STATE OF STICK RESEARCH

The Physical Identity Manifesto

Why Important Objects Need a Persistent Digital Life

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The Physical Identity Manifesto

Why Important Objects Need a Persistent Digital Life

Every important physical object should be capable of maintaining a persistent, governed, and meaningful digital identity throughout its useful life.

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ABSTRACT

Physical identity is the durable relationship between an object, the context needed to understand it, and the rules that govern what people may learn or do through it. This manifesto proposes a practical language for building that relationship without reducing the category to a tag, a campaign, or a surveillance system.

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The object outlives the moment

The physical world is full of objects whose meaning changes while their surface stays still.

A machine component moves from production to installation to inspection. A bottle passes from maker to retailer to kitchen. A museum object gains new interpretation. A training tool returns to the hands of a new learner. A collectible changes owners. A medical device enters a carefully governed service life.

Each object accumulates context: origin, instructions, responsibility, evidence, care, ownership, meaning, and next actions. Yet most of that context lives somewhere else - in packaging that is discarded, manuals that become outdated, systems that cannot be reached at the point of need, or institutional memory that leaves with a person.

The result is a persistent gap between the thing in front of us and what we need to know about it. Connected-product programs often narrow that gap for a campaign. Physical identity is a larger proposition: the object can remain a stable point of access to governed meaning throughout its useful life.

This is not a requirement that every object become connected. Many objects are complete as they are. Physical identity matters when an object's provenance, instruction, trust, maintenance, cultural meaning, or continuing relationship is important enough to persist.

The object is already carrying history. Physical identity makes that history legible, useful, and governable.

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Connected is not the category

A connection is an interaction method. It is not, by itself, an identity.

The phrase connected product has become useful shorthand for an object that can open a digital experience. But connection alone says very little. It does not tell us whether the object is individually known, whether a claim is credible, whether content is current, who governs the destination, what happens when ownership changes, or how the experience should evolve over time.

NFC, QR, computer vision, serial numbers, embedded electronics, and other methods can all help bridge a physical object to a digital system. They are interaction technologies. None of them is the whole product, and none automatically creates trust.

Physical identity names the larger system around the interaction: the relationship between an object, its identifier, its authoritative context, the people and organizations allowed to act, and the lifecycle rules that keep the experience meaningful. The category begins with the object and its responsibilities, not with a particular chip, code, or interface.

This distinction matters because technology changes faster than important objects do. A durable identity model should be able to adopt new interaction methods without forcing the object to lose its continuity.

Connected is not the same as identified. Identified is not the same as verified. Verified is not the same as governed.

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A working definition

Physical identity is a governed digital continuity anchored to a physical object.

A useful physical identity makes the object recognizable to an appropriate system, preserves meaningful context across time, and presents the right experience for the person, place, moment, and level of trust involved.

Persistent does not mean permanent exposure. It means continuity: the relationship can survive a campaign, a packaging refresh, a service event, a new owner, or an updated instruction. Governed means responsibility is explicit: authoritative sources, permissions, privacy boundaries, update rights, retention, and failure behavior are designed rather than assumed. Meaningful means the identity helps someone understand, verify, care for, learn from, maintain, transfer, enjoy, or responsibly act on the object.

A digital twin may model an asset. A product passport may organize required records. A connected experience may create an interface. Authentication may evaluate a claim. Physical identity can work with each of these, but its distinctive concern is continuity at the object itself: how the physical thing remains a trustworthy doorway into the right context throughout its life.

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Three levels of identity

Not every object needs the same degree of identity or assurance.

A shared identity connects a class of objects to a common experience. Every item in a product line may open the same care guide, lesson, story, or campaign. This is simple and valuable, but it does not distinguish one object from another.

A serialized identity gives an individual object its own durable record or destination. The system can distinguish unit A from unit B, support ownership or service events, and carry object-specific history. Serialization creates specificity, not automatic authenticity.

