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EXPLORING BUSINESS OPPORTUNITIES IN MARINE AFFAIRS:

A FEASIBILITY STUDY FOR SUBMERSIBLE RESEARCH TOURISM

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ABSTRACT: As coastal marine tourism increases in importance worldwide, prospects for new private sector businesses abound. In particular, the field of ocean exploration and research provides the entrepreneur with myriad opportunities for fiscally lucrative and socio-ecologically beneficial business ventures. This paper considers the feasibility of operating a manned submersible for ocean exploration and research in addition to ecotourism. The term *submersible research tourism* is defined and analyzed through the case of OceanGate, a small ocean exploration company located in Washington State, U.S.A. OceanGate engages paying passengers in undersea research and ocean exploration. This paper utilizes a SWOT analysis to assess OceanGate's internal and external capacity to negotiate both tourism and business. This analysis reveals the values and challenges associated with submersible research tourism and helps to define an emerging sector combining submersible tourism and scientific research to form an economically viable ecotourism industry. **Key Words:** Submersible Research Tourism, Manned Submersible, Coastal Marine Tourism, SWOT Analysis, Marine Affairs.

RESUMEN: De acuerdo con el aumento que el turismo costero y marítimo sube de importancia a nivel mundial, aumentan las perspectivas de aparecimiento de nuevas empresas del sector privado. En particular, el campo de explotación y pesquisa oceánica ofrece inúmeras oportunidades para emprendimientos fiscalmente lucrativos y socio ecológicamente benéficos. Este artículo considera la posibilidad de operar un sumergible tripulado para la explotación y pesquisa oceánica, además del ecoturismo. El término turismo de pesquisa sumergible es definido y analizado a través del caso de la OceanGate, una pequeña empresa de explotación marítima localizada en el Estado de Washington, EUA. La OceanGate envuelve pasajeros de pago en actividades de explotación y pesquisa oceánica. Este trabajo utiliza un análisis SWOT para evaluar la capacidad interna y externa de la OceanGate para conciliar turismo y negocios. Ese análisis revela los valores y los retos asociados con turismo de pesquisa sumergible y ayuda a definir un sector emergente que junta turismo sumergible y pesquisa científica para formar una industria eco turística económicamente viable. **Palabras clave**: Turismo de Pesquisa Sumergible, Sumergible Tripulado, Turismo Costero y Marítimo, Análisis SWOT, Asuntos de la Marina.

RESUMO: À medida que o turismo costeiro e marítimo aumenta de importância a nível mundial, aumentam as perspetivas de aparecimento de novas empresas do sector privado. Em particular, o campo da exploração e pesquisa oceânica oferece inúmeras oportunidades para empreendimentos fiscalmente lucrativos, além de social e ecologicamente benéficos. Este artigo considera a possibilidade de operar um submersível tripulado para exploração e pesquisa oceânica, para além do ecoturismo. O termo turismo de pesquisa submersível é definido e analisado através do caso da OceanGate, uma pequena empresa de exploração marítima localizada no Estado de Washington, EUA. A OceanGate envolve passageiros pagantes

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em atividades de exploração e pesquisa oceânica . Este trabalho utiliza uma análise SWOT para avaliar a capacidade interna e externa da OceanGate para conciliar turismo e negócios. Essa análise revela os valores e os desafios associados ao turismo de pesquisa submersível, e ajuda a definir um setor emergente que combina turismo submersível e pesquisa científica para formar uma indústria ecoturística economicamente viável. **Palavras-chave**: Turismo de Pesquisa Submersível, Submersível Tripulado, Turismo Costeiro e Marítimo, Análise SWOT, Assuntos da Marinha.

INTRODUCTION

Tourism is pervasive, difficult to define, and brings socio-ecological and economic externalities powerful enough to alter social and natural systems globally (Miller, 1993). Tourism, in this discussion, is "the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes" (UNWTO, 1995). A tourist is, generally, one who travels to add contrast to life (Miller, 2009). Throughout the 20th and 21st centuries, the global tourism industry grew substantially and is now believed to be the largest on the planet (Miller, 2008). From 1950 to 2005, the number of international tourist arrivals grew by 6.5% annually, from 25 million visitors in 1950 to 806 million in 2005 (UNWTO, 2011). The revenues generated by global tourism exceeded 680 billion dollars in 2005 and the number of tourist visits is expected to exceed 1.5 billion by 2020 (UNWTO, 2011). Not surprisingly, the impacts brought by tourism are tremendous and resound throughout the social and natural world.

