

Tin Can Impacts

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What is Tin Can

In Case You Missed It

In 2010, [ADL](#) started to get serious about defining the next generation of SCORM. In search of the best technical solution, they pursued several development avenues simultaneously. One of those avenues was to award Rustici Software a grant to conduct research about what we thought the next-generation elearning standard should look like.

Rustici Software conducted that research under the codename "Project Tin Can". Many of you participated in the requirements gathering for Project Tin Can. It was truly a community-wide effort with hundreds of people providing input.

The Project Tin Can research project concluded in October 2011 with Rustici Software submitting the Tin Can API as the result.

In early 2012, ADL selected the Tin Can API as the best technical solution to fulfilling its requirements for the next generation of SCORM. The official name the specification is the Experience API or xAPI, but many still call it the Tin Can API.

To read more about Project Tin Can, visit <http://scorm.com/tincan>

Where We Are Now

Over the past several years, adoption of the Tin Can API has proceeded at a startling pace. The industry is rushing to adopt this new specification. This is real. It is happening. It is happening right now.

In the first four years since ADL announced its support for Tin Can, more than 180 commercial vendors have developed products that support it. This is only the beginning.

See the full list of Tin Can API adopters here:

<http://tincanapi.com/what-is-tin-can/adopters/>

Pay attention, this is coming and it is coming quickly.

Impacts of Tin Can

Organizations and vendors of various types are rushing to adopt Tin Can because it enables many things they have wanted to do for a long time. Things like mobile delivery, offline delivery, serious games and hosting content outside the LMS were all difficult or impossible with SCORM. These are easy with Tin Can. The release of Tin Can was akin to popping the cork on a champagne bottle; it unleashed a flurry of pent-up demand.

If you haven't read it yet, stop now and go read the "Layers of the Tin Can Onion" article (<http://tincanapi.com/what-is-tin-can/overview/the-layers-of-tin-can/>). It describes the new capabilities Tin Can will enable, many of which aren't obvious at first glance.

It's important to make a distinction between two different types of capabilities: things customers know they want, and things they don't even know are possible yet.

Many of the things listed in Layer 1 of the Tin Can Onion are things that customers already know they want. These have pent-up demand. Customers are knocking down doors to buy these things that should have been possible years ago.

The deeper layers are more challenging. We're talking about things people don't even know they want yet. Customers will start to ask for this stuff once they realize it's possible. But they won't know it's possible until their vendors show them it is.

We want to help you innovate. Please consider these points carefully — we can't see the future, but we're sure it will be different.

What This Means for LMS Vendors

The New Ante

SCORM has served as the de facto industry standard for years. To be a serious player in the elearning space, your product needed to support SCORM interoperability. You probably know this, especially if you have a relationship with Rustici Software.

That standard is going to shift. Pretty soon, Tin Can interoperability will be the new price of admission to the elearning market. You need to adopt, and you should start doing that right now.

At a minimum, you should implement Tin Can at what we call the "SCORM parity" level. That is, your system should be able to import, launch and track Tin Can content to do everything it can right now with SCORM. But instead of "speaking SCORM", it should "speak Tin Can". It doesn't have to say anything new, it just needs to speak a different language.

For LMSs that use SCORM Engine, this transition is an easy one. Adding SCORM-parity level support for Tin Can is a simple matter of upgrading to the latest version of the SCORM Engine.

Next, you should be thinking about how to elegantly incorporate the trackable learning methods mentioned in layer one of the onion document. Things like mobile, simulations, games, etc. These will often require some reconceptualization of your LMS structure.

Some things to think through:

How does my LMS...

- allow for mobile delivery of courses?
- capture and represent results of a game which aren't complete/incomplete or passed/failed, but rather, "tried level 1", "achieved this badge accomplishment"?
- represent activity in a simulation like "attempted this scenario, correctly did task 1, incorrectly did task 2"?
- capture activities that have multiple scores or that allow many attempts?
- handle learning activities conducted by a team of learners?
- handle results of content not launched in the LMS?
- manage authentication credentials of experience providers that might be hosted elsewhere?

There is a big list of these and other questions to ask to fully embrace the first layer of the Tin Can Onion.

Opportunities: The Next Things For You To Consider

This section presents bigger problems, complete with bigger opportunities. These are new capabilities that Tin Can introduces, but which require some innovative thinking and system redesign to capitalize on. We expect to see different systems focus on different areas of opportunity. We expect there will be many different types of learning products, each focusing on different specialties in the future.

Capturing Informal Learning Events

Learning doesn't just happen in an LMS. Learning happens everywhere; with Tin Can we can capture it. A holistic picture of a person's learning experiences provides valuable insight into his capabilities and interests. At a minimum, a simple transcript of learning

experiences that a learner finds significant tells us a lot about the person.