A verified identity adds an evaluation appropriate to the risk. The system may assess whether an interaction, credential, record, or chain of custody meets defined conditions. Verification should communicate what was evaluated and what was not. It is not a universal promise that an object, person, or history is unquestionably genuine.

These levels form a design ladder, not a prestige hierarchy. A shared identity may be exactly right for a public learning resource. A verified identity may be necessary for a high-risk part. The responsible choice is the least complex level that delivers the needed value and assurance.

Identity should be proportionate to the consequence of being wrong.

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From object to governed experience

The object becomes the interface, but governance makes the interface dependable.

A person encounters a physical object. An available interaction method carries a reference. The system evaluates the identity and, where appropriate, the confidence or permission attached to the interaction. It resolves a governed experience for that context. A lifecycle event may then be recorded according to clear consent, access, and retention rules.

This flow can support instruction, provenance, registration, service, cultural interpretation, warranty, recall guidance, ownership, professional training, or post-purchase relationships. The visible moment may take seconds. The architecture behind it must account for years.

A durable system separates what should remain stable from what must change. The object and its reference may persist. Content, policies, destinations, permissions, and next actions can evolve. This is how a physical object can gain a digital second life without becoming disposable whenever a campaign ends.

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Nine principles for physical identity

A category becomes useful when it carries design obligations, not only possibilities.

01

Begin with the object

The physical thing must have value, purpose, or consequence before a digital layer is added. Identity should strengthen the object rather than compensate for an object nobody needs.

02

Separate connection from assurance

An interaction method can open a door. It does not prove what is behind the door. State clearly whether an identity is shared, serialized, or verified and what any verification actually evaluates.

03

Design for useful life

The relationship should outlive a campaign. Plan for updates, service, transfer, retirement, and organizational change from the beginning.

04

Keep authority legible

People should be able to understand who publishes the experience, which source governs a claim, and where responsibility sits when information changes.

05

Make context adaptive

The identity may persist while the right content changes by role, place, time, lifecycle state, language, accessibility need, or level of trust.

06

Collect less

Do not identify a person simply because an object can be identified. Use purpose limitation, data minimization, bounded retention, and meaningful consent.

07

Plan for uncertainty

A trustworthy system can communicate unavailable, expired, incomplete, revoked, transferred, or unknown states without manufacturing confidence.

08

Preserve human agency

Physical identity should help people decide and act. It should not quietly narrow choices, manipulate attention, or make essential use dependent on unnecessary tracking.

09

Earn persistence

A digital life deserves to persist only while it remains worthy of the object.

> A persistent identity is a stewardship commitment, not a one-time feature. Continuity is earned through maintenance, security, accessibility, clear authority, and continuing usefulness. When that commitment can no longer be kept, the system should communicate its state honestly rather than leaving an important object attached to an abandoned or misleading experience.

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One category, many institutional problems

The common thread is not industry. It is the need for context to remain attached to the thing that needs it.

Manufacturers need an object to carry installation, service, inspection, and provenance context beyond the factory. Food and beverage teams need product stories, handling guidance, batch context, and post-purchase education to remain useful after packaging leaves the shelf. Healthcare organizations need carefully bounded information and workflows that respect clinical authority, privacy, accessibility, and regulation.

Defense and aerospace programs need high-assurance asset context, controlled maintenance records, and explicit failure behavior. Retailers need the shelf and product to continue educating after a sale. Educators need instruction at the moment and place of practice. Museums need interpretation that can deepen without replacing the physical encounter.

Sports, collectibles, and luxury goods need provenance, edition context, ownership experiences, and carefully scoped verification. Government agencies need durable public information, asset stewardship, inspection context, and records governed by public obligations rather than marketing convenience.

The systems will differ. The category-level question remains: what should this object be able to explain, prove, teach, or enable now - and who is responsible for keeping that relationship worthy of trust?

Products should be able to explain themselves - without exposing everything about the people who use them.

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Governance is product design

A persistent identity without stewardship becomes a persistent liability.

