

Summer 2018

# A Video Guide to Navigating the Challenges of a High Tech Business in Montana

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## Recommended Citation

Quigley, Julia, "A Video Guide to Navigating the Challenges of a High Tech Business in Montana" (2018). *Graduate Theses & Non-Theses*. 178.

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A Video Guide to Navigating  
the Challenges of a High Tech Business in Montana

By Julia Quigley

Abstract

High tech is Montana's new frontier for entrepreneurs. Advances in technology is reducing geography as a barrier, and we are experiencing a new kind of economic growth. However, building a high tech business in Montana's mostly rural environment presents an array of obstacles for entrepreneurs and business owners. This project addresses these challenges and offers advice from some of the state's activists, like business advisors, state representatives, and venture capital firms. A miniseries distributed via YouTube highlights key information from several in-person interviews, and outlines why Montana is primed for a high tech boom.

Keywords: High tech, Entrepreneurship, Montana, YouTube, Miniseries

Introduction

This project is born from three principles: 1) entrepreneurs are the foundation for economic prosperity; 2) growth in the high tech sector offers a bright future for Montana's economy; and 3) videography is the best way to communicate complex issues and educate the masses. In an effort to assist high tech entrepreneurs and Montana's business development, I created a video miniseries outlining obstacles and solutions for starting and growing a high tech business.

High tech growth relies on entrepreneurial activity, and Montana will only see industry expansion if new businesses thrive. Developing a strong high tech sector is a critical strategy for economic gain, and Montana's entrepreneurs must be at the forefront of this endeavor. Optimal

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business environments are an intricate network with numerous unseen factors, and it is difficult for entrepreneurs to succeed without substantial help from local agents. My goal is to create a resource that small business owners can use to help navigate the challenges of building a high tech startup in Montana.

For decades, extraction, agriculture, and tourism were our economic drivers, but modern technology is reducing geography as a barrier and we are experiencing new opportunities for growth in the high tech industry. Today's entrepreneurs build products targeting people all over the world, and with help from the internet, gain customers from around the globe. It is increasingly popular for local governments to place emphasis on small high tech firms, because these firms prove to propel job creation, enhance regional economies, and increase innovation and competitiveness (Berry, 1998). Tech-centric businesses generate revenues from outside local markets, and in turn, distributes it to Montanans through high paying jobs and economic growth.

My vision is to offer meaningful solutions to entrepreneurs in the form of short videos as a tool to aid in the understanding of diverse issues surrounding high tech. I compiled several on-camera interviews with industry experts to help address common obstacles Montana's businesses encounter, and chose the use of a miniseries because videography is the quintessence for presenting complicated issues in an engaging manner—videography is highly effective for communicating complex ideas to the masses (Kozinets & Belk, 2007). Like most videos created these days, mine are accessible via YouTube, because internet is a premier distribution channel for reaching millions of people, and YouTube is a major contributor to wide-spread video content (Ten Hove & Van der Meij, 2013).

## **Background**

Montana has one of the highest rates of entrepreneurship in the country (Fairlie et al., 2015); and that is notable, as new business development in America is at a 60-year low (Marchi, Liz, 2017). The founding of small and medium enterprises lends a significant hand to the nation's job creation, and has an even greater impact on innovation and social change. Hence, influencing entrepreneurial activity is an important role of the local government (Berry, 1998). Montana is prime locale to build a high tech business due to numerous factors. An overall of low cost of doing business and the absence of sales tax encourages business development, but even more so, Montana's flair for relationship building and networking cultivates an entrepreneurial spirit.

Although high tech in Montana is growing faster than any other industry, businesses and entrepreneurs face challenges that impede further growth. The state government and many of Montana's ambassadors place an emphasis on helping businesses overcome barriers by developing organizations and campaigns such as: Come Home to Montana, a government-funded campaign encouraging high tech workers to move to the state; the Montana High Tech Business Alliance, a state-wide organization of 250 firms offering support and networking to high tech entrepreneurs; Senator Steve Daines' biannual High Tech Jobs Summit; and Governor Steve Bullock's initiative, Choose Montana, to lure out-of-state organizations to build businesses in Montana. Obviously, we are working toward high tech growth, but the state's sparse population, geographic remoteness, and low wages hinder expansion. The numerous organized efforts to counteract these economic restrictions have yet to yield measurable results; however, there is a strong indication of positive influence, as Montana is among the top three states for the highest percentage of job growth (CompTIA, 2017).

