Short Essays

The Narrative Ecology of the Entrepreneurial Prototype

VÍCTOR M. JIMÉNEZ-RODRÍGUEZ AND
ERICK BEHAR-VILLEGAS

Abstract

Entrepreneurship and storytelling are dynamically tied as part of changing environments. In this essay, we argue that the prototype—an essential element of an entrepreneurial venture—tells a story that is shaped through time, especially by its environment. This ecological approach is inspired by Dunlop and Wilkinson Westberg's narrative ecology,[1] where several concentric layers of a system shape the center. The prototype becomes a fundamental storytelling device that also shapes its environment when it acquires a considerable level of visibility and legitimacy, which reminds us of the importance of visual aesthetics and their meaning to grasp the attention of an audience. Using four examples, we suggest how the visual dimension of the prototype becomes an essential part of a story that is able to shape its environment.

Keywords: Narrative ecology, Visual storytelling, entrepreneurship, prototyping

1. William L. Dunlop and Dulce Wilkinson Westberg, "On Stories, Conceptual Space, and Physical Place: Considering the Function and Features of Stories Throughout the Narrative Ecology," *Personality Science* 3, no. 1 (2022), https://doi.org/10.5964/ps.7337.

Introduction

More than two decades ago, Lounsbury and Glynn proposed that entrepreneurship is about creating culture with stories; that is, telling stories that mediate resources and legitimize new business identities.[2] "Cultural entrepreneurship" is, in their definition, the process by which narrative connects resource stocks (e.g., skills, networks, etc.) with the subsequent acquisition of capital and status. In this essay, we adapt a systems-based view to the entrepreneurial prototype, a protagonist of a story who shapes its environment at different levels. Following Houde and Hill, who argue that prototypes exceed their material form by incorporating multiple dimensions of meaning,[3] and Lim et al., who frame prototypes as filters and manifestations that materialize ideas,[4] we propose that the prototype, which has a visual nature of its own, may well be seen as the center of a narrative ecology.

If we accept Suchman's classic premise of legitimacy as an essential resource, one that is built through time and that has a pragmatic, moral, and cognitive dimension, then what counts is not just "what a company says" but *who* says it, *where* it circulates, and how the message is recombined inside an environment.[5] This is the gateway to an ecological vision. The official narrative is a node; legitimacy arises from the circulation and recombination of everything that happens within an ecosystem.

Entrepreneurship alone does not confer legitimacy to a project in a market. Legitimacy emerges, instead, from a metanarrative, in the broad sense of

2. Michael Lounsbury and Mary Ann Glynn, "Cultural Entrepreneurship: Stories, Legitimacy, and the Acquisition of Resources," *Strategic Management Journal* 22, no. 6–7 (2001): 545–64, https://doi.org/10.1002/smj.188.
3. Stephanie Houde and Charles Hill, "What Do Prototypes Prototype?," in *Handbook of Human-Computer Interaction*, 2nd ed. (North-Holland, 1997), 367–81, https://doi.org/10.1016/B978-044481862-1.50082-0.
4. Youn-Kyung Lim, Erik Stolterman, and Josh Tenenberg, "The Anatomy of Prototypes: Prototypes as Filters, Prototypes as Manifestations of Design Ideas," *ACM Transactions on Computer-Human Interaction* 15, no. 2 (2008): 1–27, https://doi.org/10.1145/1375761.1375762.
5. Mark C. Suchman, "Managing Legitimacy: Strategic and Institutional Approaches," *Academy of Management Review* 20, no. 3 (1995): 571–610, https://doi.org/10.2307/258788.

Lyotard et al., composed of all the stories that circulate and recombine visually and transmedially: press, networks, competitors, customers, fandoms, memes, public demos, reviews, forums, leaks, and counter-narratives.[6] Using the concept of spreadability,[7] this narrative ecology determines which version "remains" in the public mind and, therefore, which companies are legitimized (or not) by their key audiences.

Conceptual Approach

Departing from Dunlop and Wilkinson Westberg, narrative ecology,[8] a concept based on Bronfenbrenner's ecological systems theory,[9] appears as a context and map of stories that are produced and interconnected at multiple levels of an environment. In this sense, entrepreneurial narratives are composed of stories that shape an environment while being shaped by it at the same time. They are woven into a "coherent and compelling plot" that transcends the personal and reaches systems where further personal and even group stories interact.[10]

Bronfenbrenner's original approach, known as ecological systems theory, implied five concentric layers or systems that include a micro, meso, exo, macro, and chronosystem (see figure 1). One could see them as different layers of an environment that shapes the individual. Thus, the latter could be profoundly understood within those layers. Dunlop and Wilkinson Westberg apply this theory to propose a narrative ecology, one that is constituted by

