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Inverse Fintech

From economic proposition to practical application: an explanatory paper on the WeSail.Green model

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Abstract

This paper explains the term *Inverse Fintech*: an asset-first approach to financial inclusion in which access to a deliberately selected productive asset is used to help create the repayment capacity and the financial record that conventional lending requires in advance. It sets out the definition, positions the idea against the Graduation approach, pay-as-you-go digital collateral and alternative-data credit scoring, and describes a six-layer architecture of productive asset, capability, fair finance, household protection, evidence and graduation, governed throughout by consent, privacy and independent evaluation. It traces the idea to the author's hire-purchase experience in Uganda (1997–2006), including the lessons of the Shimoni litigation, and explains how WeSail.Green proposes to test it in a 300-household pilot in Kenya, illustrates the economics with one household followed through the full contract, and shows how location and generation evidence may continue to serve carbon accounting, regional energy planning and the stewardship of second-life panels after the contract ends. The paper states what the pilot can and cannot establish. No Kenyan outcome data yet exist.

Keywords: Inverse Fintech; asset-first finance; financial inclusion; hire-purchase; second-life solar; alternative data; household protection; Kenya; Uganda

How this paper is organised

Sections 1 and 2 define the term and position it against existing approaches. Section 3 presents the six-layer architecture and Section 4 the household economics that must hold for it to work, illustrated by one household over the full contract. Sections 5 and 6 describe where the idea came from, including the Shimoni case and the asset-tracking lesson WeSail.Green has drawn from it. Sections 7 and 8 explain finance, protection and information. Section 9 follows the evidence beyond the contract: carbon verification, regional solar data and long-term stewardship of the panels. Sections 10 and 11 cover governance and graduation, Section 12 sets out what the pilot can establish, and Section 13 states the central proposition. Three analogies, a glossary and references support the argument.

Suggested citation

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This paper explains, and should be read alongside, the author's separate theoretical treatment of Inverse Fintech, which first defined the term: Nymand-Andersen, J. (2026). *Inverse Fintech, A New Perspective on the Creation of Economic Value*. Zenodo. https://zenodo.org/records/24046147. Version 1.0 of the present paper was deposited in Zenodo on 8 November 2026.

Licence: Creative Commons Attribution 4.0 International (CC BY 4.0), https://creativecommons.org/licenses/by/4.0/. Excluded: the journal extract in Figure 4, reproduced for citation, whose rights remain with the publisher. **Contact:** Jesper Nymand-Andersen, jespernymandandersen@wesail.green, https://wesail.green

1. The question behind the term

Much of conventional finance begins by asking whether a person can already demonstrate the capacity to repay. From the lender's perspective that is understandable. But it leaves a difficult question for people who possess skills and willingness, yet lack savings, formal employment, collateral or a credit history.

Why should someone have to demonstrate financial capacity before gaining access to the productive resources that might allow that capacity to develop?

Definition

Inverse Fintech is an asset-first approach to financial inclusion in which access to a deliberately selected productive asset is combined with the capability to use it, finance aligned with its benefits, protection against temporary shocks and verifiable records, so that productive use can help create both repayment capacity and the evidence of financial reliability that was previously missing.

The inversion

In conventional underwriting, existing financial evidence determines access to assets. Inverse Fintech reverses the order: the asset is intended to help produce the evidence that was not available.

Conventional sequence	Financial evidence (income, collateral, credit history) → credit approval → asset → productive use
Inverse sequence	Productive asset → useful application → savings and/or earnings → documented performance → ownership → potential future financial access

What the term does not mean

Inverse Fintech is not an unrestricted cash loan, a gift, or a promise that an asset will pay for itself. It is a hypothesis about the order in which economic opportunity and financial credibility can develop. It can succeed only where the asset creates a realistic net benefit and the financing arrangement fits the household's circumstances. Analogy 1 illustrates the inversion in its simplest form.

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Analogy 1 : The Farmer Who Cannot Afford a Plough



Imagine a farmer who has fertile land, the knowledge to cultivate it and the willingness to work. But he has no plough. He approaches a bank to borrow money for one, only to be told that he must first demonstrate sufficient income to qualify for the loan. Yet the very reason he cannot generate that income is that he does not have the plough. He needs the asset to generate the income, but he needs the income to obtain the asset.

This is the contradiction that Inverse Fintech seeks to address. Instead of demanding that the farmer first demonstrate his financial capacity, we provide access to the plough through an affordable agreement, accompanied by practical support. The farmer can now cultivate his land more productively, potentially increase his income and begin paying for the equipment. And as he makes his payments, he establishes the financial history he previously lacked. Eventually, the plough becomes his own.

We have reversed the sequence: rather than requiring financial credibility before productive opportunity, we allow productive opportunity to help establish financial credibility.

"We reverse the sequence: productive opportunity first, financial credibility after."

Analogy 1 illustrates the inversion of sequence: the asset (layer 1) is provided through an affordable agreement (layer 3) before financial credibility exists.

2. What is new, and what is not

Hire-purchase, microfinance, pay-as-you-go (PAYG) solar finance, productive-asset programmes, financial coaching and alternative data all have established histories, and some providers already combine several of them. I make no claim to have invented any of these elements. Three bodies of work are especially close to Inverse Fintech, and its distinctiveness must be argued against them.

The Graduation approach

Originally designed by BRAC in Bangladesh, the Graduation approach gives the poorest households a productive asset together with training, coaching, temporary consumption support and savings encouragement. Randomised trials in six countries found lasting gains in consumption and wellbeing, with benefits exceeding costs in five of the six sites (Banerjee et al., 2015). Inverse Fintech shares the conviction that a productive asset must be accompanied by capability and support. The difference lies in how the asset is obtained: Graduation programmes *grant* it, whereas Inverse Fintech *finances* it on terms aligned with its expected benefits, so that ownership is earned and the repayment itself becomes a source of evidence. In this paper, “graduation” therefore has a narrower meaning: completion of the agreement and transfer of ownership.

