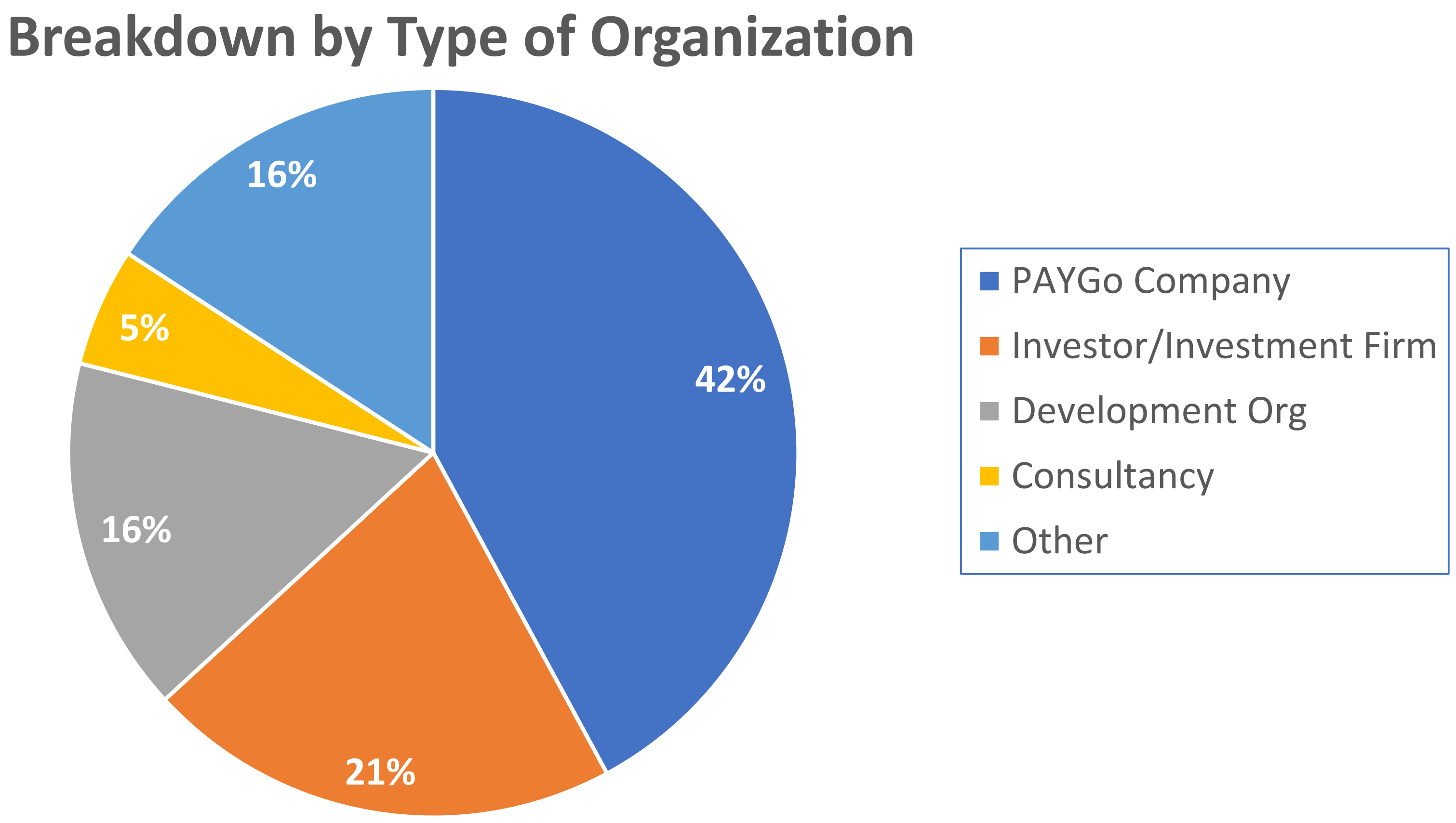
Unit Economics Working Group Survey Results

