

**STATEMENT OF**

**JANEYA GRIFFIN**

**Managing Member and Principal Consultant**

**The Commercializer, LLC**

**BEFORE THE**

**COMMITTEE ON SMALL BUSINESS**

**U.S. HOUSE OF REPRESENTATIVES**

**“Enhancing Patent Diversity for America’s Innovators”**

**January 15, 2020**

## **I. Introduction**

Chairwoman Velázquez, Ranking Member Chabot, and Members of the Committee:

Good morning. Thank you for this opportunity to discuss initiatives pertaining to ways we should be focusing on increasing diversity within our patent and commercialization system. I am honored to be here with you today.

My name is Janeya Griffin - The Commercializer. I am a HBCU STEM graduate, serial entrepreneur, daughter of two inventors, advocate for ownership, intellectual property and generational wealth amongst underrepresented populations. Throughout my 32 years of living, the first time that I truly learned about the value of patents was not as I was introduced to inventors who contributed through history books, no, it was only after I graduated college and knew professors who had patents, did I believe that people that looked like me and that I knew could obtain them. Before becoming this advocate for intellectual property that I am today and owning my own consulting firm that helps independent inventors commercialize their IP, I was a Forensic Chemistry and Criminal Justice major at Grambling State University, who did not know what she wanted to do with her two degrees. The Dean of my college told me that I could not have a boss and therefore I needed to be an entrepreneur and encouraged me to apply for a fellowship program, called the Integrated Technology Transfer Network. This program took STEM students from HBCUs moved them to California and taught them the business side of things, so they could speak and understand the technical language, but then also translate that into a value proposition that business people could understand. I was 1 out of 14 students selected out of more than 100 students who applied across the country. Coincidentally enough, this program was funded by the Department of the Navy through Earmarks facilitated at and by California State University San Bernardino's inland empire center for entrepreneurship and the Army Research Lab Aberdeen. Unfortunately, due to budget cuts the program was defunded in 2011. Through that program I was able to learn the true value and functionality of intellectual property and once I graduated, I received a certification in Entrepreneurial Technology Commercialization. I was able to work on active technology transfer projects with the U.S. Food and Drug Administration, National Institutes of Health, and Naval Surface Warfare Center, all before I truly started my career and became a business owner. On these projects I evaluated patents, worked directly with inventors and researchers to determine the commercial potential of their innovations, developed marketing strategies, performed primary and secondary market research and identified and spoke with potential partners and licensing targets. In fact, some of those organizations used that information that I provided as a fellow to advance their projects.

I say all of this to say, I am a minority with a very unique set of skills and only have the knowledge about the patent and commercialization system, because I went through a very specialized program that targeted STEM students from a Historically Black College. Out of the Alumni from the program, there have been multiple inventors and many have become tech founders, small business owners or have received jobs running SBIR/STTR programs, and even small business development centers. Furthermore, due to that education and experience, I was initially recruited to work in the technology transfer space, and ultimately ended up taking a contracting job at NASA Armstrong Flight Research Center. Where for the last 8 years I have managed and sold their intellectual property amongst other things, such as taking several technologies through the process from disclosure to commercialization, vetting hundreds of technologies for their commercial potential and assisting in the patenting process as well. This education afforded me the opportunity to start my own small business, which I am here representing today, and the advocacy work I do surrounding innovators of color, allows me to speak to what I see may be the issues that the country's patent and commercialization process is facing.

My story in regards to learning about patents and commercialization is not unique to only me. I have surveyed my colleagues, clients, and professionals in this space and the sentiments are mostly the same. Many of them, even those who are patent attorneys, only learned about the value of intellectual property, specifically patents, when they reached graduate school or as they were assigning their ownership rights to their intellectual property over to their soon to be employer.

