Blazing a Trail for Rural Entrepreneurship:

Promise and Challenge in Maine's Outdoor Recreation Entrepreneurial Ecosystem

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INTRODUCTION

Outdoor recreation holds potential as an economic driver for Maine, accounting for 3.7 percent of state gross domestic product (GDP) and 4.5 percent of employment, placing the state among the top five nationally in terms of the total economic contribution of outdoor recreation (US BEA 2024). Maine also has one of the highest proportions of economic activity derived from all three outdoor recreation's segments, including core (e.g., snow activities, boating, camping, gear manufacturing), supporting (e.g., travel and tourism services, transportation, construction), and other related sectors (e.g., outdoor entertainment). Reliant on Maine's natural amenities, much of the outdoor recreation economy exists within rural communities. As one of Maine's targeted industries,[1] outdoor recreation provides fertile ground for developing rural entrepreneurship, with opportunities in the state's heritage industries (farming, fishing, and forestry) and each of its targeted technology sectors (Camoin Associates 2023).

In 2023, the Maine Office of Outdoor Recreation (MOOR) funded an economic planning effort to develop a 10-year strategic roadmap. This effort involved the University of Maine, state agencies, and private-sector partners. As part of that effort, a special topics course at the University of Maine, led by or including article authors, engaged students in mapping Maine's outdoor recreation entrepreneurial ecosystem to identify key strengths, gaps, and growth possibilities. Entrepreneurial ecosystems represent the networks of organizations, resources, and institutional arrangements enabling business formation. Understanding the functioning of these networks helps economic policymakers coordinate and target investments.

In this commentary, we summarize key observations and identify actions ecosystem actors might take to strengthen Maine's entrepreneurial networks to leverage opportunities in outdoor recreation for sustainable rural economic vitality, which were identified during the fall 2024 assessment.

