

## 20. Country Report of the United States <sup>1</sup>

### 20.1 Current Status of the ICT Sector of the United States

#### Research Objective & Design

The overall purpose of this research study is to help inform women entrepreneurs from Asia-Pacific Economic Cooperation (APEC) economies of current entrepreneurial trends pertaining to the 4th Industrial Revolution. This research study will focus specifically on case studies involving American female entrepreneurs and ICT startups based in the United States of America (USA). In line with the case study criteria, the women interviewed in this section have been recognized for running successful ICT related startups/businesses for at least 5 years.

In terms of background for the ‘Research Design’, a female CEO/entrepreneur was initially identified by using the website for Built In Colorado (Built In Colorado, 2018), which is a community organization that connects startup companies throughout the Denver metro area in Colorado (in the USA). In May 2016, the Built In Colorado website released a list of 25 women who had founded a startup company, which can be referenced on their website (Ryan, 2016).

We reached out to several women who were on this list and were able to successfully schedule an interview with two successful business women and entrepreneurs. The first is Krista Morgan, the co-founder/CEO of P2Binvestor. We were also able to schedule an interview with Virginia Santy, co-founder of Women in Kind, a coworking space in Denver, Colorado.

Entrepreneurs from Colorado were exclusively selected, as we, the researchers, were currently located in the state and wanted to conduct the interviews in person. Furthermore, as previous research has demonstrated, Colorado is currently considered to be a burgeoning market for both ICT-related startups and entrepreneurship and recently ranked within the top 5 states for highest levels of startup activity (Morelix *et al.*, 2016).

Before presenting the case study details and findings, an overview of general country information, ICT/smart technologies, and the current state of women entrepreneurs in the United States (US) will be introduced below.

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<sup>1</sup> This report was written by Stephen Ham, Researcher & Editor, and Teri Ham, Researcher, the United States.

## Country Information

The below figure provides some general country statistics and information on the US (CIA, 2018).

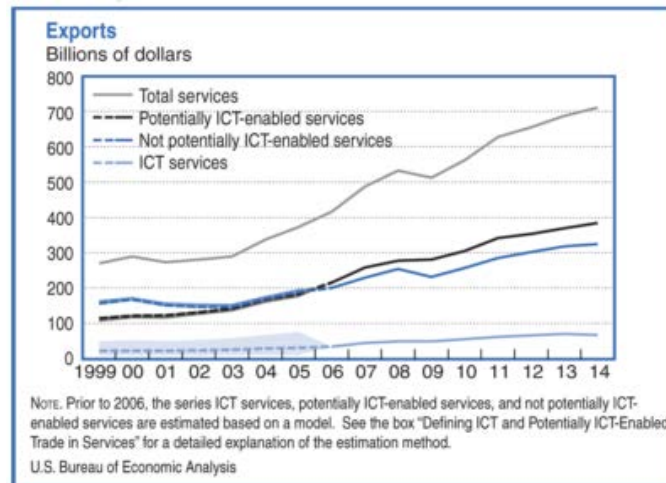
**Figure 1.** The United States Information

THE UNITED STATES
<ul style="list-style-type: none"><li>• Area of land: 9,147,593 sq km</li><li>• 2017 Population: 326,625,791 people</li><li>• 2016 Gross Domestic Product (GDP): \$18.62 trillion</li><li>• 2016 GDP per Capita: \$57,600; an Increase of \$400 from 2015</li><li>• 2016 GDP Growth Rate: 1.5%</li><li>• GDP Composition: Agriculture: 0.9%, Industry: 18.9%, Services: 80.2%</li><li>• Industries: Highly Diversified, World Leading, High-Technology Innovator, Second-Largest Industrial Output in the World; Petroleum, Steel, Motor Vehicles, Aerospace, Telecommunications, Chemicals, Electronics, Food Processing, Consumer Goods, Lumber, Mining</li><li>• 2016 Export and Import Value: \$1.456 trillion / \$2.208 trillion</li><li>• 2016 Labor Force: 159.2 million</li><li>• 2016 Unemployment Rate: 4.9%</li></ul>

