

US Global Competitiveness and Leadership

**Radical Innovation and Marketing Life
Cycles.**

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I. Introduction

Radical innovations such as the Industrial revolutions of the 18th and 20th centuries respectively in UK and USA, the Digital Revolution of the 1950s in the USA, the Production revolution of the 1980s featured by the Tertiarization and the increased importance of the vertical and horizontal chain and trade, the Green revolution of the 2000s featured by the emergence of the Green preference and consumer and the current advent of the Internet of Everything (IoE) featured by the emergence of hyper connectivity world economy enhance rapid and significant **structural and behavioral change**. For example they've favored the emergence, adoption and extension of our Western Family-based, Automotive-based, City-based, Market-based, Consumer-driven, Productivity-driven and Innovation-led Economy at the global level. Further, those radical innovations could influence "**Business Strategy**" and impact the product life cycle, the technology life cycle, the market life cycle, the competencies life cycle, business and economic life cycle, economic clustering life cycle, city life cycle, economic growth and development life cycle, stage of globalization, democracy life cycle and society life cycle. Then, each given radical innovation could require **new and specific Market, Knowledge, Resources, Brand, Technologies and Efficiency seeking Strategies** in order to boost constantly and continually corporate productivity and profitability and improve its competitiveness overtime. Further, we could establish a positive correlation within "**Radical Innovation and Business Strategy life cycles**". However, among the Business Strategy, emphasis needs to be on the Marketing Strategy because it guarantees the "Sustained existence of corporate and our Market-based economy and civilization" throughout the maximization of corporate value added and the constant and continual rise and improvement of profitability, productivity and competitiveness.

Then, we could focus on the positive correlation within "**Radical Innovation and Marketing Life Cycles**". For example, **US Industrial Revolution** of the beginning of the 20th century featured by the **Fordism** has favored the emergence of the **Mass Consumption Society featured by depersonalization, mass production and mass consumption**. In fact, according to Carson (1967) and Mallen (1975), Firms had access to **mass production technology**, better transportation and communication facilities, greater financial resources, and more sophisticated human resources management. Furthermore, according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), after the shortages of the World II, mass production coupled with mass distribution and communication, created a "**Mass Consumption Society**", and **the focus on of Marketing activities was on promoting, pricing and the distributing products for mass market**.

As a result, this structural change has favored the emergence of the **Product-oriented Marketing Mix in the 50s**. According to **Sloan (196)**, **the emphasis of this** traditional 4Ps Marketing Mix was **on products rather than on Market**. Further, corporates **prioritized** the Centralized Strategy featured by the Homogenization and standardization strategy. By doing so, the emergence of **Product-oriented Marketing Mix** has also supported the emergence of "**Mass Marketing**".

However, as more firms entered the markets, they started to focus on the **Markets** rather than **Products**. In fact, with competitive pressure, Marketers started defining smaller and smaller segments, including niche strategy (Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma, 2000) in order to boost the profitability, productivity and competitiveness. As a result, this “Competitive Pressure” has accelerated the shift away from the “Mass-Marketing (Product-oriented Marketing Mix) to **Segmented Marketing**.

The earliest references to segmentation were from Smith (1956), who suggested a rational and more precise adjustment of products and Marketing efforts to consumer or user requirements through segmentation (Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma, 2000). This effort of segmentation has been reinforced by **US Digital Revolution** of the 50s that has accelerated the **Personalization of the production, distribution and consumption processes**. By doing so, the **Digital Revolution has favored the emergence of E-Consumer-oriented Marketing Mix** (from 1950 to 2000) that has accelerated the adoption of the **7Ps framework (Product-Price-Place-Promotion-Personalization-Privacy-Payment)** and prioritized the **external market orientation that puts emphasis on “Consumer” as king in Marketing**. Furthermore, **Digital Revolution** has increased the importance of the “Process activities” and has accelerated the spatial dispersion at the global level. By doing so, it has enhanced the “**Production Revolution**” featured by the and the outsourcing and offshoring of the downstream and middle stream activities in the global low-cost and outsourcing centers and increased importance of the Vertical and Horizontal chain and trade. Then, corporates have prioritized decentralized, Niche and Differentiation strategy and adopted the “**Person-oriented type of Coordination**” in order to accelerate the slicing up of their value chain at the global level and improve their global Market, Knowledge, Resources, Brand, Technologies and Efficiency seeking Strategies. Further, US productive structure has shifted towards Tertiariation featured by the predominance of the “Service-oriented and Knowledge-based economy”. Moreover, Tertiariation, Personalization, Digital and Production Revolutions have favored the emergence of the “**City-centric and Network-centric global economy**” due to the rapid urbanization and industrialization of the developing countries and the transformation of the Downstream and Middle stream Small and Medium Size Cities of the North into Upstream and Large-size Cities. Cities have become drivers of economic growth, creativity, entrepreneurship and competitiveness. Further, consumers, employees, corporates and nations have increased the importance for the “Preference for City” due to the impact of the “Agglomeration economies” on innovative and creative capacity, economic clustering, and economic growth and development.

By doing so, the **City-centric and Network-centric global economy**” has favored the emergence of “**City-centered Marketing Mix**”. In turn, Tertiariation, Personalization, Digital and Production Revolutions and the **City-centric and Network-centric global economy** have favored the emergence of the **Market Diversity** that includes Spatial Diversity, Life Style Diversity, Demographic Diversity, Ethnic Diversity, Income Diversity, Entrepreneurial Diversity and Age Diversity. Further, the emergence of Market Diversity has increased the importance of the **Marketing approach of Cultural Diplomacy** that includes the need of taking into account **the needs, the wants, the resources and the cultural**

backgrounds of customers, employees and city in order to **differentiate and personalize offerings**. Moreover, the Market Diversity, Tertiarization, Personalization, Digital and Production Revolutions have supported the “**Green Revolution**” and favored the emergence of the **Environmentally-oriented Marketing Mix**. In fact, the personalization of the production, distribution and consumption processes has favored the emergence of Green Preference, Green customers and Green corporates and increased the demand of Green products and services as the environmental issues such as non-pollution (avoidance of air, water and noise pollution), effective waste and wastewater management, recyclability, the build of city with natural disaster resilience and access to clean energy, water, foods, education, jobs, housing and life become of importance to customers. Furthermore, the increased importance of creative people with preference for soft factors such as cultural and biological diversity on the one hand and the personalization of the production, distribution and consumption processes of customers of the low and middle income countries who consider nature (biodiversity) as sacred on the second hand have accelerated the advent of the **Green Revolution (1990 and 2000)**. As a result, corporates have tended to prioritize **the Lean and Green Management** and adopt the **Environmentally-oriented Marketing Mix** on the one hand and shifted away from the maximization of their profit that prioritizes the short-term strategy and policy and put emphasis on the creation of value for the stakeholder to the Maximization of corporate value added that prioritizes the long-term strategy and policy and put emphasis on **the simultaneous value creation for customers, employees, stakeholders and environment** on the second hand. By doing so, Green Revolution has favored the emergence of the Zero Carbon, Zero Waste, Zero Energy cost, Automated, Networked and Flexible corporates and increased the demand of “Flexible, Agile, Adaptable, Affordable, Mobile, Creative, Competent and Highly-skilled” workforce that has become effective co-creators, co-producers and co-owners of corporate local and global Marketing strategy. Then, beyond the Marketing staff, the Marketing strategy has included all the employees of the corporate because as stable and loyal customers, “Highly-skilled” workforce could capture and make a real-time analysis of customers’ needs. As a result, the Zero Carbon, Zero Waste, Zero Energy cost, Automated, Networked and Flexible corporates and increased the demand of “Flexible, Agile, Adaptable, Affordable, Mobile, Creative, Competent and Highly-skilled” workforce on the one hand and the adoption the “**Person-oriented type of Coordination**” and Line, Lean and Green Management on the second hand has favored the emergence of the “**Employee-oriented Marketing Mix**”.

So to speak, Radical innovations such as the Industrial revolutions of the 18th and 20th centuries respectively in UK and USA, the Digital Revolution of the 1950s in the USA, the Production revolution of the 1980s and the Green revolution have accelerated the shift away from **Mass marketing (Product-oriented Marketing Mix) to the Segmented Marketing to the E-Marketing Mix (Consumer-oriented Marketing Mix) to the City-Oriented Marketing Mix to the Employee-Oriented Marketing Mix-Environmentally-oriented Marketing Mix**.

However, the current **global race to clean** and the **advent of IoE featured by the emergence of** fast-moving, fast-changing, fast-growing, price-sensitive, hyper complexity,

hyper volatility, hyper connectivity, hyper complexity and hyper competitive World economy could combine all those **Marketing Mix** and favor the emergence of the **Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix**. It could become the cornerstone of the emergence Zero Carbon, Zero Waste, Zero Energy cost, Automated, Flexible and Networked corporate on the one hand and the favor the emergence of the 5 Zero (Zero Carbon, Zero Waste, Zero Injustice, Zero Insecurity and Zero Energy cost Housing, Building and Infrastructure) Cities with natural disasters and risks aversion on the second hand. Further, by adopting “**Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix**”, Corporates and City could **balance internal and external market orientation** and guarantee **the sustained existence of customers, employees, stakeholder, cities and environment**. In fact, according to Ian N lings (1999), a company orientation which accommodates **both internal and external aspects** on an equal footing will be more effective in formulating strategic responses to market intelligence than company orientation which has a predominately external focus particularly in the context of Green Revolution where Green consumers (external orientation) consider access to clean jobs (internal orientation) and green brands (green products and services) as cornerstone of well-beings. Further, according to Hooley et al.(1990) and Tuominen and Möller (1996), balancing internal and external market orientations could provide a longer term temporal focus incorporating current needs and anticipating future market development. Moreover, Slater and Narver (1995) also propose that market driven organizations are faster and more effective in responding to opportunities and threats, a view supported by Kohli and Jaworski (1993).

This article will deepen the analysis of the positive correlation within the Radical Innovations and Marketing Life Cycles on the one hand and focus on the **Clean Product-Consumer-Employee-City-oriented Marketing Mix** as “**Sustainable Marketing Mix**” that provides a **balancing internal and external market orientation** and **guarantees the sustained existence of customers, employees, stakeholder, cities and environment on the second hand**.

II. From the Marketing Mix to the E-Marketing Mix.

According to the American Marketing Association (AMA), Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that **satisfy individual and organizational objectives**. This approach seems to prioritize the market external orientation where customer is King in Marketing. Tuominen and Möller (1996), Foss (1997), Hooley et al (1990) and Möller and Antilla (1989) found that this definition and approach have focused on the development and maintenance of an **external orientation and sensitivity in the organization**.

However, the objectives of Marketing vary with the radical innovations that enhance structural and behavioral change. Then the concept of Marketing Mix needs to be embedded into evolutionary, gradual and procedural approaches in order to balance the internal and external market orientation. This **Marketing life cycle** includes an “Emerging stage of Marketing”, a “Growth stage of Marketing” and a “Maturity stage of Marketing”

2.1. The Emerging Stage of Marketing and the Traditional Marketing Mix.

The concept of Marketing is recent. According to Gandolfo (2009), the concept of Marketing Mix has been used for the first time by Neil Borden (1953) in the 50s. Furthermore, he found that it was created for a “**Manufacturer context**” mainly featured by the predominance of an “**Industry-based economy and cities**”. In fact, **US Industrial Revolution** of the beginning of the 20th century featured by the **Fordism** has favored the emergence of the **Mass Consumption Society featured by depersonalization, mass production, mass communication and mass consumption**. Then, Firms had access to **mass production technology**, better transportation and communication facilities, greater financial resources, and more sophisticated human resources management (Carson, 1967; Mallen, 1975). Furthermore, according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), after the shortages of the World II, mass production coupled with mass distribution and communication, created a “**Mass Consumption Society**”, and **the focus on of Marketing activities was on promoting, pricing and the distributing products for mass market**.

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Then, McCarthy establishes the correlation within the 4Ps of Marketing Mix and the 12 policies of Borden (1964) where every given **P** implies **specific policies** (cf. Table 1). For example for the Product, we’ve Product Planning, Branding, package and Serving Strategies.

During this period, corporate prioritized the centralized strategy that includes homogenization and standardization.

Table 1: McCarthy's 4Ps and the 12 policies of Borden (1964)	
<p>Product</p> <ol style="list-style-type: none"> 1. Product Planning 2. Branding 3. Package 4. Serving 	<p>Place</p> <ol style="list-style-type: none"> 5. Channels of Distribution 6. Display 7. Physical Handling 8. Fact Finding and Analytics
<p>Price</p> <ol style="list-style-type: none"> 9. Pricing. 	<p>Promotion</p> <ol style="list-style-type: none"> 10. Personal Selling 11. Advertising 12. Promotions
Source: Jerome McCarthy, 1964	

The advent of “Marketing theory” in the 50s has accelerated the integration of concept of “Place” (Space) in economy. In fact, according to the “Traditional International Trade Theories”, countries were considered as “dimension less”. By doing so, they’ve ignore the contribution of Place, People, Proximity, Network and Local Hospitality Industry in economic growth and competitiveness. Further, they’ve ignore the impact of the increasing return to scale and the Monopolistic structure of the market on the profitability of firms on the one hand and the spatial distribution of economic activities on the second hand. However, during the 60s, 70s and 80s, some researchers such as Helpmann and Krugman have introduced the “Place” in economic analysis.

By doing so, they’ve taken into account the “competitive pressure” and put emphasis on the need of differentiating offerings in order to improve competitiveness. For example according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), as more firms entered the markets, they started to focus on the **Markets** rather than Products. Further, they found that with competitive pressure, Marketers started defining smaller and smaller segments, including niche strategy. Then, “Competitive pressure” has accelerated the shift away from the “Mass-Marketing (Product-oriented Marketing Mix) to **Segmented Marketing**. The earliest references to segmentation were from Smith (1956), who suggested a rational and more precise adjustment of products and Marketing efforts to consumer or user requirements through segmentation (Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma ,2000). This effort of segmentation has been reinforced by **US Digital Revolution** of the 50s. This radical innovation has accelerated the shift away from Depersonalization to the **Personalization of the production, distribution and consumption processes and** favored the emergence of the “**Growth Stage of Marketing**.”

2.2. Growth Stage of Marketing, Personalization and the E-Marketing Mix.

The “Digital Revolution” of the 50s has accelerated the emergence of “**Growth Stage**” of **Marketing** featured by the adoption of the **Consumer-centered Marketing (E-Marketing Mix)** that integrates new elements into the “Traditional Marketing Mix”. In fact, according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), **internet** provides customized information and complete transactions at fraction of the cost of other media. Second, internet has certain characteristics that aid **customer-centric marketing**. Third, internet has the capability of addressing individual customers and being responsive (Deighton, 1997). Fourth, internet has the ability to store vast amount of information, be interactive and complete transaction (Peterson, Balasubramanian, and Bloomergerg, 1997). Fifth, **internet allows customers to seek unique solutions to their specific needs**. Sixth, Production technologies such as Computer-aided design/Computer-aided manufacturing (CAD-CAM) and databases are using to create better and more customized products. Seventh, scanners and Electronic Data Interchange (EDI) combined with better forecasting technologies allows faster replenishment cycles with fewer stock outs.

As a result, the Digital Revolution has increased the ability of customer to become co-owner, co-producer and co-creator of corporate’s brand and accelerated the **shift away from the “Product-centered Marketing Mix to the Customer-Centered Marketing Mix**. By doing so, customers become more loyal despite their preference for variety and the dramatic reduction of product life cycle. Further, corporates have prioritized their external market orientation and niche and differentiation strategy in order to personalize their offerings and satisfy the needs and wants of customers. In fact, in his ‘Marketing Myopa’ Levitt (1960) argued against the product centered view of the firm and for the Marketing view of the firm, suggesting that businesses must be viewed as “**Customer Satisfying Processes**”. Moreover, Digital Revolution has accelerated the Tertiariation of US economy featured by the predominance of the “Service-oriented and Knowledge-based economy” while the advent of the E-Marketing Mix has increased the importance of the **Internet-related activities** and accelerated the shift away **from the Depersonalization to the Personalization**.

2.2.1. The Tertiariation of US Economy.

According to the “**Society Life Cycle**”, productive structure (Society) shifts away from predominance of the “Primary sector” to the predominance of the “Secondary sector” to the **predominance of the “Tertiary sector” (Tertiariation)** to the predominance of the “Quaternary sector” to the predominance of the “Quinary sector”. For example, Digital Revolution of the 50s featured by the removal of trade, cultural, political and spatial barriers mainly due to the end of the World II and the productivity gains in the manufacturing sector have accelerated the shift of US productive structure from the predominance of the “Secondary sector” to the predominance of the “Tertiary sector” from the 60s until now. In fact, according to the BEA (2013), the service sector represents more than 70% of the US GDP (cf. Table 2 and 3). Further, according to US Bureau of Census (1997), while manufacturing firms increased by 60,000 between 1992 and 1997, service firms increased by 272,596. Similarly, service industries created 6.8 million new jobs when compared to

manufacturing, which created 1.5 million jobs. Furthermore, according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), manufacturing and operation have become substantially more efficient and effective throughout six sigma: zero-defect processes, automation, and the use of just-in-time approaches, product redesign for assembly and manufacture and flexible manufacturing systems. Moreover, they found that purchases of luxurious goods and services (upstream goods and services) are growing at about 4 times the rate of overall spending.