Digital collateral in PAYG finance

PAYG solar providers commonly secure payments with lockout technology, which disables the equipment remotely when payments lapse. In a field experiment with school-fee loans secured by solar home systems, this digital collateral sharply reduced default and raised the lender’s rate of return (Gertler, Green and Wolfram, 2024). WeSail.Green deliberately does not intend to disable essential household power because of debt. It thereby gives up a tool with demonstrated repayment effects, and must instead rely on capability, servicing and structured relief. Whether that choice is affordable is an empirical question the pilot must answer, not an assumption.

Alternative-data credit scoring

Behavioural data can predict repayment for people without formal financial histories: mobile-phone usage records, for example, have been shown to predict default about as well for people without credit histories as for those with thin histories (Björkegren and Grissen, 2020). Inverse Fintech’s evidence differs in origin. It is generated by the productive use of the financed asset and by repayment of that same asset, and is intended to belong to the household’s future credibility rather than only to the lender’s risk model. Its predictive value must be demonstrated to the same standard.

The contribution to be examined is therefore not any single element, but whether their deliberate integration around an asset-first, capacity-building sequence provides a useful and testable general framework.

3. The architecture: six layers, one mechanism

The single inversion described in Section 1 would be fragile on its own. An asset supplied without the skills to use it may produce little. An asset financed without protection may be lost at the first illness or failed harvest. Performance that is not documented is invisible to anyone else. A completed contract that is not credibly recorded leaves the household no better placed for its next step. Inverse Fintech is therefore proposed as a stack of six interdependent layers, governed throughout by consent, privacy, law and independent evaluation (Figure 1).

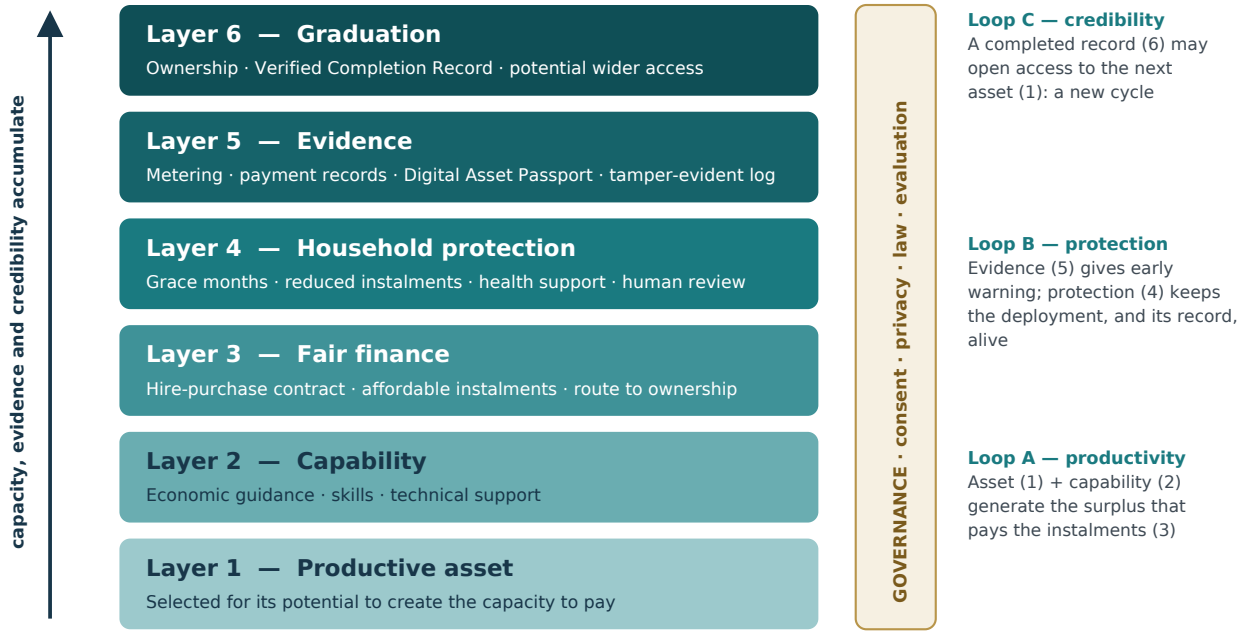


Figure 1. The six layers of Inverse Fintech, the cross-cutting governance layer and the three reinforcing loops. Conceptual model: the pilot is intended to test whether each layer contributes as shown.

The layers are ordered by how they are proposed to create value. Layers 1 and 2 **generate** the capacity to pay; layers 3 and 4 **sustain** it over a contract in which real life will intervene; layer 5 makes it **visible**; and layer 6 **converts** it into ownership and a transferable record. Each layer is proposed to supply a condition the others need. The architecture is a proposal, not a finding that every layer is independently necessary or that all six together outperform competing arrangements.

Three loops connect the layers. In the **productivity loop** (A), the asset and the capability to use it reduce purchased-energy costs and may create income that funds the instalments, while each instalment brings ownership closer. In the **protection loop** (B), monitoring can reveal early stress, such as falling generation, irregular use or late payment, so that support begins before arrears become unmanageable; protection in turn keeps the deployment, and its record, alive. In the **credibility loop** (C), a completed and verified record may give access to a further productive asset on better terms, so that each completed cycle starts the next from a higher base.

Table 1. Layer by layer: function, implementation and precedent

The table shows what each layer contributes, how WeSail.Green proposes to implement it in Kenya, which part of the earlier Ugandan experience anticipated it, and where the mechanism is expected to weaken if the layer is absent. Ugandan figures are founder-reported and await independent verification.