## Economic Background of ICT in the United States

In a report released by the US Bureau of Economic Analysis in November 2017 (US Department of Commerce, BEA, 2017), it was shown that the information industry in the US accounted for \$924.7 billion (out of a total \$16716.2 billion) of the national GDP in 2016, or approximately 18% of the national GDP. Although this figure is actually lower than the approximate 20.26% that the information industry's GDP previously accounted for 8 years before in 2008, it's still a growth of \$192.7 billion from \$732 billion in 2008, made all the more impressive by the fact that most of this growth largely occurred over the latter four years (2012-2016). To provide further context on this growth, the US Bureau of Economic Analysis released a report showing that the export of trade in ICT and potentially ICT-related services in the United States more than tripled over the 15 years from 1999 to 2014, from approximately \$100 billion in 1999 to nearly \$400 billion in 2014 (Grimm, Borga and Koncz-Bruner, 1998), as shown in the figure below.

**Figure 2.** Trade In ICT & Potential ICT-Related Services (1999-2014)



Source: Adapted from (Grimm, Borga and Koncz-Bruner, 1998)

This high growth in the information industry in the United States has created a high-potential environment for entrepreneurs and in fact, the USITC estimated in 2011 that the digital economy was responsible for the creation of up to 2.4 million jobs and an increase in average wages by 4.5 to 5.0 percent (Giulia McHenry, 2016).

### Startups in the United States

Today's climate of startups in both the US and around the world, particularly those in the ICT sector, can be traced back to a specific timeframe, 1980 to 2009, in which several major tech companies were formed and laid the groundwork that is in place today. This section will briefly cover this history which these major tech companies played a factor in shaping, as well as the geographical locations of these startups around the US.

Up until the 1980s, large existing firms and establishments were the predominant form of employment in the US. In this context, firms refer to business entities that maintain economic activity under a common operation, while an establishment refers to a single physical location. For example, if a firm is a large national chain of stores, an establishment is a single individual store (Haltiwanger, 2012). It was not until during the 1980s that startups began to play a significant factor in job creation, as they rapidly increased in number and size throughout the 1980s and 1990s in particular. By 2009, startups were contributing just 3.1% towards the US employment rate, while larger firms and establishments were contributing 13.5% (Haltiwanger, 2012).

Most of the startups during this timeframe (1980-2009) were quite small in size in terms of number of employees (Haltiwanger, 2012). Data shows that 38% of startups employed fewer than 10 employees, and 70% of startups were found to employ fewer than 50 employees. To put these

figures into additional context, startups contributed 3.5% towards national job creation in the 1980s, 3.0% in the 1990s, and 2.6% in the 2000s, reaching a relative low at the end of the 2000s that can be attributed to the 2008 “Great Recession” (Haltiwanger, 2012).

It was shortly after this “Great Recession” when a new wave of ICT-related startups were rapidly increasing in prominence, notably Facebook (founded 2004), Twitter (founded 2006), Groupon (founded 2008), Skype (founded 2003), Zynga (founded 2007), Foursquare (founded 2009), and LinkedIn (founded 2002) (Andreessen, 2011). Over 2 billion people were using the broadband Internet at the time, and the rise of software programming tools and Internet-based services effectively lowered costs for startups and made it easier than ever to launch globally as well, removing the need to invest in infrastructure and employee training (Andreessen, 2011).

However, in a more recent report released in 2016, it was found that business creation from startups had increased by 0.38 over the previous year, reaching the peak from before the 2008 “Great Recession” (Morelix *et al.*, 2016). In the same report it was found that the top five states with the highest startup activity were (ordered by population): Texas, Florida, California, New York, and Colorado. It was also found that 30 states in total had more new business activity than in 2015, and in the larger-populated states of California and Texas, it was found that the “Rate of New Entrepreneurs” (defined as: “when someone first starts working on a business as his or her main job”) went as high as 390 new entrepreneurs for every 100,000 adults. In order, the statistics reported for this rate were as follows (ranked by decreasing population and not the rate): 0.39% for Texas, 0.36% for Florida, 0.39% for California, 0.35% for New York, and 0.33% for Colorado. To provide additional background on these statistics, it is important to note that the sparsely-populated Iowa was in last place with 0.18%, while Montana (also sparsely-populated) actually had the highest rate at 0.50%. Hence, total state population is not necessarily linked to the Rate of New Entrepreneurs (and thus number of startups), but rather, other factors like *urban* population may be a more influential factor when it comes to entrepreneurial generation.

