

Supported Self-Driven Learning Operating System

selfdriven.foundation

Whitepaper

Version 1.11

An operating system (framework & cloud service) to support self-driven learning.

Intro

In our view there is an opportunity for a learning operating system that:

- Captures all of a learner's activity and growth
- Supports self-driven learning
- Connects learners with their learning partners.
- Recognises creativity and collaborative problem solving ability above rote learning

A community/society is a function of us and we need to give young people opportunities to authentically facilitate a community. A learning community is a great place to put this into practice, i.e. governance, improving the environment, provision of food, clothing, caring for others etc.

We believe that people (learners) with the following attributes, are good members of a modern society / community:

- Self-driven (can initiate and act on a decision to improve)
- Self-aware (as it relates to self and others)
- Importance of the collective (community)

Problems

The selfdriven operating system seeks to solve the following problems:

- Current learning operating systems do not adequately capture experience-based learning / all of learning activity
- The needs of the learner do not always align with what the learning environment needs to measure / is measuring
- There is no trusted source of information for learning partners (including high schools, universities, TAFE etc) to ensure learners make the best decisions about their future learning pathway

The learning operating system

The learning operating system is made up of a framework and a cloud service.

The framework encompasses the values, structures and language used to support the self-driven learner.

The cloud service is based on an open architecture enabling interoperability with new standards and services as they develop globally.



Design Basis

The operating system is based on the first principle of why learning environments exist; to meet basic human needs, leading to a least-harmful/most-caring society. The operating system is designed to augment an existing learning environment, not replace it as much as it can operate independently.



Trust & Pathways

The learning operating system establishes

trust (*centralised & decentralised*) in regards to learner growth (*achievements, endorsements etc*) between the key stakeholders in a learning pathway.

The learning framework

The framework starts with basic human needs as its first principle.

The learning framework is learner first; everything within the selfdriven operating system is contextualised to the learner. As a unifying framework, it works with other existing frameworks.

It augments existing learning environments and supports their local values and structures.

The framework's value is realised in the *selfdriven.cloud* information service and associated app.

The framework has three key layers:

• Layer 1 - Importance of

Why does the learning environment exist? What is its value to the learner and our society?

• Layer 2 - Common Components

The key structural components that the services are built on, the language from which the framework is derived.

Layer 3 - The Existing Learning Environments

State or independent based.



Layer 1 - Importance of

Understanding / sense of self	The ability to understand yourself and your impact on others.
Social interaction	Social connections and the importance of the collective/community.
Caring for others	And what that means to us.
Food	What you eat (nutrition) and what you listen to can have a dramatic impact on your well-being, on your brain and on your brain's ability to learn. * Food as an input.
Environment	How our environment impacts us and our ability to impact our environment.
Activity	Movement, teams, play.
Thinking	Thinking as a tool to reflect, rationalise, reason - know our own mind.
Language	We understand the world through language, and the ability to improve our lives and our society depends on our ability to use languages (English, Maths, Science, Music etc) to support our thinking.
Arts/Music	How we see and interpret the world and how we feel. Both as creators and consumers.

Layer 2 - Common Components

Shared Understanding	The more we share and understand, the greater the potential for less harm.
Structured Thinking	How the world occurs to you using a broad set of languages; english, maths, science, music, HSIE etc.
Authentic Experiences	Purpose and context. Establish the why and find passion.
Reflection	How do I learn? Are my actions causing harm? This is me. Reflections can be unstructured or structured.
Environment	How you impact it and how it impacts you. Learning spaces.
Accountability	As a citizen of the state. To the learning framework. To the learning community (others) To self
Growth Recognition	Reflections. Endorsements by self or learning partners. Basis for collaborative meetings with learning partners.

Layer 3 - Existing Learning Environments

State or independent based learning environments with well established structures and values eg Primary & Secondary Schools, Universities, TAFE, Apprenticeship Programs, Other Programs etc

The learning ecosystem / "tribe".

Learning communities, services & people working together to support the learner, using the *selfdrivenOS* and existing well-proven learning frameworks and resources.

