sector commercial
3. Located in the Guadalajara Metropolitan Area (GMA) (Guadalajara, Zapopan, San Pedro Tlaquepaque and Tonalá).

### *Sample*

For this research, a non-probabilistic sampling was used, for which the questionnaire was administered as a research tool to 78 individuals who are part of the workforce of 78 SMEs in the commercial sector, who had an organizational change process.

According to SIEM, in Mexico 69% of businesses are engaged in commerce, while the industrial-manufacturing sector is 7%, 21% is from the service sector and only 1% is from the mining and agricultural sector.

#### *Operationalization of Variables*

Within the present investigation, the variables were operationalized through the use of graduated questions with the Likert Scale. Which uses affirmations that indicate the attitude, positive or negative about the questioning. For the study, the respondents were asked to externalize their level of agreement or disagreement, on each statement, to establish how favorable or unfavorable their point of view is on the topics under study.

#### *Problem Statement*

The internet has an increasingly important role in our lives, both in daily life and in business, with electronic business being a clear example of this. This research aims to determine what are the effects and factors inherent to electronic business, which influence the implementation of an Organizational Change process in commercial organizations, installed in the Guadalajara metropolitan area, whether they favor or hinder that process.

So, for this project, the research questions that were asked are:

What factors related to the electronic business were involved in an organizational change in small and medium-sized businesses located in the GMA?

What effects does e-business have on an organizational change in small and medium-sized businesses located in the GMA?

#### *Research objectives*

The objective of this work is to determine what factors inherent to electronic business intervened in an Organizational Change in small and medium-sized businesses located in the GMA.

Another objective is to establish the effects that electronic business has in an Organizational Change in small and medium-sized businesses located in the GMA.

#### *Hypothesis*

The hypotheses formulated for this investigation are:

H1: Electronic Businesses contribute to the implementation of an organizational change process in small and medium-sized businesses located in the GMA.

H2: The commercial opening, favors the organizational change through the electronic businesses in small and medium-sized businesses located in the GMA.

Collection and processing of information



For this work, the research instrument that was used was a questionnaire made according to the information obtained in the bibliography consulted, and with which it was intended to determine which factors related to electronic business influenced an organizational change in small and medium-sized businesses located in the GMA.

Therefore, a structured questions survey was made to distinguish these factors. Once the information was obtained, the results were examined and classified.

To check the reliability and consistency of the research instrument, it was determined which is the Cronbach's Alpha. The KMO Sample Adequacy Measure and the Bartlett Test were also obtained to determine that the variables are correlated and factor analysis is feasible.

For the empirical study of this work that aims to establish how electronic business intervenes in a change in organizational culture, the degree of significance of the ANOVA (analysis of variance) was determined, by relating variables associated to electronic business, with the effects that they might have on an organizational change, and with certain factors that contribute or hinder the implementation of a change in organizational culture.

## RESULTS OF FIELD RESEARCH AND DISCUSSION

As part of this research work, a study of electronic business was made as a study perspective that examines the process of organizational change; and within the research instrument used, certain questions that analyze the organizational change from the perspective of electronic business were considered in this questionnaire.

This study was carried out through personal surveys with employees who participated in the process of an organizational change in the companies considered, they were administered the questionnaire that was made for this work, and which was used to study the hypotheses presented.

Therefore, for the study, certain questions related to the perspective of electronic business were considered. Additionally, Cronbach's Alpha was determined, as well as the Bartlett's Test and the KMO (Table 1).

Table 1. Cronbach's Alpha of the Electronic Business variables

Reliability statistics	
Cronbach Alfa Coefficient	Number of Elements
0.813	24

Source: Own elaboration based on the results of the SPSS.

According to the statistical result of reliability, Cronbach's Alpha turns out to be of high consistency, 81.3% of reliability, which demonstrates a high level because the approximation of the statistic is close to 1.00, in addition to the fact that the variables of the questionnaire are they consistently applied, that is, that the general trends and correlations can be described in depth through multivariate analysis, for which it is necessary to understand the level of adjustment between the groups according to a factorial analysis KMO and Bartlett's Test (Table 2).