Tourism therefore presents many challenges for managers that range from ecosystem preservation to the maintenance of community and social structures (Adams, 2010; Honey, 2008). Despite management challenges, the apparent wanderlust driving humans to visit new locations and to seek out exotic and unique experiences presents a lucrative business opportunity; particularly for the tourism brokers capable of offering an experience beyond the status quo. In the coastal zone, one such alternative to "sun and surf tourism"—that is sun bathing and the pursuit of the classic image of paradise—is ecotourism.

Ecotourism and volunteer tourism

Ecotourism is, "Responsible travel to natural areas that conserves the environment and improves the well being of local people" (TIES, 2011).[1] The concept of ecotourism was defined by the work of N.D.

1 The International Ecotourism Society (TIES) is a non-profit organization that works to promote ecotourism and sustainable travel. TIES defines ecotourism as travel that adheres to the following principles: (1) Minimizes impact, (2) builds environmental and cultural awareness and resect, (3) provides positive experiences for host and visitor, (4) provides financial benefits for conservation and local people, and (5) raises sensitivity to the host location's social, political, or environmental climate.

Hetzer and his reconsideration of the roles of tourism, education, culture and ecology in 1965, as well as by the work of Latin American scholars Budowski (1976) and Ceballos-Lascurain (1983, cited in Honey, 2008: 15). Ecotourism is at once a goal, an experience, and a product (Barney, 2011; Miller, 1993: 187) As a goal, ecotourism embraces the ideology that by changing the way visitors, hosts, and the environment interact, a constituency of tourists committed to environmental advocacy and responsible travel is built (Honey, 2008: 15, Budowski, 1976; Ceballos-Lascurain, 1983 cited in Honey, 2008: 15). As an experience, ecotourism offers visitors an opportunity to engage in a rewarding form of low-impact travel that broadens awareness of regional issues through involvement and experiential education. For hosts, the ecotourism experience provides added support and services from visitors that benefit nature and society in the region visited. As a product, ecotourism appeals to entrepreneurs and tourism operators as a potential income-generating strategy that provides services derived from visitation of social or natural attractions. There are degrees of ecotourism and a variety of forms in which ecotourism can occur. One such variety is volunteer tourism (Guttentag, 2009; Honey, 2008: 113).

Volunteer tourism is lauded by many as a service-based form of ecotourism with the potential to benefit tourists, tourism brokers, and local communities (Brightsmith et al., 2008; Coughlan, 2006, 2008; Cohn, 2008: 192; Ellis, 2003). Stephen Wearing (2001), in his seminal text, states,

"The generic term 'volunteer tourism' applies to those tourists who, for various reasons, volunteer in an organized way to undertake holidays that might involve aiding or alleviating the material poverty of some groups in society, the restoration of certain environments, or research into aspects of society or environment" (pg. 1).

Guttentag (2009) simplifies this definition by noting any form of volunteer work while travelling constitutes volunteer tourism. In a volunteer tourism system, brokers are often project leaders, teachers, or guides, and are distinguished from volunteer tourists by their professional status or project expertise. Volunteer tourists are defined as "persons seeking a tourist experience that is mutually beneficial that will contribute not only to their individual development, but also positively and directly to the social, natural, and economic context in which they are involved" (Coghlan, 2006 citing Wearing, 2004: 214).

The genesis of volunteer tourism over the past three decades shows that this form of ecotourism makes sense from both a social and economic perspective: volunteer tourism brokers sell the experience of working for a cause to those willing to work for free. Therefore, volunteer tourism can build financial and human capital while simultaneously advancing a social or natural cause (Brightsmith et al., 2008). Volunteer

tourism is both project driven and experience based. Some projects—those requiring scientific research in particular—cause skeptics to question the ability of volunteers to collect meaningful data (Brightsmith et al., 2008; Guttentag, 2009). Others argue that the value of volunteer tourism is moot if inaccurate data is the result (Brightsmith et al., 2008). Contrary to this concern, Darwall and Dulvy (1996) show that if given the proper training and an appropriate task, volunteer researchers are able to collect high-quality scientific information. However, the research project and the quality of the outcome is only half the overall goal of volunteer tourism. Considering that volunteers, while providing a service, are doing so for the overall experience, an effective tourism broker must draw upon the touristic appeal of a project and destination beyond the volunteer task. Following Coghlan (2008) and Darwall and Dulvy (1996), management of successful volunteer tourism hinges upon the ability of the tourism broker to at once choose appropriate tasks for volunteers, maintain a desirable overall experience, and uphold the quality of the project. Proper management of these factors presents an opportunity for a synergistic tourism product that effectively advances the primary tenants of ecotourism. Understanding both ecotourism and volunteer tourism systems is particularly important to tourism entrepreneurs since the quality of the experience is what repays the volunteer for their labor.