6. Jean-François Lyotard, Geoff Bennington, and Brian Massumi, "The Postmodern Condition: A Report on Knowledge," *Poetics Today* 5, no. 4 (1984): 571–79, https://doi.org/10.2307/1772278.
7. Henry Jenkins, Sam Ford, and Joshua Green, *Spreadable Media: Creating Value and Meaning in a Networked Culture* (New York University Press, 2013), https://doi.org/10.18574/nyu/9780814743515.001.0001
8. Dunlop and Wilkinson Westberg, "On Stories, Conceptual Space, and Physical Place."
9. Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design* (Harvard University Press, 2009), https://doi.org/10.4159/9780674028845.
10. Dunlop and Wilkinson Westberg, "On Stories, Conceptual Space, and Physical Place," 3.

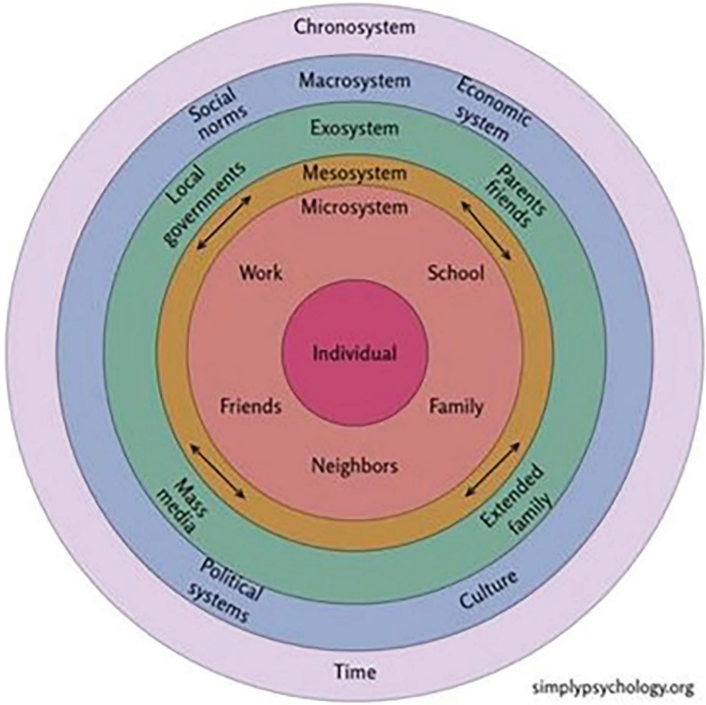

Figure 5.1: The original framework from Bronfenbrenner (2009) named *The Ecology of Systems*.
Source: https://www.simplypsychology.org

stories that appear at different distances to the center (from the autobiography over to a broader cultural tale that shapes the individual).[11]

Relevant to their approach is the issue of continuity (i.e., the idea that there is a "sameness" in the self that connects past, present, and future through a narrative). For them, the continuity of the self is connected to cultural continuity, where the latter is a "necessary precursor" of the former.[12] One could picture an entrepreneur in the creative industries that sees themselves connected to their culture through their own creations. These may be

11. Dunlop and Wilkinson Westberg, 5.
12. Dunlop and Wilkinson Westberg, 7.

Table 1. Prototype Perspective

Bronfenbrenner/ Dunlop and Wilkinson	**Approach from a Thought Experiment**	
Individual/Person	Prototype	The narrative origin
Microsystem	Immediate prototype environments	Close and controlled spaces where the prototype circulates first
Mesosystem	Connections between environments	Bridges between immediate communities and semipublic spaces
Exosystem	Influencing institutions and rules	Rules and actors that indirectly affect
Macrosystem	Cultural and ideological frameworks	Seasonal narratives
Chronosystem	Narrative time	The temporal trajectory

Source: The authors.

inspired in the stories that their surroundings offer, thereby constructing their own identity as cultural entrepreneur. Considering the role of film as a source of numerable personal stories and even as reflections of metanarratives, the self may understand its identity as being coshaped by what Dunlop and Wilkinson Westberg consider a "shared framework."[13]

In our thought experiment, we suggest seeing the prototype as a potential center of a system that can act as the individual does in the original model of Bronfenbrenner. However, the role of stories, as in a narrative ecology, is essential, even if we look at the center of the system as an individual or as a prototype, as the latter itself tells stories and is shaped by them. In line with the model, the prototype itself can hardly be understood without its layers of context (i.e., without its ecology). As presented in table 1, the macrosystem would include ideologies that frame the prototype; the exosystem would involve institutions, press, regulators, platforms; the mesosystem would be shaped by connections between communities and forums where the prototype is discussed; the microsystem would involve teams, expert users, and close testing; and the center— the prototype itself along its public

13. Dunlop and Wilkinson Westberg.

biography or timeframe—would be influenced by the chronosystem that involves its development through time.