Although some minority inventors in industry, startups and nonprofits get exposure to patenting and commercialization after research and scientific training in academia others are left behind with the lack of knowledge, skills, and training on the patenting and commercialization process. In 1970 to 2006, black American inventors received six patents per million people, compared to 235 patents per million for all U.S. inventors.<sup>1</sup> Which means that if you combined 13 of the nations NFL stadiums, only 6 of those seats would be given to african americans. In fact, African Americans actually only apply for patents at nearly half the rate of white Americans not because they do not want to but due to the lack of access, education, and resources.<sup>2</sup>

Currently, there is a disparity in under-represented populations engaging in patenting as well as commercializing their technology. The research around the disparity of minority and women inventors goes back decades. For 70 years during the late 1800's and early 1900's, African Americans comprised between only 1% and 7% of the inventor-patentees.<sup>7</sup> Cook's African American data set discloses that participation of blacks in patenting activity even today remains dismal.<sup>9</sup>

With the exception of individuals held in slavery, the U.S Patent system has always been open to all inventors, regardless of race, gender, or economic status. As we know, enslaved people were not considered American citizens<sup>1</sup>, and the rights and provisions of the Constitution did not extend to them as well as state enacted laws that prevented enslaved people from owning any kind of property, presumably including patents as they were considered property themselves.

Although there were laws such as the Meritorious Manumission Act of 1710<sup>10,20</sup>, that were put in place, giving slave owners the opportunity to grant their slaves freedom in exchange for their inventions, many did not do so, and instead took ownership of their slaves patents. The issue still with this law is that in order for them to gain their freedom they would need to forfeit their intellectual property, therefore forfeiting their economic opportunity to participate in ownership, inventorship, and also commercialization. Being asked to choose between your freedom or your intellectual property, makes handing it over an easy decision as this was the only way they could essentially profit from their IP.

According to Johnson (2019), “as the years went by, the U.S. Supreme Court’s 1857 *Dred Scott* opinion held that black Americans could not be citizens of the United States. Arguably, free blacks were precluded from patenting their inventions after *Dred Scott* because they did not have a country of citizenship and presumably could not swear to the Patent Oath. Even after the *Dred Scott* opinion was superseded by the Thirteenth and Fourteenth Amendments after the Civil War, “the economic and educational conditions that many free blacks faced . . . simply were not conducive to pursuing whatever incentives and opportunities U.S. patent law provided.”<sup>3</sup>

How can we expect to increase diversity in patenting and commercialization if historically the system has not been built for minorities to participate or succeed in general. Social/institutional norms, educational norms, and resource availability are all primary areas whereby women and minorities have faced social and/or legal difficulties to patenting and the commercialization process.

This is not my personal opinion, the Success ACT reports on segregation laws and hate-related violence on patenting, invention activity, and tangible capital that reduced patenting among African Americans.<sup>8</sup> From a psyche standpoint due to systemic challenges people have opted out of being innovators because historically they could have lost either their life or had to decide to trade their freedom for it, and According to Lisa D. Cooks work, an American economist, there are over 1,000 missing patents due to hate-related violence during that era.<sup>4,5,6</sup>

Hence, the systemic issues faced by minorities in the patent and commercialization systems for decades has not only created the diversity gap, but has continued to sustain it.

Therefore, it is imperative that minorities gain the knowledge, skills, and training needed to patent and commercialize technology. Not only for innovation, but also for increasing the value of minority owned small businesses. Because the statistics have not changed and minorities and women continue to be underrepresented in owning and disclosing their inventions, patenting their work, and commercializing their technologies, research will continue to show a huge gap in minority engagement in patents and commercialization and in how underrepresented minorities approach patenting and commercialization in general.