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An annual survey by the Montana High Tech Business Alliance distributed to over 300 local high tech businesses analyzes the environment, and consistently finds major impediments to growth for high tech businesses. Montana businesses face certain challenges due to low unemployment, geographic remoteness, lack of access to capital, and few highly-skilled technology workers. This project is a series of short videos addressing these challenges, and offering advice to entrepreneurs. On-camera interviews with prominent influencers effectively educates entrepreneurs about the challenges and opportunities of doing business in Montana. These short videos, distributed via YouTube, are an accessible way to encourage high tech entrepreneurial success.

### Literature Review

The following is a review of the academic information gathered to prove this project's validity; beginning with a discussion on Montana as a high tech hub and how that benefits us, then segwaying into the challenges Montana's entrepreneurs face, and finally addressing how they can benefit from a video miniseries. This project is made possible by all those participating on camera, and Montana Tech's faculty and students who support and drive its cause.

### **High Tech in Montana**

Technology is our new economic driver<sup>1</sup>, and its development is crucial for Montana's betterment. We must embrace high tech business development lest the economy struggle, and residents fall further down the nation's wealth ladder<sup>2</sup>. From the 1990s to now, Montana has one

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<sup>1</sup> The high tech industry in the US grew 2.7% annually for 15 years, while other industries slowed to a growth of less than 1 percent.

<sup>2</sup> Montana has the 27 highest poverty rate in the US. Active local markets and job stimulus are proven to lower regional poverty.

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of the lowest rates for high tech job employment<sup>3</sup>. Regardless of Montana's lagging national statistics, the industry is currently growing faster than any other sector in the state, benefiting our cities and rural economies with high paying jobs.

While they represent only 3.2% of Montana businesses, high tech companies contribute 5.2% of all payroll. High tech employees rake in 40% more than average Montana workers<sup>4</sup>, providing economic stimulus in the communities they live (UM-BBER, 2017). Prosperity trickles down to local small businesses and nonprofits when residents earn more than just a living wage.

Thus, high tech business development is a win-win for Montana's economy. A renowned high tech success is Greg Gianforte, who moved to Bozeman and founded RightNow Technologies, which was later bought by Oracle for \$1.8 billion.<sup>5</sup> This development injected a great deal of money into the Bozeman community, and Rightnow Technologies' employees initiated several business offshoots that added to the high tech boom<sup>6</sup>. Now, the sector is growing seven times faster than the rest of the state's economy (UM-BBER, 2017). Montana had a little taste of high tech, and it had a big impact.

### **Montana's Business Advantage**

Montana is consistently ranked one of the top states for entrepreneurship. According to the Kauffman Index, Montana had the highest entrepreneurial activity per capita for three years

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<sup>3</sup> 5.7% of Montana's workforce have high tech jobs, while the nation's high tech workers constitute 15% of jobs. This is difficult to accurately measure and compare, as the definition and criterion for high tech is vast, and studies vary on what they consider high tech.

<sup>4</sup> The median earnings for Montanans is \$40,250, while the median earnings for high tech employees working in Montana is \$66,500.

<sup>5</sup> Mr. Gianforte is currently Montana's state representative. His story is featured in Episode 2 of this project.

<sup>6</sup> RightNow Technologies is responsible for spurring the development of 15 additional businesses (UM-BBER, 2015; Gianforte, 2017).

running (Fairlie et al, 2015). A culture of entrepreneurship is important for small communities in Montana, as it encourages innovative solutions that lead to job creation and economic gain.

By influencing employees to start their own companies, even one entrepreneur, like Gianforte, can leave a major economic footprint on regional economies. The network of individuals and businesses affected by Oracle's purchase of RightNow Technologies fostered high tech growth, demonstrating a prime example of Montana's social capital. Social capital are the assets existing in relationships and networks. It impacts entrepreneurial behavior due to communal participation and like-mindedness. Social capital is the collective knowledge and support that makes it easier to build a successful business.<sup>7</sup> Enterprise is often a consequence of individual interaction and social community, emphasizing the importance of encouraging social capital in small economies (McKeever et al., 2014).