Layer	Function in the mechanism	WeSail.Green implementation (proposed)	Uganda precedent, 1997–2006	Expected risk if absent
1 Productive asset	Creates the savings and/or earnings from which instalments can be paid.	Second-life solar panels and battery; efficient electric pressure cooker; refurbished laptop, installed as one asset bundle.	Refurbished computers bundled with educational and vocational software.	Finance supports consumption rather than capacity; instalments compete with subsistence spending.
2 Capability	Turns possession into productive use.	Economic guidance, technical support and the household application.	Makerere extra-mural ICT certificate; c. 50 of c. 200 students later took hire-purchase contracts.	Asset is under-used; expected savings and income are not realised.
3 Fair finance	Aligns payments with expected benefit and creates a defined route to ownership.	52-month framework with 48 instalment months; asset-financing agreement, not a cash loan.	12–24-month contracts; 35-question assessment of productive potential instead of a credit score.	Schedule is unaffordable, or there is no ownership incentive to sustain effort.
4 Household protection	Prevents temporary shocks from becoming permanent loss.	Grace months chosen by the household; forgiven relief during declared area-wide events; human review before any recovery; no debt-related remote shutdown.	Shimoni dispute: recovery through the courts after assets could not be located.	Default leads to repossession; the household loses its investment and the evidence stream ends.
5 Evidence	Records output, use and repayment in a verifiable form.	Metered generation and use, reconciled payments, location, all recorded in a Digital Asset Passport and a tamper-evident public log.	Three-year assessment of 877 contracts against 90% repayment and 18-month completion thresholds.	Good performance occurs but remains invisible to future lenders, partners and researchers.
6 Graduation	Converts performance into ownership and a transferable record.	Ownership transfer; Verified Completion Record reporting the full journey, including relief used.	Contract completion and transfer of the computer to the client.	The household owns the asset, but its demonstrated reliability is not recognised elsewhere.
Governance (all layers)	Ensures that finance and data serve the household.	Informed consent; data minimisation; health data kept out of credit assessment; Kenyan law; independent evaluation.	—	Evidence becomes untrustworthy or harmful; legitimacy with households and partners is lost.

Deliberate integration has three practical meanings. The asset is chosen first for its capacity-to-pay potential rather than its saleability; capability and protection are treated as part of the financial design rather than as optional welfare additions; and the evidence layer is built to serve the household's future credibility, not only the lender's collections. Whether this integrated stack outperforms its parts is a question for a comparative design (Section 12).

4. The household economics must work

For a participating household, a useful first approximation is:

Incremental net benefit = avoided expenditure + additional net income − instalments − incremental operating and maintenance costs

Savings and income must be measured against a credible baseline. An hour released from cooking is not automatically an hour of paid work, and revenue from a new activity is not the same as profit. Some months may be negative. That need not make an otherwise viable contract a failure, but it makes liquidity, seasonality and appropriate relief central to the design: this is the economic reason for layer 4.

Aggregate positive results are not sufficient if a meaningful group of households is made worse off. Affordability and welfare must therefore be assessed at household level, including adverse outcomes. This expression organises what must be observed; it is not an estimated model.

An illustrative household: following one family through the contract

The following example makes the economics concrete. The household is a fictional composite, not a real client. The contract terms are provisional design parameters for rural clients (November 2026), not official prices: the final cost of the asset bundle is not yet established, and final terms will be set at launch in accordance with Kenyan law. The household's spending and income are illustrative assumptions, chosen to match WeSail.Green's working hypothesis that about 40% of the instalment is covered by avoided expenditure and the remainder by new income. They are not forecasts, and the pilot's baseline survey will replace them with measured values. Amounts are converted at KES 130 per US dollar, close to the Central Bank of Kenya rate in early November 2026.

The Kahindi household, Kilifi County (fictional composite)

Five people in a rural homestead. The mother runs a small roadside food stall; the father does casual farm work; two children attend primary school. The family uses M-Pesa but has no bank account, no collateral and no credit history. It cooks on charcoal, lights the house with kerosene and pays a kiosk to charge its phone. It qualifies through WeSail.Green's 35-question assessments, which ask what the asset could enable the family to do, not what the family already owns. It receives an asset bundle of tested second-life solar panels, a battery, an electric pressure cooker, a refurbished laptop and lights, each recorded in a Digital Asset Passport.

Table 3. Contract terms (provisional design parameters)

Item	Amount	Note
Cash price of the asset bundle	KES 91,000 (USD 700)	Capital value of the bundle.
Upstart fee, 12.5%	KES 11,375	5 points (KES 4,550) credited towards ownership; 7.5 points (KES 6,825) cover stamp duty, transport and installation.
Instalment	KES 999 per week	Paid by M-Pesa over 48 payment months (208 weeks); about KES 4,329 per month; KES 207,792 in total.
Ownership fee, 10%	KES 9,100	Paid with the final instalment; title passes to the household.
Grace months	4, chosen freely	Payments deferred; term extends to 52 months.
Area-wide relief	33% and 50% windows	Up to six months each; forgiven; triggered only by a published Ministry declaration.
Hire-purchase price, no relief used	KES 228,267 (USD 1,756)	Upstart fee + instalments + ownership fee.

On these provisional figures the hire-purchase price exceeds the cash price. The difference pays for what the cash price does not include: four years of servicing and the guarantee of a working asset, weekly agent visits and guidance, monitoring and data infrastructure, agent commissions, the cost of capital, and the losses the programme must absorb, including forgiven relief. Both prices must be stated in the agreement, and whether the household benefit justifies this cost is one of the questions the pilot must answer.

Table 4. Monthly economics during the contract (illustrative assumptions)

Item	Before (KES/month)	Effect of the bundle (KES/month)
Charcoal for cooking	1,600	1,280 avoided (electric cooking replaces about 80%)
Kerosene for lighting	320	320 avoided
Charging own phones at a kiosk	150	150 avoided
Avoided expenditure	2,070	**1,750 (about 40% of the instalment)**
Charging neighbours' phones, 6 a day at KES 10	—	1,800 new income
Charging laptops and tablets, 8 a month at KES 25	—	200 new income
Net margin on extra prepared meals from the food stall	—	600 new income
Additional net income		**2,600 (about 60% of the instalment)**
Incremental operating and maintenance costs		0 (repairs and replacements covered by the service guarantee)
Instalment		− 4,329
Incremental net benefit		**+ 21 per month**

The result is deliberately close to zero. During the contract, almost all of the measurable cash gain goes into the instalments; what the household accumulates is ownership. It also gains things the table does not price: hours no longer spent buying charcoal and tending a fire, cleaner air indoors, light for homework in the evening and a laptop for learning. The margin is thin. If the family charges three neighbours' phones a day instead of six, its net benefit falls to about KES −880 a month. This is precisely why capability (layer 2) and protection (layer 4) are part of the design rather than additions to it.