Table 2. KMO and Bartlett Test

Kaiser-Meyer-Olkin.measure of sampling adequacy	0.649	
Bartlett esphericity Test	Squared Chi aprox.	745.535
	gl	276
	Sig.	0.000

Source: Own elaboration based on the results of the SPSS

If. Sig. (P-value) <0.005 H0 (null hypothesis)> factor analysis can be applied.

If. Sig. (P-value) > 0.005 H0 is rejected> factor analysis cannot be applied.

The results indicate that the level of significance obtained by being zero is representative since the closer it is to zero, the test will be more satisfactory.

The most significant variable is the commercial opening in the world, followed by the process of market globalization; which indicates that electronic businesses are benefited by this process of commercial opening and by the globalization that occurs in the world, which contributes significantly to companies venturing into electronic businesses.

Technological innovation and information technologies, on the other hand, are also significant variables related to electronic business, since these technological advances are required to promote electronic business in companies.

Interviewees were asked if they think e-business was a determining factor in deciding that the company would make the organizational change. This when considering that due to the changes that have occurred in society, the economy, culture, in the technological field, in the governmental environment and international markets, these have been aspects that served to generate innovative ways of doing business, just like e-business.

Additionally, interviewees have also questioned if commercial opening in the world was a factor that influenced the decision to make a change in their organizations, and in which way it helped to carry out such change. Given that according to the electronic business perspective, the process of globalization and commercial opening requires that the process of change be faster, which implies

having a deep knowledge of international markets; predicting the future becomes more complicated every day, therefore change must be managed quickly.

Table 3. Communalities

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Intensity of commercial opening	0.904					
Frequency of commercial opening	0.903					
Frequency of the market globalization process		0.852				
Intensity with which the globalization of markets influences		0.836				
Technological innovation was essential for the company to decide to make the change		0.816				
ICTs were decisive for the company to make the change		0.815				
Consumer expectations			0.761			
E-business was decisive in bringing about the organizational culture change.			0.726			
Culture				0.668		
Buyers' prospects				0.643		
Intensity of competition rivalry				0.624		
Anticipate the future and its changes				0.616		
Aggressive competitiveness					0.594	
The society					0.588	
Flexible clients					0.558	
Temporary business focus					0.545	
Competitively the company works better now than before the change					0.543	
Forecast future market evolution					0.542	
Learning organizations were an important factor in making the culture change					0.528	
Information and analysis of the change process is documented					0.526	
The company was based on quantifiable data						0.499
Before the change there was order						0.494
Vision						0.492
Comprehensive buyers						0.403

Source: Own elaboration based on the results of the SPSS.

In the instrument used, certain hypotheses and questions that examine organizational change from the perspective of the current study of electronic business were considered, and they are:

H1: Electronic Businesses contribute to the implementation of an organizational change process in small and medium-sized businesses located in the Guadalajara Metropolitan Area.

Table 4. Electronic Business was a decisive factor for the Company to choose to carry out the Organizational Culture Change

ANOVA	Sum of squares	gl	Quadratic mean	F	Sig.	
Technological innovation was essential for the company to decide to make the change	Between -groups	22.281	3	7.427	9.353	0.000
	Whitin-groups	46.058	58	0.794		
	Total	68.339	61			
Information and communication technology were decisive for the company to make the change process	Between -groups	26.791	3	8.930	14.979	0.000
	Whitin-groups	34.580	58	0.596		
	Total	61.371	61			
Learning organizations were an important factor in effecting culture change	Between -groups	12.717	3	4.239	7.975	0.000
	Whitin-groups	30.831	58	0.532		
	Total	43.548	61			
The commercial opening in the world	Between -groups	13.430	3	4.477	4.664	0.005
	Whitin-groups	55.667	58	0.960		
	Total	69.097	61			
Anticipate the future and its changes	Between -groups	9.703	3	3.234	5.337	0.003
	Whitin-groups	35.151	58	0.606		
	Total	44.855	61			

Source: Own elaboration based on the results of the SPSS

According to the results obtained, an existing relationship was discovered, between Electronic Businesses, and: technological innovation was essential for the company to decide to make the change; information and communication technology were decisive for the company to make the change process; learning organizations; the commercial opening in the world, and anticipating the future and its changes. They were important factors in producing culture change.