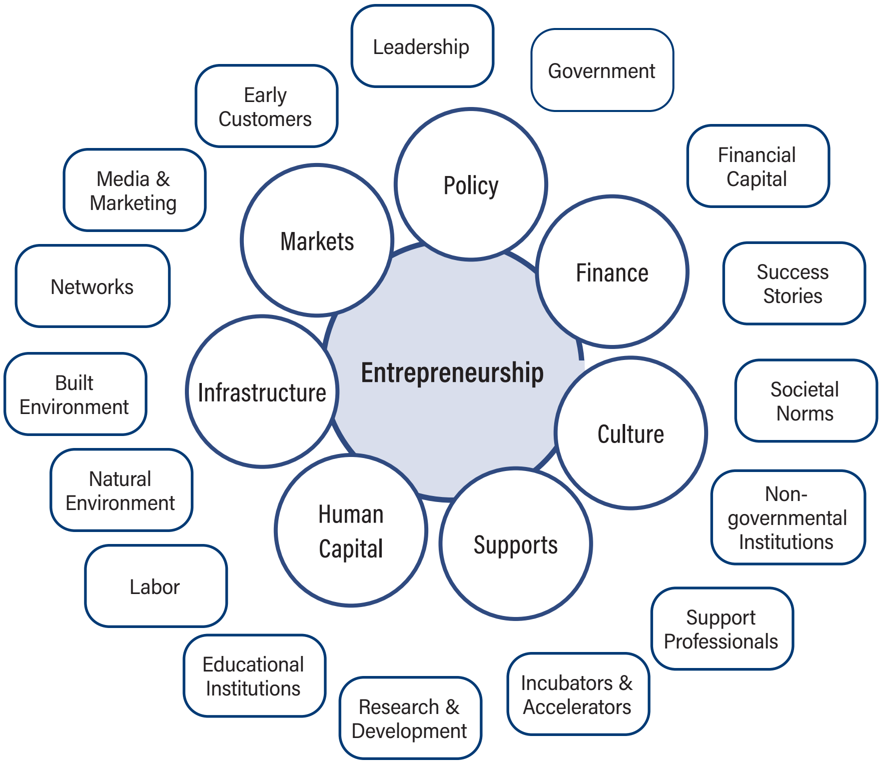
BACKGROUND

The entrepreneurial ecosystem concept shifts focus from individual entrepreneurs to the system of institutions, actors, and resources that support entrepreneurial activity (Stam and van de Ven 2021). Entrepreneurial ecosystems are relational, with networks shaping access to knowledge, capital, and markets (Spigel and Harrison 2018). In emerging or fragmented ecosystems, anchor organizations—such as universities, industry groups, public agencies, or accelerators—play a critical role in facilitating collaboration (Colombelli et al. 2019), fostering shared identity (Roundy 2021), and mobilizing resources (Harima et al. 2024). Research emphasizes the governance of EEs: how they are developed, coordinated, and sustained. Models vary from top-down, state-led initiatives to bottom-up, entrepreneur- or community-driven approaches (Knox and Arshed 2022). Increasingly, scholars advocate for blended governance structures involving both public and private actors, highlighting the importance of trust, shared norms, and joint leadership in strengthening ecosystem connectivity (Scott et al. 2022; Autio and Levie 2017).

These dynamics are especially relevant in rural ecosystems, where challenges of remoteness, underdeveloped infrastructure, limited financial access, and a narrow economic base constrain entrepreneurial activity (Korsgaard et al. 2015). At the same time, rural areas possess rich natural capital—landscapes, waterways, and heritage sites—that can be leveraged for place-based entrepreneurship (Emery and Flora 2006). In these contexts, leadership is critical in enabling actors to navigate uncertainty and mobilize available resources creatively (Miles and Morrison 2020). Sparse populations and limited institutional density elevate the importance of coordination. Mechanisms like ecosystem pipelines and structured referral networks that connect entrepreneurs with timely support can help address fragmentation and resource gaps (Hruskova 2024).

In this context, support organizations play a pivotal role by shifting from generic, one-size-fits-all approaches to

FIGURE 1: **Seven Domains of Entrepreneurial Ecosystems**



Source: authors' own, adapted from Isenberg and Onyemah (2016).

tailored, place-based strategies that align with rural communities' specific assets, needs, and entrepreneurial niches (Roundy 2021). Rural entrepreneurs often prioritize community well-being and environmental stewardship, alongside economic outcomes (Fortunato 2014). Accordingly, ecosystem development should be grounded in rural realities, enhancing access to relevant support and fostering long-term community resilience.

APPROACH

Our assessment drew on the Entrepreneurial Ecosystem Diagnostic Toolkit developed by the Aspen Network of Development Entrepreneurs, which builds on established scholarly ecosystem frameworks (Isenberg 2010; Stam and van de Ven 2021). Under the facilitation of course instructors, students mapped elements directly or indirectly affecting entrepreneurial activity in Maine's outdoor recreation sector. Figure 1 summarizes the entrepreneurial ecosystem domains assessed by the project team. Students contextualized these domains to the outdoor recreation economy by identifying and analyzing relevant actors and organizations within each. They conducted SWOT (strengths, weaknesses, opportunities, and threats) analyses across all domains and formulated actionable recommendations based on identified gaps and opportunities. Data collection involved multiple sources and methods, including qualitative interviews, secondary data analysis, field observations (e.g., attendance at the Maine Outdoor Economy Summit), and document review.

FINDINGS AND INSIGHTS

Our assessment findings are organized into three themes: (1) the socio-cultural context of Maine; (2) the state's infrastructure and access by ventures; and (3) support for entrepreneurs in the ecosystem. Together, these highlight critical assets to leverage and barriers to address in advancing outdoor recreation as a sustainable and resilient economic development driver in Maine's rural communities.

Social, Cultural, and Human Capital

A regional culture deeply rooted in long-standing relationships with the natural environment drives opportunity for outdoor recreation ventures to find support and engage in experimentation. This includes Indigenous knowledge and stewardship and a history of working forests and fisheries. A cultural ethos of environmental sustainability frequently identified in interviews and archival data also indicates opportunity for rural innovation responsive to natural resource conditions. Further, the project team commonly encountered a do-it-yourself mindset and emphasis on independence during observations. While this can fuel grassroots efforts and volunteerism, which can be leveraged for social entrepreneurial ventures (Dees 2012), it can also frustrate the effective coordination and leadership of entrepreneurial ecosystems (Miles and Morrison 2020).