Table 5. The 52-month journey

When	What happens	What is recorded
Month 0	Approval without a credit history; upstart fee paid; bundle installed by a trained local technician; app installed.	Digital Asset Passport opened: provenance, test results, installation, location.
Months 1–16	Weekly payments of KES 999. Weekly agent visits; the app suggests when to cook and how to build the charging business.	Every payment, daily generation per metering group, cooker use.
Month 17	A child falls ill. The household chooses its first grace month.	Grace month used; payment deferred; term +1 month.
Months 25–30	The Ministry publishes a drought statement covering the area. Food-stall sales fall. The 33% relief window opens for all households in the area: the family pays KES 669 a week for 26 weeks.	Area-wide relief applied; KES 8,580 forgiven; payments continue at the reduced rate.
Month 34	School fees fall due. Second grace month.	Grace month used; term +1 month.
Months 41 and 47	Planting season and a delayed wage. Third and fourth grace months.	Grace months used; term +2 months.
Month 52	Final instalment and ownership fee of KES 9,100. Title passes to the household.	Contract completed.
Graduation	The household receives its Verified Completion Record and its share of carbon proceeds.	Record shows 48 payment months, 4 grace months, one declared relief window and no other arrears.

Over the 52 months the family pays KES 219,687 (about USD 1,690): the upstart fee, KES 199,212 of instalments after the forgiven KES 8,580, and the ownership fee. The 50% relief window remains unused and would have been available for a second declared event. At graduation the household also receives its share of carbon proceeds: under WeSail.Green's design, 70% of the carbon earnings attributable to its bundle after Kenya's statutory 25% contribution, paid as a single graduation payout; the remaining 30% funds wesailgreen.org's panel exchange. The amount

depends on certified reductions and the carbon price and is not estimated here.

After graduation, the instalment disappears while the savings and income continue. On the illustrative figures, the family keeps about KES 4,350 a month, roughly KES 52,000 a year, for as long as the bundle performs. The deep-cycle battery is specified for a 7 to 9 year life, so it will need replacement some three to five years after graduation, and defunct panels can be exchanged through the replacement plan described in Section 9.

What the example shows about Inverse Fintech. At month 0 the Kahindi household had no credit history. At month 52 it owns a productive asset bundle and holds 52 months of verified evidence: 208 weekly payments, the grace months it chose, the relief it received during a declared drought, and the daily output of its panels. That record is the evidence it lacked at the start, and the asset helped to create it.

5. Where the idea came from: Uganda, 1997–2006

This proposition did not arise in the abstract. During my years in Uganda I operated a computer hire-purchase scheme through my company, Visit Africa Ltd. We supplied refurbished computers with educational and vocational software. Danish banks donated retired equipment; storage media were removed or reformatted before transfer. Most contracts ran for twelve to twenty-four months.

Instead of requiring conventional credit scoring or collateral, we used a 35-question applicant assessment to examine the proposed productive use of the equipment and the likelihood that its benefits could support the payments. This was practical screening, not a statistically validated credit model, but it already asked the Inverse Fintech question: what could this asset enable the applicant to achieve next?

We also collaborated with Makerere University on a six-month extra-mural ICT certificate programme at four centres in western Uganda, based on European Computer Driving Licence skills. Makerere ran the programme; Visit Africa supplied and maintained computers and learning software in exchange for a share of first-year student fees. By my records and recollection, approximately 200 students participated, and about 50 subsequently entered twelve-month hire-purchase contracts, all of which were completed. These figures are founder-reported and cannot by themselves show that the training caused stronger repayment, but they anticipate the capability layer.

A three-year assessment examined 877 contracts against two measures: repayment of at least 90% of scheduled instalments, and, for twelve-month agreements, completion within eighteen months. We observed apparent geographical variation, with rural clients often performing better than clients in major cities. The original dataset, method and results would need independent examination before any outcome rate could be treated as established. The figure 877 is the number of contracts assessed, not a count of successful contracts.

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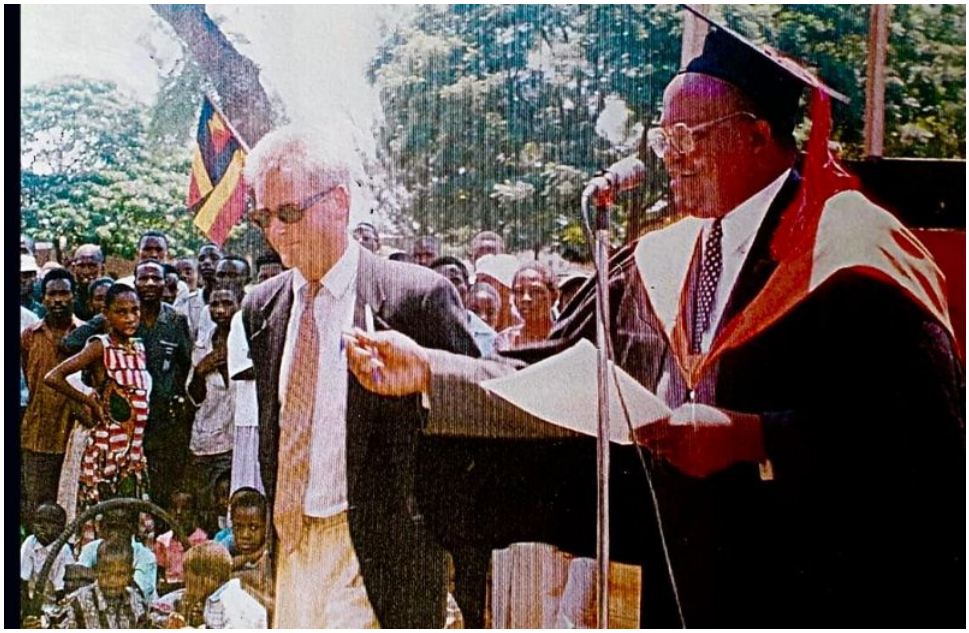


Figure 2. Makerere University collaboration, Fort Portal, Uganda. Jesper Nymand-Andersen, founder of Visit Africa Ltd. (left, in a dark jacket and tie), beside the Dean of Makerere University's Western Region at a public announcement of the extra-mural certificate programme in computers and information technology. Identification and event description supplied by the author; exact date unconfirmed. Source: author's personal archive.