Social capital plays a critical role in Montana's entrepreneurial spirit. Startups gain support through networking and government resources. An annual survey conducted by the University of Montana Bureau of Business and Economic Research outlines the statistics of our high tech environment. The Montana Department of Commerce, Montana's two senators, and the state's universities were cited as the most helpful resources for high tech businesses (UM-BBER, 2017)<sup>8</sup>. The Montana High Tech Business Alliance was also cited as a beneficial resource; they provide many networking opportunities that offer education for small businesses. Members of the High Tech Business Alliance feel optimistic about doing business in Montana,

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<sup>7</sup> The phenomenon of business clusters suggests that social capital plays a major role in industry growth (Porter, 1998).

<sup>8</sup> The Montana Department of Commerce (28.7%) and Senator Jon Tester (27%) were combined the most frequently cited government resources that were beneficial to Montana's high tech businesses (UM-BBER, 2017).

the survey reports that over 75% of respondents would encourage someone to start a business in the state.

Montanan's strong business ties are not the only factor that make this a great place to start a high tech. A work/life balance, recreational opportunities, and a high-quality workforce are the other most beneficial attributes of conducting business in Montana. A beautiful landscape and short commutes to outdoor recreation are main reasons business owners want to stay in Montana (UM-BBER, 2017). With small tight-knit communities, it is a great place to raise a family too. Montana's helpful communities were also cited as an advantage for high tech business owners. One respondent of the survey wrote that Montana's advantage to business is, "Educated employees who are committed to the area due to the high quality of community and outdoor life (UM-BBER, 2017, p. 38).

### **Impediments to Growth**

While living and doing business in Montana adds value for most entrepreneurs, it is not without some disadvantages too. Hiring skilled workers is a challenge for small high tech firms. About one quarter of high tech businesses claim that the inability to hire skilled employees is their largest impediment to growth.<sup>9</sup> One survey respondent reported [operating in Montana] "actually hinders our ability to attract outside talent. We are required to hire younger inexperienced engineers and train them, which creates a 2 to 3 year window before they are fully trained to fill a position we have a need for immediately. We forecast our growth rate is reduced by 50% due to inability to attract talent. (UM-BBER, 2017, p. 39)"

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<sup>9</sup> 28% claimed that a lack of access to capital was their firm's largest impediment to growth, and 22% reported that attracting talent and hiring skilled technology workers was their firm's largest impediment to growth. The third largest impediment to growth (10%) was finding new customers.

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An estimated one-third of university graduates leave the state looking for higher wages elsewhere. Many do not find it appealing to live in Montana because the cost of living is slightly above the national average while wages are far below. Montana was labeled as “the third worst state to work in” according to personal finance expert, Richard Barrington (2017). His study factored in six variables: cost of living, workplace safety, state tax burdens, median wages, and unemployment rates. The article states, “The two biggest issues with making a living in Montana are workplace safety and low wages. Based on a combination of workplace fatality rates and occupational-related injury and illness, Montana's working environments are the third riskiest in the nation. At the same time, workers in the state don't get paid well for that risk, since the median salary is in the bottom 10.”

A report by the Computer Technology Industry Association found that Montana is among the three lowest ranking states for employee pay (2017)<sup>10</sup>. It is no mystery why high tech businesses find it difficult to attract talent, Montana has been at the bottom of the pay scale for decades. One survey respondent wrote that the largest advantage of being a Montana business is a “Cheap tech labor force (UM-BBER, 2017, p. 38).” Being a sparsely populated and underpaid state presents deep-seated challenges for a high tech industry trying to promote growth.

Attracting the kind of talent needed to take business to the next level requires offering nationally competitive wages.