This indicates that these factors related to electronic business influence the implementation of organizational change. Therefore, H1: Electronic Businesses contribute to the implementation of an organizational change process in small and medium-sized businesses located in the Guadalajara Metropolitan Area, it is accepted. (See Table 4).

About this point, according to an investigation by Soto-Acosta, Popa & Palacios-Marques (2016), in the results they obtained, they refer to the existence of a direct positive effect of the use of electronic business in an organizational change that leads to the innovation of the company.

This discovery supports existing literature that concludes that e-business enables and promotes innovation in organizations (Amit, Zott 2001; Wu, Hisa 2004, Zwass 2003).

Therefore, the organization can be used to distribute and share individual experiences and innovations across the company (Bhatt et al. 2005) and provides an opportunity to leverage knowledge to create new products, services, or processes.

In turn, the results of the study carried out by Soto-Acosta, Popa & Palacios-Marques (2016), corroborate that organizational innovation generates a relationship between the use of electronic business and the performance of the company.

This finding confirms what is indicated in the existing bibliography that proposes that there are positive direct and indirect links between Information Technology and the performance of organizations (Meroño & Soto 2007; López & Meroño 2011; Pérez & Alegre 2012). Therefore, SMEs have to make intensive use of e-business to achieve business innovation that improves organizational performance.

Respondents' answers show that e-business is a factor of great importance that must be considered when seeking to make an organizational change, for this, it is required that companies increasingly use these technological tools that help conduct business internationally, therefore, it is necessary to take advantage of this type of support, since not doing so would lose considerable opportunities to reach business agreements. (See Table 4).

H2: The commercial opening, favors the organizational change through the electronic businesses in small and medium-sized businesses located in the Guadalajara Metropolitan Area.

Table 5. Commercial openness in the world

ANOVA	Sum of squares	gl	Quadratic mean	F	Sig.	
Before the change there was an order	Between-groups	8.123	3	2.708	4.781	0.005
	Whitin-groups	32.845	58	0.566		
	Total	40.968	61			
ICTs were decisive for the company to make the change process	Between-groups	12.547	3	4.182	4.969	0.004
	Whitin-groups	48.824	58	0.842		
	Total	61.371	61			
The process of globalization of markets and the world economy	Between-groups	17.633	3	5.878	6.591	0.001
	Whitin-groups	51.722	58	0.892		
	Total	69.355	61			
Culture and society	Between-groups	18.764	3	6.255	9.273	0.000
	Whitin-groups	39.123	58	0.675		
	Total	57.887	61			
Competitively the company is working better now than before the change	Between-groups	5.767	3	1.922	4.711	0.005
	Whitin-groups	23.668	58	0.408		
	Total	29.435	61			
Information and analysis of the change process are documented	Between-groups	7.110	3	2.370	4.662	0.005
	Whitin-groups	29.487	58	0.508		
	Total	36.597	61			

Source: Own elaboration based on the results of the SPSS.

Under the results obtained in this study, it was discovered that there is a relationship between Commercial Openness in the world with: Before the change, there was an order, ICTs were decisive for the company to make the change process, the process of globalization of markets and the world economy, culture and society, competitively the company is working better now than before the change, and information and analysis of the change process is documented.

This shows that the commercial opening in the world and electronic businesses favor the implementation of organizational change. For this reason, it is essential that the Company's Management goes into the process of organizational change, and that they train the personnel, so that they know their new role in the company.

For this reason, H2: The commercial opening, favors the organizational change through the electronic businesses in small and medium-sized businesses located in the GMA, is accepted. (See table 5).