As a result, US MNCs have outsourced and offshored the downstream and middle stream activities into the “Global Low-cost and Outsourcing Centers” and kept the “Upstream activities” such as Professional and Infrastructure services activities at home (cf. Table 4). By doing so, Internet has boosted the global competitiveness and leadership of MNCs and favored the emergence of the “**Spatial Diversity**” throughout the emergence of “Down and Middle stream Countries” in the developing countries. In fact, McKinsey (2011) found that across a range of industries, large businesses have created significant value from dynamic diversified supply chains, global talent sourcing, and analysis of large datasets. Further, they’ve accelerated the slicing of our MNCs value chain at the global level. According to US Bureau of the census (1992), while small business with less than 50 employees predominantly operate from a single location, large businesses with more than 500 employees operate out of an average of 54 locations each. Moreover, this increased importance of vertical and horizontal chain and trade has created high jobs in the upstream economies while exporting low and middle jobs in the low-cost countries. By doing so, it has increased the unemployment rate of the low-skilled labor force and middle class in the High-income countries while creating more jobs for the creative people. For example a detailed analysis of the French economy showed that while the Internet is reported to have destroyed 500,000 jobs over the 15 past years, it created 1.2 million new ones, a net addition of 2.4 jobs of every one destroyed. This conclusion is supported by McKinsey’s global SME survey, which found 2.6 jobs were created for every one destroyed. Most of those jobs have been created in Internet-related activities.

2.2.2. Digital Revolution and the growing importance of the Internet-related activities.

The Digital Revolution is offering high profit, growth, investment, income, productivity and specialization gains opportunity and is increasing the importance of the “Internet-related activities”.

At the **Macro level**, according to McKinsey (2011), the Internet’s total contribution to global GDP in 2009 was bigger than the GDP of Spain or Canada, and it’s growing faster than the GDP of Brazil. They also found that Internet accounts for, on average, 3.4% of GDP across the large economies that make up 70% of global GDP. Further, if Internet consumption and expenditures were a sector, its weight in GDP would be bigger than the energy or agriculture industry. Moreover, McKinsey (2011) found that in the advanced economies, the Internet accounted for 10% of GDP growth over the past 15 years and its influence is growing. Over the past 5 years, the Internet’s contribution to GDP growth in these countries doubled to 21%. If we include the large, emerging economies of China, India and Brazil, the

Internet contributed 7% of growth over the past 15 years and 11% over the past 5. In countries such as Turkey, Malaysia and Mexico, where both Internet usage and GDP per capita fall within the medium range on the global scale, the Internet has also contributed substantially to economic growth, though to lesser degree than in mature economies. Research currently under way suggests the Internet drove roughly half as much GDP growth in these countries still a substantial amount with the potential to increase significantly.

Some other academic research such the one does by the Center for Research in Electronic Commerce (CREC) at the University of Texas, which found that the **Internet Economy** revenue exceeded \$ 500 billion in 1999. By the end of 2000, CREC found that it reached \$ 850 billion. Furthermore, they found that Internet Economy directly supported about 2.75 million jobs, more than the number supported by the insurance or communications or public utilities industries, and more than twice the number supported by the airline or legal or real estate industries. Overall, CREC maintains that the Internet Economy grew at a rate **15 times** that of the US economy as a whole. Moreover, according to Hamilton Consultants (2009), BCG (2010 and 2011), Deloitte (2011) and McKinsey (2011), **Internet-related activities** represent between 0.8% and 7% of total GDP for different developed economies (cf. Table 5). For example, according to Hamilton Consultants (2009), the contribution of the Internet to the total US GDP in 2008 was 2% (cf. Table 5). Further, according to OECD (2013), the Internet-related activities of the information sector add up to estimated revenue of about USD 165 billion in 2011 (up 12% from the previous year) which represents 14.2% of total revenues in the information sector (cf. Table 6). Moreover, in 2011, up to 7.2% of US GDP was generated thanks to the Internet (Koutroumpis, 2009).

By doing so, this contribution of Internet to local and global wealth provides the evidence of the positive correlation within:

- Innovation and business and economic life cycle
- Innovation and economic growth and development life cycles.
- Innovation and society life cycles.

At the **Micro level**, McKinsey (2011) found that an increase in Internet maturity similar to the one experienced advanced countries over the past 15 years correlates with an increase in real per capita GDP of \$ 500 on average during this period. It took 50 years for the Industrial Revolution of the 19th century to achieve the same results.

Then, the Digital revolution has reduced dramatically the society life cycle that supports the “**Spatial Diversity**” throughout the rapid increase of the per capita GDP. Further, Internet is supporting the “**Business Diversity**” throughout the internationalization of the SMEs and improvement their global competitiveness. In fact, in a Survey of more than 4,800 SMEs in the 12 countries, McKinsey found that SMEs that utilize web-technologies grew more than twice as fast as those with minimal web presence. Further, they found that web-savvy SMEs brought in more than twice as much revenue through exports as a percentage of total sales than those that used the Internet sparingly. These web-knowledgeable enterprises also created

more than twice as many jobs as companies that are not heavy Internet users. Furthermore, Internet improves the global competitiveness of corporates. For example, some recent studies found that Internet reduces need to have local physical presence in many downstream and support activities, allows virtual networks that concentrate and pool expertise and resource from separate locations, provides instant global reach and allows companies to be both global and local (cf. Table 7).

By doing so, Internet has favored the emergence of the “so called micro-multinationals, some of which are “**Born global**” and accelerated the slicing up of corporates’ value chain at the global level. Furthermore, Internet has increased the importance of “**e-business**”. In fact, according to Raphael Amit and Christoph Zott (2001), as we enter the 21st century, business conducted over the “Internet” (which we refer to as e-business), with its dynamic, rapidly growing, and highly competitive characteristics, promises **new avenues for the creation of wealth**. Furthermore, according to Forrester Research, in 1999, goods sold over the internet by US firms were estimated to be \$ 109 billion and by the end of 2000 reached \$ 251 billion. Moreover, Forrester Research Report (2000) found that by 2002, it is likely that over 93% of US firms has some fraction of their business trade conducted over the Internet. As a result, applying the shares of e-commerce in revenues of relevant industries and aggregating the results yields the estimated value added generated by e-commerce in certain sectors of the US economy as 3.2% (according to the narrow scope) and up to 13.8% (broad scope) of total business sector value added in 2011 (cf. Table 8) (OECD,2013).

At the global level, over the period of 1999 to 2001, Europe bridged the e-business gap also with the US by experiencing triple digit growth in this area. In fact, by the end of 2000, European firms’ e-retail revenues were estimated to be worth \$ 8.5 billion, increasing to an estimated \$ 19.2 billion by 2001, as compared to North America’s figure of \$ 40.5 billion which increased to \$ 67.6 billion (for 2001).

This digital ecosystem is supporting the increased importance of the E-Marketing Mix and offering high profitability, productivity and well-being gains opportunities.

2.2.3. Internet-related activities and Productivity, Efficiency and Well-being gains opportunities.

The adoption of ICT by consumers, corporates and governments is boosting productivity and profitability on the one hand and improving the innovative capacity on the second hand. In fact, according to Arvantis and Loukis (2009), Artrostic et al. (2002) and Gil Christ et al. (2001), more timely and widespread transfers of information enable better decision making and reduce labor costs. Furthermore, scholars interested in transaction costs consider communication technologies as **lowering the fixed costs of acquiring information and the variable costs of participating in markets** (Norton, 1992; Leff, 1994), this initiating a shift towards **efficient market-based solutions**. Moreover, according to Brynjolfsson and Sanders (2010), lower communication and replication costs also help businesses innovate by offering new products. For example, Forman and Van Zeebroeck (2010), Polder et al. (2009) and Bertschek et al. (2001) found that **the use of Internet positively impacts the firms' innovation activity**. OECD (2013), Varian et al. (2002), Polder et al. (2009), and Grimes and Ren (2009), Majumdar et al. (2009) and Bertschek et al. (2011) also found that **the use of Internet leads to more intensive information flows, creates better and faster matching processes and consequently results in a higher rate of productivity**. For example, according to OECD (2013), **there's broad evidence that over the last two decades an increase of ICT by 10% translated into higher productivity growth of 0.5% to 0.6%**. Further, according to Varian et al. (2002), the use of Internet improves saving and provides higher profits. For example, Firms in US, UK, France and Germany reported realizing a cumulative cost savings of USD 163.5 billion with the majority of saving occurring since 1998.

As a result, the increased importance of Internet-related activities has improved competitiveness that is having a positive impact on consumer's well-being. In fact, Morton (2006), Dutz et al. (2009), Greenstein and McDevitt (2011 and 2012) found a positive impact of Internet on consumer surplus. For example, McKinsey (2012) found that Internet has fundamentally empowered the consumer, allowing shoppers to compare prices, find instant sales, and locate specific makes of automobiles or attractive rental properties without the use of brokers and dealers. Further, they found that Internet saves the consumer time, boosts price transparency, and gives customers access to hard-to-find products. Moreover, Academic research demonstrates that the consumers visit price comparison websites, the lower prices fall and the greater the difference between the average and minimum prices for a particular good. They also found that preliminary research shows online prices are, on average, 10% lower than their offline counterparts as a result of the price transparency that search tools offer. By doing so, the economic surplus captured by consumers from web-services alone ranges from \$ 18 a month per user in Germany to \$ 28 a month in the UK while the consumer surplus generated by the Internet in 2009 ranged from \$ 10 billion in France to \$ 64 billion in the US (cf. Table 9). Moreover, Brynjolfsson et al. (2003) also examine the excess-surplus-consumers derive from increased product variety of a particular market from the Internet and World Wide Web; Amazon.com's obscure book titles, which have an Amazon sales rank greater than 100.000. They estimate that in the year 2000, consumer surplus from the

introduction of obscure books also was between USD \$ 731 million and USD \$ 1.03 billion. Furthermore, Shah et al. (2001) and Gibson and McAllister (2009) found that online social networking websites such as Facebook and Myspace tend to contribute to the social capital formation that in turn can raise individual perceptions of well-being.

Then, the increased the importance of the Internet-related activities is boosting productivity and profitability on the one hand and improving the innovative capacity of corporates and consumer's well-being on the second hand.

2.2.4. Digital Revolution and E-Marketing Mix

The shift away from the Mass Marketing to the Customer-centric Marketing is boosting "Marketing Productivity" due to the ICTs by customers and corporates which is reducing the customer transaction costs. In fact, according to Jagdish N. Sheth, Rajenda S. Sisodia and Arun Sharma (2000), in the "**Agriculture age**", most costs were able **variable**-seed, water, fertilizer, labor, storage and transportation. The only fixed asset was land, which was usually inherited. In **the Industrial age**, the total cost of doing business included sizable fixed and variable components. This gave rise to the economics of scale and scope; **firms sought to spread their fixed costs over a large volume**. Average costs declined slowly with volume, prevailing market prices tended to closely track production costs. Then, corporates tended to focus on the "**Mass Marketing**" featured by the adoption of the mass technologies, mass production, mass consumption, depersonalization and homogenization and standardization strategy in order to boost their productivity and profitability. However, the current "**Digital and Personalization age**" become the "**Era of extensive customer transactions**" where corporate focuses on the "**Customer-centric Marketing**". The cost of conducting transactions increases initially. In response, firms invest in technology such as digital technologies and space in order to reduce their **transactional costs**.

As a result, Ball, Coelho and Vilares (2006) found that we may someday even come to say that the **era of mass-produced in the late 19th and entire 20 centuries** was all an aberration in "Marketing History". Further, they found that the vast increases in computing power, manufacturing robotics, and the rise of the internet over recent decades have given marketers the power to **customize offerings** to ever more demanding customers, in ways they could not before. Then, according to Chaffey et al. (2000), the internet calls for a change of the traditional marketing mix and spot eight critical issues to be considered in marketing planning at the strategic level: audience, integration, marketing support, brand migration, strategic partnership, organization structure and budget. Furthermore, the **Web Marketing Mix Model** of Constantinides (2002a) extends the mix to strategic and business organization levels and suggests a **4S model** including the following elements:

- **Scope**, of strategic relevant includes: strategic objectives, market analysis and potential, stage of e-commerce maturity, strategic role of e-commerce for the organization;
- **Site**, has operational value and involves interface issues;
- **Synergy**, has organizational significance including the integration among bricks and clicks aspects of the company's business model;

- **System**, concerns the management of the web platform, the data warehouse and the security systems.

The adoption of the Web Marketing Mix is based upon on an evolutionary and gradual approach. In fact, after the SWOT analysis of the 4Ps Marketing Mix and Depersonalization, Web Marketing Mix has improved the strength of the Traditional Marketing Mix and has fixed the weakness. In fact, according to Moller (2006), Popovic (2006) and Constantinides (2002 a, b), the main argument against the 4Ps is that the model is **internally oriented (Product-oriented Marketing Mix Model)**; this limitation leads to **the lack of corporate orientation** to the relationship with customers. Furthermore, according to Borden (1964), the validity or the exclusion of the traditional mix in the digital context is a matter of if and how it's possible and convenient to extend the number of elements it includes or to dismiss it and create a new one.

As a result, **New Marketing thinking has emerged in the 80s and put emphasis on the 7Ps framework (Product-Price-Place-Promotion-Personalization-Privacy-Payment)** in order to shift away from the “Internally oriented Marketing Model to the “Externally oriented Marketing Model” featured by the emergence of the “Consumer-oriented Marketing Model”. In 1981 Booms and Bitner rephrased the merger between services production and service marketing found in the literature at that time in a 7Ps framework. According to Ian N Lings (1999), this framework, nearly summarizes the shifts occurring in marketing thinking at that time. First the expanded marketing management to subjects traditionally considered to be in the remit of other departments (in particular process and people). Secondly it makes explicit the need for marketers to manage **internal factors, people and process**, as well as **external factors represented by the traditional marketing mix**. Azolini and Shillibar (1993), Bak et al (1994), Bhote (1991), Davis (1992), Foreman and Money (1995), George (1990), Grönroos (1985), Gummesson (1987) Harari (1991 and 1993), Harrell and Fors (1992), Piercy and Morgan (1990 and 1991), Piercy (1995), Pfeffer (1994) Bharadwaj et al (1993), Hall (1992), Andrews (1997) and Foss (1997) have put emphasis on this effective management of internal elements with external elements.

By doing so, the adoption of the Web Marketing Mix Model has boosted Marketing Productivity. This shift has mainly been driven by the Digital Revolution that has integrated new elements into the Traditional Marketing Mix. According to Pastore and Vernuccio (2004), those new digital elements include **Content, Connectivity, Community** (social media) and **Interface: Contextualization of the 4Ps in the 3Cs + I**. Furthermore, Prandeli and Verona (2006) propose a 3 Cs model, where each C contains some key elements: Content (Web site and platform), Community (Interaction platform and relational capacity), and Commerce (including the 4 Ps: Product, Price, Place and Promotion). Moreover, according to Kalyanam and Intyre (2002, p.496), E-Marketing Mix includes basic elements such as **4Ps**, Overlapping such as **P²** (Personalization and Privacy), **C²**(Customer service and Community) and **S³**(Site, Security and Sales and Promotions): **4Ps + P² + C² + S³ Model**.

So to speak, the Marketing Productivity will tend to vary with the “Digital Technology Life Cycle”. For example, the current advent of IoE-related technologies and the increased

importance of the “**Geolocalization and Personal Location Services**” could have an impact of the $P^2 + C^2 + S^3$ and could accelerate the shift towards “**Context-aware systems**” that anticipates customer needs and proactively serve the most appropriate products or services. For example, a male shopper, looking to buy business suits for a job interview, will be informed of exact store locations selling suits that match his body size, style and budget. Behind the scene, the context-aware system tries to understand the profile and sentiments of the male shopper, and combines data from the mall to “intelligently” make recommendations to suit the shopper. Gartner (2012) has forecast that “**Context-aware technologies**” will affect US \$ 96 billion of annual consumer spending by 2015, with 15% of all payment card transactions being made on the back of contextual information.

Then, the Context-aware technologies could accelerate the shift towards Tertiariation due to the increased importance of the “Personal Location and Internet-related Services”, increase the importance of the “Consumer-centered Marketing”, boost “Marketing Productivity” and improve the Customer-to-business long-term relationship.

III. Consumer-centered Marketing and Customer-to-business relationship

The new digital elements (cf. $4Ps + P^2 + C^2 + S^3$ Model) could be considered as essential component of the E-Marketing Mix and the “**Consumer-Centered Marketing Model**” because they increased the ability of consumer to become **co-creator, co-owner and co-producer of corporate’s brand** on the one hand and improved his commitment, satisfaction and loyalty on the second hand. As a result, satisfied and loyal consumer could boost the profitability and productivity of corporate and guarantee its sustained existence. In fact, according to Claes Formell (1992), the importance of **customer loyalty** is that it is certainly associated with the company’s sustained existence and future improvements. Furthermore, according to Zhang X and V.R Prybutok (2005), customer loyalty can be described as the **customer’s commitment to a firm**, or the customer’s desire to keep a **long-term relationship with the seller**.