Submersible tourism

Parallel to the growth of tourism on land, marine tourism has also increased in popularity, as have the number and diversity of available activities in the coastal zone (Orams, 1999: 20). One emerging marine tourism opportunity is submersible tourism (National Academy, 1990; Orams, 1999: 18). Submersible tourism, like scuba diving, charter fishing, or sailing, involves travel to a place outside the usual environment for leisure, research, business and other purposes (Deverell, 2009; Orams, 1999: 8-9, 20; UNWTO, 1995). In this case, the destination is the subsea environment by way of manned submersible. Depending on the activities of the tourist, submersible tourism, although not yet on the forefront of tourism research, may be considered a form of ecotourism. Additionally, this form of marine recreation may also provide opportunities for volunteer tourism (Orams, 1999, 20). As it exists today, submersible tourism is largely based upon observation, education, and the interpretation of the natural undersea world. Atlantis Submarines, a leader in the manned submersible tourism industry, invites passengers to, "Be amazed by colorful schools of tropical fish, huge sponge gardens, the mystical beauties of the coral fields... The educational and entertaining narration of our experienced, profes-

sional, and licensed crew will highlight this unique experience" (Atlantis Submarines, 2011) Although submersible tourism does not possess the same degree of social and cultural immersion that defines terrestrial ecotourism, submersible tourism operators often emphasize the importance of fostering an understanding, appreciation, and awareness of the natural environment.

Submersible research as a form of tourism

For some tourists, the submersible tourism experience is about adventure and exploration into the natural underwater world. For others, it is about taking a risk and diving beyond the reaches of most humans. One activity that spans both of these purposes is research. This tourism form—when a tourist pays for the opportunity to conduct research in a submersible—is called *submersible research tourism* (SRT) (Figure 1). Simply, SRT is volunteer research tourism within a manned submersible. This form of volunteer tourism combines the experiences of ocean exploration, undersea adventure, and sightseeing in subsea environments with an opportunity to participate in scientific discovery. Furthermore, SRT advances the primary goals of ecotourism and provides a unique experience and duty for volunteers while supporting research projects of value to the scientific community (Cohen, 2008; Darwall and Dulvy, 1996; Sin, 2009; Söhnlein, 2010). Globally there exist limited opportunities for a tourist to conduct research in a manned submersible. However, as technology advances and the need and desire to explore the oceans grow, entrepreneurs with the technological ability to operate a submersible tourism venture will find a lucrative and unexploited ecotourism product (Jones, 2011). Given the expansion of touristic interest in the coastal zone, and the global need to explore the vast undersea environment, SRT is a logical step forward in the growth of marine tourism and ocean exploration.

Submersible research tourism (SRT)

The value of submersible research tourism (SRT) is twofold, and may result in an ecotourism product greater than the sum of the two parts (Brightsmith et al., 2008). (1) Scientific research advances knowledge of the natural world and promotes conservation efforts through education and action. (2) Volunteer tourism provides funding and labor while delivering a rewarding educational experience and an outreach opportunity to tourists (Brightsmith et al., 2008; Cohen, 2008; Darwall and Dulvy, 1996; Sin, 2009). The outcome of SRT for all participants is the experience of diving in a manned submersible coupled with a lasting awareness of ocean conservation issues earned through research and scientific labor (Brightsmith et al., 2008).

For brokers to fully capture the SRT market and provide a true ecotourism product, the SRT experience requires a complex balance between tourism and research objectives. Research projects must be scientifically valid and also possess sufficient ancillary tasks suitable for volunteers (Darwall and Dulvy, 1996; Sin, 2009; Söhnlein, 2011; Urias, 2009). Depending upon the capacity of the submersible and the purpose of the dive, some entrepreneurial operators may also be able to add an additional revenue stream by inviting a filmmaker to document the SRT experience or the research project. Despite the ecotourism potential, successful execution of SRT falls to planners and their careful selection of dive locations, consideration of environmental constraints, and the coordination of marine operations. For those with adequate technological resources and sufficient organizational capacity, SRT offers submersible operators a business opportunity that lies at the intersection between the research submersible sector and the tourism submersible sector (Figure 1).