With the three key core stages of learning:

- A. Introduction to Learning ("Primary School")
- B. Consolidating ("High School")
- C. Focused (Technical)

	Learner	er	→
	"Fam	ily"	
Learner Support	Authentic	Experiences	Summation
Learning partners working together to			J of Personal & Techical Skills
	A Introduction to Learning Under	rstanding of Self. How to learn. How I learn.	
Reflected as a summation of learner attributes,	B Consolidation	Consolidation of personal & technical skills.	Evidenced by "Check-Ins" and generally a least-
"importance of" values, and skills capacities & levels.			harmful society.
		C Focused Learning	
	Next Steps	Next Steps □ → ⓒ	alfd <u>riv</u> en

Well-being

The well-being section of the operating system works directly and indirectly to positively impact well-being - via recognition or positive behaviour and mechanisms to directly communicate when the young person is not *Going OK* i.e. "How Going?".

Indirectly;

- Self-awareness via values in the Supported Self Driven Learning Framework
- Recognition of growth and positive behaviour (endorsements, achievement and reflections by learning partners)

Directly;

- Record via *How Going*? anxiety level and source of anxiety (if anxiety exists)
- Share How Going? with professional well-being specialists and mentors
- Check reflections by learner for language that suggests may be an anxiety issue (opt-in or community based opt-in to manage the risk)
- Summarised dashboard for professional learning facilitators to manage community level anxiety or sources of anxiety i.e. *Community How Going*?

See associated document on the selfdrivenOS well-being for more details.

How Going?

A simple sliding scale between "Could be better" (0) and "Going OK" (100) with direction to:

- Reach out for Help
 - less than 50
- Tips To Stay Fit (Physically & Mentally) more than 50

Could be better	🐞 Goin
Feeling stressed by exams. Why do we do them? Not re learning passion.	ally sure how they help with me finding my findin
Reach Out For Help	Tips to Stay Fit
Reach Out For Help There's always someone there for you.	Tips to Stay Fit Physically & mentally.
Reach Out For Help There's always someone there for you. Learning Support	Tips to Stay Fit Physically & mentally. RUOK?
Reach Out For Help There's always someone there for you. Learning Support Stored	Tips to Stay Fit Physically & mentally. RUOK?
Reach Out For Help There's always someone there for you. Learning Support Send Email J Call Mentors	Tips to Stay Fit Physically & mentally. RUOK?
Reach Out For Help There's always someone there for you. Learning Support Send Email J Call Mentors Cathy Richards	Tips to Stay Fit Physically & mentally. RUOK ?

Positive behaviour

In addition to growth recognition of learning outcomes, positive behaviour, in the form of endorsements, is also recognised in the form of "tokens / learner-shareable-assets" (SDC & SDE token).



Tokens are blockchain based, SDC can be used for inner value & *outer value* and SDE can be used for outer value (refer following diagram). They can also be used in governance decisions based on stake *i.e.* community leadership

Tokens are issued by learning partners for positive behaviour but also for service to the community (eg working in the canteen). Issuing tokens is based on activity within selfdriven.cloud.



Token totals can be used as quantifiable summarised representation of key self-driven learning objectives; selfdriven (check-ins), self-aware (reflections/endorsements) & sense of community (service) - for use within community and next steps in learning.

okens				My On-Chain Profile
Community			0	You can spend, invest or vote
12		3		with your tokens. Use Tokens
Total Earned To	kens	Total Used Toke	ens	
FOR	ТҮРЕ	DATE \$	AMOUNT \$	You can request
Endorsement; Work on RUOK Day Cathy Richards	Earned	29 Dec 2021	1	tokens from a learning partner. Request Tokens
Check-In; 1 Jan 2022 Kate Smith	Earned	28 Dec 2021	1	*Can be or has been
Gardening Cathy Richards	Earned	15 Dec 2021	2	used for community services, i.e. buying food from the canteen.
Canteen Buy Food* Cathy Richards	Used	14 Dec 2021	3	
Canteen Work*	Earned	8 Dec 2021	8	
Carly Ronards	tokens Use			Му
	Use your community t You can also use them to	tokens to spend on o o vote on projects.	community services	or move to on-chain.
	Spend		Use On-Chain	Vote
	0		4	12
	Tokens earned by community service available for moving spend account / spe	doing that are 9 to your endable.	Tokens that can be moved on-chain for use with other projects.	Tokens earned by recogni within this community or recognition of accountab via check-ins. These toke are available for voting o
	You have 8 token your spend acco for spending o Food / Clothin	ns in punt on ng	Featured Projects empowa.io ito.veritree.com worldmobile.io	improve.community Applications Open For Voting

ens

Improvement Cycle

The Support Self Driven Learning Framework (SSDLF) includes an improvement cycle for continuous incremental improvement.