When viewed across the entire population of an organization, the learning experiences people choose for themselves paints an even richer picture. A robust informal learning tracking system can provide many organizational insights, including:

- Identification of topics to which people are gravitating. Do these represent emerging trends worthy of attention? Is our current formal training program deficient in these topics?
- External resources that are frequently used and shared. Should these resources be including in the formal training program, or otherwise leveraged more extensively?
- Areas of knowledge in which the organization has a particular depth or dearth of knowledge.

Tin Can allows us to capture learning events from anywhere, be they formal or informal. But a robust implementation comes with significant challenges for system design. Some of these challenges include:

- Learning experiences don't necessarily originate in the LMS anymore. An informal learning system needs to be able to track learning experiences that are launched independently, or even events that happen in the real world. The good news is that with the emergence of Tin Can, a myriad of tools are becoming available to capture these learning events. The LMS doesn't need to provide the ability for learners to record informal learning events, it simply needs to accept Tin Can statements from the tools the learner is using.
- Learning experiences are no longer pre-registered. In a traditional formal learning environment, learning experiences are all pre-created in the LMS and the learner is then directed to an existing catalog item. An informal learning system needs to be much more flexible; anything can be a learning experience. The LMS will routinely receive Tin Can data about learning experiences it has never heard of before. How will the system separate "valid" learning experiences from "meaningless" activity? How will the system identify disparate activities that are logically equivalent?
- Learners might not be pre-registered. Just like learning experiences, it is possible (but not required) that a Tin Can LRS can accept statements about learners it doesn't (yet) know about. How will the LMS deal with data about unknown

learners? How will it merge the different persona identifiers that logically represent the same person?

- Many different systems and individuals will generate Tin Can data. Which of these do you trust? Does your system provide more weight or grant more authority to trusted systems vs untrusted systems? How will these asserters be managed, authorized and differentiated?
- How do you make meaning of a pile of informal learning data in a way that adds value and serves both the organization and the learner? Can you create elegant and useful reporting? Can you provide meaning from this new information?
- Tin Can is designed to be very learner-centric, does your LMS truly serve as a useful resource for the learner? Are you providing the learner enough value to incent them to report their informal learning events to your system?

The Emergence of the LRS

When we created the Tin Can API specification, we needed to choose words to describe the two systems that communicate using the API. We chose the term “Activity Provider” instead of “content” because in Tin Can, we can record any learning experience or activity, not just elearning content. We also chose the term “Learning Record Store (LRS)” in lieu of “Learning Management System (LMS)” because it might be a talent management system or human resources system recording Tin Can data. We conceptualized the LRS as “the part of the LMS that implements the Tin Can API and records statements”.

The LRS is a central place to store learning records of all types from many sources. It includes both formal and informal learning records. Data in an LRS can come from an LMS, from an independent Training Delivery System (TDS) or from any Tin Can experience provider directly.

You have a very fundamental choice to make about the role of your LMS in a Tin Can, or LRS-enabled world. Do you want your LMS to become the LRS that accepts statements from a myriad of sources and acts as the authoritative store of all learning records within an organization? Or, do you want to become a publisher of learning records to a separate LRS? This decision has profound impacts on what your LMS does, how it will be marketed and the expectations of your customers.

The best decision for your product may also be less obvious than it might first appear. We have been surprised to see some early LMSs choose to act as an activity provider rather than as an LRS. In many cases, even when an LMS is a net receiver of statements, it should also be a publisher of statements about everything that occurs within the system.

Pay very close attention to these trends and very carefully consider the role your platform will best serve in a changing world. We expect that the LRS will have significant impacts on the learning system market over the next few years. Let us know if you would like for us to work on a deep analysis of these options with you and your organization. Call us, [email us](#), [tweet at us](#).

Inherently Open Systems

The Tin Can API creates an inherently open system. Data that goes in via the API can also come out via the API. This openness addresses a big frustration from many users of learning systems who are often frustrated by their inability to usefully and conveniently access the data in their LMS.

The emergence of the LRS coupled with the open nature of Tin Can is forming an ethos of openness in the learning industry. Data can now easily move between systems, both within an organization and across organizations. Siloed data is not acceptable anymore. Learning systems will need to embrace openness to compete.

Learning data isn't very interesting in isolation. Learning data is far more valuable when coupled with actual job performance data, talent management information and other HR stats. How can your system enable and benefit from these correlations?

Systems that successfully correlate learning with meaningful outcomes will provide enormous value to the enterprise. Tin Can's open nature makes these correlations suddenly possible, but it requires capturing activity from across the enterprise.