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<sup>10</sup> Tech industry in Montana provided 13,201 high tech jobs in 2016 ranking 47<sup>th</sup> down the list for states with tech employment. A successful indicator shows that Montana had one of the highest growth percentages of new high tech job development. Montana ranks the 5<sup>th</sup> highest percentage increase in high tech job growth, and the third highest overall job growth. Measured by growth percentage Montana gained significant economic ground compared to other states in 2015 and 2016.

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Not only are skilled workers crucial to high tech growth, but so is monetary support. Funding is a key to success in the ever-changing industry of high tech, but it's a major obstacle for Montana's businesses. Lack of access to capital is one of the two largest impediments to growth for high tech businesses (UM-BBER, 2017). Without sufficient funding for innovation, small companies cannot compete with large corporations. Growth for high tech often requires large investments in new research and development, but small and medium enterprises lack the funds (Martins et al., 2015).

Most high tech products are capital intensive and a risky investment, so traditional financing from banks is limited without an entrepreneur's personal collateral. Pharmaceutical and bioscience companies, for example, wait years before receiving payout for their products. Banks are not willing to take the risk on such unsecured endeavors. Angel investment and venture capital is a solution for entrepreneurs who cannot get funding from personal wealth or banks, but this poses a problem for Montana's high tech businesses too. "Montana has been largely underserved by angel investors and venture capital for that last 100 years," says Ken Fichtler, the Chief of Economic Development for the State of Montana.<sup>11</sup>

Large corporations in highly-funded metropolitan areas tend to have more access to funding through business collateral, venture capital, angel investment, and crowdfunding, while Montana's high tech businesses are left in the dust. The video episodes of this project discuss these two major impediments to growth with venture capitalists who offer entrepreneurs advice on some nontraditional forms of financing.

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<sup>11</sup> Ken Fichtler is featured in Episodes 1, 2 & 3 of this project.

### **Montana's Efforts**

Montana's leaders understand the benefits of bringing business into the state, and have initiated several campaigns to encourage enterprise and spur job growth. Many city governments use costly incentives to draw in outside businesses to set up shop in Montana towns. We were successful in a few attempts to recruit outside businesses to locate to Montana. Boeing, for example, moved a manufacturing firm to Helena and hired hundreds of locals. While this strategy moderately increased high-tech jobs in some areas, economic development experts agree that promoting local entrepreneurship is the most effective strategy for enhancing rural economic prosperity (Besser et al, 2013).

In their study of remote economic locations in the U.S., Besser and Miller state, "Efforts to recruit businesses to locate in rural areas are infrequently successful and consume a disproportionate share of development resources compared to their likely benefit." Additionally, they cite that an environment encouraging local entrepreneurship is more likely to attract outside business. Entrepreneurship is an engine for job creation and economic growth (Markova & Perkovska-Mircevska, 2009).

High-growth companies are the ideal scenario for economic prosperity, but building a high-growth company is rare, and it is entirely reliant upon entrepreneurial activity that these rarities occur (Autio & Acs, 2007). The true measure of regional economic success is a high level of entrepreneurial activity coupled with an ease of access to capital (Barkley, 2003; Bruton, et al., 2015; Yang, et al., 2017).

### **Videography as a Tool**

Montana remains in a sticky position. While it offers employees an unprecedented way of life, it lacks for competitive wages. As its entrepreneurial activity increases, access to funding

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restricts business growth. These concepts are difficult to communicate, and even more difficult to solve. The local government and supporting organizations network to propel economic growth, and while gains are realized, it is possible that further progress can be made with the use of informational videos. Montana's entrepreneurs need support, especially in high tech where challenges are predominant. This project utilizes what I learned from the above literature to develop a series of interview questions with industry experts, who then address the main impediments to growth on camera.

Recorded interviews can inform entrepreneurs, and with advice from experts, they are likely to learn something pertinent. Video is a modern and compelling way to communicate complex ideas, move audiences, and demonstrate concepts more effectively than the printed word alone (Petr, et al., 2015). We live in a mass-mediated world where rich, colorful, multilayered, sound effects-laden, fast-paced, audio-visual information is increasingly the norm (Kozinets & Belk, 2007). Short, informative videos are an accessible tool to aid in educating Montana's high tech entrepreneurs of the business perils in our rural state.