The improvement-cycle includes learner reflection at any point within the cycle.

The improvement cycle and associated project/task/action management components within the selfdrivenOS (app.selfdriven.cloud) can support project-based-learning.

See associated document on the selfdrivenOS improvement cycle for more details.

/		
Listen & Observe	Who & Why	Collaboration & Communication
Interpret	Why to What	Creativity
Implement	What to How	Collaboration & Communication
Review	Reflect back to Why, What, How on the improvement	Critical Reflection & Communication

Points in the Cycle



Learner Activity

Learner activity can be recorded by the learner or their learning partners.

The three core activity types are:

Achievements	These are achievements that can be linked to known skills. Achievements are issued by learning partners.
Reflections	These are reflections on the learner, by the learner (self) or learning partners. Than can also be linked to unknown attributes and rated (0 to 100) i.e. Focus.
Endorsements	Endorsements are issued by learning partners based on their observations or response to a learner request e.g. "Can you endorse this application for next steps of learning".

Skills

selfdriven has a set of known skills that can be linked to achievements and thus learners. e.g. a knowledge of *English Year 11 Level 1* is *English 11-1-K*. Skills are broken into parts with corresponding codes to make a unique skill identifier for use as a common reference by learners and their learning partners:

Part Name	Length	Example	
Source	2	Federal Governance	01
Domain	2	English	22
Skill	6	English Year 7	000007
Level	2	Level 1	01
Capacity	2	Capable	01
TOTAL	14		# 01220000070101

Skill Capacities

Туре	Code	Description
Gets It	G	Has an understanding of the skill
Knowledgeable	к	Is knowledgeable about the skill based on effort (Cognitive).
Natural	N	Is natural at this skill with little cognitive effort. (Limbic)

https://www.selfdriven.foundation/skills

Templates

Templates are used to:

Support Self-Driven Learning

Policy & learning structures for project based self-driven learning; tasks, skills required, skills gained, learning-partner validation guides.

Make Learning Local •

Enabling local identity and culture; skills identity, supporting economic identity.

Build Trusted Collaboration

Learning partners can see how the skills were achieved; the learning method, and who verified them etc.

There are three types of templates:

Learning •

Learning tasks, skills required, skills gained, local terminology, validation policies.

Project •

Supporting project based learning; project outcomes, tasks etc.

Next Steps •

For learning pathway assistance based on achievements/skills, activities.



https://www.selfdriven.foundation/templates

Skill Validation

Learning templates include validation logic that can be used when determining if a learner has a required skill and also when a skill is being issued as "gained" i.e who can issue the achievement/skill.

Learner Check-Ins

To help with tracking learner growth and accountability to themselves and their learning community a learner can create a periodic check-in.

The check-in:

- Is at a particular date
- Has a team i.e. the learner and their learning partners - all or a select group.
- Collates reflections by the learner and their learning partners based on the learning community attributes, i.e. focus, grit
- Highlights differences between the learner's reflections and their learning partners and invites them to ask "why"?
- Allows for notes on next learning i.e. plan for learning
- Can be finalised so it is a snapshot for that moment in time.
- Can be downloaded as a PDF.
- The check-ins are a key input into the next steps to show growth and evidence of self-driven learning.
- Community tokens can be created based on check-ins

мү снеск-ім Check-in #1 1 Jan 2022, Completed		Edit Check-In
Reflections Notes Team Finalise		
Reflections by you and your learning If any of the reflections are different, a	partners. sk yourself "why"?	General Leadership 🗮 舖
ATTRIBUTE	BY SELF	BY LEARNING PARTNERS
Think Why Think First Principles	•	
Make & Express Meaning Make & Express Meaning		-
Build Ideas Build New & On Ideas		
Influence Initiative and leadership		•
Empathy	•	
Teamwork		
Focus		•
Grit		
Curiosity		



Learner Next Steps

The *selfdrivenOS* helps learners with their next steps in learning - within their current community and also as a path to their next learning community.