Figure 3. School hire-purchase ceremony, Entebbe area, Uganda. Jesper Nymand-Andersen (standing, green shirt) at a ceremony concerning a five-computer hire-purchase agreement with a local school. Two other attendees were employees of Arbejdernes Landsbank attending in their private capacities, not as official bank representatives; the bank was among the donors of refurbished computers to Visit Africa Ltd. Identification supplied by the author; exact date unconfirmed. Source: author's personal archive. The photographs illustrate the activity described; they do not independently establish repayment rates or priority for the term Inverse Fintech.

Independent documentary corroboration

New Vision reported that Buganda Road Primary School had equipped a computer room that included five computers received from Visit Africa Ltd., and described pupils learning practical computer skills (Nabagesera, n.d.). This is an independent, contemporary account of Visit Africa's contribution to educational equipment, and it illustrates why the productive usefulness of an asset matters: a computer in a school builds capabilities that its resale value cannot measure. The article does not establish the financing terms of that delivery or its longer-term impact, and it should not be assumed to depict the same event as Figure 3. Its description of Visit Africa as a Danish NGO is the newspaper's, not a verified legal classification.

6. A lesson from Shimoni: location as part of the asset's evidence

Not every Ugandan contract succeeded, and one failure taught a lesson that now shapes WeSail.Green's design. A comparative-law article on Ugandan and Kenyan hire-purchase law cites *Visit Africa Ltd v Management Committee Shimoni Demonstration School* (2013) UGCOMMC 121 in its discussion of the distinction between hire and purchase (Azeez, 2017, footnote 19; Figure 4). That citation corroborates the existence of the case; it does not establish its facts, reasoning or outcome, and the primary judgment has not been examined for this paper.

[16]Avtar Singh 'Law of Sale of Goods and Hire Purchase' 6th ED, Eastern Book Company, 2005
[17] See the case of Helby Vs Mathew (1895) AC 471
[18] See Macleod 'Sale and Hire Purchase' London Butterworths, 1971. See also, Cooper Motors Corporation(U) Ltd V. Genesis Transporters Ltd & 2 Ors (2008) UGCOMMC 48
[19] See Visit Africa Ltd V. Management Committee Shimoni Demonstration School (2013) UGCOMMC 121. See also the position of Indian Supreme Court in K.L Johar& Co V. Deputy Commercial Tax Officer (1965) AIR SC 1082

Figure 4. Extract from Azeez (2017), *Journal of Comparative Law* 4(1), showing footnote 19, which cites Visit Africa Ltd v Management Committee Shimoni Demonstration School (2013) UGCOMMC 121.

According to my recollection, the school fell behind with its instalments, and when recovery became necessary the computers were said to have been misplaced. Visit Africa could not repossess them and pursued the matter through the courts. Under hire-purchase, the financier retains title until the final instalment, but title gives little practical protection when the asset itself cannot be found.

What was not available then

In the late 1990s and early 2000s, low-cost, network-connected location devices of the kind now available for around US$20 were not a practical option for financing refurbished computers in Uganda. Visit Africa had to rely on the contract, personal contact with the client and, ultimately, the courts. Once equipment went missing, there was no independent record of where it was, and no early signal that something had gone wrong.

How WeSail.Green applies the lesson

Every asset bundle carries concealed geotrackers, their number scaled to the size of the bundle, transmitting weekly location observations. The first purpose is the one Shimoni taught: a missing asset can be located and, where the agreement and the law allow, recovered.

Location is not recorded as a separate surveillance function. It becomes part of each asset's Digital Asset Passport, alongside its provenance, testing, installation, output and service history. Once location is part of the passport, the same observations serve three further purposes, developed in Section 9: evidence that the panels remained within Kenya for carbon accounting; a geographically referenced record of solar generation across Kenya's regions; and assurance to the European solar parks that supplied the panels that they are in productive use and are not abandoned at the end of their life. A lesson learned from a lost asset thus becomes a source of value for several parties.

The response has firm limits. Households must be informed of the trackers, their purpose, data retention and who may access the data, consistent with Kenya's Data Protection Act, 2019. Weekly observations provide periodic evidence of location, not proof of uninterrupted presence, and they say nothing about a household's repayment capacity. Tracking is not used for remote shutdown, and it does not replace the protection layer: Shimoni showed the cost of an asset that could not be located, but also the cost of a client relationship that had broken down before anyone intervened.

The Shimoni lesson has two parts. Make the asset visible, through tracking and records; and make the household's difficulty visible early, through servicing and support. The first response to a missed payment is a conversation, not a coordinate.

7. Fair finance and household protection in Kenya

WeSail.Green intends to begin with a 300-household pilot in Kenya. The proposed package combines second-life solar panels, battery storage, an efficient electric pressure cooker, a refurbished laptop and a household application offering information and support. Solar electricity may displace purchased energy; electric cooking may reduce fuel costs and labour and lower exposure to polluting fuels; a laptop may enable learning or paid digital work; phone charging or meal preparation may create modest business opportunities. None of these is automatic, and a system may work technically without making its household financially better off.

The agreement

The proposed agreement has a 52-month framework containing 48 payment months and four standard grace months. The household chooses freely when to use its grace months; a payment that falls in a grace month is deferred, and the term extends accordingly. Grace months absorb the individual shocks of ordinary life, such as illness, school fees or a delayed wage.