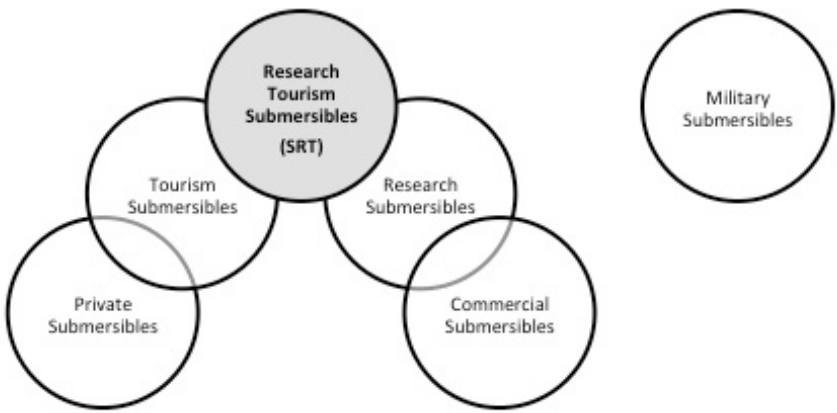

Figure 1: A modified graphic depiction of the submersible industry to illustrate the new SRT market segment (as indicated in by shading).

SRT and OceanGate

In the Pacific Northwest of the United States, one company, OceanGate, is attempting to seize the SRT market. OceanGate is a small ocean exploration company founded in 2009 in Washington State. OceanGate's mission and services revolve around ANTIPODES, their manned submersible. ANTIPODES is capable of carrying 5 people to a depth of 285 meters and is suited for tourism due to the vessel's spacious interior and large acrylic domes on the fore and aft ends.

Through these domes occupants are afforded exceptional views of the marine environment well beyond recreational diver depth. With ANTIPODES, OceanGate's mission is to:

"Open the world's unexplored oceans, inspire deep-sea discovery, and advance humanity's understanding of the marine environment" (OceanGate, 2011).

For OceanGate's purposes, ANTIPODES serves as a tool to bring scientists, filmmakers, and volunteer tourists together in subsea environments and also as a hook to attract interested participants toward larger ocean conservation issues. Ideally, a typical mission involves transporting the submersible to a strategic location where, via collaboration, OceanGate and the partnered entities (perhaps a research institution, museum, a private donor, or government scientist) pursue a common dive objective. Submersible diving is supplemented by classroom and shore-side programming designed to involve the general public in science, exploration, and underwater discovery. Participants in OceanGate projects are encouraged to pursue their interests in ocean research and conservation via follow-up opportunities that sustain involvement and interest in the ocean sciences, technology, and conservation (Söhnlein, 2010). To date, OceanGate has accomplished individual components of this business model but has yet to execute a full mission that generates revenue.

Despite the conceptual form and function of SRT, this segment of the marine tourism industry is new and the feasibility of operating a submersible for both tourism and research is currently unknown. Toward the development of a new genre of ecotourism in the marine environment, this research follows the early growth stages of OceanGate and provides a unique opportunity to observe a start-up company operating within an emerging cross-sector marketplace. In examining OceanGate's strengths and weaknesses as a company, this research offers the first example of a new form of ecotourism. Additionally, this research lends guidance to future entrepreneurs with the hope that the genesis of SRT at OceanGate will inspire new ventures and new conservation-minded travellers to shed light on under-explored and under-studied deep ocean environments.

METHODS

This paper considers the strengths, weaknesses, opportunities, and threats (SWOT) that OceanGate specifically, and SRT operators in general, should consider when strategically planning submersible tourism operations. This research is the product of a one-year professional relationship with OceanGate and Master's thesis research at the School of Marine and Environmental Affairs at the University of Washing-

ton. Professionally, the author worked as the company's business development specialist from April 2010 to June 2011. In an academic capacity, tourism research involved qualitative, open-ended interviews with the staff of OceanGate as well as with other leaders in the submersible industry. These interviews, coupled with an extensive literature review, furnished the data necessary to assess the operational and organizational feasibility of a submersible research tourism business in the United States.