PAYGO PERFORM

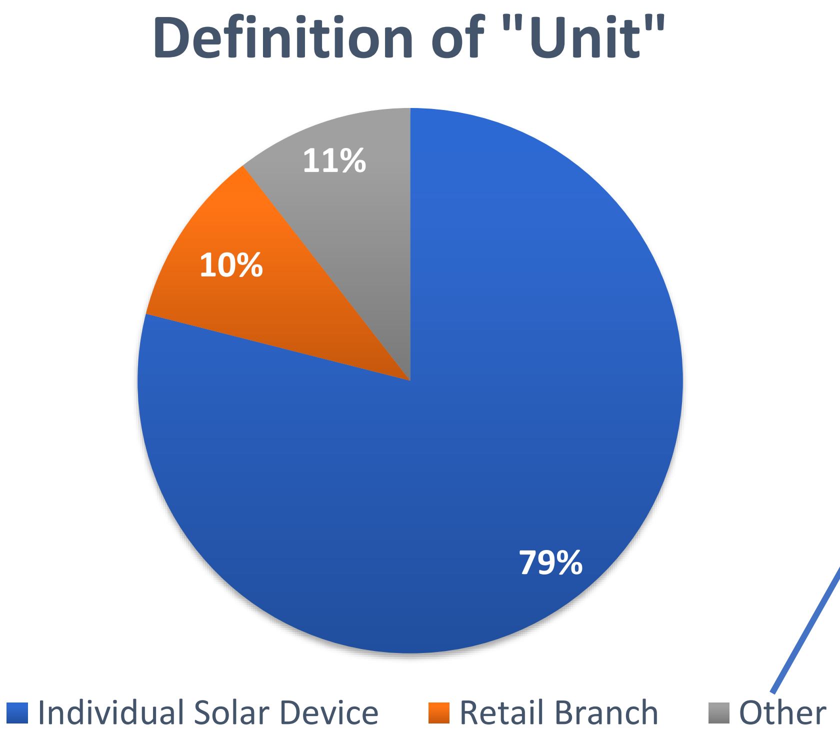
March 22, 2019

General Information on Survey Participants



Total Survey Participants: 19

Review of Goals / Objectives of Unit Economics KPIs



Other Category Comments
- It can be individual solar device sold or sometimes an indicator of value, like turnover.
- I would normally understand unit as the second option but putting a spanner into the works, the growing transition towards energy services and PAYG for use of solar equipment and machinery may make that unit less clear - would it be time in that sense?

Review of Goals / Objectives of Unit Economics KPIs (cont'd)

Right KPIs for Revenue – Comments
NPV of expected stream of cash flows, taking into account time value of money **using local currency discount rates**, and taking into account the expected true timing of cash flows and amount collected. So defaulters would be carved out of the equation (after their early payments) and even those who completed you would use the true completion time, not the scheduled time. So a company with a 300 day payment plan might find their average customer pays over 400 days - this should be the dates used for discounting.
Profit Margin per unit
Cash received, receivables booked/expected revenues (both interest and principal)
ARPU and Ave. total expected revenue   There is some difficulty for start-up companies in developing a healthy ARPU but ave. total expected revenue provides a longer-term view.
The focus may be on operating and non-extraordinary income (regardless if they were expected or not), including sales of units and services, recognized in a prudent manner (e.g. stop accruing interests after 90 days of late payment, etc).
Total sales price = deposit amount + the sum of future contractual top-up payments due until the system is permanently unlocked
Cash generated per unit and per month.
Average revenue per unit, total revenue per annum
1) Expected Gross Sale Value during Contract Life 2) Expected Net Sale Value (Gross adjusted for Write-offs) 3) Monthly Cash Received vs Expected Cash
ARPU Expected Revenue per Customer
Revenue = Deposit + Sum of lease payments