## **II. Impact and Effect on Minority Inventors and the Economy**

According to Fechner and Shapanka, “The under-representation of women, people of color, and lower-income individuals in the patent system presents both a social and an economic challenge. Patents help start-ups grow by encouraging capital investment, creating jobs, and generating follow-on innovations that create more useful and accessible products for consumers. The connection between patents and start-ups is important for the broader economy: Start-ups generate 10 percent of all new jobs in the U.S. each year. Allowing more people access to the patent system will only increase these economic benefits. Greater inclusion in the innovation ecosystem means more perspectives and more ideas in the innovation pipeline and helps deter the U.S. from foregoing the opportunity for substantial economic growth and job creation.”<sup>1,11</sup>

The research of Cook finds that including more women and African Americans in the “initial stage of the process of innovation” would increase GDP somewhere between 0.64 percent and 3.3 percent per capita.<sup>4</sup> The U.S. GDP potential, shows a need to close the diversity gap in patents because there is a severely lowering of new business creation opportunity, job growth, and innovation. The structural barriers that continue to perpetuate the lack of diversity in patenting and commercialization by segments of the U.S. population create other structural barriers to establish business ownership and entrepreneurship for minority inventors.<sup>13</sup>

Limited access to financial capital for minority entrepreneurs as well as cost barriers in the patent prosecution and patent preparation process are also major issues. Minority inventors cannot afford high priced attorney fees to prepare and prosecute patent applications. In addition, for minority owned businesses, paying the increasing patent maintenance fees as the years go by often causes extreme difficulties, especially if the small business is not receiving a return on investment from the commercialization of their technology. Although there are special programs like the United States Patent and Trademark Office’s (USPTO) patent pro-bono program that

exist, small business owners still have to meet the income requirements and for minority inventors that don't meet the requirements they still cannot afford to pay for qualified counsel. This is why access to capital for small businesses is so imperative.

In the Success Act report, authors have argued that financial institutions are less likely to lend to new businesses because of the high failure rate of all new businesses. The report also found that African Americans were more likely to secure financing through non-bank sources than White business owners and that Black or African American men were also more likely to be turned down for loans than their white counterparts.<sup>8</sup> It also suggest that minorities have access to fewer resources leading to adverse outcomes in the patent and commercialization process for minority inventors.<sup>8</sup>

Economic justifications for intellectual property concentrate on the incentive to produce technology in the form of stimulating the economy with the creation and the promotion of innovation via patents. Minority inventors are more willing to patent and commercialize technology if minority inventors are able to recoup their investment (specifically, the investment in the research and development of the innovation). It is crucial that minority inventors participate in the patenting and commercialization process because a patent will give minority inventors an incentive to further innovate. They will eventually receive some revenue on account of the commercialization of their invention and, at the same time, enable disclosure of the patented invention so that others can build on the technology. This approach benefits minority inventors by allowing them the right to efficiently, exclude others from using the intellectual property and the incentive to generate innovations that will in turn represent added value to society.

Minority Inventors have been subjected to the hardest challenges within the patent process and commercialization due to the absence of property rights that caused disruption of financial and social capital in marginalized communities yet have contributed greatly to our society through innovation.

### **III. Generational wealth**

Cook and Kongcharoen (2010) find that African Americans are less likely to commercialize their patented inventions than all U.S. inventor patentee (77% of inventions commercialized compared to 80% for all U.S. inventor-patentees) which impacts stimulating the U.S. economy and continues to sustain a systemic culture of the lack of minority participation.<sup>4</sup>

Small business ownership and the commercialization of technologies from small business is key in order for a small business to sustain their companies. The entire purpose for minority inventors is to start small businesses to obtain a patent ultimately to monetize their intellectual property, license their technology, and receive a return on their investments. The benefit of

small business ownership for the economy is to create job opportunities for taxpayers as well as redirect the funds from the return on investment to create more technologies and create generational wealth within marginalized communities.

As we move through the 21st century, we want to boost the economy by increasing the tax-base and better positioning minority communities for economic viability and workforce development. If the small business owns intellectual property, not only will they be able to commercialize it, but jobs will be created, thereby increasing the tax-base and also, giving small business owners the opportunity to hire within their own communities, essentially increasing wealth generation.