Interviewing

Qualitative interviewing methods followed Turner's "general interview guide approach" (2010: 775-6) and involved querying leaders in the submersible industry about the specific strengths, weaknesses, opportunities, and threats that exist (or will likely be encountered) by a SRT startup company (Oster, 1995; Panagiotou, 2003; Sowa, 2008). Interviews were based on the SWOT framework (Figure 2). If the interviewee was unfamiliar with OceanGate (that is, the interviewee was not an employee), a company overview was provided. Questions posed were open-ended to provide the interviewee freedom to expand upon a topic and to not impede discussion on areas of interest unique to situation and circumstance. The use of semi-structured follow-up questions ensured all interviewing goals were met (Mack & Woodsong, 2005; Patten, 2002). Responses were coded into subgroups and entered into the SWOT matrix for qualitative analysis resulting in the development of recommendations.

A Feasibility Study

A feasibility study is part of the strategic planning process used in business to determine the strengths and weaknesses of a new or existing venture and to determine the likelihood of success (Athiyaman & Robertson, 1995; Leigh, 2006; Panagiotou, 2003). Feasibility studies consider the threats posed by the business environment as well as the resources required to achieve the business's goals (J. Barney, 1995; Hoagland & Williamson, 2000; Leigh, 2006; Panagiotou, 2003). Many analytical frameworks exist for assessing the feasibility of a venture and offer methods to consider the myriad factors pertaining to the business environment as a whole as well as the internal and external factors unique to the business in question (Hetzel Silbert & Silbert, 2007; Kajanus et al., 2004; Panagiotou, 2003; O'Neill, 2007). This research uses a SWOT analysis to examine OceanGate's place in the submersible market, and to assess the viability of SRT.

A SWOT analysis is a time-tested method for assessing business feasibility (Leigh, 2006; Panagiotou, 2003). The goal of this framework

is to highlight a company's internal strengths and external opportunities and to identify and overcome internal weaknesses and reduce external threats (J. Barney, 1995; Hill & Westbrook, 1997; Leigh, 2006; Panagiotou, 2003). Ideally, a SWOT analysis will facilitate the development of a strategy that maximizes the desirable attributes while minimizing undesirable attributes both internally and externally. Consideration of these factors allows company leaders to assess a business venture holistically, which is critical when strategic planning. Failure to assess negative aspects of the business environment and to look only at the positive qualities of any business plan is shortsighted and insufficient. Capon and Disbury (cited in Leigh, 2006: 1096) put forth the following definitions that provide guidance for the development of the SWOT matrix:

Strength: an internal competence, valuable resource, or attribute that an organization can use to exploit opportunities in the external environment.

Weakness: an internal lack of a competence, resource, or attribute that an organization requires to perform in the external environment.

Opportunity: an external possibility that an organization can pursue or exploit to gain benefit.

Threat: an external factor with the potential to reduce an organization's performance.

The SWOT analysis in this research assesses the feasibility of achieving a viable submersible research tourism business by examining internal and external factors (Athiyaman & Robertson, 1995; Deverell, 2009; Subramoniam et al., 2010; USAID, 2009). In doing so, this analysis highlights the positive and negative aspects of OceanGate's current business plan. Internally, a SWOT analysis provides insight into the achievability of current and future operations at OceanGate by examining the company's strengths and weaknesses. This exercise involves consideration of OceanGate's staff and management, the submersible's technological capabilities and limitations, as well as the company's planning and decision-making processes. Based on these factors, a SWOT analysis provides OceanGate with unbiased information for developing a strategic plan. Moreover, the discussion of SWOT factors lends guidance to other emerging SRT businesses.

	Desirable	Undesirable
Internal (Controllable)	Strengths (Improve)	Weaknesses (Extinguish)
External (Uncontrollable)	Opportunities (Maintain)	Threats (Reduce)

Figure 2. The 2x2 SWOT analysis matrix as it commonly appears in literature with desired business outcomes indicated parenthetically.

To benefit from this SWOT analysis OceanGate must acknowledge external organizational threats, and plan for the uncontrollable factors that may impede the company's ability to serve both their clients and their overall mission. While considering these inhibitors, opportunities for enhancing this touristic venture must be vigorously seized and exploited. The desired outcome is an ecotourism product that generates social, ecological, and monetary gains (Table 1).