Based on this parallel, we propose a *narrative ecology of the entrepreneurial prototype*, which suggests that the prototype lives in a concentric set of systems that shape it while it projects stories that coshape its environment, even altering it based on how influential it is. One can think of AI-based chatbots that materialized at a certain point as a prototype that told a story, one that became so influential with its functionality that it was capable of coshaping the environment at different levels. To exemplify what we mean by this narrative ecology, we can characterize the systems as follows:

- The narrative origin (Prototype): The artifact (physical or visual) and its first history of use (key gesture, context of use, "how it works" diagram, before/after comparison).
- Microsystem (immediate prototype environments): Close and controlled spaces where the prototype circulates first; e.g., extended team, beta testers, private/small forums, internal laboratories.
- Mesosystem (connections between environments): Bridges between immediate communities and semipublic spaces; e.g., technical threads, fairs, open forums, early adopter platforms.
- Exosystem (influencing institutions and rules): Rules and actors that indirectly affect specialized press, app stores, certifiers, regulators, B2B partners, platform policies.
- Macrosystem (cultural and ideological frameworks): Seasonal narratives; e.g., security, "AI in everything," sustainability, austerity, disruption, dominant aesthetics (minimalism, brutalism, retro-futurism).
- Chronosystem (narrative time): The temporal trajectory; e.g., versions, logos, launches, crises, redemptions, adoptions, standardization.

This adaptation not only describes where the prototype's stories reside but also how they change meaning when they move between levels and how

that mobility, amplified by visual storytelling and transmedia expansion, ends up defining a start-up's legitimacy in the public sphere.

A question that arises here is: What about the entrepreneur (i.e., the storyteller) of the prototype? In our line of thought, both the prototype and the entrepreneur tell a story and have a sense of continuity that shapes their evolving identity.[14] This implies that they overlap, as if two concentric systems (that of the prototype and that of the entrepreneur) were placed one above the other, linked by a narrative.

Visual Examples of a Narrative Ecology of the Prototype

Narrative ecologies help us typify the narratives that emerge in the ecological model. Dunlop et al. identify four narrative families that cut across the system's levels: agency, communion, redemption, and contamination.[15] By intersecting this typology with the entrepreneurial principle of the prototype as protagonist, we can read and govern the same plots but shift the focus from the individual to the artifact's public biography (what the prototype does, shows, and convenes).

Agency

Agency often describes stories of autonomy, achievement, control, and mastery when narrating a person (personal challenges, professional mastery, responsibility/accountability). Translated into the prototype, the same narrative is expressed as performative capacity and demonstrable control: The

14. Dunlop and Wilkinson Westberg, 7.
15. Dunlop and Wilkinson Westberg, 3–7.

artifact does something valuable, overcomes adverse conditions, or surpasses visible alternatives.

AN AGENCY STORY: BOSTON DYNAMICS—ATLAS

The humanoid prototype demonstrates functional mastery on stage: running, jumping hurdles, performing backflips, and linking movements with balance and trajectory correction in real time. The story of agency depends not on the team's discourse but on the visible gesture, a performance recorded in continuous shot where the robot does *X* better than an average human under seemingly unprepared conditions (surfaces, heights, obstacles). The piece thus travels through levels: In micro, engineers standardize tests and make corrections; in meso, the video becomes a technical reference and object of analysis (sensor/stability breakdown); in exo, media and conferences display the mobility benchmark; in macro, the robot establishes itself as a symbol of mechatronic mastery. In time (chrono), new routines (handing over tools, more complex jumps) accumulate evidence and consolidate the interpretation: this prototype "can" and demonstrates it on camera (see figure 2).

Figure 5.2: Atlas is a revolutionary prototype of Boston Dynamics.
Source: Boston Dynamics, https://bostondynamics.com/atlas/.

Communion

The story of communion brings together relationship, intimacy, affiliation, and belonging: stories where the value is not "what I do alone" but what we achieve together. The challenges are social (trust, coordination, shared norms) and interconnected between actors. Themes such as friendship, love, unity, and belonging appear in literature. In entrepreneurial terms, when the prototype is the protagonist, these plots are seen as links that the artifact enables or strengthens between people and organizations. In other words, the prototype not only functions, it convenes, unites, and organizes.

A COMMUNION STORY: STABLE DIFFUSION

Released as an open prototype (weights and code available), this dissemination model for image generation triggered a cycle of community codesign and open-source public documentation. The first release served as the "core building block": It spawned community interfaces, direct improvements to the model, and a repository infrastructure where each fork and checkpoint records changes, issues, benchmarks, and user guides.