The collection of activity ("check-ins"), including reflection by self and learning partners, forms a key part of helping learners with their understanding-of-self and next step/pathway decisions - including learning recommendations. Learning partners can summarise learner activity and attributes as an selfdriven Next-Steps (SDN) token based on their specific needs.

Learner activity can be shared as:

- Summarised PDF (for downloading and sharing), including check-ins.
- Sharing within *selfdriven.cloud*
- Sharing with learning partners via the selfdriven API (<u>https://api.selfdriven.cloud</u>) or via exports to CSV or JSON.
- Via the Cardano Blockchain (*selfdrivenOS* initiated or other)

The selfdrivenOS includes blockchain based tokens for sharing:

0	Identity SDi i.e. Learner, community, skills, attributes
	Endorsements SDE
R	Reflections SDR
	Achievements SDA i.e. skills, course completions, credentials etc

The blockchain (token-transaction-data/payload) is **compatible with open standards** e.g. *OpenBadge*.

Each user (learner/learning-partner) of *selfdriven.cloud* can **opt-in to have an identity on the blockchain** (SDi) in the form of a shareable public address. All their SD_ based transactions are linked to this identity.

Learners can add **thoughts on their next steps**; helping learning partners facilitate appropriate support, resources & recommendations.



Improve & Launch

A place for a community to:

- Propose projects that improve the members community (Improve)
- Launch a project to help another community (Launchpad)

Improve	Launch
Propose a project that will improve your community.	Launch a project that will have an impact.
	Start

selfdriven Launch allows a community

member to build a team, raise awareness, funding & have it voted on.

It also includes integration with Cardano blockchain launchpads for startup assistance and funding like <u>cardashift.com</u>.

Showcase

The sense of a community comes from sharing community member outcomes e.g. art works, industrial art projects etc

The showcase also creates a learner focal point. e.g. preparing an artwork for the annual community showcase - adding to a sense of community and purpose.

The integrated community showcase allows a community member to request to have their project shown.

It also includes integration into the *selfdriven Exchange* to allow learners to:

- exchange outcomes i.e. an industrial arts work or an artwork as an NFT for community tokens,
- Sell to the community
- Trade on open NFT marketplaces like <u>CNFT.io</u> or jpg.store.

If the outcome is an NFT artwork then it can be staked to the selfdriven Exchange for use as a selfdriven Reward for community recognition.

Q Search the co	ommunity showcase	
My PBL DESIGN	V Project	~

The language

Definitions within the selfdriven learning framework.

Learner	Most commonly students, but can be anyone at any time.	
Learning Partner	Most commonly professional learning facilitators (teachers etc), but can be anyone who supports a learner, for example the school principal or other learner; Types: • Specialist facilitators • Carers • Learning Support • Accountability	
Learning Sessions	Most commonly a time-tabled learning event (class), but may also be an authentic activity that the learner is authorised to participate in - eg a community improvement project).	
Learning Spaces	eg a community improvement project). Most commonly a "classroom", but can be any space where learning occurs i.e. at a community learning hub ("School"), home, local park Spaces can be general, specialist, active or facilitator spaces. (See definitions below); Types: General - used for any type of learning. Specialist Active Facilitator General Space Sizes: Micro ("Personal") - approx 1 to 2 people (i.e. at home) Small - approx 10 people Medium - 30 people Large - 50 to 100 people (eg a common room) Very Large - 800 people (eg a hall/MPC)	
Professional Learning Facilitator	Qualified teacher etc.	
Framework	The structure for supporting activities within the learning collective/community.	
Growth Recognition	Process of acknowledging and communicating learner growth (eg learner-led conferences, journals, assessments etc)	