So to speak, **Consumer-centered Marketing could improve Customer-to-business relationship** and guarantee corporate sustained existence in this current hyper competitive World economy. Furthermore, the current “**Mobile-based Technologies and Services Revolution**” could strengthen and improve the customer’s commitment to a firm due to the emergence of the hyper-connectivity World economy and the increased importance of e-trade. In fact, according to Morgan Stanley, by 2014 Mobile Internet should surpass desktop internet usage. Furthermore, CTIA-The wireless Association reported that in 2011 over 331 million wireless subscriber connections in the US alone. Moreover, according to Bhatt and Emdad (2001), the main contribution of internet business is not the mere possibility of selling products online, rather **its capability of building relations with customers**.

The digitization of “Customer-to-business relationship” could increase the importance of Personalization and the adoption of niche and differentiation strategy. In fact, according to Morris and Ogan (1996), internet is different from other mass communication media because while it is surely a medium which can reach a numerous and dispersed audience, **it differentiates itself from the other media regards interactive and multimedia features**.

Furthermore, according to K.Riemer and C. Totz, the emergence of internet technology results in manifold opportunities of **cost-effective one-to-one relationships** with customers. It's intended to provide customer oriented information and products etc. in an individualized one-to-one manner. Moreover, the digitization of "Customer-to-business relationship" could **reinforce customer-to-business trust and confidence** on the one hand and support **Personalization and E-Marketing Mix**. In fact, Gandolfo (2009) found that the aim of online communication is not just to advertise a product, but to **build a purchase relation and create a perception of trust in the customer**. That's why; he thinks that Interaction, Multimedia and Relationship should be included as elements of the P of promotion. Furthermore, Peattie (1997) who points out how the new communicative capabilities supplied by the digital technologies are radically changing marketing in several sectors, but the marketing mix approach is to adapt to the new needs: **Product**, with the introduction of **co-design** with customers; **Price**, with higher levels of transparency; **Place**, with the creation of new ways to reach customers; and **Promotion** thanks to the new interactive capabilities. Moreover, Bhatt and Emdad (2001) see the empowerment of the 4Ps since the "**Virtual Value Chain**" is internally transforming each P by adding new dimensions: **Personalized** information in the product, **Transparency and Personalization of price**, direct delivery for Place (Just-in-time Marketing Model), improved **flexibility** for promotion O'Connor and Galvin (1997), while assuming that the traditional marketing mix paradigm needs to evolve, propose that digital technologies can be useful to improve **the mix's functionality maintaining the 4Ps** as the basic instrument for **internet Marketing**.

By doing so, the digitization of "Customer-to-business relationship" and the strong **customer-to-business trust and confidence** could increase constantly and continually the ability of consumer to become **co-creator, co-owner and co-producer of corporate's brand** on the one hand and boost e-trade, e-marketing, e-advertising and e-publishing on the second hand. In fact, the interactive and connective potential of internet leads to a new product concept: the "**Virtual Product**" (Valdani, 2000; Pastore and Vernuccio, 2004). The "**Virtual Product**" is seen as the union of "**Tangible**" and "**Intangible**" aspects, which is "**Adapted and Personalized**" according to the **variety and variability of individual's preferences by customizing** the product with the active help of customers (Von Hippel, 2005; Gandolfo, 2008b).

As a result, the new digital elements (cf. $4Ps + P^2 + C^2 + S^3$ Model) could build "**Personalized, Flexible, Adaptable**" products and services and strengthen "Transparent and Loyal Business-to-Customer relationship" that improve the well-being of customer and guarantees the sustained existence of corporate. Furthermore, they could increase constantly and continually the ability of consumer to become **co-creator, co-owner and co-producer of corporate's brand** on the one hand and boost e-trade, e-marketing, e-advertising and e-publishing on the second hand. Moreover, those new digital elements could launch a significant Marketing Revolution featured by the emergence of the "**Maturity stage of Marketing**" due to the spatial, economic, and technological managerial, social, cultural, politics and diplomatic implications of "Personalization".

IV. **Personalization, loyalty and profitability.**

Every human is unique, rare and specific. Furthermore, spiritually speaking, it's said in the Bible that God know and love us personally and individually. Biologically speaking, according to the Family-based approach, everyone is unique person in his own family since he was born. His relatives know him personally. Even the Twins are different. So to speak, Personalization could be considered as an integral component of our "Biological life cycle". Moreover, emotionally speaking, we all like to be treated as individuals and want to go where everybody knows our name and respect us. However, the concept of Personalization is recent. It has emerged with the "Growth stage of Marketing" featured by the adoption of the Consumer-centered Marketing and the emergence of the "**Cocreation Marketing**".

4.1. Personalization and Loyalty.

According to Paul Hagen (1999), Personalization is the ability to provide content and services that are tailored to individuals based on knowledge about their preference and behavior. Doug Riecken (2000) found that Personalization is about building customer loyalty by building a meaningful one-to-one relationship; by understanding the needs of each individual and helping satisfy a goal that efficiently and knowledgeably addresses each individual's need in a **given context**. Some recent findings found that Personalization is the combined use of technology and customer information to tailor electronic commerce interactions between a business and each individual customer. Using information either previously obtained or provided in **real-time** about customer and other customers, the exchange between the parties is altered to fit that customer's stated needs so that the transaction requires less time and delivers a product best suited to that customer. Jill Dyche and Addison-Wesley (2002) found that Personalization is the capacity to customize communication based on knowledge preferences and behaviors at the time of interaction. According to Martha Manting (2010), Personalization refers to using specific information about a customer to tailor the Marketing message uniquely to that individual. Then, Personalization is essential component of E-Marketing Mix and describes the procedure of collecting some data and information about a customer, which enables the firm to correctly match a service or product with the customer's desires and tastes (P.F. Nunes and A. Kambil ,2001). Martha Manting (2010) found that Personalization is also a key tactic for implementing one-to-one **Marketing strategies** that **strengthen customer loyalty and** often provide a **high return on your Marketing investment**. Further, Riecken found also that **Personalization** means to **match one object's nature with one subjects' needs**. More precisely it means to customize products, services, content, communication etc. to the needs of single customers or customer groups.

As a result, according to Dwayne Ball, Pedro S. Coelho and Manuel J. Vilares (2006), any part of the Marketing Mix can be "Personalized". Not only can the product or service be "Personalized", but so can the form of distribution, the pricing, or the promotion. Then, Personalization could go beyond the Traditional Marketing Mix requirements and require an effective contribution, commitment, engagement and "Loyalty" of customer on the one hand and require **accuracy, voluntarism, generosity and trust** on the second hand. In fact,

according to Tian et al. (2001), **many customers desire unique products and services**. Furthermore, according to Voxeo (2012), “Personal Location Services” and “Personalized service” will build loyalty and keep us happy. Moreover, Dwayne Ball, Pedro S. Coelho and Manuel J. Vilares (2006) found that “**Personalized services**” encourage the customer to believe that the firm is **benevolent** towards him or her, increasing **trust** which is an antecedent of **loyalty**. Also, Singh and Sirdeshmurk (2000) and Singh et al. (2002) argue that benevolent trust (the belief that the service provider is acting the best interests of the customer and will not take advantage of the relationship) at least in consumer markets, may be critical as well.

This **voluntarism** and openness of firm and the emergence of the digital collaborative and cooperative platform are favoring the build of an effective customer-to-corporate trust and confidence on the one hand and are becoming the driver of the “**Cocreation Marketing**” on the second hand. In fact, according to Jagdish N. Sheth, Rajendra S. Sisodia and Arun Sharma (2000), “**Cocreation Marketing**” involves both the Marketers and Customers who interact in aspects of the **design, production, and consumption** of the product or service. It enables and empowers customers to aid in **production creation** (e.g., Gateway computers), **pricing** (e.g., priceline.com), **distribution and fulfillment** (e.g., GAP store or GAP online delivered to the house), and **communication** (e-mail systems). Further, it’s increasing the importance of the “Automated Teller Machines (ATM) that reduces the cost of transactions and enhances customer loyalty by providing the service customers require at the time that they require. By doing so, “Cocreation Marketing” is increasing the ability of Customer to become **co-owner, co-producer and co-creator of corporate brand** and is **reducing the cost of doing business**. Further, it’s enhancing the loyalty of customer and is improving his satisfaction. In turn, this is boosting corporate’s profitability and improving its competitiveness.

4.2. Personalization, Differentiation and Profitability.

According to Riecken, Personalization accelerates the individualization of products and services that decreases product comparability and therefore leads to an **increased differentiation** from competitors facilitating a unique positioning within the market space. In return, loyal customers raise profitability for a company over time (Reichfeld F, 2001) because they buy more, **purchase more often**, cost less to serve, and **have higher retention rates** (Voxeo, 2012). Furthermore, according to De Madariage J. Garcia and Valor C. (2007), the important factors that help the companies to successfully survive in this challenging market today is to maintain enduring relationships with customers. Moreover, F.F. Reichheld and W.E. Sasser (1990) found that customers turn out to be more profitable as they stay any longer with a company in all these industries. Then, corporates should adopt the Consumer-centered marketing model that drives the relationship commitment and satisfaction of consumer. Because by **becoming co-creator, co-owner and co-producer of corporate brand, customers communicate more and commit to corporates**.

This commitment is considered as a proof for a good **continuing relationship** (R.M Morgan and S.D Hunt, 1994) and explains **the relationship performance** (J. Scanzoni, 1979). By doing so, this relationship commitment could become a significant factor in

successful supplier-buyer relationships (J.C Anderson and J.A Narus, 1990). Furthermore, according to M. Wetzels, K. Ruyter and M. Van Birgelen (1998) and Francis Farrelly and Pascale Quester (2003), that relationship commitment between partners in B2C relationships can also generate a great **profit** for companies over time. In turn, this relationship commitment could boost loyalty and bring more satisfaction. For example, Robert W. Palmatier, Rajiv P, Grewal Dhruv and Evans R. Kenneth (2006), found that a satisfied customer is more probable to be loyal to the same company; therefore, fulfillment of both the company and the customer's desires leads to satisfaction with the relationship (J.C Anderson and J.A Narus, 1990). Furthermore, addressing the customer in a personal manner increases the familiarity within a customer relationship. Moreover, Greenley and Foxall (1998) state that "satisfying consumers leads to demands on the company, which results in employment opportunities". As a result, "Personalization" of products or services to customer-specific requirements increases **their customer-specific net benefit**, boost corporates' profitability and competitiveness.

Empirically speaking, in 2010, Forrester Research released an in-depth study that showed very significant revenue growth could be achieved by improving the customer experience. Examples from that study include:

- Wireless carriers as a group could add up to \$ 1.7 billion in additional revenue.
- The Hotel industry could add \$ 1.2 billion.

Furthermore, according to Ball, Coelho and Vilares (2006), General Motors superseded Ford Motor as the US's largest automobile manufacturer seventy years ago, according to "Marketing lore", because Ford produced cars in one color only, and GM offered the customer more color options. They also found that Landsend.com and JC Penny.com are among the clothing retailers that allow the customer to design clothing that is a much better fit for his or her size, body characteristics and tastes than off-the-rack clothing. Moreover, according to G. Linden, B. Smith and J. York (2003), **Amazon.com personalizes** its books and music and recommends them to its customer based on their desires using previously collected data from them. Further, Amazon.com, for example, like a number of websites (Ansari et al., 2000; Ansari and Mela, 2003) more effectively promotes its merchandise through personalized recommendations for products based on collaborative filtering technology.

So to speak, companies have to plan their Marketing strategies that include an effective E-Marketing Mix Strategy, Personalization and adoption of Consumer-centered Marketing Model in order to provide more value for the customer in a way that enables them to retain the customers and increase **their loyalty**. Slater and Narver (1994) found that the mechanism by which market orientation leads to improvements in company performance is suggested to operate via increased customer satisfaction and new product success, leading to sales growth and profitability. Further, corporates are aware that "**Customer Loyalty**" has become the cornerstone of their "**Sustained Existence**" in this current context of price-sensitive, fast-moving, fast-changing, fast-growing, hyper connectivity, hyper complexity, hyper vulnerability and hyper competitive World economy. Moreover, they begin to take into

account the positive correlation within innovation, distance reduction and loyalty. In fact, according to K.Riemer and C. Totz, customer retention can be the result of technological, contract or psychological obligations (e.g brand preference caused by switching costs. Gandolfo (2009) found for example that there's no doubt that the changes in the social and academic environment, and the consequent transformation of the competitive arena, have a strong impact on the Marketing Mix. Moreover, customer loyalty that supports the "Cocreation Marketing" could boost Marketing productivity and sustain the "Market Diversity" that includes "Spatial Diversity, Life Style Diversity, Ethnic Diversity, Age Diversity, Income Diversity, and Entrepreneurship Diversity" on the one hand and increase the importance of "**Marketing approach of Cultural Diplomacy**" due to the uniqueness and specificity of each customer, corporate, city, nation and region on the second hand.

V. Personalization, Market Diversity and Marketing approach of Cultural Diplomacy.

The Personalization of production, distribution and consumption processes and the increased importance of the Vertical and Horizontal chain and trade are favoring the emergence of Market Diversity. In fact, the increased importance of the Consumer-centered Marketing, the adoption of the Niche and Differentiation Strategy and the Person-oriented Type of Coordination are requiring the need of taking into account **the needs, the wants, the resources and the cultural backgrounds** of customers and city in order to **personalize the offerings and the economic development processes**. By doing so, Personalization and the increased importance of the Vertical and Horizontal chain and trade could favor the emergence of the Market Diversity that includes Spatial Diversity, Life Style Diversity, Demographic Diversity, Ethnic Diversity, Income Diversity, Entrepreneurial Diversity and Age Diversity on the one hand and increase the importance of the Marketing approach of Cultural Diversity on the second hand.

Traditionally speaking, Cultural Diplomacy aims at removing cultural and religious barriers within nations in order to build an effective societal harmony throughout the promotion of citizen-to-citizen, city-to-city and nation-to-nation cultural diversity. However, the "Traditional approach of Cultural Diplomacy" was embedded into an "Afterward approach" because it targets the cultural output (meso and macro). Meanwhile, the emergence of the Consumer-centered Marketing, the City-centric global economy and the Citizen-centered and People-centered Development Model that have increased the power of consumer, citizen and city has accelerated the shift away from the Traditional Cultural Diplomacy to the Marketing approach of Cultural Diplomacy. It could be considered as "Forward approach" and aims at integrating the cultural preference and cultural background of consumers, citizen and city into the co-creation process (Cocreation Marketing) and the City-branding and economic development strategy in order to promote citizen-to-citizen, citizen-to-business, and citizen-to-city and city-to-city cultural diversity throughout **transaction**. In this section, I'll analyze the contribution of each component of the "Market Diversity" to the "Cultural Diplomacy".

5.1. Life Style and Age Diversity, Income Diversity and Cultural Diplomacy.

5.1.1. Life Style and Age Diversity and Cultural Diversity.

The **Life Style Diversity** includes the shift away from of the “Traditional Family” featured by the increased importance of the “**Breadwinner and Homemaker Family-based Model**” to the emergence of the “**Dual-Worker Family-based Model**” featured by the increased importance of the “**Working-women Households**”. In fact, from the Fordism featured by the Mass Marketing, Mass Consumption, Mass Production and Depersonalization until the Post-World War II, US consumer was typically part of a **Middle-Class Family with “One wage earner”** and a “**Home-maker**” with two or three children. However, the recent Digital and Production Revolution” featured by the Personalization, the increased importance of the Service-oriented and Knowledge-based economy and the “Vertical and Horizontal chain and trade have accelerated the shift away from the “Traditional Family-based Model to the “**Dual-Worker Family-based Model**”. For example, according to recent findings, the “Full-time working women” above the age of 18 have risen to more than 70% in the US. Further, according to BLS, between 1996 and 1997, the number of “Dual-worker families” rose by 352,000, while the number of traditional families-in which only the husband was employed-declined by 145,000. Moreover, about 72% of all married mothers and 75% of unmarried mothers worked full-time in 1997. Even among mothers with Children younger than 1 year old, 58% worked or were looking for work in 1997.

Then, regarded to the increased importance of the Consumer-centered Marketing and “Working-women Households”, Women have integrated their cultural preference and cultural background into co-creation process and the City-branding and local economic development strategy. As a result, the emergence of the Life Style Diversity has accelerated the shift away from the “Male Society” to the Female Society” which is supporting the **Female 21st Century**. Furthermore, the current transformation of US into Upstream economies featured by the increasing demand of Flexible, Agile, Mobile, Affordable, Adaptable, Creative, Competent and Highly-skilled labor force with high income and high marginal propensity to consume and save and the emergence of the “**Female Zero Brain Waste Society**” are increasing the number and power of “**Dual-worker families**” and “**Working-women Households**” on the one hand and strengthening the **Female 21st Century** on the second hand. Then, the 21st Cultural Diplomacy could be influenced also by the **Female 21st Century** and focus on topic such as “Gender-based equity and equality, women leisure and sports, the rise of women human capital productivity particularly the rise of women STEM and ICT competencies and skills, the rise of women employment rate and the rise of women leadership and entrepreneurial capital productivity.