RESULTS

	Desirable	Undesirable
Internal (Controllable)	**Strengths** **Management & staff** • Strong, versatile and capable core team • Staff has broad skill set with good mix of experience and enthusiasm • Management has strong start-up experience **Design and Operations of ANTIPODES** • Deep depth rating • Viewports • Stability • Maneuverability • Large passenger capacity • Occupant's comfort and safety • Power • Complete emergency preparedness • Flawless safety record • Antipodes is a unique asset • Moving toward increased mobility • Capable of in-house fabrication and repair **Business Strengths** • Good initial branding • Moderate revenue flexibility allows for plan changes • Broad and diverse social networks with ties to donors and opportunities • Seattle and United States is an ideal location for a technology start-up company	**Weaknesses** **Management and staff** • Young, inexperienced team with gaps in abilities • Staff learns through experience resulting in many errors and high transaction costs **Strategic planning** • Lack of company focus; no concrete mission statement or goals to lend operational guidance • Revenue guides decisions, not mission or objectives **Design and Operations of ANTIPODES** • Inability to operate in strong current • Limited to calm sea state • No experience with launch and recovery aboard ship • No capability for external attachments • ANTIPODES is very heavy • Archaic tracking system, low accuracy • Limited in operational range and mobility • Dependent on marina crane, tow, or launch and recovery support vessel • Limited external support for entanglement emergency • Lack of risk assessment criteria **Business Weaknesses** • Low financial autonomy • Nearing the end of seed funding • No defining achievements to date • Young brand with low awareness

External (Uncontrollable)	Opportunities	Threats
	Interest in ocean exploration, research and education • Increased need for ocean exploration • Increased public interest in ocean conservation • Increased need for youth STEM involvement **Design and Operations of ANTIPODES** • The manned submersible industry has an extremely good safety record **Business opportunities** • Increased demand for manned submersibles • Private sector opportunity: declining public funding for government ocean exploration and research • Many competitors in the research sector are out of service • High net worth investors in the United States • Tourism sector growth • Valuable asset for filming • Well connected manned submersible operator network	**Regulatory environment** • Regulatory restrictions inhibit development and operations • Temptation exists to cut corners to avoid regulations • Coast Guard sectors differ in allowable operations **Design and Operations of ANTIPODES** • Limited rescue ability at depth • Compatible support vessels very costly • Accidents have extremely high penalties • Puget Sound is an unpredictable operating location due to poor visibility, weather, and strong currents **Business threats** • Unmanned submersibles present competition • Economic downturn impacts tourism and philanthropy • Ocean issues in competition with social issues on land • OceanGate's credibility is vulnerable • Financially vulnerable with very low fiscal autonomy

Table 1. A SWOT analysis of OceanGate.

RECOMMENDATIONS FOR OCEANGATE

Despite OceanGate's versatile management and staff, gaps in experience remain a weakness for this fledgling company. Since establishment, OceanGate has repeatedly incurred unnecessary costs and

missed business opportunities due to errors stemming back to a lack of experience in submersible and vessel operations. To mitigate fruitless spending and lost revenue opportunities, OceanGate must invest in experienced personnel and strategic planning. To enhance the OceanGate team, new hires must have a general understanding of the tourism industry. Beyond this baseline, the skillsets most needed to improve the company's strengths fall within marine operations and fundraising. As OceanGate wavers between a land-based company and one reliant upon vessel operations, managerial and operational experience in marine operations is essential for informed decision making and the reduction of errors. An investment in experienced marine operations staff will also lend critical planning insight, expand the company's social network, and decrease the reliance on the risky and inefficient learn-by-experience methodology currently in use.

As seed funding dwindles, OceanGate requires robust marketing and fundraising efforts to sustain operations. The company must strengthen their brand and raise money to support the overarching company mission. The fundraising and marking efforts must popularize, and legitimize, present and past projects while bolstering client certainty and brand quality. Fundraising must address the full scope of revenue options. Primarily, OceanGate needs an experienced grant writer and contract specialist on staff to launch competitive bids for government funding while also pursuing conventional touristic revenue streams. The OceanGate business model requires the ability to negotiate multiple sectors simultaneously. This has proved to be challenging. Therefore, new hires must be capable of prioritizing and negotiating complex funding cycles, government grant acquisitions, private investors, and NGO partnerships while minimizing the cost of opportunities forgone.