Right KPIs for Revenue – Comments
Net Revenue (so, not the interest)
ARPU : where we separate users in different categories corresponding to the different kinds of products >> we observed that different products had different re-payments dynamics, and it could be relevant to separate those categories.   Could also be useful to make the distinction between the Average Total Expected Revenue, and what will effectively be collected (because of churns, etc...)
All cost that is part of getting the system to be deployed at location including, cost of purchase, cost of shipping, import, deployment, interest on loan used to buy. As a unit cost, then a unit can create one or several accounts/receivables attached to this unit. Each receivable having one paid and one unpaid(forecasted) amount to be paid.
Effective ARPU (collected cash per client per month)
Marginal revenue
Revenue = total finance price (AKA expected total payments from customer who purchased 1 solar kit)
Revenue per customer per month How fast to customers pay ie utilisation Clear definition of defaults Revenue recognition Write off policies

Review of Goals / Objectives of Unit Economics KPIs (cont'd)

Right KPIs for Cost – Comments
You would want to look at those separately: 1) distribution costs to customers is everything from when the goods land in market until its in a customer hands. this would include commission to sales people, a cost allocation for management of that sales force, a cost allocation from any retail presence, transport in market, below the line marketing materials (e.g. fliers used in making a sale, t-shirts for sales agents). 2) for servicing cost, you would include communication costs with customers (SMS and telecom costs), communication cost with devices in the case of embedded modem business models, labour and rent/equipment of running a call center allocated across the customer base.
Operational costs may differ across companies. For example, sales agents may be full-time or paid by commission, so it is important to have KPIs to allow for this variation when comparing operational costs across different companies
COGS (fully loaded landed cost of product), direct opex (at installation and ongoing maintenance), customer acquisition, overhead and other indirect costs per unit, interest, taxes/VAT
The KPIs selected are good indicators but there is perhaps a challenge in terms of the stage of development of the business and the effect of fixed costs on these metrics until economies of scales can be achieved.
(excluding credit cost and financial cost, addressed by other working groups) The Unit cost (hardware + transportation, installation, import tax and insurance) looks useful. I guess this was considered more useful than the breakdown: Cost of Goods Sold, sales cost, service cost.
Total costs = product costs + logistics + selling + servicing + credit + financing
All costs up to the bottom line (net result) per unit. Everything else can be classified differently within different players in the industry.
Distribution costs, unit costs, after sales service costs
Average transaction cost

Right KPIs for Cost – Comments
1) Factory Cost (Ex Works) 2) Inbound Logistics Costs 3) Import Duties & Taxes 4) Outbound Logistics Costs While it would be nice to see what the additional distribution costs are, include agent commissions etc, these will be quite hard to make subjective, and do change alot with scale, so difficult to calculate
COGS per unit and depending on what is included in COGS, selling costs, service costs (incl call center) and Marketing costs and other costs to distribute and service product.
All cost that is part of getting the system to be deployed at location including, cost of purchase, cost of shipping, import, deployment, interest on loan used to buy. As a unit cost, then a unit can create one or several accounts/receivables attached to this unit. Each receivable having one paid and one unpaid(forecasted) amount to be paid.
Service cost = After-care commission (if applicable) + Fuel cost Distribution cost = Logistic costs (from main warehouse to county Warehouse) + Fuel cost (from county warehouse to customer house) + agent commission
Average Unit Cost : good KPI that enables to have an overview of the cost >> Not really necessary to split this for the different products (as suggested for the revenue), as we leverage the same infrastructures (storage, distributions, agents...)
Flat monthly cost
Very hard to nail down as costs structure can vary significantly. Maybe the sum of maintenance/installation costs
Costs of goods sold + cost of sale + cost of service + cost of finance = total variable costs
Gross margin Distribution costs Reclaim costs Net profit per unit including allocation of fixed costs per unit