“For example, economists have studied the impact of the award of a patent to small businesses, concluding that the award of the first patent to a start up, on average, leads to 16 additional employees after five years, and \$10.6 million in additional sales over five years. “<sup>21</sup> In addition, when minority small business owners begin to generate more jobs, there becomes an opportunity for them to hire people within their own communities, which could in turn also create opportunities to hire returning citizens, and potentially decrease the rate of recidivism, as according to the NAACP, African Americans in this country are imprisoned at more than five times the rate of whites. When we argue better wealth generation in minority communities and better vehicles of getting there one cannot make the argument without making the link between patents and licensing, because licensing is a wealth generating vehicle.

Spulber 2015 finds that applying for and obtaining a patent helps companies to gain access to financial capital, find licensees, stimulate innovation, and facilitate firm growth, which are all potential benefits to companies (Spulber (2015)). Minority inventor participation in the patenting and commercialization process can provide incentives for efficient investment as well as promoting finance and innovation.<sup>19</sup>

Patent and commercialization activities are a key metric for venture capital funding, so minority disparity in patent application filings may correlate to minority disparity in financial support of entrepreneurial activities. Increasing the number of women and minority inventors filing patent applications may help increase the funding for minority entrepreneurial activity.

Despite the disparity, the reasons we see gaps in the lack of minority in engagement in patent and commercialization as well as the lack of generation wealth is due to several factors:

- Education and Outreach - addressing the knowledge gap in underrepresented populations around patenting and entrepreneurship;

- Connecting - aiding underrepresented populations to establish meaningful networks that enable their penetration into patenting and other commercialization areas like venture funding or sourcing accelerator and incubator opportunities, for example;
- Representation - providing examples of successful individuals who identify in these underrepresented populations; and,
- Inviting - finally making a very clear invitation to underrepresented populations to participate in patenting and commercializing their discoveries and ideas.<sup>16</sup>

These factors will help community resources in marginalized communities as well as provide guidance around educational campaigns that promote innovation in those marginalized communities.

#### **IV. Programs that attempt to close the gap**

There was and continues to be a consistently wide gap between non-minority inventors and minority inventors (especially African American inventors) in the colorblind U.S. Patent System. It is important to understand the benefits of fostering greater diversity in inventorship and commercialization.

For federal government agencies that have tech-transfer programs, it's time to take a step back and consider creating targeted programs that may help facilitate minority institutions and minority communities gain access to resources (facilities, expertise and know-how) intended to propel minority innovators forward in their research. Such efforts may also include assistance with commercialization of their innovations.

Efforts to foster greater diversity of inventors and entrepreneurs are not as effective as they could be. There are a limited number of industry and academic institutions that are prioritizing such efforts. There are also efforts that support minority inventors through government funded programs such as the Small Business Administration's (SBA) Small Business Innovative Research Program (SBIR/STTR) and supplemental Technical and Business Assistance funding (TABAs). The USPTO's Patent Pro Bono program provides patent assistance to under-represented populations. In limited instances, non-profits and universities have created curricula and support structures around educating and training under-represented populations in innovation and entrepreneurship as well as patenting and commercialization.

Funding for minority serving institutions (MSI) and HBCUs to start tech-transfer programs will address some of the barriers to reducing the minority inventor gap. In addition, showcasing minorities who have commercialized their innovations through start-up companies or direct licensing to existing companies, can provide incentive and opportunities for minority innovators to grow their network with individuals who can assist with strategic direction and capitalization.



Increase the representation of minority inventors by increasing the funding provided to MSIs and HBCUs to help them develop tech-transfer offices and also educate them on the value of intellectual property. There are programs currently funded by the federal government that provide these resources. The National Science Foundations i-corps program is one that focuses on providing curriculum around the commercialization of intellectual property.