Human capital and its development through education and workforce programming also arose. The outdoor recreation economy is a major employer, with approximately 40,000 Mainers in various roles. Despite this scale, the sector faces ongoing workforce development challenges. Maine's education system includes many public and private colleges and technical institutes. However, only a few offer degrees or specialized programs directly aligned with outdoor recreation careers. Technical education for high school students is available in some areas but remains limited in scope and geographic accessibility. Specialized training, such as Maine Guide licensure, is typically offered outside traditional academic systems. Nonprofit organizations also play a vital role through targeted education and training.

This means that policy must account for multiple human capital investment avenues and that rural and remote entrepreneurial ecosystems may not have the same access unless programming is adapted to reach these communities. Our findings indicated that entrepreneurial ventures in Maine's outdoor recreation require human capital development for workers/employees and prospective entrepreneurs, requiring a two-pronged approach. Outdoor recreation is often perceived as seasonal, entry-level work, lacking the career viability of other industries. This perception, combined with practical challenges including wages, limited healthcare benefits, and minimal access to affordable housing and childcare, makes it difficult for employers to recruit and retain staff.

Infrastructure and Built Environment

Maine's outdoor recreation economy relies on a network of interconnected infrastructure to enable access by visitors to amenities and by ventures to markets. Our assessment identified five critical elements: (1) destination hubs; (2) public lands and recreation infrastructure; (3) housing and amenities; (4) transportation and utilities; and (5) manufacturing and legacy facilities.

Rural destination hubs—such as Sugarloaf, Acadia, and Katahdin—serve as high-traffic regions with opportunity in services sectors. These hubs anchor a range of businesses, creating dense nodes of economic activity. However, concentrated demand in these regions strains physical infrastructure, land, and human resources. Coordination of local entrepreneurial ecosystems outside these regions may promote a more sustainable and resilient tourism economy in rural Maine. Notably, the state's extensive network of trails, rivers, lakes, and forestland, and a unique legacy of public access to private land, underpins much of this opportunity. However, the ongoing maintenance of these assets relies on fragile access agreements and volunteer networks, both of which are increasingly under pressure. Rural entrepreneurial ecosystem coordinators in Maine must view natural resource managers as critical assets within their ecosystem to be included in economic planning and with whom entrepreneurs may need to have networks facilitated for success.

Scaling of ventures—in both services and manufacturing sectors—is challenged by the effect a persistent housing shortage has on workforce recruitment and retention. Key informants noted the rise in short-term rentals has made it difficult for workers to live near their jobs, contributing to high employee turnover. Some larger employers have responded by acquiring seasonal housing stock, but system-wide gaps remain. Aging roads, limited public transit, and uneven broadband and electricity access also hinder activity in rural outdoor recreation entrepreneurial ecosystems. Currently, passenger rail service terminates in Brunswick, and most long-distance bus routes end in Augusta or Bangor, leaving much of northern and western Maine poorly connected. Finally, assessments indicated that many older facilities—from decommissioned schools to former paper mills to waterfront buildings—hold potential as small- to mid-scale manufacturing sites for outdoor recreation product firms. Such facilities need retrofitting, environmental abatement, and other costly revitalization investments. Addressing these built capital issues in strategic rural regions will be a key policy arena to broaden ecosystem resilience and empower small towns to foster scalable ventures.

Entrepreneurial Support

The assessment also noted the general entrepreneurial support landscape, but a lack of dedicated and specific support for outdoor recreation ventures, growth capital challenges, uneven reach across regions, and an urgent need for improved coordination outside Maine's central metropolitan area. Support in Maine includes a range of incubators/accelerators, trade associations, wrap-around services (e.g., legal, accounting, insurance), and networking events (e.g., pitch competitions and conferences). However, dedicated support for outdoor recreation entrepreneurs remains limited, particularly for service-based ventures. Interviewees described the current landscape as improvised and challenging to navigate, especially in rural areas. As one interviewee noted, entrepreneurial support for outdoor recreation is "very ad-hoc, very permissive but not supportive, is how I would talk about Maine, especially with the place-based stuff." Further, while seed funding is relatively accessible, Maine's outdoor recreation entrepreneurs face a lack of scaling capital, making growth beyond startup stages difficult.