By doing so, the emergence of the **Female 21st Century** and the increased importance of “Dual-worker Families” could increase “**Life expectancy**” and favor the emergence of “**Age Diversity**”. In fact, regarded to the positive correlation within GDP per capita and the increased importance of the aging population, several adult generations could tend to coexist in our High-income countries. For example, according to recent findings, **in 2000, there were 5 adult generations coexisting and co-living for the first time**: prewar (before 1914 birth

date), Silent majority (1914-1946), Baby boomers (1946-1964), Generation X (1964-1980) and Generation Y (born after 1980).

Each generation tends to integrate its preference into the cocreation process that strengthens the “**Market Diversity**”. For example, the preference for digital, green, clean, creative, cultural and biological diversity and luxurious goods and services of the Young Generations (generations X and Y) on the one hand and the preference of the older generation (prewar, silent majority and baby boomers) focus on health, wealth, safety, security and recreation on the second hand are tended to increase the importance of Urban, Tertiary, Quaternary and Quinary goods and services. However, this “Structural Change” could increase the importance of the “**Income Diversity**” and accelerate the “**Polarization of US economy**”.

5.1.2. Income Diversity and Cultural Diversity

The increased importance of “Dual-worker families” has favored the emergence of the **US Wealthy and Time Poor Households**. As a result, they’ve outsourced and offshored their households’ activities such as “**Cleaning, Cooking and Child care**” that are increasing the demand of low-skilled labor force. Furthermore, the retirement of the Baby Boomers has increased the demand of low-skilled labor force for aging care. Moreover, the transformation of US into Upstream economies featured by the outsourcing and offshoring of downstream and middle stream activities in the “**Global Low-cost and Outsourcing Centers**” and the increased importance of the Service-oriented and Knowledge-based economy could accelerate the **disappearance of the Middle class** and increase the importance of the Creative people with high economic, scientific, artistic, cultural, architectural, ecological and diplomatic creativity. For example, according to some recent findings, the total employment in the World that was created by foreign MNCs affiliates was 21.52, 25.10 and 72.63 million in 1982, 1990 and 2006 respectively. However, Germany that created an employment of 4.61 million abroad through her MNCs loss 2.33 million at home due to the MNCs type of production. This figure is 3.5 million in the U.S and 3.71 million in Japan. By doing so, the current increased importance of the Vertical and Horizontal chain and trade has increased the importance of the Middle Class in the developing countries at the expense of the one of the Developed countries. In fact, according to recent findings, by 2030, 80% of the global income will be located in the developing countries particularly into the Emerging Market Economies (EMEs). Further, most of the Western Middle Class will be located in European Southern, Eastern and Central countries.

As a result, the “**US Familial and Economic Structural Change**” could accelerate the “**Polarization of US economy**” featured by the increased importance of the Top-rich and Top-bottom on the one hand and the “**Income Diversity**” on the second hand. According to Francese (1995), in 1995, the Top 20% of US households earned the same as the middle 60%, while the bottom 20% earns only 4% of total household income. Further, the purchases of luxury goods and services are growing at about 4 times the rate of overall spending. Moreover, the polarization of US economy has been intensified recently by the recent financial crisis and pro-cyclical policies (austerity policies). In turn, the Polarization of US

economy could favor the emergence of the Political Polarization featured by the increased importance of the Top rich and Top Bottom in politics on the one hand and in the worst case scenario by the increased importance of the fair right and/or fair left due to the political emancipation of the Top bottom on the second hand.

By doing so, the **Polarization of economy and politics** could increase the need of Cultural Diplomacy in order to support social cohesion and justice. Furthermore, Top rich could integrate their preference for soft factors such as promotion of cultural and biological diversity on the one hand and preference for luxurious goods and services on the second hand into co-creation process and accelerate the demand of green, clean and cultural goods and services on the one hand and accelerate the emergence of the Green city on the second hand. By doing so, Cultural Diplomacy could also focus on Green and City Diplomacy. Moreover, it'll need to focus also on the Green, Clean and Blue economies because the current global race to clean is offering high **clean jobs** opportunities to the low-skilled labor force.

5.2. Business Diversity and Cultural Diplomacy.

The Production Revolution featured by the growing importance of the Vertical and Horizontal chain and trade has increased the growing importance of Global Value Chains and **Network trade** on the one hand and offered high profit, growth, sales, jobs and productivity gains opportunities to MNCs on the second hand. In fact, according to Athukorala and Nasir (2012), World Network trade increased from U.S \$ 988 billion (about 44% of total manufacturing exports) in 1990-91 to U.S \$ 4.5 trillion (51%) in 2009-10. Furthermore, according to BEA, from **1966 to 1999**, the value of intermediate goods shipped by U.S parent companies to their foreign affiliates for assembly or processing increased fortyfold, from **\$ 2.5 billion to \$ 102.6 billion** over this period, the share of these exports in total U.S exports of goods nearly doubled from about 8% in 1966 and 1977 to 15% in 1999. Moreover, total employment by U.S multinationals has exceeded 32 million in 2007 (Global Market Institute ,2010) while sales by U.S parent companies increased 9.4% in 2011 to \$ 10,696 billion and sales by their majority-owned foreign affiliates increased 15.8% to \$ 5,985 billion in the same period (BEA, 2013).

The share of employment attributable to majority-owned foreign affiliates has grown from 25% in 2000 to more than 31% in 2007. In 2011, the worldwide employment by U.S MNCs increased 1.5% to 34.5 million workers, with the increase primarily reflecting increases abroad. In the U.S., employment by U.S. parent companies increased 0.1% to 22.9 million workers, compared with a 1.8% increase in total private-industry employment in the U.S in the same period. Moreover, the total employment by U.S parents accounted for roughly **one fifth of U.S total employment in private industries**. Abroad, employment by majority-owned foreign affiliates of U.S MNCs increased 4.4% to 11.7% million workers. According to the Global Market Institute (2010), total **employment by foreign affiliates** has been highest among companies in manufacturing industry including chemicals, **computer and electronic products**, and transportation equipment and those in the professional, scientific and technical services industry such as computer system design.

Then, the Digital Revolution has increased the **spatial dispersion** of “**Process activities**” that have supported the emergence of the “Global Low-costs and Outsourcing Centers” and integrate the emergence of the Emerging Markets Economies into the Global Production Network. Furthermore, the increased spatial dispersion of “Process activities” has increased the importance of the MNCs. By doing so, it has provided the evidence of the positive correlation within “Innovation and business and economic life cycles”. Furthermore, the increased importance of the “US parents and Foreign-affiliates” could accelerate the shift away from could improve their market, resource, knowledge, technologies, brand and efficiency seeking strategy on the one hand and focus on their niche, differentiation and decentralized strategy on the second hand.

However, those radical innovations have also increased the importance of the SMEs throughout the emergence of the “**Born Global**”. In fact, according to US Bureau of the Census (1997), regarding size, small business dominate, and in 1996, there were 5.48 million business in the US, of which only 91,000 had more than 100 employees and 15,600 had more than 500 employees. Further, according to recent findings, SMEs represent 99% of EU and US companies-over 20 million companies in the EU and 28 million in US. Further, in EU, SMEs provide 2/3 of all private sector jobs and have tremendous capacity to create new employment. For example, 85% of net new jobs between 2002 and 2010 were created by SMEs. In the US, SMEs have provided over half of all jobs and 2/3 of all net new jobs in recent decades. Moreover, US-EU SMEs produce some 30% of goods exports from both markets.

As a result, the current “Digital Revolution” has favored the emergence of the “**Business Diversity**” featured by the increased importance of both **SMEs and MNCs**. In turn, the increased importance of SMEs and MNCs have accelerated the current adoption and extension of the **Cluster-based and Territory-based Development Model** and increased the ability of building an **effective SMEs and MNCs partnership**. Furthermore, the increased importance of Cluster-oriented initiative and programs has accelerated the shift away from **Big-Global-Rigid Strategy to Small-Local and Flexible Strategy** and favor the build of an effective **Public-Private partnership**. Moreover, regarded to their strong territoriality, SMEs could take into account the needs, the wants, the resources and the cultural background of customers in the effective manner and provide a relative large Domestic Value Added in gross export. By doing so, they could improve the customer-to-business relationship on the one hand and improve the satisfaction, commitment and loyalty of the customers on the second hand. Furthermore, they could support the local entrepreneurial culture which is the driver of the competitive Local Hospitality Industry. Then, Personalization, Business Diversity and Digital and Production Revolution, could be consider as cornerstone of the current increased importance of the “Spatial Diversity”.

5.3. Spatial Diversity and Cultural Diplomacy.

The Spatial Diversity includes “Gradual Polycentric Configuration” featured by the emergence of “New geography of Wealth, Cities, Income and Economic activities”. It’s driven by the “Digital, Production and Urban Revolutions”, the Personalization and the “Shift in Corporate Global Strategy”.

The Digital revolution has accelerated the automation and computerization of the production process in the North and accelerated the outsourcing and offshoring of the downstream and middle stream activities in the low-cost countries. For example the dispersion of the process activities has accelerated the emergence of “New Global Low-Cost and Outsourcing Centers” in Asia Pacific. **The Production Revolution** has increased the importance of the “Vertical and Horizontal chain and trade” and accelerated the slicing up of corporates value chain at the global level. By doing so, it has accelerated the integration of the **downstream and middle stream countries** into the “Global Production Network” and has favored the emergence of **the of first-tiers, second-tiers, third-tiers and fourth-tiers cities** inside countries. Furthermore, the Production Revolution has enhanced a significant shift into “Corporates’ Global Strategy” featured by the **shift away from the Centralized Strategy to the Decentralized Strategy and the adoption of the Person-oriented type of coordination** in order to improve their “Market, Resource, Knowledge, Brand and Technology” seeking strategies. For example, according to the US Bureau of Census (1992), while small businesses with less than 50 employees predominantly operate from a single location, large businesses with more than 500 employees operate out of an average of 54 locations each.

The “**Urban Revolution**” has accelerated the rapid urbanization and industrialization of the developing countries that have tended to become Downstream and Middle Stream economies on the one hand and has accelerated the transformation of the Northern cities into “Upstream economies” on the second hand. By doing so, this “Urban structural change” has favored the emergence of the current “**City-centric and network-centric global economy**” where **Place (City), People, Proximity and Network** have tended to become the key driver of economic growth and competitiveness. Further, City has tended to **differentiate and personalize themselves throughout the build of an effective City’s branding strategy and competitive hospitality industry** that include the build of “**City’s cultural identity** in order to attract and retain creative and innovative corporate and creative people.

As a result, **The Spatial Diversity** has accelerated the build of the **World as Global Village** and supported the emergence of local and global “**Demographic and Ethnic Diversity**”. Furthermore, the **Spatial, Urban, Demographic and Ethnic Diversity** has tended to increase the need of Personalization and Marketing approach of Cultural Diplomacy in order to remove of physical, trade, **cultural, religious**, spatial and **invisible** barriers and “Personalize the economic development process” of cities throughout the adoption of the Citizen-centered and People-centered Development Model and the adoption of the Cluster-based and Territory-based Development Model that reinforce the Citizen-to-Citizen and Citizen-to-Government confidence and trust.

Empirically speaking, recent studies have provided the evidence of the spatial and income diversity at the global level due to the Digital and Production revolutions. In fact, according to Inequality Watch (2012), per capita income levels in the poorest region of the World are rising faster than those of rich regions. However, the income inequalities between countries are still very high. For example, the World Bank (2012) found that the per capita income level of the rich countries has risen by 11% between 2000 and 2010 while the one of the low income countries show an average progress of 4%. Furthermore, they also found that between 2000 and 2010, the annual GDP per capita has risen by 7.9% in the North America, going from 38,877 dollars to 41,819 dollars, and by 11% in European Union, advancing from 24,826 dollars to 27,554 dollars-these entities stay the richest regions of the World. However, it's in Asia, due to the boost in India and China, where the grow is highest: South Asia shows a rise in GDP per capita of 72.4% and East Asia Pacific of 62% (cf. Table 10). Unfortunately, Sub-Saharan Africa stays the poorest region in the World even if its GDP/Capita has increased by 29% between 2000 to 2010.

Nether less, US is the only one Nation which is building a “World as Global Village” at Home due to the settlement of US population (US History), the spatio-temporal evolution of US Corporates’ value chain inside US, the integration of “Diversity” in our Constitution and the adoption of **US Federal Model**. By doing so, US tends to include all the Diversities (Life Style Diversity, Income Diversity, Ethnic Diversity, Spatial Diversity, Business Diversity and Age Diversity) and becomes the Most Powerful and Competitive Multicultural and Multiracial Nation of the World. In fact, according to Cory (1995), the US is rapidly moving toward ethnic pluralism, as some minority groups grow rapidly. For example, Hispanics were 9% of the population in 1990 and are projected to be 11.2% in the year 2000, rising to almost a quarter of the population by the year 2050 (Cory, 1995). Further, the Asian American population is growing at the rate faster than the White majority. Moreover, One third of all children in the US in 1995 were Asian, African American or Hispanic (Francese, 1995). However, the proportion of African Americans in the population is rising very slowly; it was 11.7% and 12.8% respectively in 1918 and 2000. Nevertheless, In the 90s, 29% of the workforce was some kind of minority in US. Further, by 2050, more than 50% of US population and workforce will be none white. Then, the current Market Diversity and structural change could be considered as the extension of US Specificity and Development Model at the global level which could increase the ability of US to lead the World in the coming centuries. Furthermore, US has provided the evidence of the contribution of “Cultural and religious Diplomacy” to the “Death of Distance and the Geopolitics and Macroeconomic stability. Moreover, those Market Diversity, Structural change, Personalization and increased importance of Cultural and Religious Diplomacy could play an important role US and Global Green Revolution. In fact, the personalization of the production, distribution and consumption processes of the creative people with green preference on the one hand and the personalization of the production, distribution and consumption processes of customers of the low and middle income countries who consider nature (biodiversity) as sacred on the second hand could support the US and Global Green Revolution and favor the emergence of the Environmentally-oriented Marketing Mix.

VI. Green Revolution and Environmentally-oriented Marketing Mix from 1990-2000 until now.

The Green Revolution of the 1990 and 2000 has favored the emergence Green Consumer with high Green Preference and a growing demand for Green products and services. In fact, there's a growing body of evidence that indicates that environmental issues remain at the forefront of public concerns, at least as a social and public issue (Carson 1961, Hawken et al 1999, Kaufman 1999, Ottman 1998 and Polonsky 1998). Since, Environmental issues such as non-pollution (avoidance of air, water and noise pollution), effective waste and wastewater management, recyclability, the build of city with natural disaster resilience and access to clean energy, water, foods, education, jobs, housing and life have become of importance to Green consumers.

6.1.Green Marketing and Green Preference.

According to Ottman (1998), Environmental or Green Marketing is relatively new focus in business endeavors, a strategic marketing approach that began to reach prominence in the last quarter of the 20th century. Further, according to Buchholz (1998), while several notable companies have utilized environmental marketing strategies as a linchpin to business success, the overall business of an environmental marketing focus has been somewhat sporadic. Indeed, according to Fuller (1999) and Peattie (1999), some firms may have come to regard green marketing concerns as a minor strategic focus or even as a niche approach to the market. As new 'Business philosophy', the Green preference could influence the internal and external Market orientation and favors the emergence of the Lean and Green management. In fact, Market orientation can be considered as either a set of management behaviors (Narver and Slater, 1990; Kohli and Jaworski, 1990; Jaworski and Kohli, 1992; Slater and Narver, 1994; Kohli et al, 1993), or business or a business philosophy (Webster, 1988; Hooley et al, 1990; Litchenthal and Wilson, 1992) directing behavior and action which translates the philosophy into business strategies (Tuominen and Miller, 1996).

As a result, for example, the green preference and the new priorities of the green consumers could impact the utility function of consumer. In fact, with the advent of Green Revolution, Green consumer maximizes its utility under its budget and environmental constraints. Then, customer won't have a limited rationality anymore but an unlimited rationality due to the environmental issues that are out of his control (i.e. natural disasters). Further, the current predominance of the service-oriented and knowledge-based economy that is increasing the demand of the flexible, mobile, affordable, agile, competent, adaptable, creative and highly skilled workforce with the high green preference could increase the growing importance of the "Environmentally-oriented Marketing Mix". In fact, some studies found that those with higher levels of education may tend to be more aware of current environmental issues than lesser-educated individuals, which will affect the green product evaluation process (Chan and Lau 2000). Further, the literature suggests that consumer behavior will vary based on the individual level of environmental orientation or commitment (Henriques and Sadorsky 1998, Ottman 1998, Schuwerk and Lefkoff-Hagins 1995, Straughan and Roberts 1999, Synodinos 1990). Then, corporate will need to focus on the Niche and

Decentralized strategy because highly-skilled and high-income workforce will be more willing to purchase Green goods and services. By doing so, corporates could integrate environmental issues into their strategy throughout the “Lean and Green Management” and boost their competitiveness.

6.2.Environmentally-oriented Marketing Mix and Lean and Green Management.