Patents are powerful tools for building up a University's reputation, securing ongoing funding, and enticing new prospective students. While HBCUs have also jumped on the patent bandwagon, their numbers remain extremely low. A look at data from the US Patent and Trade Office show that between 1969 and 2012, HBCUs have only been granted a total of 101 patents. More than half of those patents were awarded between 2010 and 2012. Howard University, Morehouse School of Medicine, and Florida Agricultural and Mechanical University account for the most patents granted to an HBCU between 1969 and 2012, with 18, 17 and 16 patents, awarded respectively.<sup>18</sup>

According to the Association of Public and Land-Grant Universities, "the lack of R&D funding for HBCUs is directly correlated to the number of patents obtained by HBCUs. In addition, each of the Top 10 US Colleges and Universities by Total R&D Expenditures alone receives more funding than all R&D funding to HBCUs combined."<sup>22</sup>

In order to significantly impact the funding for minorities and women faculty members to have the ability to access the resources for a start-up company vs. signing their rights away in an agreement process, there needs to be substantial support in outreach to increase the knowledge regarding the USPTO programs and initiatives.

## **V. Solutions to Increase Diversity in Patenting and Commercialization**

Collaborations with the USPTO and SBA could help close the gap by making a concerted effort to partner with MSI's and HBCUs to help these institutions better engage under-represented populations. The USPTO and SBA could create a model to strengthen partnerships with MSI's and HBCUs, marginalized communities, small businesses, and principal investigators to bridge the diversity gap in patenting and commercialization. Minority Institutions can be a conduit between the federal government and minority inventors as well as small business owners. This connection between the federal government and MSI/HBCUs will promote innovation and help increase resources and workforce development in marginalized communities.

Outreach efforts from the USPTO and SBA to partner with MSI/HBCUs could enable opportunities for under-represented populations to find and build networks with individuals or companies that can support their efforts in the patent and commercialization process. There should be a continuous concerted effort to track data in the USPTO system on small entity, micro-entities, and pro-se applicants. Other federal agencies should also track data relevant to their outreach efforts and collaborations with minority innovators. Such data tracking may assist in a more targeted outreach effort to under-represented populations.

While certain data regarding individual inventors may be sensitive, collecting this data and maintaining its confidentiality within the USPTO system would give assurances to inventors that their personal information is protected. Such data may enable a more robust data-set for future benchmarking against progress.

## **VI. Small Business Ownership**

Since businesses account for the majority of patenting in the United States, there should be a push to engage with minority small businesses as this will in turn assist in increasing, not only the value of the business, but also the economic output.

Black owned businesses in the United States increased 34.5% between 2007 and 2012 totaling 2.6 million Black firms. More than 95% of these businesses are mostly sole proprietorship or partnerships which have no paid employees. About 4 in 10 black-owned businesses (1.1 Million) in 2012 operated in the health care, social assistance; and other services such as repair, maintenance, personal and laundry services sectors. There should be funding and programs that utilize this data to build targeted campaigns that would allow businesses such as these to become educated about not only participating in the patenting and commercialization process, but also the benefits they seek to gain by doing so.<sup>23</sup>

A new study from Harvard Business School and NYU, “The Bright Side of Patents,” spotlights the value that patents bring to startup businesses. Among its key findings:

- A first patent issued raises employment growth an average of 36% over 5 years.
- A first patent issued grows sales an average of 51%.
- A first patent grant increases the probability of securing VC funding by 53%.<sup>14</sup>

Leaving innovations unpatented equates to lost economic value. Hence, patents help companies obtain venture capital funding and secure loans.

## **VII. Conclusion**

Equal opportunity to invent, patent, and commercialize innovative ideas will drive the U.S. innovation economy ever forward, creating countless new products and cures that will create jobs, stimulate economic growth, and improve the quality of life for millions of people.