Organizations such as Maine Outdoor Brands (MOB), the Maine Tourism Association, and the Maine International Trade Center provide critical visibility for outdoor recreation entrepreneurs. Likewise, events like

GreenLight Maine and Start Summit offer valuable platforms for emerging ventures. Still, cost, geography, and awareness barriers limit access to these opportunities, particularly for ventures outside the Portland metropolitan area. Improved collaboration among existing support organizations may mitigate these but requires the emergence of one or more anchor organizations with well-developed legitimacy among ecosystem actors. Improved coordination between dispersed efforts may increase visibility, improve resource-sharing, ensure more relevant and streamlined support for entrepreneurs, and efficiently allocate scare resources.

POLICY RECOMMENDATIONS

Based on the ecosystem assessment, entrepreneurial policy and programming should consider four areas to improve enabling environments for rural outdoor recreation ventures: (1) strengthen coordination and a collective identity; (2) improve advocacy and promotion of the outdoor recreation economy; (3) enhance workforce development pathways; and (4) target solutions for entrepreneurial scaling capacity. These will require a multilevel ecosystem governance and leadership model to reach rural communities with outdoor recreation opportunities. It must balance Maine's strong grassroots culture with strategic state-level leadership to enable inclusive growth, resource alignment, and sustainable economic development across the sector

Strengthening Coordination and Collective Identity

In entrepreneurial ecosystems, cooperation is paramount, empowering actors to work together towards shared goals. This requires understanding, active participation, and shared commitment to mutual gain. Ecosystems are complex systems that must be adaptive, requiring constant re-alignment of goals, priorities, and resources. Scholarship on entrepreneurial ecosystems indicates that, especially in rural contexts, there needs to be effective coordination of actors by those perceived as legitimate and a shared identity. Identifying then supporting sector leaders and neutral facilitators will strengthen coordination.

Building on energy around the outdoor recreation roadmap, several anchor institutions can make meaningful contributions to coordination and identify formation. However, at present these organizations may be fragmented in their approaches, poorly resourced (particularly vis à vis dedicated human, financial, and institutional capital for outdoor recreation), and thus lack sufficient legitimacy to achieve coordination. Additionally, grassroots actors must decide whether they prefer a decentralized industry made of dispersed subsectors to a unified identity.

One means of addressing these issues is to create governing bodies that formally convene anchor institutions and stakeholders to coordinate resources and make policy recommendations. Such bodies balance priorities and help identify complementary resources to develop or import into the entrepreneurial ecosystem. Notably, Maine is one of several states with a governmental Office of Outdoor Recreation, uniquely positioned to serve in the capacity of a facilitator anchor institution, helping to mediate activities driven by the other major institutions which may in turn lead to working groups focused on specific goals.

Advocacy and Promotion

A successful collective outdoor recreation identity can be complemented by improved advocacy and promotion efforts that integrate businesses, destinations, government, grassroots organizations, and media. Such efforts can strengthen the perceived contribution of each entity to the entrepreneurial ecosystem and drive shared legitimacy; elevate Maine outdoor recreation among visitors, consumers, financers, workers, and ventures; and improve public understanding of the sector's benefits to the state's economy. Connecting officials, trade associations, and private media through partnership allows for far-reaching advocacy and promotion and should be complemented by robust private and grassroots organizing among businesses, organizations, and associations. Facilitating bottom-up organizing efforts also uplifts broader outdoor recreation interests and the impacts of outdoor recreation entrepreneurial ecosystem development on rural and remote Maine communities.

Improved advocacy and awareness of shared objectives between outdoor recreation and other natural resource-based sectors can also benefit the outdoor recreation entrepreneurial ecosystem as a collective. Interindustry partnerships on these shared challenges consolidates and strengthens advocacy approaches and can contribute resources to sustainable innovation for place-based rural entrepreneurial hubs in the state. Diverse actors can ensure a collective voice and amplify the sector's economic and cultural significance, building a reputation and brand that may attract external interest, talent, and capital for outdoor recreation and its predominately rural entrepreneurs.