One of the most important aspects of achieving change is the commercial opening in the world; as the changes are becoming quicker. In this regard, authors such as Ndeti, Katriou, and Siakas (2015), establish that there are in-depth studies that indicate that in organizational adoption, the characteristics of the company such as size, as well as structural variables (centralization and formalization) and the attitude of management to the change process, they can influence the adoption of innovations by the company.

In today's globalized world, characterized by commercial openness, companies must continually adapt to changes in their environment to remain competitive and even survive. This situation is even greater in electronic business, as technology and trends change faster. For this reason, virtual companies must manage frequent organizational changes and adjust their business processes.

The results of this research indicate that commercial openness in the world is a factor that appears more and more in international markets and companies cannot avoid it, which influences that many firms choose to carry out an organizational change since the commercial opening in the world implies the organizations that must contend in the markets with international companies, and although they are operating directly in a certain country, this competition is increased through electronic business.

As local companies take advantage of the opportunity that is the commercial opening of markets, they can enter in new markets, being electronic business an instrument that allows firms to do business with companies from other countries, which helps them expand their markets and, due to the greater requirements of international business and the ever-increasing demands of buyers from other countries, they force national companies to be more efficient and competitive, which makes such organizations more open to changes that occur over time in the company, and in the markets.

## CONCLUSIONS

The world we live in is characterized by being in permanent change. Business markets reflect that competition is increasingly exacerbated between companies, and the prevailing commercial openness provides an opportunity for buyers to have more and more options to choose from, making customer expectations higher and higher.

For this reason, it is essential that organizations seek to be more efficient and thereby succeed in satisfying such consumer expectations before and better

than the competition. Changes in the business environment cause companies to adapt to the uncertainty that prevails in the business environment, this generates that changes must be made in companies, such as changes in their production systems, coupled with their organizational culture; so that the company has a better performance.

Continuous changes in the corporate environment reveal the unpredictability of business. This generates that considerable changes must take place in companies, develop new production processes, devise innovative products that exceed customer expectations.

Organizations cannot remain immobile, they have to continually learn because if they don't, competitors will outperform them. The most successful companies are characterized by anticipating changes, and even promoting them, to be leaders in the market, forcing competitors to adapt to changes. Making an organizational change can be onerous, but if it is carried out correctly, its benefits will be greater, which will make companies more efficient, reduce costs, and make the organization more competitive.

The results of this study work allow us to conclude that the 2 hypotheses are accepted:

H1: Electronic Businesses contribute to the implementation of an organizational change process in small and medium-sized businesses located in the Guadalajara Metropolitan Area.

H2: The commercial opening, favors the organizational change through the electronic businesses in small and medium-sized businesses located in the Guadalajara Metropolitan Area.

In this research related to the influence of electronic business on an organizational change process, it was found that electronic business needs management efficiency, adding the change in the direction of the new logic of the era of the digital economy.

An unpredictable environment implies that companies adapt and move forward with changes, which will help them to make the organizational change.

They were found to be factors that benefit organizational change from electronic business: technological innovation was essential for the company to decide to make the change, commercial openness, anticipate the future and its changes, the information, and analysis of the change process are documented, and the learning organizations; were important factors in the implementation of the culture change.

Electronic businesses show the degree of technological progress and contribute to the process of commercial opening of the world and for companies, this is a great help in producing organizational change.



Research shows that commercial openness in the world is an increasingly present factor and that it contributes to the removal of trade barriers and to greater business opportunities throughout the world, which is facilitated by the expansion that the Internet and consequently electronic business had.

This phenomenon influences all kinds of companies to effect organizational change since commercial openness requires business firms to compete with organizations from other countries.

National companies will become more competitive as they break into world markets and take advantage of Mexico's trade agreements with other countries. This reflects the commercial opening of the markets at the international level.

At the same time, electronic business is an instrument of great relevance, with which corporations can have greater development in international markets, providing a better service, being more efficient in their systems and processes and to achieve greater competitiveness.

There is no way to guess what will happen in the future, but it is possible to prepare for what the future brings us. Correct preparation of the companies will allow them to face those challenges that the future holds. Every organization must be able to adapt to changes. Making an organizational change is a way of subsisting that companies adapt to stay in the markets.

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