The moment an object can identify itself to a system, questions of authority follow. Who may change its destination? Which source is authoritative? What happens when an organization closes, a product is recalled, a credential expires, or an owner requests deletion? What is public, what is private, and what should never be collected at all?

These are not policy notes to add after launch. They shape the product. Governance includes ownership, roles, review, lifecycle states, accessibility, security boundaries, retention, portability, redress, and the experience of uncertainty. A responsible system can say that an identity is unknown, an evaluation is unavailable, or a record is incomplete.

Privacy must be proportional and purpose-limited. Most useful object experiences do not require identifying a person. Aggregate interaction measurement can often answer operational questions without constructing a detailed behavioral history. When personal information is genuinely necessary, consent, access, minimization, and deletion should be understandable at the point of use.

The goal is not to make the physical world observable to its maximum extent. The goal is to make important objects more understandable and trustworthy while preserving human agency.

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Products can have a memory

Lifecycle records can turn an object from a static endpoint into a continuing source of context.

Memory does not need to mean an exhaustive log. It can be a small, deliberate set of events that make the object safer, more useful, more teachable, or more meaningful: manufactured, issued, installed, inspected, repaired, interpreted, transferred, retired.

The right record depends on the object and the consequence. A public artwork may carry evolving interpretation. A reusable tool may carry inspection and training context. A collectible may carry edition and transfer history. A consumer product may simply remember that its owner chose a particular guide or registered for support.

Well-designed memory helps institutions learn without turning every interaction into surveillance. It privileges relevant lifecycle evidence, clear ownership, and bounded retention over indiscriminate data collection.

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An open invitation to build the category

Physical identity will not be defined by one company, one standard, or one interaction technology.

It will require manufacturers, designers, educators, technologists, policymakers, archivists, security practitioners, accessibility experts, retailers, healthcare leaders, artists, investors, and the people who live with these objects to shape shared expectations.

State of Stick is publishing this framework openly because category language helps organizations ask better questions before they buy technology. Our contribution is a practical, physical-first approach that joins crafted objects, persistent identity, governed experiences, and lifecycle learning. We do not claim to have invented NFC, digital twins, product passports, provenance, authentication, or connected products. We are defining how these ideas come together in our work and inviting others to test, challenge, and extend the framework.

Begin with one important object. Ask what context it loses today, what responsibility should persist, and what level of identity is proportionate. Then design the smallest governed system that helps the object keep its meaning.

Every important physical object should be capable of maintaining a persistent, governed, and meaningful digital identity throughout its useful life.

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Amy Cozart-Lundin

LEARNING AND EXPERIENCE CONTRIBUTOR

Amy contributes expertise in instructional design, learning experience, customer and workforce education, the last mile of learning, and Persistent Retail. Her work asks whether useful information can arrive when a person is ready to act on it.

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PHYSICAL IDENTITY AND SYSTEMS CONTRIBUTOR

Andrea contributes expertise in product vision, physical-to-digital systems, manufacturing, authentication, platform design, and connected experiences. Their work connects durable physical objects to governed digital systems without reducing the product to its interface technology.

The authors contribute complementary perspectives. Neither is presented as more authoritative than the other, and this publication does not imply academic peer review.

ABOUT THE PUBLISHER

State of Stick, Co.

State of Stick is a connected-manufacturing studio exploring how meaningful physical objects can carry persistent identity, governed digital experiences, and useful lifecycle context. Its work spans physical product design, connected experiences, trust and verification, contextual learning, and Persistent Retail.
State of Stick is a TechFlunky Labs, LLC company based in Battle Creek, Michigan.

Our research position

We publish working frameworks openly so organizations can examine the category before choosing a technology or implementation. We distinguish existing capabilities, controlled prototypes, planned research, and production systems.

INVITATION

Collaborate on the physical identity category.

We welcome research partners, manufacturers, educators, technology partners, pilot customers, standards and policy contributors, and investors aligned with responsible physical-to-digital infrastructure.

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CONTACT	stateofstick.co/contact/
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Physical first. Digital second life.