Workforce Development

Developing a robust workforce is important to innovation and growth within the entrepreneurial ecosystem. It can be achieved through partnerships across educational institutions at all levels, government, and outdoor recreation businesses for training, certifications, and apprenticeships specific to Maine outdoor recreation's service and manufacturing potential. Coordinated programs should align offerings with local industry needs, generate interest in Maine's outdoor lifestyle, and provide additional training for existing workers. Ongoing work within the entrepreneurial ecosystem seeks to identify these gaps. Once gaps are identified, resourcing public institutions and facilitating public-private partnerships specific to outdoor recreation will be needed. Assessment activities identified entrepreneurial ecosystem actors, especially those in rural spaces, face challenges of access to programming and need offerings that stimulate worker interest and preparation and improve businesses' understanding how to scale. In addition, grassroots organizing groups are crucial for helping volunteers become career professionals and promoting civic engagement in outdoor recreation (e.g., snowmobile clubs, trail maintenance groups, and youth organizations).

Strengthening Entrepreneurial Scaling Capacity

A shortage of resources for scaling specific to outdoor recreation contexts was also identified. This includes a shortage of funding targeted to firm lifecycle stage; Maine needs to develop a comprehensive funding pipeline with dedicated growth capital funds, perhaps including ongoing incentives for out-of-state investments in Maine ventures. Financing development should be paired with enhanced mentorship through industry-specific accelerator programs that address the complexities of scaling, such as talent acquisition, product and manufacturing development, intellectual property, and succession planning, to ensure Maine's innovative companies can grow, stay, and thrive here.

Growth in a natural resource-dependent context also requires sustainable management; strained trail systems and overcrowded popular destinations underscore the need to continuously manage recreational destinations effectively, by finding methods to disperse visitors and preserve the quality of outdoor recreation experiences. It also requires that the intrinsic economic and social importance (e.g., nonmarket values) of natural amenities be identified and incorporated into decision-making about sustainable resource use. Pursuing services-based opportunities in rural areas must balance growth with preserving local identity and culture.

Environmental and social factors also have implications for infrastructure development needs in the entrepreneurial ecosystem. Addressing housing, transportation, energy, and telecommunications infrastructure challenges can help with cultural and historic preservation and environmental remediation, while expanding opportunities for outdoor recreation-based ventures in rural communities. However, these issues require new policies addressing specific and nuanced problems, such as housing type mix, affordability, land-use, and financing of brownfields projects. Entrepreneurial ecosystem actors may view these challenges as outside their scope; however, our assessment indicated these infrastructure items are critical constraints on outdoor recreation ventures that must be addressed to improve the entrepreneurial ecosystem. Solutions must also come from the private sector. In housing, for example, outdoor recreation industry actors may choose to advocate for affordable housing options in strategic regions, may innovate to incorporate housing offerings for workers into their business models, or may pursue partnerships and cooperative solutions with other industry and community players.

CONCLUSION

Pursuing efforts that build an integrated ecosystem where actors and activities are mutually reinforcing, can bolster Maine's outdoor recreation economy. Maine's outdoor recreation entrepreneurial ecosystem is deeply intertwined with other natural resource-dependent sectors central to rural livelihoods and communities. Other such sectors have launched their own roadmaps, yet operate in silos despite overlapping geographies, activities, infrastructure, challenges, and goals. For rural economies, this fragmentation means missed opportunities for shared investment, collective visibility, and integrated support. Strengthening alignment across sectors' strategies, especially on workforce, infrastructure, and business support, would better reflect the realities of rural enterprise, where ventures often span sector boundaries. Importantly, economic policymakers should view building the outdoor recreation ecosystem as a critical investment in a multisector approach that support rural communities. At the onset of Maine's 10-year strategy for outdoor recreation, strengthening the outdoor recreation ecosystem can help rural entrepreneurs blaze new trails for resilient and sustainable innovation.

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NOTES

1 "Target Industries," Maine Department of Economic & Community Development, http://www.maine.gov/decd/domestic-trade/target-industries

REFERENCES

Autio, Erkko, and Jonathan Levie. 2017. "Management of Entrepreneurial Ecosystems." In *The Wiley Handbook of Entrepreneurship,* edited by G. Ahmetoglu, T. Chamorro-Premuzic, B. Klinger, and T. Karcisky, 423–449. John Wiley & Sons.