Summary Analysis of KPIs

Summary of Existing KPIs

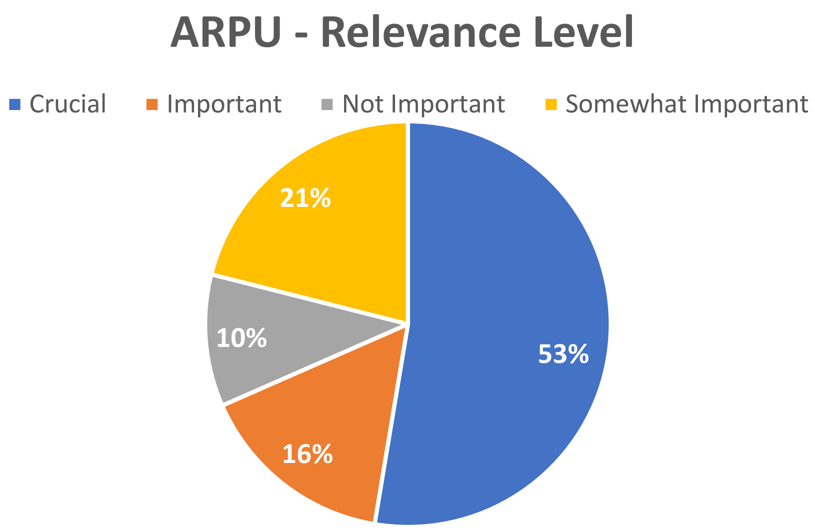
Evaluation Parameters	% of Positive Responses				
	ARPU	UNIT_COST	AVG_CUST_DEP	AVG_EXP_REV	AVG_MAINT_COST
Relevance (Crucial & Important)	68%	84%	47%	74%	68%
Keep the KPI	79%	100%	63%	79%	84%
Agreement on Definition	47%	74%	79%	74%	58%
Relevant to All Business Models	79%	89%	68%	79%	74%

Summary of New KPIs

New KPI	% of Positive Responses
Unit Gross Profit Mgn	89%
Customer Acq Cost	84%
Free Cash Flow	68%
Net Income	68%
Unit EBIT	68%
Interest	63%

ARPU – Review of Survey Responses

Relevance of KPI



Sum of Number Responses	Level of Relevanc				
Org Type	Crucial	Important	Not Important	Somewhat Important	Grand Total
Consultancy			1		1
Development Org	2			1	3
Investment Firm	2		1	1	4
Other	1	1		1	3
PAYGo Company	5	2		1	8
Grand Total	**10**	**3**	**2**	**4**	**19**

Keep ARPU as KPI?

Sum of Number Responses	Answer		
Org Type	No	Yes	Grand Total
Consultancy	1		1
Development Org		3	3
Investment Firm	1	3	4
Other		3	3
PAYGo Company	2	6	8
Grand Total	**4**	**15**	**19**

Comments for NOT Keeping ARPU

ARPU is not appropriate as a KPI in this space - its a measure that's useful in high fixed/low marginal cost businesses where the default option is for a customer to "stick" on the service and keep paying (e.g. your sim card provider, netflix, your gym membership). PAYG solar has huge marginal costs - in fact its an extremely skinny margin business, and many companies make negative margin sales. And its not sticky past the payment plan length - customers, once they pay off, the default option is to make no further payments to the PAYG provider and those providers need to work hard (spending money) to get them onto another product. Completely the opposite of Netflix or your health club that just keeps billing your credit card and does not incur any real additional costs if you use or don't use the netflix or health club!! Complete MNO envy using this statistic and not relevant or appropriate

Not sure if this metric is very actionable, unless perhaps it is tracked across time for a particular product

I think this metric can cause confusion - by revenue, do we mean cashflow in past 30 days? Or revenue on an accruals basis (aka expected total payments)? I support inclusion of the latter, which falls under "average total expected revenue."