Two further relief windows work differently. Each provides a reduction of 33% or 50% of the instalment for up to six months, and the reduced amount is forgiven, not deferred: this is the forgiving element of the credit model. These windows are not chosen by the household. They are triggered when the Ministry of Agriculture and Livestock Development publishes a statement of famine, drought, crop disease or another event that affects an entire area. Tying forgiveness to published, area-wide declarations makes relief objective, verifiable and equal for every participating household in the area, and it separates shared shocks, which no single household can insure against, from individual setbacks, which the grace months absorb. The agreement must state the cash price and the hire-purchase price and conform to Kenya's Hire Purchase Act (Cap. 507) and Consumer Protection Act, 2012.

A graduated response before any recovery

A temporary illness, failed harvest or family emergency should not automatically destroy years of effort towards ownership. WeSail.Green envisages servicing and human contact first, then grace months and reduced instalments, and only as a last resort a human-reviewed safe-custody process in which an authorised agent may hold the equipment for up to 60 days while the household has a final opportunity to resume. This is subject to applicable notice, consumer-protection and hire-purchase rules. Health-related requests are handled with consent and confidentiality and are not used as a credit penalty.

This is also an economic question: does proportionate relief preserve more household value and raise completion at an acceptable cost? Relief should be evaluated, not romanticised, and an agreement must never be prolonged merely to preserve a stream of data once it has ceased to serve the household. Analogy 2 expresses the principle.

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The recovery path, as proposed

Setback (illness, poor harvest, higher costs) → built-in protection (grace months, reduced payments, local support) → stability returns (the household keeps its system and resumes payment) → graduation (ownership, with continuing low-cost energy subject to maintenance and battery replacement) → a Verified Completion Record that reports the full journey, including the relief used.

8. Information as a second asset

The physical equipment depreciates. The information generated through its use may become more valuable as a record of performance grows, provided it is accurate, relevant, lawfully collected and shown to predict something that matters. This is the decisive extension from the Ugandan experience. In Uganda, decisions relied on interviews, the 35-question assessment and subsequent instalment performance. What was missing twenty years ago was not the idea that an asset could help create repayment capacity, but a way to observe, verify and responsibly use the developing evidence.

The proposed evidence chain

Asset provenance and testing → verified deployment → measured operation → independently reconciled payments → recorded interventions → completion record → potentially validated credit information

Every important asset is intended to carry a QR-linked Digital Asset Passport recording its provenance, testing, refurbishment, installation, output, service and eventual transfer of ownership. Households would see their payments, remaining obligations and route to ownership. The public record must not expose private household, financial, location or health information.

Operational evidence may include source metering of generation, battery monitoring, equipment-use classification and payment reconciliation, with each measurement validated against an independent reading. Signed data may be anchored in a tamper-evident Merkle-tree log, which can reveal later alteration but cannot make an inaccurate original reading true. The geotrackers described in Section 6 add occasional location observations.

The distinctions matter: electricity generated is not income earned; equipment use is not creditworthiness; a location reading does not establish ownership; and an internal programme score is not an externally validated credit rating. Repayment records may be informative, but their predictive value, fairness and portability must be tested against alternatives such as those discussed in Section 2.

The panel depreciates; verified information may appreciate – but only when its quality, relevance and practical value can be demonstrated.

Analogy 3: The Fruit Tree That Must Be Allowed to Grow



Imagine planting a fruit tree. You provide the seedling, prepare the soil and make sure it receives sufficient water and sunlight. But you cannot expect it to produce a harvest immediately. It needs time to establish its roots, grow and eventually bear fruit. And even a healthy tree may experience a difficult season. If you remove it the first time the rains fail, you lose not only the tree but also the possibility of all its future harvests.

This is how I think about the household protection built into WeSail.Green. The solar system, laptop and pressure cooker provide the productive foundation. Our educational guidance, technical support and financial flexibility help the household develop its opportunities. The grace months and reduced instalments are intended to help the family survive difficult periods without losing the equipment in which it has already invested.

Meanwhile, the Digital Passport, IoT measurements and household financial records document the tree's development, so to speak. We learn what helps it grow, what difficulties it encounters and which interventions make a difference. And unlike an ordinary tree, this productive system generates information that may become increasingly useful as its operating history grows.

Repossession may recover an asset, but it can interrupt both the household's future economic opportunities and the continuing generation of valuable information. Successful graduation, on the other hand, means the household retains its productive equipment, continues benefiting from it and has a documented record of its financial development.

The ultimate question is not simply whether the tree survives long enough to repay the cost of planting it. It is whether the tree eventually produces enough fruit to sustain the family — and continues producing long after the original investment has been repaid.

"We are not just planting the tree: we want to know how many trees grow, bear fruit and keep feeding their families."

Analogy 3 illustrates layers 4 and 5 working over time: protection keeps the productive system in place through difficult seasons, while the evidence layer records what helps it grow.

9. Beyond the contract: carbon, regional data and long-term stewardship

Section 8 argued that information generated by a productive asset may appreciate while the equipment depreciates. This section explains where that value is expected to arise. Because the Digital Asset Passport combines location with metered generation, the same evidence can serve the household, the Kenyan carbon framework, future solar investors and the European suppliers of the panels, and it can continue to do so long after the hire-purchase agreement has ended.

Carbon verification within Kenya

Solar electricity that displaces kerosene, diesel or charcoal can reduce emissions, and those reductions may be credited. A credible claim requires evidence that the asset is operating inside the project boundary. Second-life panels are portable and valuable, and a panel moved to a neighbouring country, which is sometimes loosely described as leakage, would no longer generate reductions attributable to the Kenyan project. Location observations recorded in the passport, combined with continuing metered generation, provide documented evidence that each asset bundle remained in Kenya and in use throughout the crediting period. Because panels are tracked and metered in small groups, the removal of a single panel appears as a clear and sustained loss of its group's output, so the evidence extends to every panel without a tracker on each.

Kenya regulates this field through the Climate Change (Amendment) Act, 2023 and the Climate Change (Carbon Markets) Regulations, 2024, which require approval of carbon projects, registration in the national carbon registry and an annual contribution of at least 25% of aggregate earnings for non-land-based projects. A distinction then matters. Reductions authorised for international transfer require a corresponding adjustment, so Kenya cannot also count them towards its own nationally determined contribution. Reductions not authorised for transfer count towards Kenya's national targets and energy-security objectives, but do not generate tradable credits. WeSail.Green's evidence is designed to support either route; the same tonne cannot be claimed by both. Location data support eligibility, but they do not by themselves establish it: certification depends on an approved methodology, a defensible baseline and independent verification.