The advent of the Environmentally-oriented Marketing Mix is transforming the internal and external market orientation of corporate. Externally speaking, corporates will build “Brands” that satisfy the “Green Preferences” of Green Consumer while internally speaking, they’ll need to put into place an effective “Lean and Green Management” such as the adoption of “Life Cycle Analysis” tools and methodology in order to reduce waste and CO₂ emission on the one hand and minimize their consumption of raw materials and energy on the second hand. According to recent findings, the wastes that Lean processes reduce: overproduction; transportation and quality errors, for example all have associated energy consumption that will disappear as those wastes are eliminated. Further, Lean Processes can focus on the **Energy Value Chain Analysis** in order to maximize Corporate Energy efficiency (boost the productivity of energy that corporate consumed). Moreover, Lean processes will analyze and assess corporate’s **green performance**, introduce a **total cost of ownership concept** in supporting departments and build a **clean culture** that encourages people to think **creativity about CO₂**. For example, the awareness of the fact that “weakest energy mindset can lead to weakest performance”.

According to Gonce and Somers (2010), companies can often reduce overall energy consumption by 5 to 10% overtime by introducing a total cost of ownership concept in supporting departments such as purchasing and maintenance. Further, they found that, Manufacturers have four dimensions with which to tackle CO₂ emissions from their processes. First, they can reduce emissions at source by switching to non-fossil fuel energy source such as hydroelectric or nuclear power. Second, they can take steps to improve the energy efficiency of their existing processes. Third, they can select technologies, processes and materials that produce less CO₂. Fourth and finally, they can take steps to mitigate existing emissions: **by investing in re-forestation programs or buying offsets in a cap and trade system**. Moreover, according to Ottman (1998), the Environmentally-oriented Marketing Mix boosts profitability.

Empirically speaking, Ford Motor Company, for example, began purchasing electricity for its manufacturing facility in Cologne, Germany from a hydroelectric producer in Scandinavia. Three wind turbines at its diesel engine manufacturing plant in Dagenham, UK, provide enough energy to operate the factory. At a US facility in Kansas City, Missouri, Ford has committed to the purchase of carbon offsets equivalent to the entire energy consumption on the operation. Further, a NAFTA showed that going closer to the shop floor increased savings from 3% to 11% (Gonce and Somers, 2010). Moreover, there’s global commitment to the CO₂ throughout the increased importance of the Zero Energy cost building and the emergence of the Electric Vehicles. In fact, according to the Pike Research Report (2010), they’ll be 3.2 million plug-in electric vehicles on the roads by 2015. Further, Zprime Research and

Consulting (2010) found that vehicle 2 Grid capable EVs will raise grow to 1.06 million units by 2020. Moreover, Electric Vehicles could provide demand response to the time of 10,000 MW+.

By doing so, US corporates could adopt rapidly the Environmentally-oriented Marketing Mix and lead the current Green Revolution due to the positive correlation within Marketing and Society life cycles on the second hand and the increased importance of US creative people and their preference for green goods and services on the second hand. Furthermore, Environmentally-oriented Marketing Mix and the Lean and Green management could accelerate the shift away from the maximization of profit that prioritizes the short-term strategy and policy and put emphasis on the creation of value for the stakeholder to the Maximization of corporate value added that prioritizes the long-term strategy and policy and put emphasis on the simultaneous value creation for **customers**, employees, stakeholders and **environment**. Then, we could shift towards the “Maturity stage of Marketing” featured by the shift away from the Environmentally-oriented Marketing Mix to the “Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix”.

VII. **IoE and Maturity stage of Marketing: From the E-Marketing Mix to the Environmentally-oriented Marketing Mix to the City-oriented Marketing Mix to the Employee-oriented Marketing Mix to the Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix.**

According to the ICT life cycle, IoE is the next stage of the IoT. It brings together people, process, data and things to make networked connections more relevant and valuable than ever before—turning information into actions that create new capabilities, richer experiences and unprecedented economic opportunities for businesses, individuals and countries. Furthermore, Cisco (2012) predicts that \$ 14.4 trillion of value will be at stake over the next decade (2013-2022), driven by “connecting the unconnected” (people-to-people, people-to-machines, machines-to-machines, etc) via the IoE while the Internet Market size is projected to reach \$ 4.1 trillion in annual revenue for all participating vendors by 2016. Further, they show that most of this value will come from transforming **industry-specific business processes and value chains** with capacities driven by the IoE.

So to speak, IoE will boost “Marketing Productivity”, increase the importance of “Process activities” and the Global Value Chain participation. However, it’s relevant to analyze the impact of IoT first in order to understand the contribution of the IoE.

7.1. Evolutionary approach of IoT

According to the Computer Science and Information Systems Report (2013), as a result of decades research and industrial efforts in the domain of ICT, people are today equipped with fast-speed, (almost) any-time and any-place solutions that allow them to be connected with each other, and to interact with and through the rich World to Internet-enabled applications and services. Then, according to the ICT life cycle, IoT could be considered as the next stage (growth stage) of ICT development life cycle.

Historically speaking, the IoT concept was coined by a member of the Radio Frequency Identification (RFID) development community in 1999, and it has recently become more relevant to the practical World largely because of the growth of mobile devices, embedded and ubiquitous communication, an increased importance of social media and social TV, cloud computing and data analytics. According to Atzori et al. (2010), IoT can be seen as an umbrella term uniting three visions of IoT and underlying Technologies. According to the “**Things oriented vision**” of IoT that focuses on the things ‘ identity and functionality’, IoT is defined as “Things having identities and virtual personalities operating in smart spaces using intelligent interfaces to connect and communicate within social, environmental and user contexts” or “ a World-wide network of interconnected objects uniquely addressable, based on standard communication protocols” (EPoss, 2008). According to the “**Infrastructure-based vision of IoT**”, IoT is defined as “a Global Network Infrastructure, linking physical and virtual objects through the exploitation of data capture and communication capabilities. This Infrastructure includes existing and evolving Internet and Network developments. It will offer specific object-identification, sensor and connection capability as the basis for the development of independent cooperative services and applications. These will be

characterized by a high degree of autonomous data capture, event transfer, network connectivity and interoperability” (CASAGRAS Project). According to the Semantic vision of the IoT, the application of IoT “**promotes interoperability among IoT resources**, Information models, data providers and consumers, and facilitates effective data access and integration, resource discovery, semantic reasoning, and knowledge extraction” (through) efficient methods and solutions that can structure, annotate, share and make sense of the IoT data and facilitate transforming it to actionable knowledge and intelligence in different application domains”(Barnaghi et al. 2012). These three visions of IoT are based upon the advances in the fields of, for **example RFID, M2M communication, Wireless Sensor and Actuator Networks (WSAN), ubiquitous computing, and Web-of-Things (WoT)**.

Then, Technologically speaking, connecting things to the Internet can be accomplished with help of various protocols and standards, either adopted from the traditional Internet and Telecommunication fields (WIFI and Bluetooth, Ethernet, 3G and LTE, HTTP) or specially tailored to meet the constraints of the connected things (ZigBee and Z-wave, as well as IETF’s 6 LowPAN, RPL and CoAP) (Computer Science and Information Systems Report, 2013).

So to speak, the miniaturization of microprocessor and the reduction of cost of technology components have played an important role into the advent of the IoT. For example, Gartner (2011) has forecast that most technology components such as Radio, WIFI, Sensors and GPS, could see a drop in cost of 15% to 45% from 2010 to 2015 (cf. Table 11). First, the advances in the areas of chip design and architecture have allowed semiconductor industries to reduce the size, density and cost of production of transistors. Technologies such as lithography, metrology and nanotechnology are used (and explored) to dramatically increase the number of transistors to be fabricated on a single chip. For example, semiconductor manufacturing processes have also improved from the current 32 nanometer (nm) mode in 2010 to the 22 nm mode in late 2011, moving to 16 nm by 2013 and 11 nm by 2015. Second, according to recent findings, In 2000, the state of the art was 1,000 nanometers (nm) but from 2010 to 2011, the industry shifted to commercially available System-on-Chip (SoC) chip solutions that utilize 28 nm-45 nm lithography to achieve a 2-3 chip package that can integrate and entire radio transceiver complete with digital signal processing, baseband microprocessors or graphic accelerators. Third, Intel (2012), in April 2012, officially launched the World’s first commercial microprocessor-“IVY Bridge” on the 22nm wafer, using 3-D Tri-Gate Technology. This 22nm wafer is capable of fitting more than 2.9 billion transistors with 37% improvements in performance and more than 50% power reduction, compared to its predecessor. IoT-related Technologies are relatively young. However, they could offer high growth, profit, employment, investment, income, specialization and productivity gains opportunities.

7.2. The benefits of IoT-related technologies and activities.

According to Batten and Willis-SandFord (2011) and OECD (2012), the IoT field is relatively young, and still dominated by the silos of vertically integrated solutions based on incompatible technologies, with each having a relatively limited market penetration. However, the adoption of the various IoT Technologies is expected to expand rapidly in the upcoming years, and it will be reflected in the number of connected things, expected revenues, and annual growth rates (Computer Science and Information Systems Report, 2013). For example, they found that Internet-enabled Things will bring various benefits to both organizations and individuals by facilitating or simplifying environment sensing, proximity triggering, automated sensing and actuation, all of which can be utilized in various application domains, ranging from automated home applications to smart grids and high-resolution asset and product management.

7.2.1. The benefits of IoT-related technologies

According to McKinsey (2011), today, there are more than 2 billion people that are connected to the internet, and more than \$ 8 trillion exchange hands each year through e-commerce. Further, they also found that Enterprises globally stored more than 7 exabytes of new data on disk drives in 2010, while consumers stored more than 6 exabytes of new data on devices such as PCs and notebooks. Moreover, according to Cisco (2013), 2 billion phones will be sold by 2012. Almost every phone had RIFD and NFC (Near Field Communication) readers, meaning that eventually shoppers will no longer need to consult salespersons or floor readers to know the history of a product. Virtual shopping carts can be created and orders placed automatically with warehouses for goods to be delivered to their homes. Moreover, according to Cisco (2013), in 2010, the number of everyday physical objects and devices connected to the Internet was around 12.5 billion. Cisco forecasts that this figure is expected to double to 25 billion in 2015 as the number of more smart devices per person increases, and to a further 50 billion by 2020 (cf. Table 12).

The most drastic growth is assumed to take place in M2M connections, from 2 billion at the end of 2011 to 12 billion by the end of 2020. According to Frost and Sullivan, the ratio of M2M SIMs to total mobile subscriptions in Europe exceeded 10% in some countries (e.g., 15.5% in Sweden) in 2009. Further, according to GSMA (2011), cellular technologies are expected to get a 19% share (2.3 billion) of connections by 2020. Moreover, according to Gartner, already in 2011, the population of connected things comprised over 15 billion permanent and over 50 billion intermittent connections, and these numbers are forecasted to increase to over 30 billion to over 200 billion, respectively, by 2020 (Cearley, 2011). By doing so, it could also increase the **Cloud computing adoption rates** (cf. Table 13).

As a result, total revenue generated by connected devices will also grow significantly; according to some estimates, from US \$ 420 billion in 2010 to 1.69 trillion by 2020, excluding the mobile handset revenues (GSMA,2011). According to the Machina Research (2011), M2M communications alone will generate approximately 928.2 billion revenues by 2020, and many IoT vertical segments are expected to experience a double-digit growth in the upcoming years. Among the most prospective vertical application domains are consumer's

electronics, automobile and healthcare, as well as intelligent buildings and activities. Within the M2M submarket, GSMA (2011) expects the main vertical segments to be the following (cf. Table 14, 15 and 16):

- Automotive (revenue opportunity USD 202 billion)
- Healthcare (revenue opportunity USD 97 billion)
- Consumer electronics (revenue opportunity USD 445 billion)
- Utilities (revenue opportunity USD 36 billion).

Further, a study conducted by Erickson suggests that the automotive sector has so far been the largest user of M2M applications (with 25 million connections in 2010), followed by the electricity sector (14 million connections) whereas e-health is identified as a market with “interesting opportunities” (Lehto, 2010).

Then, IoT-related technologies and activities could become the key drivers of the current radical Innovation Revolution such as Electric Vehicle Revolution and US Energy Renaissance, US Manufacturing Renaissance featured by the increased importance of the Lean Production and US Healthcare Revolution featured by the increased importance of the Patient-Centered Care Model on the one hand and favor the emergence of new preference such as “**Green, Healthy, Flexible and Hyper connectivity World economy**” on the second hand.

7.2.2. The impact of the IoT-related technologies on the Patient-Centered Care Model.

According to Computer Science and Information Systems reports (2013), IoT-related healthcare applications and services include the so-called “**Telehealth and Telecare**” solutions, allowing medical services to be delivered remotely and/or over electronic media. In particular, the “m-Health (Mobile Health) services rely on using mobile terminals and networks in gathering, aggregating and communicating the information about a patient’s state. They also found that reference architecture for (mobile) health services has been introduced by GSMA (2012a). The main building blocks of the reference architecture include the mobile health connected device, the clinical device, and the mobile health platform responsible, e.g., for the conversion, aggregation and analysis of the data. In addition, the architecture includes some of the MNO elements (responsible e.g. for billing and authentication) and the hospital systems, such as Personal Health Record (PHR) and Electronic Health Record (EHR). According to GSMA (2012a), the main difference between e-Health and m-Health lies in the connectivity: while e-Health uses the existing landline communications network, m-Health uses the Mobile Telecommunication Network. Both could become the cornerstone of the Patient-Centered Care Model. For example, according to Vishwanath et al. (2012), such (mobile) health services are categorized into patient pathway solutions (wellness, prevention, diagnostics, treatment, and monitoring) and healthcare strengthening services.

Then, e-Health and m-Health and by extension PCCM could be considered as a matter of **Connectivity** (cf. Table 17). Further, their adoption and by extension the one of PCCM could require the implementation of US Broadband and Infrastructure Agenda that focuses on

the 3G, 4G and 5G because they provide cost-effective e-Health and m-Health services. According to OECD, the number of Broadband subscribers per 100 inhabitants grew from 7.2 in 2003 to 22.6 in 2008 in developed countries. Further, US government launched its Broadband agenda since 2012. By doing so, IoT-related healthcare applications and services could build a cost-effective “Patient-Centered Care Model (PCCM)” and accelerate its adoption and extension. In fact, according to the report by Sanders et al. (2010), in the Patient monitoring and diagnostics domain, the TCO of the devices is under USD 200, of which the communication module costs USD 21, i.e. approx. 12%. Overall, the monitoring solutions focusing on wellness services are likely to be closer in nature to consumer/household devices, and therefore their adoption is assumed to be sensitive to the solution costs. Furthermore, according to McKinsey (2011), if US Healthcare could use Big Data creatively and effectively to boost efficiency and quality, the potential value captured could be more than \$ **300 billion every year**, two-thirds in the form of reduced healthcare expenditures. Moreover, corporates could also need the rapid implementation of US Broadband Agenda in order to boost their competitiveness in the context of digital and personalization age.

7.2.3. The impact of IoT-related technologies on the Global Value Chain and Marketing and Energy Productivity.

7.2.3.1. Theoretical approach.

The advent of the IoT could increase the importance of process activities and accelerate the emergence of Hyper-connectivity World Economy. In fact, according to Smith et al. (2009), to become a part of IoT, the object shall have both processing and communication capability, either, embedded in itself or offered by an attached component. In turn, like ICT, IoT will also accelerate the automation and networking of the production, distribution and consumption processes on the one hand and accelerate the emergence of the New Global Low-cost and Outsourcing Centers throughout the outsourcing and offshoring of the down and middle stream activities on the second hand. Further, the advent of IoT could support the Production revolution and the adoption and extension of the Cluster-based and Territory-based Development Model throughout significant inter-enterprise collaboration and cooperation. In fact, according to Sundmaeker et al (2010), the interconnection with the physical world through the help of smart things could:

- Enhanced identification capabilities enable high-resolution asset and product management, **high-granularity life cycle management**, and more dynamic inter-enterprise collaboration.
- Sensing and processing at the edges that facilitate the distribution of the business processes towards the edges, this enabling **improved performance and scalability**.
- Simplified manual and automatic proximity triggering. The things are able to communicate their identity in a fast and robust way when in the proximity of a sensor/reader. This enables a manual or an automatic triggering of various transactions (e.g. entry records, payments). For consumers, this enables convenient self-service and hence **cost-reduction and saving of time**. For businesses,

automatically triggered record updates in bookkeeping are advantageous e.g. in production and the supply management environment; such automatic functions allow for faster and more accurate tracking of assets as well as support the firms in gathering data for process optimization.

Furthermore, according to Computer Science and Information Systems Reports (2013), a number of other applications of proximity triggering are identified, e.g. automatic door opening:

- **Automatic sensor triggering.** Based on their ability of sensing the state of their environment, the smart things are able to process the gathered information about the environment and use e.g. rule-based logic to trigger processes and/or actions. The use of smart sensors allows the decisions to be done locally and in a prompt manner, this enabling more efficient, dynamic and higher quality processes in a variety of application domains, from smoke detection to remote patient monitoring. For businesses, this brings both **higher process efficiency** and new data for further process optimization, while for the consumers the benefit lies in the enhanced **quality of goods and services**.