Learning Celebrations	Learner-focused events such as "Presentation Night" and "Year 12 Graduation" that celebrate learning in the community and recognise the support of learning partners
Member of the Community	Learners (students), learning partners (professional learning facilitators/teachers, parents), support (staff, P&C, contractors), THS Community facilitators (principals, directors).
Shared Understanding	Use of information services to transfer state of learning/growth - allowing for more creative collective meetings
Structured Thinking	Context leading to value and the use of languages to make sense of ourselves and the world around us; i.e. English, Mathematics, Science, HSIE, PDHPE, Music
Authentic Experiences	Purpose creating, why?
Reflection	Understanding self and way of thinking (critical reflection), ethics, harm-reduction, growth
Environment	Learning spaces, food, water, warmth, clothing, sustainability (resources on Earth are limited)
Accountability	As a citizen of the state, to the THS community & to self.
Growth Recognition	As individuals and as a collective - periodic student driven sync with learning partners (facilitators) (professional & other i.e. parents).
Арр	Online (and offline) secure space to reflect, communicate and share.

The cloud service

The cloud service, <u>selfdriven.cloud</u>, supports the learning framework and operating system. It is based on <u>entityOS.cloud</u>.

The cloud service includes integration with the *Cardano* blockchain for tokenising of learner achievements as shareable assets.

The *selfdriven.cloud* app is centred around the learner to:

- Capture their learning activity, endorsements, achievements, reflections etc.
- Help them with project-based activities and working in teams, sharing tasks etc.
- Collaborate with learning partners including professional learning facilitators, parents etc.
- Make decisions about their next learning steps; within their current learning environment or as a pathway to other learning environments.





User Experience



selfdriven	MY PROFILE Kate Smith	
 Dashboard My Profile Projects Teams Tasks Connections 		Attributes General Leadership i i i i i i i i i i i i i i i i i i
Endorsements Reflections Achievements Next Steps Community	About Me 1 0 Teams Facilitation Teams Edit Profile 1 How Going?	Influence Initiative and leadership Empathy Empathy Teamwork Teamwork
	 Teams Audio Visual Security 	Grit Grit Curiosity Curiosity
Kate Smith	21 Nov 2021	 Learning Partners Cathy Richards Mentor ths-learning-partner-lab@biziio.com



The Organisation

The Operating System (selfdrivenOS) is supported by an organisation that includes:

• Direction;

Organisation directing setting; short & long term areas of focus

- Engagement; With learning environments
- Lab;

Research and development, based on work by engagement and direction teams

• Operations;

Monitoring and caring for the cloud service (based on entityOS.cloud)



Risks

Standard start up and operational risks exist.

Specific risks to selfdriven;

Organisational Source Direction, lab, engagement & operations	Operating System Component Cloud service, framework	Risk The risk that needs treatment	Treatment i.e. control
Direction	Framework	Not enough experienced people	Work to find people with a broad set of experiences and build into the organisational equity / tokenisation.
Lab	Cloud Service	Development	Focus on User Experience as "backend" is by entityOS.cloud - minimising resource requirements.
Operations	Cloud Service	Hosting	Use entityOS - 21+ years of service.
All	Cloud Service	Information Security	ISMS - based on entityOS - use ISO27001/17. Privacy. Handling of welfare of learners / users.

Funding

Funding of *selfdrivenOS* during startup and ongoing.

Organisational Phase Startup, ongoing	Type Equity/Utility	Funding	Value
Startup	Utility	Self-funding	By founding members
Startup	Equity	Tokenisation	Mint 200,000 <i>SDF</i> tokens initial; - Dropped to the founding members; 100,000 - 100,000 available for earning & purchase https://selfdriven.foundation/team
Startup	Utility	Cloud service - entityOS	ibCom (owner of entityOS) to support the use of entityOS.cloud for development at no charge and piloting.
Ongoing	Utility	Operations (Incoming)	Based on subscription to cloud service and professional support services.
Ongoing	Utility	People (Outgoing)	Based on available funding from Operations (Incoming) funds and purchases of tokens.

Ownership

Unless otherwise stated related intellectual property is owned by selfdriven Pty Ltd.