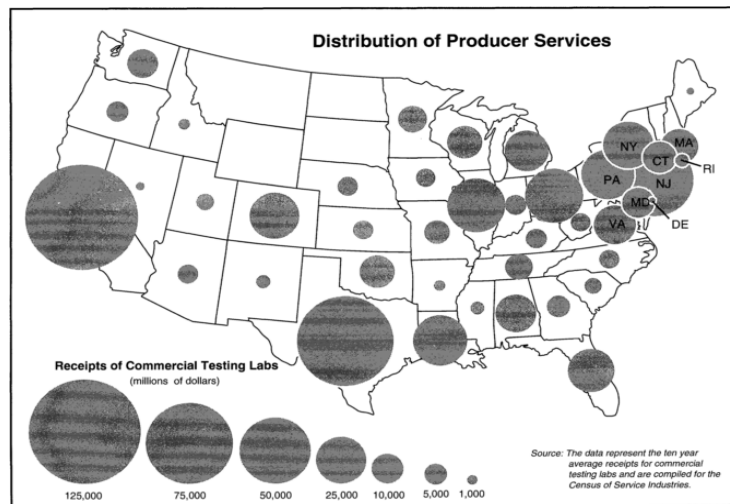
### ICT Infrastructure in the United States

In 2017, the United States’ ranking on the ITU’s ICT Development Index was 16 (International Telecommunication Union, 2017), and 5 on the World Economic Forum’s Networked Readiness Index in 2016 (World Economic Forum, 2016). This indicates that the US is among the most developed in terms of ICT infrastructure, which can once again be traced back to the 1980s and 1990s, when software and related technology companies were the main contributors towards growing the industry.

This industry growth was achieved at a rate of 38 percent per year over the 30-year period from 1970 to 2000, finally leveling off in the mid-1990s (Debroy and Morris, 2004). It was during this

timeframe in which some well-known American companies were founded that contributed heavily towards ICT infrastructure during the 1980s and 1990s, such as Apple in 1977, Microsoft in 1975, Oracle in 1977, Dell Inc. and Cisco in 1984, Amazon in 1994, and Google in 1998 (Mitchell, 2011). In a 1994 report on where this growth was occurring geographically within the United States, it was found that California was responsible for most of the innovations in electronics-related sectors, including computers, communication equipment, and electronic equipment, and thus was also responsible for the infrastructure for these sectors, primarily in Silicon Valley. However, other states notable for a high amount of business-service providers also included Massachusetts, New York, New Jersey, Pennsylvania, and Texas, as shown in the figure below (Feldman and Florida, 1994).

**Figure 3.** Distribution of Business-Service Providers



Source: Adapted from (Feldman and Florida, 1994)

It was not until 1989, however, when ICT infrastructure in the US was significantly advanced by Tim Berners-Lee’s invention of the World Wide Web, and then again in 1993 when the first Web browser, Mosaic, was released (Greenstein, 2004). For the first time this allowed anyone with a computer to access the Internet and caused a demand for standardized mass market applications such as e-mail, instant messaging, and browsing and in turn opened the market to new entrepreneurs. As the commercialization of the Internet increased during the early 1990s, Internet service providers (ISPs) began appearing in order to provide Internet access for both mass-market users and businesses (Greenstein, 2004). By the late 1990s, the ICT infrastructure within the US was being provided by a network of local, regional, and national ISPs and other firms that had sprouted up to build the Internet “backbone.” Some of these companies included AT&T, Cable and Wireless, Global Crossing, GTE, Level 3 Communications, Qwest Communications, Sprint, Williams, and WorldCom (Greenstein, 2004).