While informative video is increasingly popular, I found no relevant videos in an internet search on Montana's high tech growth. There are videos covering news stories about high tech in Montana, but none of them are educational. A YouTube search of high tech in Montana yields only two types of videos: local news channels reporting on new high tech businesses in Montana, and Senator Steve Daines promoting his bi-annual High Tech Job Summit.<sup>12</sup> As far as informational videos, YouTube displays nothing for building high tech business in Montana. The Montana High Tech Business Alliance, a nonprofit advocating for high tech growth, is at the

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<sup>12</sup> Much of Episode 2 of this project was filmed at the 2017 High Tech Job Summit.

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forefront of using video to communicate about Montana's high tech industry. Yet they developed no videos pertaining to *how* high tech businesses grow.

### **Video Production**

A miniseries of how to build a high tech business in Montana is useful, and it is my hope to encourage and educate entrepreneurs while offering applicable advice. Videography is the medium I choose to deliver useful information to entrepreneurs, because it proves to be entertaining, engaging, and easy to access. In order to successfully create such content, it is important to understand what constitutes a well done video. Petr and colleagues (2015) identify two main duties of a videographer, "During the production process of a video, the videographer is at the center of the images and should be aware of her/his responsibilities (p. 89)." The first duty of the videographer is to define exactly what they want to express and demonstrate, and the second duty is to justify exactly which video was selected for production and why. Choosing the components essential to the story, rather than merely anecdotal, is a key difference between engaging and boring video.

While creating high quality design, it is important to know the influencing factors for effective videos (Ten Hove, 2014). To understand which videography practices promote influential content, Ten Hove and Van der Meij (2015) studied popular instructional YouTube videos, and identified their similar design characteristics. They found that popular YouTube videos are distinguished in seven ways: 1) they have a higher resolution than less popular videos; 2) frequent presence of static pictures; 3) frequent presence of a combination of static and dynamic pictures; 4) frequent short on-screen texts; 5) frequent inclusion of background music; 6) less background noise; 7) faster speaking rate (words per minute). This project uses these seven characteristics as best practices for instructional video content. The best practices along

with Petr's (2015) two duties of videography (1. define the expression; 2. justify the selection) are the foundational practices for an educational miniseries targeting Montana's high tech entrepreneurs.

Prior to identifying best practices for YouTube videos, Ten Hove and Van der Meij (2013) conducted a separate study on educational videos, and outlined eight guidelines for creating effective multimedia for instructional design. Of these guidelines two stand out as pertinent to the proposed project: 1) craft the title carefully<sup>13</sup>; 2) keep videos short.<sup>14</sup> The original eight guidelines are specific to instructional video for learning a software program, so only two were identified useful for conceptual videos.

Communicating complex ideas, like the high tech challenges in Montana, is not a simple task to capture on video. Conceptualizing multifaceted issues is difficult enough on paper, but composing a quality video that accurately depicts these issues is even more of a challenge. Montana's high tech industry and entrepreneurial potential can be conveyed using video that couples videography's best practices with interviewing tactics.

Recording interviews was a revolutionary media tactic because it offered "live" discourse to the public. The most basic and commonly used videographic technique for communicating information is filming interviews (Kozinets & Belk, 2007). Most news broadcasts use interviews

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<sup>13</sup> Titles should describe the video as accurately as possible to optimize search results. Titles between five and ten words are the most effective and manageable (McBride, 2017). They should also contain a verb and an object giving a succinct description of the video's goal, and all verbs could perhaps be better presented as gerunds (Van der Meij et al., 2013).

<sup>14</sup> Suggestions from previous studies recommend videos be anywhere from 15 seconds to over seven minutes (McBride, 2017; Van der Meij et al., 2013). However, what matters most is that viewers perceive the video as having a clear beginning and end (Van der Meij, 2013). A study on hundreds of YouTube videos communicating a conceptual idea, found the average video length was three minutes and 40 seconds, although the videos classified as "good" averaged to be nearly five minutes long (Ten Hove, 2014).