Critical to the equal opportunity to invent, patent and commercialize is an informed knowledge of one's rights and of the patent system, access to the patent system and the resources to exploit their inventions and discoveries. Far too often minority inventors fall short on all counts. Thus, empowering minority or under-represented populations with competent qualified counsel will facilitate knowledge and access to invent and patent. This may be achieved via minority serving institutions and HBCUs who operate a well funded tech-transfer program and federal government agencies who are well positioned to provide education and outreach assistance to these under-represented groups. The Minority Serving Institutions and HBCUs in collaboration with the federal government can also facilitate commercialization of inventions and discoveries created by under-represented groups. The MSI/HBCU-federal government collaboration can make significant progress in closing the invention gap between minorities (African Americans) and non-minorities when these under-represented groups are provided with education, access and resources that will enable a fair and equal opportunity to invent, patent and commercialize.

Only collecting vanity metrics, such as the demographics of the inventor, is not going to close the diversity gap in patenting and commercialization, other factors should be considered. In fact, the real question should be how many of those 6 patents per million people of African American inventors are actually small business owners.

If we're only concerned with the patents being commercialized in order to boost the economy, without factoring in small business owners that could be minority inventors then we are not truly, addressing the diversity gap.

In addition, as a country we must approach this issue with solutions that are both proactive and reactive. The education of the younger generation is imperative in creating not just more minority inventors, but also, in developing their problem solving skills and teaching them to tap into their creativity. Representation is extremely important and it is unfortunate that minorities are not afforded the same opportunities to see people that look like them represented in the history books we grow up learning from through our elementary educational system. For example, growing up I learned about the grand contribution Thomas Edison made to this country, but not the same one that Granville T. Woods did, or even Lewis Latimer. Both being prime contributors to the electricity and connectivity systems we use today and even competitors to Thomas Edison himself.

There should be a push for more organizations like The NextGen IP foundation who works to ensure minority K-12 students are properly prepared to participate in an economy which develops through innovation and intellectual property by providing financial and networking opportunities to students, educators, and other non-profit organizations. Funding should be set aside, for foundations that have a commitment in ensuring minority K-12 students are not only exposed to the patenting and commercialization process but have the opportunity to make a global impact by helping them bring their ideas to market. By combining both intellectual property and innovation, students will not only benefit, but society will benefit from the solutions and the economic benefits which are associated with intellectual property.

When it comes to being reactive, educating our educators and also marginalized communities where information about the patenting and commercialization system would not be common, is important.

As I closeout it is significant that we continue to fund programs like the graduate, Integrated Technology Transfer Network that enabled equal opportunity in learning about the patent, technology transfer and commercialization process. It also provided opportunities for its participants to take advantage of the networks it created as well as developed future minority inventors, who are now innovation/commercialization ambassadors continuing to increase the awareness and importance of education, access, and resources with respect to patenting and commercializing inventions among their communities.

Chairwoman Velázquez, Ranking Member Chabot, and Members of the Committee of the Small Business House Committee, we appreciate your continued support of increasing minority inventors in the patenting and commercialization process.

---

<sup>1</sup> Holly Fechner & Matthew S. Shapanka, *Closing Diversity Gaps in Innovation: Gender, Race, and Income Disparities in Patenting and Commercialization of Inventions*, 19 *TECH. & INNOVATION* 727, 729 (2018).

<sup>2</sup> *Id.* (citing JESSICA MILLI ET AL., INST. FOR WOMEN'S POLICY RESEARCH, EQUITY IN INNOVATION: WOMEN INVENTORS AND PATENTS (2016), <https://iwpr.org/wp-content/uploads/wpallimport/files/iwpr-export/publications/C448%20Equity%20in%20Innovation.pdf>).

<sup>3</sup> Johson, S. J. The ColorBlind Patent System and Black Inventors, *Landslide Vol. 11 No. 4*, 2019 by the American Bar Association (2019).

<sup>4</sup> Cook, L.D. and Kongcharoen, C., 2010. The idea gap in pink and black. National Bureau of Economic Research Working paper no. 16331.