- **Automatic product security.** Using their unique identities, the past behavior of the things can be traced and documented in a unique log (at a website). The uniqueness of the log (and hence the thing) can be automatically verified, this making it much easier to spot (multiple) counterfeiting copies that attempt to direct to a same log.

Moreover, IoT could boost the Marketing productivity throughout the cost-effective adoption of the Consumer-Centered Marketing Model. In fact, Computer Science and Information Systems Reports (2013) found those following benefits of IoT that are attributed to the interaction between the things and their users:

- **Simple and direct user feedback.** A thing can provide the user with direct feedback in the form of beeping, flashing or otherwise, which increases the accuracy of the processes and may improve their attractiveness/appeal (entertainment value).
- **Extensive user feedback.** Provided through a gateway (e.g. smartphone), the user will gain rich information about the properties of the thing (or the object to which it is attached). This may be useful in a range of convenience-increasing informational applications, varying from shopping advice to tourist services.
- **Mind-changing feedback.** Monitoring of consumer behavior (e.g. driving style or electricity consumption) and provision of information are aimed at changing the behavior towards a desired outcome (such as safer driving or more conservative use of electricity).

In sum, IoT will boost Marketing productivity and support Market and Business Diversity on the one hand and favor the preference for “**Green, Healthy, Flexible and Hyper connectivity World economy**” the emergence of Hyper-connectivity World Economy.

7.3.2. Empirical evidence

7.3.2.1. Digital shopping in the context of “Digital and Personalization age”.

According to Cisco (2014), 80% of shoppers are now “Digital” and a growing number are “Uber digital”. In fact, 80% of shoppers fall into what we term the “**Digital Mass category**”, in which shoppers regularly buy (from browsing to purchasing) through digital means. This category, with a median age of 40 to 44, comprises primarily PC-based shoppers, although they will use other devices (including tablets and smartphones) within their shopping journeys. Further, “Uber digital” from 30 to 34 that represents 18% of the population, uses also digital devices such as tablets, PCs and screen devices provided by retailers during the shopping journey. Moreover, “Digital forms of shopping” are now the norm (Cisco, 2014). In fact, combined in-store touch-screens and mobile devices make up 50% of shopping methods for mass digital shoppers. Further, as expected, digital shopping for “Uber” digital shoppers is greater than 90% across all digital channels, including smartphones in stores(100%), PCs at home (99%), tablets at home (95%), smartphones at home (91%) and smartphones on the go(90%). This shift could increase the importance of the e-marketing, e-publishing, e-advertising, and the **Internet-like experience in-store**.

As a result, for competitive retailers, these expectations demand a network that delivers abundant bandwidth and low latency, as well as flexible, agile store architectures that enable the rollout of new functionality to all stores in days (not years) (Cisco, 2014). In other words, retailers could require the rapid implementation of US Broadband Agenda and the availability of cost-effective IoT-related technologies and services in order to boost their Marketing Productivity in the context of digital and personalization age.

7.3.2.2. IoT-related technologies, Marketing productivity and GVC

IoT-related technologies could accelerate the emergence of Personalization and Hyper Connectivity World economy on the one hand and support US Marketing Revolution featured by the increased importance of e-marketing, e-publishing and e-advertising on the second hand. For example, IoT can create opportunities for analytics to be performed in **real-time** and also allows large volumes of data to be stored for analysis at a later time. Further, according to Cisco (2014), Industry experts suggest that the use of Big Data, advanced analytics and IoT-driven automation and process improvement could have added an additional \$ 99 billion in value to the US retail industry in 2013. Moreover, IoT-related technologies could have an impact corporate value chain. In fact, according to recent findings, with cheaper temperature sensors, cold chain retailers would consider deploying more temperature sensors to monitor their perishable produce as it traverses the supply chain. Further, with the use of **smart technologies** such as active RFID (executable codes in tag), it's possible to envision that goods may be transported without human intervention from manufacturers to suppliers. **Warehouses will become completely automatic** with goods moving in and out; forwarding of the goods will be made, using intelligent decisions based on information received via readers and positioning systems to optimize transiting routes. Then, one of the most well regarded applications in the supply chain involves using sensors to track RFID tags placed on products moving through supply chains, to improve inventory management while **reducing**

working capital and logistics costs. By doing so, IoT could increase the adoption of the **Just-in-Time Model** on the one hand and increase the export of low and middle jobs throughout the outsourcing and offshoring of downstream and middle stream activities on the second hand. Further, orders could be made in advance and tracking could be done by various stakeholders in the supply chain, i.e., assembly lines, manufacturers and logistics managers. Empirically speaking, back in January 2005, Walmart required its top 100 suppliers to attach RFID tags on their shipping pallets and extended the same compliance to more than 15,000 suppliers in January 2008. With such an implementation, Walmart had its manual orders decreased by 10 to 15% which contributed to inventory reduction. Furthermore, Walmart's suppliers such as Kimberley-Clark and Procter and Gamble were also able to be informed of the movement of their pallets, cases and promotional displays within 30 minutes (Walmart, 2012) of the tags being read, enabling them to measure the impact and execution of promotions on sales.

However, shopper suspicion of retailers' use of data is a major barrier to realizing that value. Simply stated, this issue is one of **trust and transparency**. Further, this increased importance of IoT-related technologies and activities could require the build of an effective IoT-related Ecosystems that include IoT application and services providers, IoT platform providers and integrators, Telecom operators and software vendors (Computer Science and Information Systems Report, 2013). This IoT-related Ecosystems could accelerate the advent of the Internet of Everything (IoE) and the emergence of the City-oriented, Employee-oriented and Environmentally-oriented Marketing Mix.

VIII. Internet of Everything (IoE) and implications

According to Cisco(2013), IoE brings together people, process, data and things to make networked connections more relevant and valuable than ever before-turning information into actions that create new capabilities, richer experiences and unprecedented economic opportunity for business, individuals and countries. IoE-related activities will offer high growth, investment, profit, and income, productivity and specialization gains opportunities.

8.1. The opportunities of IoE.

Cisco estimates that 99.4% of physical objects that may one day be part of the IoE are still unconnected. With only about 10 billion out of 1.5 trillion things currently connected globally, there's a vast potential to "connect the unconnected". Further, Cisco predicts that \$ 14.4 trillion of value will be at "stake" over the next decade (2013-2022), driven by "connecting the unconnected" (people-to-people, people-to-machines, machines-to-machines, etc) via the IoE. Moreover, Cisco's analysis shows that most of \$ 14.4 trillion will come from transforming industry-specific business processes and value chains with capabilities driven by the IoE. For example, \$ 9.5 trillion will come from industry-specific value and \$ 4.9 trillion will result from cross-industry value. The "Industry-specific use cases include "Smart grid, Smart Buildings, Connected ground vehicles (commercial only), Smart farming, Smart factories (factory automation), Wealth Management, Next-generation retail bank branches, Improved medical management, Physical and IT security, Digital malls (next-generation vending machines), **Connected marketing and advertising**, digital signage, Business

Process Optimization (BPO) and related processing services, Virtual attendants, Connected payments, Connected private college education (virtual private education). The Cross-Industry use cases include Future of work/Telecommuting, Travel avoidance, faster new product introduction and time to market supply chain efficiency. They found that five use cases will constitute 57% of the total value at stake for the next 10 years: Factory automation, Internet advertising/e-Marketing, Future of Work/Telecommuting, Time to market and logical and physical security. Further, the following 5 industries will drive more than 60% of the value at stake over the next 10 years: Manufacturing (27%); Retail trade (11%), Information (9%); Finance and insurance (9%) and Healthcare (7%).

Then, according to GE Report, Titled “Industrial Internet: Pushing the boundaries of Minds and Machines”, the World is on the threshold of a **new era of innovation and change** with the rise of the “**Industrial Internet**”. GE defines the Industrial Internet as “an Intelligent Network of interconnected machines that can extract data and find meaning where it did not exist before”. The report states that in the US alone, the **Industrial Internet** could **boost average incomes by 25 to 40% over the next 20 years** and lift growth back to levels not seen since the late 1990s. This report also found that, if the rest of the World achieved half of the US productivity gains, **the Industrial Internet could add from \$ 10 to \$ 15 trillion to the global GDP-The size of today’s US economy-over the same period.** Further, a March 2012 Joint study between Microsoft and IDC showed that **14 million jobs** involving cloud and cloud services will be created over the next 3 years, with just under half of these in China and India.

As a result, the advent of the IoE could favor the emergence of the new geography of the value at stake in the IoE Economy.

8.2. IoE, New Geography of Wealth and Value Chain.

The shift away of the North particularly the US from Middle stream economy to the “Upstream” economy will increase their demand of IoE-related technologies and activities in order to build more green, smart and flexible corporates and cities while outsourcing and offshoring of the process activities in the former “Global low-cost and outsourcing centers” such as China and India will increase their value at stake in the IoE Economy. In fact, according to Cisco (2013), over the next 10 years, Cisco (2013) believes that value at stake in the IoE Economy will be distributed in the following way across the globe: **USA (32%)**; Europe (30%); China (12%); Japan (5%); Canada (3%) and the Rest of the World (18%). The developed World (USA, Europe, Japan and Canada) will represent 70% of the value at stake in the IoE economy while the developing countries will represent 30%. This geography of the value at stake in the IoE Economy is almost the same with the geography of infrastructure, wealth, economic activities and Value Added in Global Trade.

So to speak, the advent of IoE-related technologies and activities will offer high growth, profit, investment, income, and productivity and specialization gains opportunities. Furthermore, IoE will have an impact on corporate value chain. In fact, according to Cisco (2013), Companies will benefit from 5 primary drivers (domains) of value at stake:

1. **Asset productivity and cost reductions.**

- SG&A and CoGS reduction from improved business execution.
- Improved capital efficiency.
- Examples: smart buildings, smart factories, travel cost savings.

2. **Employee productivity.**

- Improved labor efficiency.
- Fewer or more productive man-hours.
- Examples: Future of work (Telecommuting), BYOD, mobility

3. **Supply-chain and logistics efficiency**

- Improved process efficiency.
- Reduced supply-chain waste.
- Examples: Smart grid energy efficiency.

4. **Innovation**

- Improved RD&E speed.
- New business models and sources of revenue.
- Examples: Faster time to market.

5. **Customer experience**

- Improved customer lifetime value.
- Additional market share (more customers)
- Examples: connected marketing and advertising, connected education.

As a result, first, the emergence of **the cost-effective IoE-related technologies** could support the emergence of the “Gradual Polycentric Configuration” and increased the importance of “**Spatial Diversity**”. Second, they’ll accelerate the build of zero waste, zero carbon, and zero energy cost, automated, flexible and networked corporate. In turn it’ll hire flexible, mobile, agile, affordable, adaptable, creative, competent and highly-skilled workforce that will become the cornerstone of corporate “**Cocreation Marketing**” and accelerate the emergence of **Employee-oriented Marketing Mix**. Further, emergence of the **cost-effective IoE-related technologies** could accelerate the build of the build of 5 Zero (Zero Carbon, Zero Waste, Zero Injustice, Zero Insecurity and Zero Energy cost Housing, Building and Infrastructure) Cities with natural disasters and macroeconomics risks aversion on the one hand and fixes the negative effects of agglomeration on the second hand. By doing so, they could boost the urban capital productivity, improve the local and global competitiveness of the urban goods and services, attract and retain creative people and increase the demand of city (the preference for city) of consumers, corporates, nations and leaders. Further, they could increase the importance of the city-centric and network-centric global economy that supports the preference for city and connectivity.

IX. City-oriented Marketing Mix in the context of City-centric global economy.

9.1. Emergence of the City-centric global economy and implications.

The current **city-centric global economy and the creative and knowledge-based capitalism** are enhancing a **structural and behavioral change** where City is becoming the key driver well-being and local, national and global economic growth, trade and competitiveness. In fact, currently, 50% of the World's population is living in City. It'll be 60% by 2030, 70% by 2050 and 100% by the end of this century (2100). This city-centric global economy could also increase the demand of clean energy. In fact, according to IBM, the worldwide energy consumption will rise by 40% by 2030 with a significant per capita waste of energy and CO₂ emissions. For example, they found that there'll be 170 billion kilowatt-hours wasted each year by consumers. Further, 1/4 proportion of worldwide CO₂ emissions created by power generation, the largest man-made source. Moreover, there'll be an increased need of "Building Zero Energy cost and Zero carbon building because there is responsible of major CO₂ emissions. In fact, according to the World Business Council for Sustainable Development, Buildings are responsible for at least 40% of energy use in most countries. For example, they found that if building site energy consumption in China and India grow to current US levels, China's and India's consumption will be respectively about four and seven times greater than they are today. Further, according to the Ministry of Construction representative at the EEB China forum, the property market in China is particularly notable and is growing rapidly; China is adding 2 billion square meters a year, equivalent to one-third of Japan's existing building area. **This means China is building the equivalent of Japan's building area every three years.** As a result, the energy consumption in China and India will grow rapidly, and China's building energy consumption will be approaching Europe's by 2030, while India will have overtaken Japan. Further, if current trends continue, commercial building energy use in China will more than double during this period. So to speak, China will need to accelerate the build of the Zero Energy cost and Zero carbon building and boost its energy productivity. It'll also the case for Europe which is featured by significant Energy deficit even if World Business Council for Sustainable Development, Buildings found that Energy consumption in Western Europe will rise only moderately. So to speak, the World will need to increase its energy investment in the coming decades. In fact, according to the IEA World Energy Investment outlook (2003), \$ 16 trillion Energy investment is required across the Energy value chains, 2001-2030. By doing so, we could reduce by 29% the CO₂ emissions from building energy use by 2020 (IPCC fourth assessment report).

This challenge (the growing demand of energy) has increased the importance of the "Green preference" and has accelerated the current "Global race to clean" (cf. previous article on Global race to clean).

9.2. City-centric global economy and preference for city

The current global structural change featured by the rapid urbanization and industrialization of the developing countries, the predominance of the service-oriented and knowledge-based economy, the adoption of the cluster-based and territory-based development model and the transformation of the low-income and middle-income and high-income countries into downstream, middle stream and upstream economies respectively on the one hand and on the second hand could increase the importance of the **City-centric and Network-centric activities** such as urban goods and services and secondary, tertiary, quaternary and quinary activities. Moreover, consumers, employees, creative people, corporates and states are tending to have a **preference for city** due to the positive impact of the agglomeration externalities (centripetal forces) on the human, physical, urban, cultural, social, democratic, natural and entrepreneurial capital productivity.

This global structural and behavioral change has transformed City into “Brand” (product and service) and favored the emergence of the **City-oriented Marketing Mix**. This **Brand** includes “**Urban goods and services**” that are demanding by real and potential residents, creative people, corporate and state nation in order to improve their well-being and creativity and boost their profitability, productivity and competitiveness. The **Price** of City depends on the willingness to pay the “Urban goods and services” and charges (city fiscal policy) by real and potential residents, creative people and corporate. **Place** focuses on the Metropolitan Area, People, Proximity and Connectivity. The **Promotion** will depend on the City branding strategy that includes City’ Cultural and Green diplomacy on the one hand and the residents, creative people and corporate personal diplomacy (experience economy and storytelling) on the second hand.

As a result, this structural and behavioral change will increase the importance of the “Glocalization” and the Decentralized Strategy that focus on “**Place-People-Proximity-Connectivity**” as driver of economic growth and prosperity. Further, in this digital, personalization and green age, the green preference of consumers, creative people and corporates is increasing the demand of “Clean City (Green City)” and is accelerating the emergence of the “**Clean E-City-oriented Marketing Mix**”. Then, City needs to be able to offer cost-effective clean and green urban goods and services that improve their well-being real and potential residents, creative people and corporate. Further, City needs to build a framework such as Citizen-centered and People-centered Development Model where real and potential residents, creative people and corporate will become co-creator, co-owner and co-producer of the cost-effective clean and green urban goods and services.

By doing so, City will build a balancing internal and external market orientation that attract and retain innovative, creative people and corporate. Further, it could become a “Startup” with a specific and unique market, resource, knowledge, technology, brand and efficiency seeking strategy.

However, City will need to fix the negative effects of agglomeration (centrifugal forces) such spatial disparities, structural inequalities that enhance direct, cultural and structured violence, clean jobs deficit, structural deficit, talent deficit, female, youth, older workers and

disable brain waste, skills gap and mismatch, environmental problems that include waste and wastewater management, air, water and noise pollutions, hard and soft terrorism that includes terrorist attacks, cyber-espionage, cyber-attacks, counterfeit, corruption and mafia.