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to cover main points of information, even documentary film techniques rely heavily on interviews adding merit to a topic. Interviewing as a rhetorical tactic engages an audience with a sense of “being there” and contributes to their suspension of disbelief on a subject; whereas, they are more likely to believe the speaker if they are being interviewed by another party. Interviews allow communication to flow from one subject to another resulting in an in-depth level of understanding. On-camera interviewing as a qualitative research method captures this audiovisual phenomenon, allowing others to experience the same (Goldman, 2014).

### **Distribution via YouTube**

YouTube and advancements of the internet revolutionized the way we consume information and news. 24,000 hours of video are uploaded to YouTube every day, and 10% of that content is informational in nature (Ten Hove & Van der Meij, 2015). With over a billion active users a month on YouTube (Huffpost, 2013), this wave of multimedia distribution is here to stay. Watching informative videos is a widely-used platform for people to research. These days, YouTube is practically considered a secondary source for education; one can learn about almost anything from a YouTube video. Producing tutorial-style videos for a YouTube channel is increasingly popular. YouTube is the most watched internet site, and an effective place for communication. Using video and distributing it via YouTube is my effort to help Montana entrepreneurs pursue high tech business growth.

### Methodology

The research supporting this project recognizes a need for entrepreneurship in Montana’s high tech sector. The aim of the miniseries is to “iron out” some of the most prevalent issues inhibiting industry growth. I address these issues through a demonstration of technical communication skills, namely using video production as a way to communicate complex ideas.

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Videos are an effective tool for communicating information, and purposeful for a qualitative study on Montana's high tech industry. Information conveyed using video is accessible for users and easy to understand.

### **Videography as Technical Communication**

The purpose of this project is to provide high tech entrepreneurs in Montana with relative and digestible information. It addresses major issues facing entrepreneurs in Montana's high tech sector, and uses a best-practices approach to video production to discuss these issues. Best practices for conveying complex information includes the use of video, photography, sound, and text. The videos engage viewers with the use of story-telling techniques and in-person interviews. Videos with interviews demonstrate a form of highly effective rhetoric, in which viewers are more likely to "buy into the story" if they hear information from someone with experience (Kozinets & Belk, 2007).

Imagine an episode of 60 Minutes, complex and dynamic stories are told through a combination of two-party interviews, b-roll with a narrative, and images with text. Television talk shows demonstrate an ideal interview environment. Three camera angles engage the viewer: a mid-shot or close-up of the interviewer, a mid-shot or close-up of the interviewee, and a full-body of the both of them. The viewer changes angles throughout the discussion to remain engaged, and collects the information provided.

This miniseries is a compilation of informational narrative and images, and interviews with high-profile Montanans working toward industry growth. On-camera interviews add value to an informational format, while still images and text contribute to clarity. This combination of videography styles offers an engaging and educational experience for the viewer (Ten Hove &

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Van der Meij, 2016). These videos will help entrepreneurs easily comprehend common challenges, and offer direction toward solutions.

### **The Videos**

I believe that a series of short videos (a miniseries) encouraging high tech entrepreneurship, and addressing the challenges surrounding it, is subtly useful for the economic development of our rural state. Miniseries are a revolution since the widespread use of YouTube and video streaming. It is increasingly popular for businesses and freelancers to produce a series of short videos for distribution on the web. Episodes are usually less than ten minutes and distributed weekly or monthly, and viewers become engaged with the short stories. My hope is that this miniseries entertains entrepreneurs and business advocates long enough for each one to learn something.

The proposed videos address the issues discussed in the above Literature Review. Each episode is less than six minutes and covers a particular topic.

1. Introductory Episode - Why I am doing this

On-camera, I talk about my personal family history and why entrepreneurship is my passion, and then touch on why high tech is important for Montana's economy.

2. Episode 2 - High tech entrepreneurship in Montana

I interview Chief of Economic Development for the State of Montana, Ken Fichtler, and we discuss why high tech is important for Montana, with periodic examples of a high tech success story (that of Greg Gianforte with RightNow Technologies). The episode concludes with a list of websites where entrepreneurs can find help from the State government and other nonprofits working for high tech growth.

3. Episode 3 - Funding a high tech business

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This episode focuses on entrepreneurs' number one impediment to growth, lack of access to capital. I interview two experts in venture capital, and they discuss what it takes for a business to receive venture capital investment. Then, we discuss other nontraditional forms of financing.