- 
- 5 Cook, L.D., 2011. Inventing social capital: Evidence from African American inventors, 1843–1930. *Explorations in Economic History*, 48(4), pp. 507-518.
- 6 Cook, L.D., 2014. Violence and economic activity: evidence from African American patents, 1870–1940. *Journal of Economic Growth*, 19(2), pp. 221-257.
- 7 Sarada, S., Andrews, M.J. and Ziebarth, N.L., 2019. Changes in the demographics of American inventors, 1870– 1940. *Explorations in Economic History*, pp. 101275.
- 8 Study of Underrepresented Classes Chasing Engineering and Science Success Act Report to Congress United States Patent and Trademark Office 2018
- 9 Cook, L. D. (2004). African american inventors data set
- 10 PATRICIA CARTER SLUBY, *THE INVENTIVE SPIRIT OF AFRICAN AMERICANS: PATENTED INGENUITY* 30 (2004) [hereinafter SLUBY, *INVENTIVE SPIRIT*].
- 11 Graham S, Merges R, Samuelson P, Sichelman T. High technology entrepreneurs and the patent system: results of the 2008 Berkeley patent survey. *Berkeley Tech Law J.* 2009;24(4):1255-1328.
- 12 H. Comm. on the Judiciary, Subcomm. on Courts, Intellectual Property, and the Internet, Hrg on Lost Einsteins: Lack of Diversity in Patent Inventorship and the Impact on America’s Innovation Economy, March 27, 2019 (Statement of Susie M. Armstrong).
- 13 The U.S. Patent and Trademark Office Elijah J. McCoy Midwest Regional Office Hrg on The Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act, Detroit, Michigan June 18, 2019 (Statement of Holly Fechner Covington & Burling LLP).
- 14 Farre-Mensa, J. The Bright Side of Patents Harvard Business School Deepak Hegde NYU Stern\* Alexander Ljungqvist NYU Stern & NBER October 2016
- 15 Farre-Mensa, Joan and Hegde, Deepak and Ljungqvist, Alexander, What Is a Patent Worth? Evidence from the U.S. Patent 'Lottery' (June 25, 2019). *Journal of Finance*, Forthcoming; USPTO Economic Working Paper 2015-5.
- 16 Ph. .D. Toole, Andrew. "To USPTO" The Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act 27 Jun. 2019
- 17 ThePLUGStaff (2019, April). HBCUs Trail Behind Intellectual Property Creation Retrieved from <https://tpinsights.com/2019/04/01/hbcus-trail-behind-in-intellectual-property-creation/>
- 19 Spulber, D. , 2015. How patents provide the foundation of the market for inventions. *Journal of Competition Law and Economics*, 11(2), pp. 271-316.
- 20 The Meritorious Manumission Act of 1710 was a legal act of freeing a slave for “ good deeds” as defined by the national public policy. Meritorious Manumission could be granted to a slave who distinguished himself by saving the life of a white master or his property, inventing something that a white slave master could make a profit from. These unsung inventors never obtained patents or the financial gains of their inventions—though slave masters and other white men often did. Some would take undue credit for these inventions and/or secretly patent the inventions themselves, ignoring the true inventors.
- 21 Congressman Hank Johnson for Georgia’s 4th District. “Rep. Johnson conducts oversight hearing on U.S. Patent & Trademark Office.” *Press Release*, 9 May. 2019. <https://hankjohnson.house.gov/media-center/press-releases/rep-johnson-conducts-oversight-hearing-us-patent-trademark-office> Accessed 9 May. 2019.

---

22 Lee, J.M. and Keys, S.W. (2013). Repositioning HBCUs For the Future: Access, Success, Research & Innovation. (APLU Office of Access and Success Discussion Paper 2013-01). Washington, DC: Association of Public and Land-grant Universities.

23 The Black Demographics (2012). US Census 2012 Survey of Business Owners (SBO) Retrieved from <https://blackdemographics.com/economics/black-owned-businesses/>