OceanGate is also in dire need of a strategic plan. In 2011, after over a year of operations, the company does not have a binding mission statement, strategic vision, or definitive goals guiding development. Therefore, a collaborative strategic planning process toward a 3-year plan is recommended. The planning process should include management, staff and the company's advisory board. By developing and implementing a mission statement and a framework of goals for guidance, OceanGate will mitigate the temptation to drift from the defined company purpose. Moreover, by including all internal stakeholders in strategic planning, a check and balance system will be created that reduces internal unknowns, clarifies a development direction and establishes personnel roles and objectives. This reform will likely improve productivity and corporate resilience. An additional product of strategic planning is the added insight toward mission planning objectives. Currently, expedition planning is mired in an amorphous set of goals

desired from each mission. A lack of clear planning criteria coupled with the inability to weigh the benefits and costs of a project lends uncertainty to the decision-making process. From an investor perspective, this lack of direction and strategic vision devalues an investment in OceanGate and sustains investment risk due to unknowns. Finally, SRT is nested within the complex marine safety regulatory scheme present in United States. Without a defined strategic plan, negotiating the United States Coast Guard (USCG) regulations present a significant barrier hindering success. For these reasons, an investment upfront in skilled personnel and in the time required for the careful construction of an ecotourism model and a strategic plan is fundamental to long-term tourism success.

Operationally, OceanGate holds a unique and extremely valuable tourism asset. However, a narrow operational range when launched from land, and the cost of launching and recovering the submersible at sea has diminished the value of their asset. To fully realize the tourism potential of ANTIPODES, OceanGate must invest in enhanced mobility as soon as possible to broaden the scope of achievable tourism opportunities. Likely the best option, due to the proven effectiveness elsewhere in the submersible industry, is modifying a shipping container for submersible transport. The ability to transport ANTIPODES efficiently via rail, air, road or sea, will drastically reduce both transportation and logistical costs. To enhance mobility and increase the number of accessible dive locations, OceanGate should invest in the charter or purchase of a suitable research vessel and the support crew required to ensure safety, efficiency and customer experience.

Reduce threats while maintaining opportunities

OceanGate cannot control external industry threats. Therefore, by acknowledging potential hazards to operations and by taking action to reduce their impact, OceanGate will enhance the likelihood of achieving successful SRT. The primary threat for business growth as a tourism operator is safety. OceanGate is pioneering a new use for manned submersibles and is under close scrutiny from the USCG as well as from other tourism and submersible operators (National Academy, 1990). Any mishap resulting in injury or death will have devastating affects on OceanGate as well as resound throughout the manned submersible industry in its entirety. A related threat to SRT success is the stringent USCG regulations that limit dive operations domestically. It is likely, for a number of economic and political reasons, that OceanGate will be unable to change or shape USCG regulations in the near-term. OceanGate should therefore assume both a short-term and long-term strategy designed to affect regulatory change. In the short term,

OceanGate should work collaboratively and transparently with local USCG representatives to achieve approval for operations in each region visited. Coast Guard collaboration and the assurance of marine safety are essential for operational success. As a second step in the short term, OceanGate should pursue their best option for achieving regulatory freedom, which is a certificate of inspection (COI) exemption permitting their operation to follow separate rules from those outlined for general passenger carrying vessels. A long-term strategy is to lobby Congress and the USCG to undergo a complete regulatory overhaul similar to the process that produced the report NAVIC 5-93 (USCG, 1993). NAVIC 5-93 is the definitive and accepted set of submersible regulations in place today that limits the use of manned submersibles for tourism purposes (National Academy, 1990; USCG, 1993).

By reducing the weaknesses associated with the design and operation of ANTIPODES, OceanGate will also minimize the affect of external threats. Weather, for instance, will always pose a challenge and a threat to successful operations. However, the ability to easily choose missions beyond the Pacific Northwest and to utilize a variety of methods for transportation, launch, and recovery will greatly alleviate weather limitations.

Several threats to business exist and pertain to the fiscal characteristics of the industry and nation, but also to ocean exploration's position within society. Business growth during a recession is a challenge. Funding remains limited and philanthropists have demonstrated a reduction in donations as a result (Söhnlein, 2011). Moreover, the depressed state of economic affairs in the United States hinders tourism in general, and to high-price tourism activities in particular. To overcome these hardships, OceanGate must not only maintain the ability to capitalize on current opportunities (namely, meeting government, public, and private sector demand for manned submersibles and ocean exploration), but also grow their donor-base and strengthen the OceanGate brand by accomplishing high visibility missions and community outreach projects. Ocean exploration will always be in competition with other social issues however via activism, ecotourism, and by simply adhering to their stated mission, OceanGate can help increase the social value of marine conservation and ocean exportation domestically.