### **Best Practices**

In addition to adhering the best practices discussed in the Literature Review, I assessed my personal favorite miniseries, Marie TV, in hopes of gleaning some tips on how to engage viewership. Marie TV, available on YouTube and from her website, is a resource for entrepreneurs to gather inspiration. Marie Forleo is the host of her own talk show promoting how “to have a business and life you love.” She engages the targeted audience through compelling information, and her character drives the show. Marie has a spectacular introduction to each episode; she dances in colorful outfits and acts silly. Her large personality makes viewers laugh, and her practical advice is encouraging for entrepreneurs. She distributes two main types of episodes: where she interviews an industry expert, and answers questions from her audience.

I want to serve as the “personality” on this miniseries. Like Marie Forleo, I sit in front of the camera and deliver an overview about each episode, and on-camera interviews are the “meat” of the show. Unlike Marie TV, my episodes encompass the other forms of videography too: b-roll footage with a narrative to convey background information about the topics; animated images with text to show statistical information; and still images with text to offer viewers a call-to-action.

The miniseries encompasses the best practices of YouTube videos discussed by Ten Hove and Van der Meij (2015), each episode having:

1. A high resolution of 1920 x 1080 pixels (industry standard for television)

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2. Frequent presence of static pictures
3. Frequent presence of graphic animations
4. Frequent short on-screen texts
5. Frequent inclusion of background music
6. No background noise (although a few times the audio recording is lacking)
7. Fast speaking rate to keep things moving quickly

Adobe Creative Suite, an industry standard in video production, animation, and graphic design, is used to edit and create each one of these elements.

Part of the criteria for these videos is that they are short and concise. Studies using YouTube show that the most popular videos contain small bits of information, like a dog trick or a simple task (Ten Hove & Van der Meij, 2015; Cha et al., 2007). The studies suggest that viewers want to watch short and easily understood content. The average length of the most popular YouTube videos is less than two minutes (McBride, 2017). Slicing information about Montana's high tech challenges into short concepts lends well to the production of a miniseries, where several short videos comprise one broader idea.

### **Online Accessibility**

The internet is a premier distribution channel for reaching millions of people, and YouTube is a major contributor to wide-spread video content (Ten Hove & Van der Meij, 2013). YouTube allows users to upload videos effortlessly, tag videos with keywords and links to other videos, share videos with anyone using a simple url, and comment on videos to provide feedback. The proposed video miniseries distributed via YouTube allows anyone with web access to learn about the Montana's high tech environment.

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While videos are not a primary source of research for entrepreneurs, they are a strong compliment to the business resources already available. Any of Montana's organizations promoting high tech growth can easily place one of my video links on their websites. Stakeholders of this project, and the many people I connected with throughout its creation, can easily share my videos on social media. Social media, including YouTube, Facebook, Twitter, and the countless others, calls on viewers to be active participants of what they see; commenting and sharing is a main feature of social media and that is how information "goes viral" (Cheng, et al., 2013).

### Discussion

The learning curve for this project was intense. Video production is far more complex than I originally anticipated. Understanding best practices in video production is simple, but bringing those practices to fruition is entirely different. I had no experience in videography, editing video, or creating animations prior to this project. While I have expertise in graphic design, that was merely a cornerstone of this fortress, and nearly two years were spent on its construction.

Researching the high tech industry in Montana was the easy part. Since 2015, the University of Montana Bureau of Business and Economic Research conducts an annual survey to report on the state's high tech industry. The surveys analyze high tech business' largest impediments to growth, and those results are the justification of the challenges discussed in each episode.<sup>15</sup> Other research of the Literature Review helped construct specific questions for the interviewees. The research on high tech, entrepreneurship, and Montana's economy, laid the

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<sup>15</sup> Lack of access to capital is continually the most business' greatest impediment to growth, hence, Episode 3 is about financing a business. Finding skilled workers is another impediment, but I have yet to finish an episode entirely about that.

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groundwork for each interview. Due to thorough investigation, I asked informed questions that were specific to solutions for the high tech industry's impediments to growth.