Who receives the carbon proceeds

The Kenyan state receives its statutory share first: under the Carbon Markets Regulations, 2024, non-land-based projects contribute at least 25% of their aggregate earnings, and further fees apply where credits are authorised for international transfer. WeSail.Green proposes to divide the balance 70/30. Seventy per cent goes to the household as a one-time graduation bonus, paid when ownership transfers, so that completing the contract is also rewarded for the emission reductions the household's daily use has produced. Thirty per cent goes to wesailgreen.org to fund the exchange of defunct panels for tested replacements. Because the bonus is paid only at graduation, carbon revenue forms no part of the instalment, and the household's ability to pay never depends on the carbon price.

A regional map of measured solar performance

Each installed system records daily generation at a known location. As the fleet grows, these records form a geographically distributed set of ground measurements across Kenya's regions. Such data could help institutions, utilities and investors identify locations with exceptionally high and reliable performance for future large-scale deployment, and could validate the satellite-derived solar-resource estimates on which such decisions usually rest.

Two qualifications govern the value of this data. First, measured output reflects the panel as well as the sun: second-life panels have individual degradation histories, and orientation, shading and dust differ between households. Second, an off-grid system can only generate what its battery and loads can absorb, so a full battery curtails output. Regional comparisons are therefore meaningful only after normalising for panel condition, installation and curtailment, which the passport's testing

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records make possible. Properly normalised, the value of the dataset grows with every year of record, because longer series reveal seasonality, inter-annual variation and long-term degradation.

Why the European solar parks are part of the data infrastructure

For the European solar parks that release their panels, the trackers and meters are not an accessory to the hire-purchase contract. They are the parks' own window into what happens to their former assets: where the panels are, whether they are producing, how much electricity they generate and when they reach the end of their life. Each bundle therefore forms part of a data-capture infrastructure whose value to the parks increases for as long as capture continues, because every additional day adds to a verified record of continued productive use and responsible end-of-life handling.

This is Inverse Fintech in its clearest form. The second-life panel enters Kenya with a book value near zero and continues to depreciate physically. The record it produces moves in the opposite direction, gaining value for the household's credibility, for carbon accounting, for regional energy planning and for the parks that started the cycle. The value of that record depends, as Section 8 emphasised, on its accuracy, lawful collection and demonstrated usefulness.

Stewardship after graduation

When the hire-purchase agreement ends, the household owns its equipment and WeSail.Green's contractual relationship ends. The interest of the European solar parks does not: they need assurance that the panels they released remain in Kenya, are used as intended and are not discarded in fields at the end of their life. WeSail.Green therefore proposes that wesailgreen.org, its planned non-profit entity, takes over data collection after graduation on behalf of those stakeholders, linked to a replacement plan in which a defunct panel is returned for certified recycling and exchanged for a tested replacement that carries its own passport. The documentary chain can thus continue beyond any single panel's life.

The cost of responsible end of life is funded from Europe. Each participating solar park places funds in an escrow account from which payment is released for a panel when that panel, identified by its passport, is delivered to a certified e-waste service provider in Kenya. The passport thus closes the loop that began when the park released the panel: from European decommissioning, through years of productive use in Kenya, to documented recycling.

Kenya's framework for this final step is still developing. The Sustainable Waste Management (Extended Producer Responsibility) Regulations, 2024 already require producers and importers of electrical and electronic equipment to finance collection and recycling. A certified service specialised in solar panels is not yet established; WeSail.Green expects one to emerge within a few years as part of the national strategy against e-waste pollution and intends to support its development. The escrow release conditions will be finalised once that certification is in place.

Because the household now owns the assets, continued monitoring after graduation must rest on a fresh, voluntary agreement. The replacement plan gives the household a practical reason to remain in the arrangement; it cannot be a condition imposed on property the household already owns.

A public, verifiable record

WeSail.Green proposes to publish its evidence daily as a Merkle-tree log whose root hashes can be anchored on a public blockchain, so that anyone, including the European solar parks, carbon verifiers and researchers, can follow daily energy production and confirm that published records have not been altered afterwards. Publication must be designed with care: exact coordinates of valuable solar and battery equipment would expose households to theft and intrusion. Public records should therefore identify assets by pseudonymous passport numbers and report location at a coarse regional level, such as county, while precise coordinates remain available only to authorised verifiers under access control.

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The household graduates from the contract; the asset's evidence does not graduate from relevance. Location and generation records may continue to serve carbon accounting, regional energy planning and the solar parks' end-of-life obligations for as long as the panel produces electricity, and every additional day of verified capture adds to their value.

10. Governance: the layer that runs through all the others

Evidence collected without consent, or protection applied arbitrarily, would undermine the trust on which the whole mechanism depends. Governance is therefore not a seventh step but a condition of every layer. WeSail.Green proposes the following principles:

Principle	Practical meaning
Informed consent	Households are told what is measured, including location tracking, why, for how long, and who may see it.
Data minimisation	Only data needed for service, verification, support and agreed research are collected and retained.
Separation of health data	Information given to obtain hardship support is not used in credit assessment.
No debt-related shutdown	Essential household power is not disabled remotely because of arrears.
Safe public disclosure	Public records use pseudonymous asset numbers and regional location only; exact coordinates are restricted to authorised verifiers.
Consent after ownership	Monitoring after graduation continues only under a new voluntary agreement with the owner household.
Lawful operation	Agreements and recovery follow Kenyan hire-purchase, consumer-protection and data-protection law.
Independent evaluation	Outcomes are assessed by independent researchers, not asserted by the programme.
Household interest first	The value of data is never a reason to keep a household in an unaffordable or harmful agreement.

11. Graduation: ownership is the beginning of the next question

At the end of a completed agreement, ownership passes to the household. The proposed Verified Completion Record would accurately describe payments, permitted relief, interruptions and final completion; it should not present a journey with setbacks as an unblemished record. A programme credit certificate could follow, but outside lenders are under no obligation to recognise it, and any claim of predictive validity requires independent testing.