ARPU – Review of Survey Responses (cont'd)

Agreement with Definition

Sum of Number Responses	Agree with Defini		
Org Type	No	Yes	Grand Total
Consulting	1		1
Development Org	1	2	3
Investment Firm	2	2	4
Other	2	1	3
PAYGo Company	4	4	8
Grand Total	**10**	**9**	**19**

Comments for NOT Agreeing with Definition

Average profit margin per user - would account for variation in units provided and show a measure of new customer acquisition cots

It can be improved by making it batch / cohort specific.

Would propose to include all systems not fully provisioned or written off as the denominator rather than active systems.

We need to define what we mean per revenue: contract value or effective cash collected? Also the definition of active units must vary a lot across companies depending on repossession/write-off rules/deactivation rules.

This looses all the important information by reducing it like this. Rather calculate revenue per system then average it, and include the shape of the distribution in that case. Using average as a value to compare KPI where distribution is not normal is very weird.

Comments for NOT Agreeing with Definition (cont'd)

The period over which the ARPU is calculated is perhaps short not only for businesses that are in the early stages of development but also in the context of off-grid solar - companies are adopting a more flexible approach to revenue collection due to the sporadic (seasonal) nature of income generation for off-grid rural customers. Perhaps a 60 or 90 day period would be more reflective. Research performed by DFID and Shell Foundation has shown that on PAYG systems, customers allocate their money to most significant need at the time but then return as customers.

Suggestion: add a second version of the indicator that uses the value of units instead of the number of units. Rationale: both are important and add value to each other; value of units as denominator may allow comparing companies with different average value. In addition to the monthly version, has an annual version been considered (to be comparable with other annual indicators of revenue and cost)? Question: is this cash or accrual (does the initial deposit payment made in the last 30 days enter in full?)? Tricky, but recognize the advantages of cash too. I guess if the numerator is a flow, then it would be better if the denominator was an average (beginning and end of period).

We need to use Total CASH received over the most recent 30 days / Total Active Units, not worry about different revenue recognition choices. Critically, we need to define what Active means, probably units that have received a payment / have been working over the past 90 days.

ARPU Definition Issues - Summary

- Period used for calculation
- Definition of "Active"
- Revenue Recognition
- What to use in Denominator
    - Value of Units instead of Number of Units
    - All systems, not only active units

ARPU – Review of Survey Responses (cont'd)

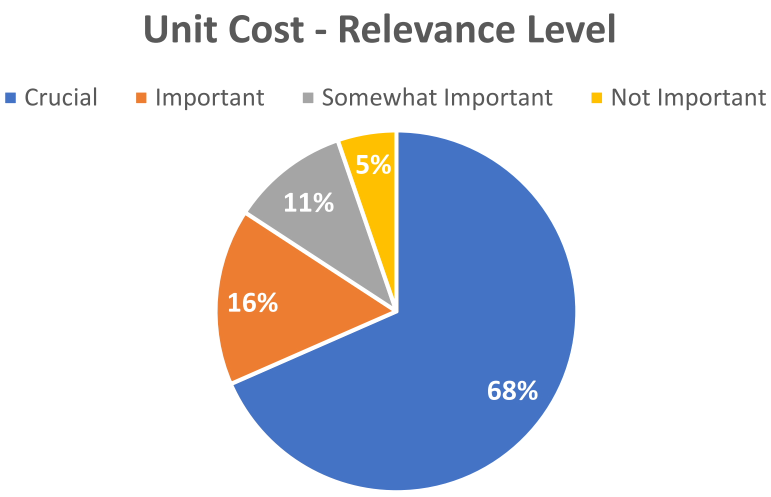
Relevant to All Business Models

Sum of Number Responses	Relevant for All B		
Org Type	No	Yes	Grand Total
Consultancy		1	1
Development Org	1	2	3
Investment Firm	1	3	4
Other		3	3
PAYGo Company	2	6	8
Grand Total	**4**	**15**	**19**

Comments for NOT Being Relevant to All Business Models
Those that have high marginal costs and are not "sticky" where the default option is for the customer to pay into perpetuity.
Not relevant for cash sellers
For PAYG companies who don't offer their products as a service, but as a lease-to-own product.