Tin Can-enabled systems should be prepared to accept the challenges of reconciling data from disparate platforms. Data can originate from other LRSs, from outside organizations and even from non-learning systems. If the role of your product will be to incorporate all of this data to help determine how training is affecting performance, then

it should accept and reconcile streams from many sources. If not, it should be a publisher of learning data statements to other systems.

Reporting and Analytics

Tin Can introduces the capability to record and track a lot of new data about learning events. This data creates a big opportunity for reporting and analytics to make sense of all the new information. And, really, without a commensurate increase in reporting capabilities, what's the point of capturing more data? There is a massive opportunity for systems that can make sense of Tin Can data and intelligently provide reports on it. The industry is entering this space, and you need to be able to compete.

Tin Can reporting and analytics create a big opportunity with equally large challenges. How will your system make sense of a potentially very large pile of relatively unstructured data? What meaning can you provide to the organization? What questions can you answer? How will you spot trends and correlate learning with outcomes?

Note that the open nature of Tin Can data makes it possible for third parties to develop independent reporting and analysis tools. We expect third party reporting to become a large value space for organizations to occupy. This paradigm is especially exciting for analysis of specialized or niche training systems. We expect to see Tin Can-based reporting tools targeting specific verticals and specialized activity providers.

We believe it will be important for LMS vendors to provide their own sophisticated analysis tools, but we also believe that it will be important for LMSs to play well with specialized independent reporting tools. These tools will emerge as a valuable addition to the learning ecosystem and users will expect easy integration with them.

The Emergence of the Personal Data Locker

With Tin Can, data can now easily move across systems, both within organizations and across organizations. That means the technology for a person's learning data to follow them across jobs is now readily available. Taken to its logical conclusion, that also means that the technology is available for a person to own their own learning records and then share them with others. We call a system for tracking personal learning records a "Personal Data Locker (PDL)".

We expect that Tin Can will catalyze the creation of one or more Personal Data Lockers. The PDL is the right model for our industry. Everyone benefits from a more comprehensive picture of a learner's experience across time and organizational boundaries.

As PDLs begin to emerge, they will also have impacts for how your LMS system should behave.

Will you contribute records to a learner's PDL account? How will you manage the legitimate privacy and data ownership concerns of the learner's employer?

Will you incorporate a learner's previous learning history from their PDL account into your system's records? How will you manage validating prior experiences? Can you determine equivalency between training completed at other organizations and requirements at a current organization? Your LMS should tend to be as open as you can possibly imagine it being.

As the PDL emerges, how will you make your system more learner-centric to be inline with the prevailing norms of the industry?

Threats: Opportunity's Evil Twin

Rapid Change Ahead, Keep Up

The next generation learning system is coming. The previous sections gave you an indication of what these systems will look like and where the industry is likely heading. There will be a new model. There will be a time of disruptive change and innovation.

Disruptive times are especially perilous for established vendors who profit from the status quo. Embracing the change ahead will be hard, very hard. New paradigms will not always map well to existing systems.

Keeping up with evolving technology will require difficult choices. Remember that customers often won't be asking for these new capabilities until the benefits are explicitly demonstrated to them. Don't let it be your competitor giving the demo.

Customers won't start asking for these things until they have seen them somewhere else, at which point it could be too late.

In “The Innovator’s Dilemma”, Clayton Christensen describes a pattern of disruptive technology overcoming established systems. Christensen talks about how big companies succumb to disruptive competitors by following their customers and doing more of what has always worked. Our industry fits this pattern perfectly right now. If you haven’t yet, you should go read [this book](#) right now. Christensen recommends establishing separate spin-off organizations to pursue disruptive technologies independent of, and even in competition with, the primary organization. Now might be a really good time to consider that strategy.

We Are Here to Help

Rustici Software, in collaboration with the elearning community, invented the Tin Can API. The ideas that spawned Tin Can are the result of a decade of working in the elearning industry. These concepts have been in our heads since well before we had the chance to create Tin Can. We worked with countless companies, listened to their problems and came up with an elegant solution over the course of many years. We’re excited to see our vision becoming a reality for the industry.

Our in depth knowledge with Tin Can enables Rustici Software to capture the best practices of applying Tin Can to systems and organizations. To help advance the adoption of Tin Can, we have created numerous open source libraries and prototypes to help folks get started. You can find those resources [here](#). We have also introduced two concepts—the [Registry](#) and [Recipes](#) as resources to help encourage a consistent application of Tin Can for increased interoperability among Activity Providers and LRSs. We have also formalized this expertise as a methodology available to help you implement Tin Can in a fully thought out and intentional manner. [Let us know](#) if you’d like for us to take a deep dive with you and imagine your world with Tin Can.

We are eager to see this evolution continue and we are eager to help people embrace a new world. We are here to help. We want you to support Tin Can.