Appendix

- Overview
- Tokens
- Cloud Service; Common Attributes

Overview

Basic Human Needs		
	Learner	
	selfd <u>riv</u> enOS	
Framework	Importance ofCommon ComponentsImprovement CycleLanguageEndorsementsReflectionsAchievements	
Cloud Information Service	Projects Tasks Activity Connections	
Tokens	Blockchain SELF-E SELF-R SELF-A	
Next Steps	Pathways Trust More Learning Entry Programs	
Organisation	DirectionLabEngagementOperationsRisksFunding	
	Least Harmful Society	

Tokens

JS		Token Name	Use Case	Policy	
10S Toker	Foundation	SDF 🌔	For the SSDLF Foundation , governance, utility to power development and platform. [On chain interactions / fees / rewards*]	Fungible Token (FT)	
driver	Community	SDI 🚺	Community member identity token for SDE, SDR & SDA.	Non-Fungible Token (NFT*)	Cordeno
selt	SDC 🧿	Community utility token for governance, reward for effort, caring for self/others.	Fungible Token (FT)	Blockchain, using multi-asset functionality for tokens	
		SDE 🧿	For <i>Endorsements</i> , for positive behaviour, use as utility for services, stake for governance.	Non-Fungible Token (NFT*)	
	* Non-fungible as the	SDR 💽	For Reflections , Learning reflections in the form of public endorsements etc.	Non-Fungible Token (NFT*)	
	token transaction ("asset") is linked a person (learner) - so unique.	SDA 🙆	For Achievements , skills, course completions / credentials etc.	Non-Fungible Token (NFT*)	

Metadata

Token transactions include metadata that links the transaction back to the selfdrivenOS data i.e. achievement linked to skills.

selfdriven has a number of meta-data formats based on the token type, with each being uniquely identified by a *Metadata ID (ASCII representation of the token name)*.

Token Name	Metadata ID	Notes
SDF	115100102	Foundation
SDC	11510099	Community
SDI	115100105	Identity (Community Members, Community Organisation, Skill)
SDA	11510097	Achievement
SDR	115100114	Reflection
SDE	115100101	Endorsement

Examples

Token Name	Policy ID	Metadata
SDI (lab)	92be578d1c063b70edf 9b2ca0b53c7a58142b6 5eba43a5b55bdd6cb7 View on cardanoscan	<pre>{ "115100105": { "92be57801c063b70edf9b2ca0b53c7a58142b65eba43a5b55bdd6cb7": { "95I-skill": { "sdefa9501ad648f48a71c37685c32e02": { "sdefa9501ad648f48a71c37685c32e02"; { "sdi": "707599e9-bf08-4881-a25a-061142b33ee2", "name": "skill"</pre>
		https://www.selfdriven.foundation/selfdriven-metadata-example-sdi.json
SDA (lab)	96dd4df64ec0857af3a9 0ebdb5d3318fbef6774f e8c4b50e090af1c6 <u>View on cardanoscan</u>	<pre>{ "11510097": { "96ddddf64ecd857af3a90ebdb5d3318fbef6774fe8c4b50e090af1c6": { "53591d747b44af88fbf549d62d22983": { "sone": "lab", "sssed": "35591d7-47b4-4af8-8fbf-549d62d22983", "issued": { "sdi": "3a22327d-eff6-4875-88ba-bd024709c295" , "date": "08 Dec 2021" , "sdi!": "3a22327d-eff6-4881-a25a-061142b33ee2" , "sdi!": "108 Dec 2021" , "sdi!": "108 Dec 2021" , "sdi!": "1077599e9-bf08-4881-a25a-061142b33ee2" , "sdi!": "1077599e9-bf08-4881-a25a-061142b33ee2" ,</pre>

Cloud Service; Common Attributes

Member Types	Community member types:
	 Learner Learning Partner Admin Facilitator Professional Learning Facilitator Family Interested Other
Connection Types	 Family Professional Learning Facilitator Professional Next Steps (Pathway) Facilitator Mentor Other Learner Authentic Learning Facilitator
Activity Types	 Growth Recognition Reflection Project Profile Update Achievement
Project Types	 Design (Project Based Learning) / My Project) Facilitation Environment Improvement Service Activity (i.e. Sport, Dance) Communication Management
Project Categories	 Small Medium Large
Task Types	 Relating to the improvement cycle: Listening / Observing Interpreting Implementing Reviewing

Skills	Type of achievement:
	 Standard set for a community Linked to tokens
Community Values	 Shared Understanding Accountability Environment Least Harmful Society Sense of self / Caring for others