The community documented everything, from reproducible prompts and cookbooks to notebooks and space demos with executable examples. They also curated collections of resources (models, embeddings, workflows) and third-party tutorials that the ecosystem itself adopts as a reference. The result: The initial prototype not only "works" but grows through verifiable and traceable contributions. The legitimacy comes not from the original release but from thousands of public iterations that show concrete, reproducible, and comparable improvements (see figure 3).

Figure 5.3: Stable Diffusion is an example of open prototyping through community codesign
Source: École Cube, https://www.ecole.cube.fr/blog/stable-diffusion-lia-generatrice-dimages.

Redemption

Redemption is the third type of story: an arc of progress that moves from negative to positive. In affective terms, it narrates improvement, repair, healing, learning, and salvation—from stumbling to overcoming, from suffering to well-being, from doubt to confidence. This same arc can be interpreted and displayed in the public life of a prototype when the object offers visible evidence that it has learned from its mistake and changed its performance (see figure 4).

A Story of Redemption: SpaceX Starship (2023)

The first integrated flight (April 2023) ended in a fiery crash just minutes after takeoff. The "iconic failure" captured on livestreams set an initial negative frame. Within weeks, SpaceX publicly documented changes to the prototype, and the technical community produced breakdowns, simulations, and frame-by-frame comparisons. Subsequent flights (2023–2024) showed visible video progress of hot separation, complete ascents, plasma reentries, and controlled splashdowns that rewrote the narrative as iterative progress.

Figure 5.4: The SpaceX starship is an example of redemption and success after multiple failures.
Source: Wikimedia Commons.

The result: The narrative shifted from "spectacular failure" to "public learning and demonstrable improvement," a clear case of redemption where the prototype, not the speech, provided the evidence that changed perceptions.

Contamination

Finally, contamination is the reverse of redemption, a regressive arc where the emotional trajectory goes from positive to negative or from bad to worse, corrupting the original meaning. These are stories that begin with promise (success, hope, trust) and end in disappointment, loss, or reputational damage; or they begin in crisis and deepen the deterioration.

Figure 5.5: Google Stadia is an example of a promising console, backed by a tech giant, that did not succeed.
Source: Wikimedia Commons

In the world of prototypes, this arc appears when public evidence undermines the initial promise and each new milestone increases the adverse interpretation (see figure 5).

A Contamination Story: Google Stadia

It kicked off with a powerful gesture: playing without a console at maximum performance 4K/60fps; that is, ultra-high definition video resolution combined with a high frame rate, alongside instant switching and "feel[ing] like a local game." In real-world use, the prototype showed visible friction: latency, compression, and hybrid ergonomics that added steps.

Table 2. Prototype Narratives

Narrative	Prototype Example
Agentic	Boston Dynamics—Atlas
Communion	Stable Diffusion
Redemption	SpaceX Starship
Contamination	Google Stadia

Source: The authors.

Side-by-side video comparisons established the frame rate as "not meeting the bar" compared to a PC or video game console. A sparse catalog and confusing model (subscription + purchases) didn't offer an iconic scene to displace that frame. Corporate moves (studio closure, cancellations) certified the retirement of the prototype itself. "Stadia" became a meme of unfulfilled hype, an image that travels alone. Without a clear and replicable demo of redemption, the visual promise was tainted and the closure sealed that narrative.

Conclusion

From a systems view that incorporates the role of story and that of the entrepreneurial prototype, one could assert that the prototype is the originator that is shaped by its environment. Whether it becomes legitimate or not is a question of success in a market. Legitimacy does not emanate from the entrepreneur's original story but from the dynamic sum of all the levels that act on its origin (the prototype). Any variation in a subsystem reframes what others perceive and, over time (chrono), can establish or modify the dominant narrative.

The prototype is the entrepreneur's new creation: Born with the intentions and assumptions of its creator, it soon takes on a public life of its own. As soon as it appears on the scene, it begins to be interpreted, tested, and narrated by others; its trajectory is driven by public opinion as it navigates the narrative ecology.

If we accept that stories can have a person or an artifact as their protagonist, then the social identity of both comes not from the physical object itself but from the narratives that surround it. And this fabric is not under the control of the creator—it is the uncontrollable and distributed result of how stories combine, collide, and sediment as they progress through the different stages (micro, meso, exo, macro, and chrono) of their ecology. In short, the prototype may emerge from the will of an individual, but its meaning and legitimacy are decided externally, in the collective conversation that adopts, discusses, or refutes it.

Acknowledgments

The authors thank the editor in chief, Professor Ying Zhu, and the editorial team for their wonderful support along this process.