The current global race and advent of IoE could be helpful because they could guarantee the “**Sustained Existence of Cities**” throughout:

- Cost-effective management of large amount of data.
- The internationalization of City.
- The interconnection of the different components of City value chain.
- Personalization City’s economic development and the build of Citizen-centered and People-centered development model.
- Build of Smart City with natural disasters and risks aversion.
- Build an effective City’s branding strategy and network Cities at the global level.
- The build of an effective Citizen-to-citizen and Citizen-to-local government confidence, trust and transparency.
- The build of **Zero waste, Zero carbon, Zero Insecurity and Zero Energy cost city.**

9.3. IoE-related Technologies and emergence of Zero waste, Zero carbon, Zero Insecurity and Zero Energy cost city.

IoT-related technologies could boost energy productivity and accelerate the emergence of “**Zero waste, Zero carbon, and Zero Insecurity and Zero Energy cost city**”. **First**, according to IBM (2012), the Memphis Police Department (MPD) in New York has enhanced its crime fighting techniques by using statistical and predictive analytics software to monitor crime activities. Using predictive analytics software, MPD is able to **forecast precincts that will see the most crime activities and detect crime patterns in real time** to prevent criminal activities from happening. With the implementation of this software, MPD saw a **reduction of more 30% in serious crime, including a 15% reduction in violent crime.** **Second**, IBM (2012) found that the city of Stockholm, Sweden cuts traffic by 20% through the use of “Smart Tolling Traffic Systems”; Spin-off perks” included 15% lowered carbons emissions and 40,000 additional daily users of public transportation. **Third**, in the city of Madrid, a control Centre has been built to monitor the underground traffic of a busy highway, M30, through which an average of 200,000 vehicles pass daily. This initiative aims at addressing traffic congestion and reducing accidents in the tunnel, using sensors to monitor the real-time traffic conditions 24/7. With such an implementation, M30 has registered a drop of 60% in accident rates and an overall increase of traffic load by 5%. Moreover, the adoption of “Accident Avoidance Detection” by cars could increase their capability of interpreting a series of complex events such as poor visibility conditions resulting from heavy rain, slippery roads and storing wind to the possibility of vehicles suddenly stopping. Sensors using infrared (IR) can help to detect the distance between each vehicle or the conditions of road (e.g rain levels and fallen debris), feeding the application with the information to alert to avoid and steer clear of a potential accident site. **Fourth**, Frost and Sullivan has forecast 5% cost savings from changes in consumption patterns resulting from the ability to monitor

consumption habits for consumers, and 10% cost savings on passive energy efficiencies related to smart grid implementation, e.g., diagnostic capability, conservation via voltage reduction and control, measurement and verification for efficiency. For example, in South Korea, a smart grid test-bedding project is currently being trialled on Jeju Island where it will become the World's largest grid community to conduct testing of the most advanced smart grid sensor technologies and R&D results. The target is to achieve a 30% reduction of CO₂ by 2020, and achieve a low carbon economy and society capable of monitoring power consumption and distribution.

As a result, the advent of IoE could provide the cost-effective IoE-related technologies and services that will accelerate the emergence of the **Zero waste, Zero carbon, Zero Insecurity and Zero Energy cost city**. By doing so, they could increase the ability of City to attract and retain creative and innovative corporates and creative people. Furthermore, they could accelerate the internationalization of the **City-centric and Network-centric activities** such as urban goods and services and secondary, tertiary, quaternary and quinary activities. Moreover, they'll increase the importance of the "City-centric Marketing Mix".

X. Employee-oriented Marketing Mix.

It's relevant to focus on the employee orientation in the context of fast-moving, fast-changing, fast-growing, price-sensitive, hyper complexity, hyper volatility, hyper connectivity, hyper complexity and hyper competitive World economy because as stable and loyal customers, employees could capture and make a real-time analysis of customers' needs. In fact, Greenley and Foxall(1996) report that employee orientation is associated with new product success at high levels of market turbulence, suggesting that employees become relatively more important in meeting the needs of the customers when those needs are changing rapidly. Further, this need for the firm to focus on its employees has been highlighted by Mohr-Jackson (1991), who suggests that employees, as **internal customers**, are of equal importance as external customers. Moreover, according to Kohli and Jaworski (1990); Narver and Slater (1990) and Day and Wensley (1988), the internal market orientation requires **the whole organization to be involved** in implementing market orientation, **all employees** collect market intelligence, interpret it and respond to it. Then, it should be relevant to focus on the "Line Management" that implies functional interdependency and the build of collaborative and cooperative framework and project in order to boost corporate competitiveness. In fact, Jaworski and Kohli (1993) found that connectedness between departments is thought to promote market orientation by facilitating the dissemination of intelligence between them. Further, they identify interfunctional factors as an antecedent to market orientation and report that conflict between departments reduces market orientation by hindering the dissemination of intelligence between them and the responsiveness of the organization to market conditions. Further, Heskett et al. (1984); Magidson and Polcha (1992) and Lings and Brooks (1998) found that the focus on the interactions between internal suppliers and their internal customers which arises as a result of internal marketing, along with monitoring and reward systems, should provide improved inter-functional interactions, increased internal service quality, higher levels of employee satisfaction and motivation and ultimately better performance in the external market. Moreover, functional interdependency

has been shown to improve communication between departments and the dissemination of intelligence (Fisher, Maltz and Jaworski (1997), hence facilitating the achievement of a market orientation (Lings, 1999).

Then, not only the Marketing staff that could elaborate the corporate Marketing Strategy but all employees of the corporate could become effective co-creators, co-producers and co-owners of corporate local and global Marketing strategy. Further, regarded to the positive correlation within innovation, production process and competencies life cycles, Fritz (1996) has identified the need for employee orientation and presented a management model which includes market orientation and employment orientation. This model also includes one other **internal orientation ‘production and cost’ orientation**, and one **additional external orientation, technology and innovation orientation** (Ian N. Lings, 1999). Moreover, we could improve the proactivity and reactivity of corporate and accelerate the emergence of the Zero carbon, Zero waste, Zero Energy cost, Automated, Networked and Flexible corporate because the current advent of the IoE that are increasing the contribution of employees to the Market orientation because Flexible, Mobile, Agile, Affordable, Adaptable, Networked, Creative, Competent and Highly-skilled workforce could use cost-effective IoE-related and Lean production tools, methodology and strategy to collect market intelligence and large amount of data, interpret and respond them in real-time.

As a result, as green consumers, employees (green employees) also could become the co-owners, co-creators and co-producers of corporate green brands and become the cornerstone of the corporate Environmentally-oriented Marketing Mix strategy. By doing so, we could increase the loyalty, commitment and satisfaction of employees and boost the profitability and productivity of corporate. In fact, Sasser and Arbeit (1976), Berry (1994) and Berry and Parasuraman (1991) found that **happy and motivated** front line employees are essential in the delivery of good services to customers. Then, employment and jobs could be viewed as products (Grönoos, 1988; Wong and McCullough, 1987; George, 1977) that satisfies the needs and the wants of employees. So to speak, for example, offering **clean jobs** in the context of “Green Revolution” featured by the growing importance of Green corporates and Green consumer with Green preference on the one hand and the emergence of the “Environmentally-oriented Marketing Mix” on the second hand could improve corporate competitiveness because such as green and clean goods and services, clean jobs could satisfy the needs and wants of employees (green employees) with green preference, make them happy and boost their loyalty and commitment. This product (clean jobs) could take into account factors such as pay and conditions, status and location of employment, quality of workplace, the need for quality input from internal suppliers and other support function, the need for Lean, Line and Green management, the need for Zero carbon, Zero Waste, Zero Energy cost, Automated, Networked, Flexible and Green Corporate (Corporate with Social Responsibility (CSR)) and involvement in Global Circular Economy. Further, this effective internal and external market orientation could provide resource in developing a sustainable comparative advantage (Hunt and Morgan, 1995).

By doing so, we could shift towards “**Employee-oriented Marketing Mix**”: **Clean Jobs** as **Product**; Pay and conditions as **Price**; status and location of employment, quality of

workplace, the need for quality input from internal suppliers and other support function, the need for Lean, Line and Green management, the need for corporate that belongs to clusters (cluster-based and territory-based development model), the need for Zero carbon, Zero Waste, Zero Energy cost, Automated, Networked, Flexible and Green Corporate and Corporate with Social Responsibility (CSR) for **Place**; Job seeking facilities and channels, Transportation facilities, Transportation cost including Duration and Congestion cost, Telework opportunities for **Promotion**. Then, the “**Employee-oriented Marketing Mix**” could balance internal and external market orientation and create simultaneously value for customer, employees, stakeholders and environment and city.

XI. Conclusion

According to GE Report, Titled “Industrial Internet: Pushing the boundaries of Minds and Machines”, the World is on the threshold of a new era of innovation (IoE) and change with the rise of the “Industrial Internet”. GE defines the Industrial Internet as “an Intelligent Network of interconnected machines that can extract data and find meaning where it did not exist before”. The report states that in the US alone, the Industrial Internet could boost average incomes by 25 to 40% over the next 20 years and lift growth back to levels not seen since the late 1990s. This report also found that, if the rest of the World achieved half of the US productivity gains, the Industrial Internet could add from \$ 10 to \$ 15 trillion to the global GDP-The size of today’s US economy-over the same period. This new era of innovation is also supported by the Personalization of production, distribution and consumption processes, the green and blue revolution and the current global race to clean.

This current dramatic reduction of the radical innovations life cycle and the context of price-sensitive, fast-moving, fast-changing, fast-growing, hyper connectivity, hyper complexity, hyper vulnerability and hyper competitive World economy is requiring the build of a Multidisciplinary and Multidimensional Solidarity and Collaborative and Cooperative framework in order to guarantee the “Sustained existence” of the World. Then, City and Corporate need also to put emphasis on an effective balancing internal and external market orientation in order to create value simultaneously for customers, employees, stakeholder, environment and the society.

So to speak, not only the customer who needs to be considered as kings in Marketing but also Employees, Environment (biodiversity and natural capital) and City. Then, this current global structural and behavioral change is accelerating the shift away from the Product-oriented Marketing Mix to Consumer-oriented Marketing Mix to the Environmentally-oriented Marketing Mix to the Employee-oriented Marketing Mix to the City-oriented Marketing Mix to “**The Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix**”.

The “Global structural and behavioral change” has been driven by Radical innovations such as the Industrial Revolutions of the 18th and 20th centuries respectively in UK and USA, the Digital Revolution of the 1950s in the USA, the Production revolution of the 1980s featured by the Tertiarization and the increased importance of the vertical and horizontal chain and trade, the Green revolution of the 2000s featured by the emergence of the Green

preference and consumer and the current advent of the Internet of Everything (IoE) featured by the emergence of hyper connectivity world economy.

The US Industrial Revolution of the beginning of the 20th century featured by the Fordism, mass consumption, mass production and Depersonalization has enhanced the “**Beginning stage of Marketing**” featured by the emergence of the Product-oriented Marketing Mix.

The Digital Revolution of 50s has accelerated the “Tertiarization” of US economy. Furthermore, it has enhanced the increased importance of the Internet-related activities, the Personalization of the production, distribution and consumption processes, the outsourcing and offshoring of the downstream and middle stream activities in the “Global low-cost and Outsourcing Centers” and the predominance of the “Service-oriented and Knowledge-based economy”. Moreover, it has provided new digital elements (cf. $4Ps + P^2 + C^2 + S^3$ Model) that have built “**Personalized, Flexible, Adaptable**” products and services and strengthened “Transparent and Loyal Business-to-Customer relationship”. Furthermore, they could increase constantly and continually the ability of consumer to become **co-creator, co-owner and co-producer of corporate’s brand** on the one hand and boost e-trade, e-marketing, e-advertising and e-publishing on the second hand.

By doing so, Digital Revolution has enhanced the “**Growth stage of Marketing**” featured by the emergence of the Consumer-centered Marketing Model and the E-Marketing Mix. It turn, the Personalization has improved the satisfaction and loyalty of customers and boosted the profitability and productivity of corporates. Furthermore, this structural change has favored the emergence of the Market Diversity that includes Spatial Diversity, Life Style Diversity, Demographic Diversity, Ethnic Diversity, Income Diversity, Entrepreneurial Diversity and Age Diversity. In turn, the Market Diversity is increasing the importance of the **Cultural Diplomacy** in order to take into account **the needs, the wants, the resources and the cultural backgrounds** of customers and city in order to **differentiate and personalize the offerings** of corporates.

The current Green and Clean Revolution, the advent of the IoE and the Creative and Knowledge-based capitalism have enhanced the **Maturity stage of Marketing** featured by the emergence of the **Environmentally-oriented and Employee-oriented Marketing Mix**. The Green Revolution of the 1990 and 2000 has favored the emergence of Green Consumer with high Green Preference and a growing demand for Green products and services. Since, Environmental issues such as non-pollution (avoidance of air, water and noise pollution), effective waste and wastewater management, recyclability, the build of city with natural disaster resilience and access to clean energy, water, foods, education, jobs, housing and life are of importance to Green consumer. Further, corporates have integrated environmental issues into their strategy boost their competitiveness in order to boost their competitiveness.

In the “**Employee-oriented Marketing Mix**”, **Clean Jobs** is considered as **Product because it** satisfies the needs and wants of employees (green employees) with green preference, make them happy and boost their loyalty and commitment; Pay and conditions as **Price**; status and location of employment, quality of workplace, the need for quality input

from internal suppliers and other support function, the need for Lean, Line and Green management, the need for corporate that belongs to clusters (cluster-based and territory-based development model), the need for Zero carbon, Zero Waste, Zero Energy cost, Automated, Networked, Flexible and Green Corporate and Corporate with Social Responsibility (CSR) for **Place**; Job seeking facilities and channels, Transportation facilities, Transportation cost including “Duration and Congestion cost, Telework opportunities for **Promotion**”. Then, the “**Employee-oriented Marketing Mix**” could balance internal and external market orientation and create simultaneously value for customer, employees, stakeholders and environment and city.

In the “**City-oriented Marketing Mix**” City is considered as **Brand** (products and services). This **Brand** includes “**Urban goods and services**” that are demanding by real and potential residents, creative people, corporate and state nation in order to improve their well-being and creativity and boost their profitability, productivity and competitiveness. The **Price** of City depends on the willingness to pay the “Urban goods and services” and charges (city fiscal policy) by real and potential residents, creative people and corporate. **Place** focuses on the Metropolitan Area, People, Proximity and Connectivity. The **Promotion** will depend on the City branding strategy that includes City’ Cultural and Green diplomacy on the one hand and the residents, creative people and corporate personal diplomacy (experience economy and storytelling) on the second hand.

The **Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix** could become the cornerstone of the emergence Zero Carbon, Zero Waste, Zero Energy cost, Automated, Flexible and Networked corporate on the one hand and the emergence of the 5 Zero (Zero Carbon, Zero Waste, Zero Injustice, Zero Insecurity and Zero Energy cost Housing, Building and Infrastructure) Cities with natural disasters and risks aversion. Furthermore, it could be considered as “**Sustainable Marketing Mix**” that provides a **balancing internal and external market orientation and guarantee the sustained existence of customers, employees, stakeholder, cities and environment in this** current dramatic reduction of the radical innovations life cycle and the context of price-sensitive, fast-moving, fast-changing, fast-growing, hyper connectivity, hyper complexity, hyper vulnerability and hyper competitive World economy.

For me, it’s relevant to **anticipate** the future of trends of Marketing due to the positive correlation within Marketing Productivity and productivity, profitability, competitiveness and sustained existence of our Market-based economy and civilization. Then, by adopting **Clean Product-oriented, Consumer-oriented, Employee-oriented, City-oriented and Environmentally-oriented Marketing Mix, US SMEs and MNCs could** become more competitive and sustain US global competitiveness and leadership for the coming centuries.

Table 2 : Tertiarization and Value Added in the USA (NAICS 2002)

Industry title	Value Added (USD million)				As share of Business sector VA			
	2008	2009	2010	2011	2008	2009	2010	2011
Total	14 291 543	13 938 950	14 526 547	15 075 666				
Agriculture, forestry, fishing, and hunting	159 375	139 972	156 984	173 523				
Mining	319 166	213 366	239 511	289 901	4%	3%	3%	3%
Utilities	257 663	258 324	264 862	297 928	3%	3%	3%	3%
Construction	614 204	541 905	511 639	529 545	7%	6%	6%	6%
Manufacturing	1 628 498	1 540 226	1 701 937	1 731 466	18%	18%	19%	18%
Wholesale trade	824 067	768 548	797 348	845 060	9%	9%	9%	9%
Retail trade	848 629	837 205	884 877	905 718	9%	10%	10%	10%
Transportation and warehousing	414 994	391 672	402 524	447 913	5%	5%	4%	5%
Information	636 843	615 445	623 472	646 641	7%	7%	7%	7%
Finance and insurance	1 041 460	1 098 964	1 241 946	1 159 310	12%	13%	14%	12%
Real estate	1 671 470	1 679 218	1 563 893	1 700 954				
Rental and leasing services and lessors of intangible assets	203 692	186 350	201 346	197 859	2%	2%	2%	2%
Professional, scientific, and technical services	1 100 205	1 033 270	1 095 758	1 151 455	12%	12%	12%	12%
Management of companies and enterprises	263 215	248 970	263 699	283 626	3%	3%	3%	3%
Administrative and waste management services	419 750	395 837	423 380	448 812	5%	5%	5%	5%
Accommodation and food services	404 907	387 604	416 693	443 096	5%	5%	5%	5%
Community social and personal services*	3 483 406	3 602 075	3 736 677	3 822 859				
Business sector	8 977 293	8 517 686	9 068 992	9 378 330	100%	100%	100%	100%

Source: OECD, based on US Bureau of Economic Analysis data, April 2012 and June 2013 (data for 2011).