Three outcomes must not be confused. The first is **contractual graduation**: the household owns its equipment. The second is **measured economic improvement**: lower costs, higher net earnings, better use of time or greater resilience. The third is **sustained movement out of poverty** against a clearly specified threshold and observation period. A family may achieve the first without the second or third, and may gain meaningful welfare benefits without significant new cash income. After ownership, the assets may continue to deliver energy and other benefits, although batteries, electronics and appliances will need maintenance or replacement; follow-up research must establish how durable the benefits are.

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12. What the pilot can, and cannot, establish

The 300-household pilot should begin with baseline measurement and a transparently pre-specified evaluation plan. It can investigate equipment reliability, energy expenditure, incremental net income, time use, arrears, service costs, hardship support, data quality and differences between rural and urban households. Its conclusions must distinguish association from causal effect, especially if a suitable comparison group is absent.

Two limits follow from the design. First, a 52-month agreement means that early reports cannot claim full-contract completion rates or long-term poverty reduction. Second, the claim that the integrated architecture outperforms its parts requires a comparison, for example an asset-finance-only arm or a phased roll-out of capability and protection measures. A single integrated group cannot isolate the contribution of each layer; if no comparison is feasible, that claim belongs to a later study.

Table 2. Testable propositions by layer

Layer	Pilot question	Indicative measures
1 Productive asset	Does the package generate positive net savings and/or earnings for a meaningful share of households?	Change in energy expenditure; new net income; equipment reliability.
2 Capability	Does guidance change productive use?	Usage patterns; enterprise activity; comparison across guidance intensity where the design permits.
3 Fair finance	Are instalments affordable relative to measured benefit?	Instalment-to-benefit ratio; arrears; seasonal patterns.
4 Household protection	Does relief prevent avoidable exits at acceptable cost, without the lockout tool used in PAYG?	Completion after relief; avoided repossessions; cost of intervention.
5 Evidence	Does operational data improve out-of-sample prediction, and does location and generation evidence meet carbon-verification and regional-data requirements?	Predictive performance against a baseline model; measurement validation; verifier acceptance; share of metering groups with continuous location and generation records.
6 Graduation	Is completion followed by durable welfare gains or wider financial access?	Post-contract poverty-threshold status; subsequent credit uptake and performance.

Negative findings matter as much as encouraging ones. If an asset does not create enough benefit, if payment obligations overwhelm savings, or if new data add no credible predictive value, the model must be revised, narrowed or rejected. That willingness to be proved wrong is what separates an economic proposition from an advertisement.

13. The central proposition

I am not interested in inventing another fashionable financial expression. I am interested in whether a change in the sequence of economic opportunity and financial evidence can help people who are otherwise excluded from productive resources. My years in Uganda gave me a practical starting point; the Shimoni case showed me what was missing. WeSail.Green is intended to test the idea with better measurement, clearer household safeguards and independent scrutiny.

Productive capital creates an opportunity. Capability and fair finance may turn that opportunity into economic capacity. Protection preserves it through difficult periods. Evidence documents what actually happened. Ownership and an independently credible record may open the door to the next opportunity.

Whether this sequence works better than established alternatives is not something I ask the reader to take on trust. It is precisely the question I intend to investigate.

Glossary of key terms

Term	Meaning in this paper
Inverse Fintech	An asset-first approach in which a productive asset, with capability, fair finance, protection and verifiable records, helps create repayment capacity and evidence of financial reliability (Section 1).
Productive asset	Equipment selected for a credible route to savings, earnings or both, rather than for ease of sale.
Graduation	Completion of the agreement and transfer of ownership. Narrower than the BRAC Graduation approach (Section 2).
Grace month	One of four standard months, chosen freely by the household, in which no instalment is due; the payment is deferred and the term extends, up to 52 months.
Area-wide relief window	A reduction of 33% or 50% of the instalment for up to six months, forgiven rather than deferred, triggered by a published Ministry of Agriculture and Livestock Development statement of famine, drought, crop disease or another area-wide event.
Forgiving credit model	WeSail.Green's credit design in which instalments reduced during declared area-wide events are written off, not carried forward.
Safe custody	Last-resort, human-reviewed holding of equipment for up to 60 days, with a final opportunity to resume the agreement.
Digital Asset Passport	QR-linked record of an asset's provenance, testing, installation, output, service and ownership transfer.
Asset bundle	The set of panels, battery and appliances installed under one agreement, from a few panels to many.
Geotracker	A concealed, disclosed location device, scaled in number to the size of the bundle; its records form part of the Digital Asset Passport (Sections 6 and 9).
Project boundary	The geographical and technical limits within which emission reductions are claimed; here, operation within Kenya.
Corresponding adjustment	An accounting entry under Article 6 of the Paris Agreement ensuring that reductions transferred abroad are not also counted towards the host country's national target.
wesailgreen.org	WeSail.Green's planned non-profit entity, proposed to steward data collection and panel replacement after graduation.
Verified Completion Record	An accurate record of payments, relief used, interruptions and completion, issued at graduation.
Digital collateral	Remote lockout of a financed asset when payments lapse, used in PAYG finance and not intended by WeSail.Green.
Graduation bonus	The household's 70% share of carbon proceeds remaining after the statutory contribution, paid once when ownership transfers.
End-of-life escrow	Funds placed by a European solar park and released for a panel when it is delivered, with its passport, to a certified e-waste service provider in Kenya.
Second-life solar	Used solar panels, tested and refurbished for a further service life.

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Research status

This is an explanatory paper, not a substitute for the separate theoretical article (Nymand-Andersen, 2026) or a systematic literature review. The Ugandan performance figures and photograph identifications are author-reported. The two published references corroborate limited aspects of Visit Africa Ltd.'s historical activity, not the repayment findings. The primary Shimoni judgment has not been examined. The Kenyan pilot has not yet produced outcomes. The archival photographs are included with the author's permission. Further information: https://wesail.green