Interview subjects were eager to help, and impressed with my breadth of knowledge about the topic. I met and spoke with Senator Steve Daines and Representative Greg Gianforte.<sup>16</sup> I had in-depth conversations with venture capital firm founders, Liz Marchi<sup>17</sup> and Will Price<sup>18</sup>, about financing high tech businesses. Ken Fichtler<sup>19</sup>, Chief of Economic Development for Montana, provided such an array of helpful information that he is featured in all three episodes. I did not consider the interviewees' political stances before I put them side by side in the videos. Daines and Gianforte are Montana Republicans while Fichtler is employed by our Democratic governor.<sup>20</sup> The miniseries is unintentionally riddled with rivaling politicians, and although none of the episodes make a single political statement, this fact was met with concern by the interviewees. However, I believe the diverse representation adds value to the miniseries, conveying Montana as a politically cooperative environment for businesses, and so it is.

Even through its challenges, conducting interviews proved much more simple than the technical aspects of this project. I hoped to cover many more challenges and solutions of a high tech business, but my lack of video production and editing skills caused production to take much longer than expected. Not only is camera and sound equipment complex and onerous, but lighting is fickle and my skills were no match for the trials of videography. Many of the video shoots were completely unusable, as the microphones were not hooked up properly, or the lighting was terrible, or the camera was out of focus. To top it off, I knew nothing about post

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<sup>16</sup> At the 2017 High Tech Job Summit hosted by Senator Daines.

<sup>17</sup> Founder of Frontier Funds I and II, the first venture capital fund in Montana.

<sup>18</sup> Founder of Next Frontier Capital in Bozeman.

<sup>19</sup> Previously served on a venture capital board of directors.

<sup>20</sup> Governor Steve Bullock is a Democrat and nearly lost an election in 2016 to Republican Greg Gianforte, who was then specially elected to replace Representative Ryan Zinke.

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processing videos. Luckily, with help from experienced videographer, Tim Lewis, and Professor Nick Hawthorne, I managed to squeeze three episodes.

Post processing video requires great skill, not just technically but skill with story-telling as well. I quickly learned how to use Adobe Premier, but creating a flow proved most difficult. First, I sifted through dozens of hours of footage to pick out the highlights, then categorized the interesting pieces of information by topic. The challenge was clipping down all the knowledge into bitesize statements and fitting each statement into an overall storyline. Then, to bring it all together, I added photos, graphics, animations, and music to complete the story. Lastly, the videos were uploaded to YouTube.

I approached this project with naivety, and there are numerous things I would do differently to recreate it. Primarily, I would better acquaint myself with the camera, sound, and lighting, as not to waste precious footage due to simple mistakes. Second, I would employ better time management and work more diligently on the project, carving out hours each day, rather than procrastinating and cramming the work into a week here and there. I estimate that video recording and production alone took over 280 hours, not including research time, or the time spent preparing and traveling for interviews.

### Conclusion

Montana's high tech sector stands to gain ground with continued efforts networking to encourage entrepreneurship and business development. The challenges high tech entrepreneurs and business managers face are complex due to the nature of Montana's economy. While the state has organized several agencies to execute tactics for growth and development, none of these organizations capitalize on video production as an informational tool.

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Offering helpful information and encouraging high tech entrepreneurship serves as a tool for economic growth. Video streaming and social media opens opportunities for communicating the complexities inhibiting business growth in Montana. Three to six minute videos are the most popular way to absorb instructional and conceptual information. Choosing a miniseries format requires an introduction episode, so the viewers understand the purpose behind the videos.

Using a story-like format, Episode 1 tells of my family's entrepreneurial history and why I want to help Montana's high tech sector. Then, Episode 2 discusses why high tech and entrepreneurship are important for Montana's economy. Finally, getting to the most valuable information in the videos, interviewees and I explore financing options for high tech businesses.

This project still needs work. The videos are available to view on YouTube, however, I have not yet made an effort to distribute them via social media and email. I will continue working on the distribution of the miniseries by sharing video links on social media and via email. Production for additional episodes is already under way. This project is one of the best learning experiences of my life. I am so grateful to all those who helped.

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