Table 3: Predominance of the Service-oriented and Knowledge-based economy and Share of total VA by sector

Total VA	100%	100%	100%	100%
Business sector as share of total VA	63%	61%	62%	62%
Agriculture, forestry, fishing, and hunting as share of total VA	1%	1%	1%	1%
Real estate as share of total VA	12%	12%	11%	11%
Community social and personal services as share of total VA	24%	26%	26%	25%

Source: OECD, based on US Bureau of Economic Analysis data, April 2012 and June 2013 (data for 2011).

Table 4: Predominance of the Service-oriented and Knowledge-based economy

Community social and personal services includes:	3 483 406	3 602 075	3 736 677	3 822 859
Educational services, health care, and social assistance	1 153 947	1 210 420	1 272 289	1 311 110
Arts, Entertainment, and Recreation	132 370	130 009	139 112	147 976
Other services, except government	342 693	340 791	356 766	369 936
Government	1 854 396	1 920 855	1 968 510	1 993 837

Source: OECD, based on US Bureau of Economic Analysis data, April 2012 and June 2013 (data for 2011).

Table 5: The internet-related value added in various economies, resulting from existing studies

Study	Analyzed economies	Estimated internet-related value added in various economies (%GDP)
Hamilton Consulting (2009)	United States	2%
BCG (2010)	United Kingdom	7.2%
BCG (2011)	Sweden	6.6%
BCG (2011)	Hong Kong, China	5.9%
BCG (2011)	Denmark	5.8%
BCG (2011)	Netherlands	4.3%
BCG (2011)	Czech Republic	3.6%
BCG (2011)	Germany	3.4%
BCG (2011)	Poland	2.7%
BCG (2011)	Belgium	2.5%
BCG (2011)	Spain	2.2%
BCG (2011)	Italy	1.9%
BCG (2011)	Egypt	1.6%
BCG (2011)	Russia	1.6%
BCG (2011)	Turkey	1.2%
McKinsey (2011)	Brazil, Canada, China, France, Germany, India, Italy, Japan, Russia, United Kingdom, United States, South Korea, Sweden	3.4% on average
Deloitte (2011)	Australia	3.6%

Source: BCG, McKinsey and Deloitte

Table 6 : The information sector in the US (NAICS, 51) estimated revenue for employer firms, 2006-2011 revenue (USD million)

NAICS 02	Industries	2006	2007	2008	2009	2010	2011
51	Information sector revenues	1 027 063	1 072 341	1 108 349	1 074 959	1 110 225	1 160 849
511	Publishing industries (except Internet)	269 907	282 223	284 613	264 194	265 718	273 902
5111	New spaper, periodical, book and directory publishers	144 704	146 822	141 896	125 213	120 293	n.a
511110	New spaper publishers	48 949	47 563	43 919	36 358	34 695	33 164
511120	Periodical publishers	44 757	46 003	44 985	39 099	38 395	39 503
511130	Book publishers	26 722	27 807	28 032	27 404	28 121	27 530
511140	Directory and mailing list publishers	17 617	18 515	18 371	16 670	13 475	13 040
511191	Greeting card publishers	4 609	4 779	4 443	3 862	3 852	3 822
511199	All other publishers	2 050	2 155	2 146	1 820	1 755	1 754
5112	Sof tw are publishers	125 203	135 401	142 717	138 981	145 425	155 089
511210	Sof tw are publishers	125 203	135 401	142 346	138 714	138 714	n.a
512	Motion picture and sound recording industries	93 265	94 986	95 271	90 398	95 118	95 762
5122	Sound recording industries	16 821	15 189	15 267	14 419	13 787	n.a
512210	Record production	301	338	351	425	453	495
512220	Integrated record production/distribution	10 642	9 082	8 953	8 665	8 258	7 471
512230	Music publishers	4 646	4 466	4 713	4 155	3 793	3 770
512240	Sound recording studios	831	854	810	749	839	872
512290	Other sound recording industries	401	449	S	425	444	433
515	Broadcasting (except Internet)	96 311	99 919	104 584	98 934	107 520	112 785
515111	Radio netw orks	3 829	4 124	4 341	4 307	4 883	5 007
515112	Radio stations	14 616	14 871	13 912	11 643	12 135	12 167

515120	Television broadcasting	36 959	35 998	36 762	31 553	35 334	35 293
515210	Cable and other subscription programming	40 907	44 926	49 569	51 431	55 168	60 318
516	Internet publishing and broadcasting	11 510	15 035	17 763	19 111	21 273	50391 (1)
51611	Internet publishing and broadcasting	11 510	15 035	17 760	19 504	19 504	
517	Telecommunications	459 315	480 030	498 058	495 062	507 533	540 040
518	Internet service providers, web search portals and data processing services	90 427	93 804	101 411	100 719	106 582	n.a
518210	Data processing, hosting and related services	66 023	66 652	71 698	71 614	76 156	81091 (2)
519	Other information services	6 328	6 344	6 649	6 541	6 481	n.a
	Internet-related activities revenues	83594	101659	123060	133191	147799	165 014
	Share of Internet activities revenues in total information sector	8.1%	9.5%	11.1%	12.4%	13.3%	14.2%

Source: OECD based on US Census Bureau, 2010 Annual Services report, February 2012 and for 2011 data based on US Census Bureau, 2011 Annual Services report.

Table 7: The Effects of Internet on Global Strategy

Global Market Participation	Global Activity Location
<ol style="list-style-type: none"> 1. Internet provides instant global reach 2. No more one-by-one country rollouts. 3. Have to backfill quickly to provide support 	<ol style="list-style-type: none"> 1. Reduces need to have local physical presence in many downstream and support activities. 2. Allows virtual networks that concentrate and pool expertise and resources from separate locations.
Global Products and Services	Global Marketing
<ol style="list-style-type: none"> 1. Internet allows companies to be both global and local. 2. Offer some global products and services. 3. Offer some local versions. 4. Offer some personalised content 	<ol style="list-style-type: none"> 1. Makes it easier to build global recognition. 2. Need to offer multi-language Web sites. 3. Need to adapt style, not just language
	Global Competitive Moves

Source: George Yip, 2001

Table 8: E-commerce in the United States in selected industries (NAICS 2002)
As percentage of total revenues

NAICS	Industries	2008	2009	2010	2011
11	Agriculture, forestry, fishing, and hunting	n.a	n.a	n.a	n.a
21	Mining	n.a	n.a	n.a	n.a
22	Utilities	n.a	n.a	n.a	n.a
23	Construction	n.a	0.2	0.2	0.1
31, 32, 33	Manufacturing	39.7	42.8	46.4	49.3
321	Wood products	22.1	25.4	28.4	31.2
327	Nonmetallic mineral products	23.1	27.0	30.5	33.4
331	Primary metals	38.7	40.4	45.7	50.6
332	Fabricated metal products	27.5	31.8	36.0	39.1
333	Machinery	36.4	41.2	46.6	48.7
334	<i>Computer and electronic products</i>	38.7	41.8	44.6	50.3
335	<i>Electrical equipment, appliances, and components</i>	34.1	40.2	43.8	46.7
3361, 3362, 3363	Motor vehicles, bodies and trailers, and parts	n.a	n.a	n.a	61.1(1)
3364, 3365, 3366, 3369	Other transportation equipment	n.a	n.a	n.a	n.a
337	Furniture and related products	31.0	34.3	39.5	43.2
339	Miscellaneous manufacturing	25.1	28.9	31.0	35.4
311, 312	Food and beverage and tobacco products	40.6)	45.0	48.1	47.9(2)
313, 314	Textile mills and textile product mills	42.3	47.4	50.2	48.6(3)
315, 316	Apparel and leather and allied products	28.9	34.4	35.4)	40.8(4)
322	Paper products	37.8	42.9	46.5	49.4
323	Printing and related support activities	30.4	31.7	35.2	39.7
324	Petroleum and coal products	44.1	44.3	46.0	52.6
325	Chemical products	40.1	42.2	44.2	47.2
326	Plastics and rubber products	35.8	40.9	43.9	46.2
42	Wholesale trade ¹	17.3	20.5	20.2	20.0
44,45	Retail trade	3.6	4.0	4.4	4.7
48,49(except 491)	Transportation and warehousing	n.a	n.a	n.a	11.8
481	Air transportation	n.a	28.1	26.2	27.5
482	Rail transportation	n.a	n.a	n.a	n.a
483	Water transportation	n.a	17.3	8.7	8.0
484	Truck transportation	3.5	3.6	3.5	7.7
485	Transit and ground passenger transportation	n.a	0.8	n.a	n.a
486	Pipeline transportation	n.a	1.0	0.9	n.a
487, 488, 492	Other transportation and support activities	n.a	n.a	n.a	n.a
493	Warehousing and storage	n.a	n.a	n.a	n.a
51	Information	4.6	5.0	5.0	5.9
511, 516	Publishing industries (includes software)	n.a	n.a	n.a	n.a
512	Motion picture and sound recording industries	n.a	n.a	n.a	n.a
515, 517	Broadcasting and telecommunications	n.a	n.a	n.a	n.a
518, 519	Information and data processing services	n.a	n.a	n.a	n.a
52	Finance and insurance	n.a	1.4	1.5	1.9
53	Real estate and rental and leasing	n.a	n.a	n.a	n.a

531	Real estate	n.a	n.a	n.a	n.a
532	Rental and leasing services and lessors of intangible assets	6.9	8.7	8.5	n.a
54	Professional, scientific, and technical services	1.6	1.9	1.9	2.2
55	Management of companies and enterprises	n.a	n.a	n.a	
56	Administrative and waste management services	2.7	2.9	3.0	3.0
61	Educational services	n.a.	7.5	7.6	9.6
62	Health care and social assistance	0.1	0.1	0.2	0.1
71	Arts, entertainment, and recreation	2.1	2.2	2.4	29.0
72	Accommodation and food services	2.8	2.7	3.0	5.0
81	Other services, except government	2.0	2.1	2.3	2.5

Source: OECD based on US Census Bureau, 2011 E-commerce Multi-sector Data Tables, May 2012.

Table 9: Micro and Macro benefits of Internet

Countries	Net value per internet user	Total Internet user surplus (billion)
United States of America	\$26	64
United kingdom	\$28	13
France	\$22	10
Germany	\$18	10

Source: McKinsey (2011)

Table 10: The evolution of the GDP per capita in the World by regions unity: Dollars PPP

	1980	1985	1990	1995	2000	2005	2010	Var bet 2000 and 2010 in %
North America	25 290,8	28238,2	31426,7	33295,4	38877,2	41796,6	41819,4	+7,57
Europe and Central Asia	13315,6	14118,5	15810,7	15140,6	17266,7	1943,9	20551,7	+ 19,02
Of which in European Union	16690,2	17858	20517,5	21672	24826,8	26840,6	27554,1	+10,99
Latin America and Caribbean	7619,2	7107,5	7112,2	7703,6	8304,8	8890,8	10195,7	+ 22,77
North Africa and Middle East	7031,6	6372,6	6147,5	6581,5	7279,1	8141,7	9112,6	+ 24,07
East Asia and Pacific	2539,1	3051,9	3811,1	4665,6	5386,9	6679,2	8742,9	+62,30
South Asia	889,6	1027,6	1218,3	1410,3	1678,6	2127,1	2893,5	+72,37
Sub-Saharan Africa	1791,7	1618,7	1611,5	1497,7	1563,8	1763,4	2022	+29,30
World	5903,7	6206,6	6797,5	7037,5	7882,1	8826,1	9868,6	+25,20

Source: World Bank, 2012

Table 11: Miniaturization of devices and falling cost of technology components

Technology component	2010 cost	2015 cost
Radio, WIFI	1.50	0.80
Radio Bluetooth	1.00	0.50
Processor (basic 8-bit micro-controller chip embedded flash memory)	1.00	0.85
Sensor (temperature)	1.00	0.75
Sensor (vibration/accelerometer)	1.50	1.00
Camera (1.8 megapixel CMOS image sensor)	1.80	1.20

Microphone	1.20	1.00
Global Positioning Systems (GPS)	1.25	0.70
Energy source (inductive loop wireless power, incremental cost per unit)	2.50	2.00
Source: Gartner, 2011		

	2003	2010	2015	2020
World population	6.3 Billion	6.8 Billion	7.2 Billion	7.6 Billion
Connected devices	500 million	12.5 Billion	25 Billion	50 Billion
Connected devices per person	0.08	1.54	3.47	6.58
Source: Dave Evans, 2012				

	2009	2010	2011	2012
SaaS adoption	21%	25%	37%	54%
IaaS adoption	8%	14%	23%	35%
Paas adoption	5%	9%	17%	29%
BPaas adoption	6%	8%	14%	24%
Base: 531 North American and European software decision-makers				
Source: Enterprise and SMB Software survey, North America and Europe, Q4 2009, Forrsights software survey				

Number of items, billion	2010	2011	2012	2013	2014	2015	2016	2017	2020	CAGR (%)
RFID tags	1.64 2.00 2.44 2.98 3.63 4.43 5.41 6.60 12.00 22.03									
Passive tags	0.06	0.08	0.10	0.13	0.17	0.22	0.28	0.37	0.80	29.57
Active tags	2.30	3.43	5.11	7.61	11.33	16.89	25.16	37.49	124.00	48.99
Tags, total	2.40	3.56	5.29	7.86	11.67	17.32	25.72	38.19	125.00	48.48
Connected devices										
Connected M2M devices	1.64	2.00	2.44	2.98	3.63	4.43	5.41	6.60	12.00	22.03
Connected devices, total	8.04	8.99	10.05	11.23	12.55	14.02	15.67	17.52	24.45	11.76
Total tags and connected devices	10.44	12.55	15.34	19.08	24.21	31.34	41.39	55.70	149.45	31.68
Source: Computer Science and Information Systems Report (2013)										

Number of items, billion	2010	2011	2012	2013	2014	2015	2016	2017	2020	CAGR (%)
Type of communications										
Modules	0.19	0.27	0.39	0.56	0.80	1.16	1.67	2.41	7.22	44.20
WPAN	0.06	0.10	0.17	0.29	0.48	0.80	1.35	2.26	10.70	67.80
WWAN (GSM, CDMA, satellite, etc.)	0.05	0.07	0.09	0.12	0.15	0.19	0.25	0.32	0.69	29.00
Wireline	0.03	0.04	0.05	0.06	0.07	0.09	0.11	0.14	0.25	22.80
Vertical segment										
Consumer electronics	0.16	0.24	0.31	0.50	0.59	0.78	1.14	1.58	4.20	38.56
Healthcare	0.04	0.05	0.07	0.10	0.13	0.18	0.24	0.32	0.77	34.48
Automotive/Transportation	0.09	0.12	0.16	0.21	0.27	0.35	0.47	0.61	1.40	31.58
Utilities	0.07	0.10	0.14	0.18	0.25	0.33	0.45	0.61	1.50	35.11
Source : Computer Science and Information Systems Report (2013)										

Table 16: Revenues from tags and connected devices (by level and vertical segment)

Revenues, USD billion	2010	2011	2012	2013	2014	2015	2016	2017	2020	CAGR (%)
RFID tags										
Tags	2.1	2.5	2.9	3.3	3.9	4.6	5.3	6.2	9.9	16.8
Other (e.g. integration services)	3.5	4.0	4.5	5.1	5.7	6.5	7.3	8.3	12.0	13.1
RFID tags, total	5.6	6.4	7.4	8.4	9.7	11.1	12.7	14.5	21.9	14.6
Connected devices										
Connected devices - by level										
Devices	5.2	6.2	7.4	8.9	10.7	12.8	15.4	18.5	32.0	20.0
Network Services	24.5	32.1	42.0	54.9	71.8	93.9	122.8	160.7	359.6	30.8
Horizontal System Applications	18.1	23.1	29.6	37.9	48.5	62.1	79.5	101.7	213.3	28.0
Vertical Value-Added Applications	68.0	89.6	117.9	155.1	204.1	268.6	353.5	465.2	1060.2	31.6
Connected devices - by vertical segment										
Consumer electronics	315.0	332.0	349.9	368.7	388.6	409.5	431.5	454.7	532.2	5.4
Healthcare	1.4	2.0	3.1	4.5	6.9	10.2	15.4	23.0	91.8	50.4
Automotive/Transportation	13.3	17.5	23.1	30.4	40.0	52.7	69.4	91.4	208.9	31.7
Utilities	6.7	7.9	9.5	11.3	13.4	16.0	19.1	22.8	38.6	19.2
Connected M2M devices, total	121.0	148.7	182.7	224.5	275.9	339.0	416.6	512.0	950.0	22.9
Connected life, total	560.0	629.4	707.3	794.9	893.4	1004.0	1128.3	1268.1	1800.0	12.4

Source: Computer Science and Information Systems Report (2013)

Table 17: Connectivity available in (mobile) health devices

Connection Type	Count	Percent
Embedded	33	16.5%
Gateway	33	16.5%
Connects to Smart Devices	103	51.5%
Connect to Gateway/Smart Devices	31	15.5%
Total	200	100.0%
Short-range connectivity		
Bluetooth	108	54.0%
USB	16	8.0%
Wi-Fi	4	2.0%
Infrared	8	4.0%
ZigBee	8	4.0%
Mobility Network Connectivity		
GSM	40	20.0%
WCDMA HSPA	7	3.5%
WCDMA UMTS	5	2.5%

Source: GSMA, 2012