Camoin Associates. 2023. *Review of Targeted Technology Sectors and Industry Clusters.* Maine Technology Institute. https://www.mainetechnology.org/docs/Camoin-Report-Targeted-Technology-Sector-Review-MTI.pdf.

Colombelli, Alessandra, Emilio Paolucci, and Elisa Ughetto. 2019. "Hierarchical and Relational Governance and the Life Cycle of Entrepreneurial Ecosystems." *Small Business Economics* 52(2): 505–521. https://doi.org/10.1007/s11187-017-9957-4

Dees, J. Gregory. 2012. "A Tale of Two Cultures: Charity, Problem Solving, and the Future of Social Entrepreneurship." *Journal of Business Ethics* 111(3): 321–334. https://doi.org/10.1007/s10551-012-1412-5.

Emery, Mary, and Cornelia Flora. 2006. "Spiraling-Up: Mapping Community Transformation with Community Capitals Framework." *Community Development* 37(1): 19–35. https://doi.org/10.1080/15575330609490152.

Fortunato, Michael William-Patrick. 2014. "Supporting Rural Entrepreneurship: A Review of Conceptual Developments from Research to Practice." *Community Development* 45(4): 387–408. https://doi.org/10.1080/15575330.2014.935795.

Harima, Aki, Jan Harima, and Jorg Freiling. 2024. "Ecosystem Orchestration: Unpacking the Leadership Capabilities of Anchor Organizations in Nascent Entrepreneurial Ecosystems." *Entrepreneurship Theory and Practice 48*(6): 1404–1450. https://doi.org/10.1177/10422587241241824.

Hruskova, Michael. 2024. "Ecosystem Pipelines: Collective Action in Entrepreneurial Ecosystems." *International Small Business Journal* 42(1): 39–66. https://doi.org/10.1177/02662426231178381

Isenberg, Daniel. 2010. "How to Start an Entrepreneurial Revolution." *Harvard Business Review* (June):2–11.

Isenberg, Daniel, and Vincent Onyemah. 2016. "Fostering Scaleup Ecosystems for Regional Economic Growth." *Innovations: Technology, Governance, Globalization* 11:60–79. https://doi.org/10.1162/inov_a_00248.

Knox, Stephen, and Norin Arshed. 2022. "Network Governance and Coordination of a Regional Entrepreneurial Ecosystem." *Regional Studies* 56(7): 1161–1175. https://doi.org/10.1080/00343404.2021.1988067.

Korsgaard, Steffen, Sabine Müller, and Hanne Wittorff Tanvig. 2015. "Rural Entrepreneurship or Entrepreneurship in the Rural – Between Place and Space. *International Journal of Entrepreneurial Behavior & Research* 21(1): 5–26. https://doi.org/10.1108/IJEBR-11-2013-0205.

Miles, Morgan P., and Mark Morrison. 2020. An Effectual Leadership Perspective for Developing Rural Entrepreneurial Ecosystems." *Small Business Economics* 54(4): 933–949. https://doi.org/10.1007/s11187-018-0128-z.

Roundy, Philip T. 2021. "Leadership in Startup Communities: How Incubator Leaders Develop a Regional Entrepreneurial Ecosystem." *Journal of Management Development* 40(3): 190–208. https://doi.org/10.1108/JMD-10-2020-0320

Scott, Stephanie, Mathew Hughes, and Domingo Ribeiro-Soriano. 2022. "Towards a network-based view of effective entrepreneurial ecosystems." *Review of Managerial Science* 16(1): 157–187. https://doi.org/10.1007/s11846-021-00440-5.

Spigel, Ben, and Richard Harrison. 2018. "Toward a Process Theory of Entrepreneurial Ecosystems." *Strategic Entrepreneurship Journal* 12(1): 151–168. https://doi.org/10.1002/sej.1268.

Stam, Erik, and Andrew van de Ven. 2021. "Entrepreneurial Ecosystem Elements." *Small Business Economics* 56(2): 809–832. https://doi.org/10.1007/s11187-019-00270-6.

US BEA (Bureau of Economic Analysis). 2024. Outdoor Recreation Satellite Account, U.S. and States, 2023. BEA 24–53. USBEA. https://www.bea.gov/data/special-topics/outdoor-recreation.

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