THE FEASIBILITY OF SRT

Feasibility at OceanGate

Following the results of the SWOT analysis, the internal and external factors at OceanGate suggest that submersible research tourism, as both a form of ecotourism and as a business venture, is feasible, albeit complex and dependent upon revenue generation from repeated

mission success. For a company in the early stages of development, OceanGate is well positioned to proceed with their mission of opening the oceans to those inspired by exploration and discovery. Close on the horizon are potential financial hardships due to dwindling seed money. This coupled with the constant need for technological advancement, marketing, and, safe, successful execution of SRT dives means that critical decisions concerning funding need to be made in the near future.

To ensure the capture of what appears to be an excellent ecotourism opportunity, the SWOT recommendations suggest particular need to avert financial and operational pitfalls early on via planning and to uphold a flawless safety record. Careful strategic planning will permit OceanGate to invest in improvements and mitigate unnecessary expenditures. As an emerging ecotourism operator, OceanGate strives to be socially responsible and ecologically beneficial in accordance with the defining tenants of ecotourism, and although much room for improvement exists as the company grows, the OceanGate's future commitments to this model remains unknown. Although OceanGate has defined many of the broad operational parameters of SRT, this SWOT analysis fails to consider the cost of alternatives forgone and unknowns regarding best practices still exist. Nevertheless, leaders at OceanGate continue to make decisions based on the best available information and to seize every achievable opportunity presented as they progress ahead in the emerging field of submersible research tourism.

Feasibility in the United States

Submersible research tourism is far from established in the United States. As of the start of 2011, OceanGate is the only submersible company with a business model based on the combination of research and tourism revenues. Nevertheless, like ecotourism in general and research tourism specifically, SRT holds the potential to create an economic and social benefit greater than the sum of its parts. In marine research communities, demand for manned submersibles remains high in the United States although additional research is required to determine if SRT is able to meet this demand. As a result, the development of the SRT industry remains largely theoretical due to the thin market characteristics and the myriad unknowns associated with the future of tourism submersibles. Despite this, parallels can be drawn between the external opportunities and threats at OceanGate and those pertaining to the larger industry, which suggests some operational challenges likely to confront new entrants into SRT.

OceanGate represents only one example of how tourism and research can be combined for coastal marine tourism. Regardless of affiliation or sector, opportunities abound for developments in business,

tourism, and ocean exploration. As advances in marine technology charge ahead, and population growth and globalization magnify the need for natural resources, marine goods and services will surely increase in demand. Therefore, ocean exploration, for both science and industry, is likely to remain a lucrative field with broad opportunities for manned submersibles. Additionally, for marine technology-based ventures, a variety of avenues offer opportunities for funding domestically, across sectors. Whether operations are based on tourism revenues, national grants, or private donations, the United States harbors tremendous wealth in comparison to other nations as well as the technological ingenuity to make SRT a feasible tourism reality.

CONCLUSION

Simultaneous to the presence of submersible opportunities, industry-wide factors exist that threaten the feasibility of achieving viable submersible businesses and inhibit industry development. For example, growth in the number of domestic operators and the scope of permissible operations largely depends on USCG regulations. Furthermore, safety concerns, operational challenges, and environmental limitations exist for all those who seek to dive beneath the surface of the ocean. Alternative submersible technologies also pose a threat to manned submersibles. As unmanned submersible technology advances, there may be a time when the risks associated with human occupied vehicles are no longer feasible, practical, or necessary. Finally, globalization and population growth bring to light new challenges for society. Although the ocean is a sustaining and critical life-force on this planet, progress in marine conservation, exploration, and research is largely a product of political will. Consequently, ocean exploration and marine conservation will likely never top political agendas when paired against the myriad issues facing political systems. Perhaps, via marine ecotourism, a first step toward a global understanding of the importance of the planet's ocean environments can be realized.

To open the ocean and advance humanity's understanding of the marine environment is as noble as it is necessary, and entirely nested in the entrepreneurial spirit of taking great risks to achieve great outcomes. Jacque Cousteau once said, "People protect what they love." We now find ourselves at a point in human history when our ever-expanding curiosity about our planet's function has revealed an inseparable dependence upon the ocean. This same curiosity also revealed grave forthcoming changes within the natural environment. Humans now bear the burden of awareness. On a basic level, to save the oceans, humans must be given the opportunity to experience, explore, under-

stand, and conserve marine environments. Via ecotourism and SRT, tourists *will* be given an opportunity to protect what they love.

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