Unit Cost – Review of Survey Responses

Relevance of KPI



Sum of Number Responses	Level of Importar				
Org Type	Crucial	Important	Not Important	Somewhat Important	Grand Total
Consultancy				1	1
Development Org	3				3
Investment Firm	4				4
Other	1	2			3
PAYGo Company	5	1	1	1	8
Grand Total	**13**	**3**	**1**	**2**	**19**

Keep as KPI?

Sum of Number Responses	Answer	
Org Type	Yes	Grand Total
Consultancy	1	1
Development Org	3	3
Investment Firm	4	4
Other	3	3
PAYGo Company	8	8
Grand Total	**19**	**19**

Unit Cost – Review of Survey Responses (cont'd)

Agreement with Definition

Sum of Number Responses	Agree with Defini		
Org Type	No	Yes	Grand Total
Development Org		3	3
Investment Firm	2	2	4
Other		3	3
PAYGo Company	3	5	8
Consultancy		1	1
Grand Total	**5**	**14**	**19**

Comments for NOT Agreeing with Definition

This should be determined on a batch basis not simply the number of active units (unless all of those units are uniform in terms of purchase date and type).

This is a useful KPI, but not that straightforward to calculate. Hardware costs, import duties and inbound logistics are relatively simple to calculate, but installation costs and outbound logistics are difficult. As such, it maybe be better to simplify this formula. Another challenge is that units do not only need to be installed, but also managed (by agents / call centre etc) during their life, so these would also need to be accounted for completeness, again not simple.

Cost for interest due to loan to buy stock should be included here as the profit margin will be reduced by that amount. Also shouldn't this be calculated on a per unit basis then averaged?

This should also include cost of service (call center), cost of sales (marketing), and cost of repayment (account management, bad debt)

Definition should simply be the ACTUAL costs of hardware, shipping etc per unit

Relevant to All Business Models

Sum of Number Responses	Relevant for All B		
Org Type	No	Yes	Grand Total
Consultancy		1	1
Development Org		3	3
Investment Firm	1	3	4
Other	1	2	3
PAYGo Company		8	8
Grand Total	**2**	**17**	**19**

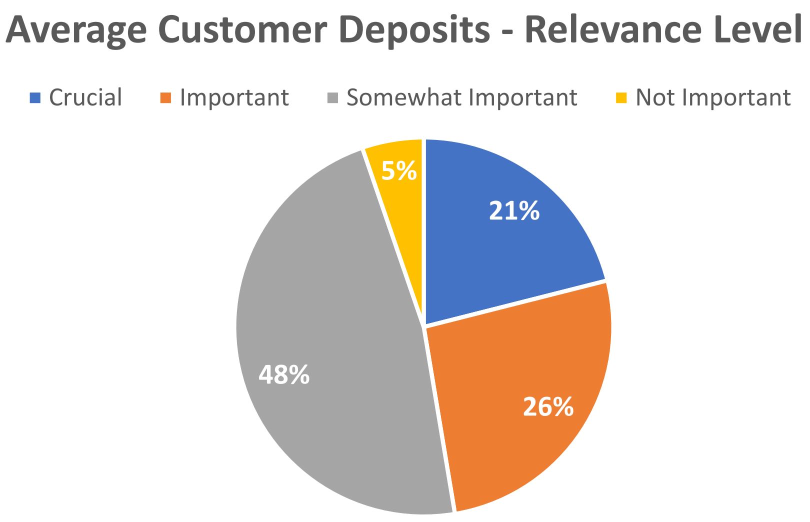
Comments for NOT Being Relevant to All Business Models

There should be the concept of cost of service for business models predicated on the sharing of systems.

Where PAYG solar refers to services (e.g. agri-processing, irrigation, etc.) rather than individual products, this can be less relevant.

Unit Customer Deposit – Review of Survey Responses

Relevance of KPI



Sum of Number Responses	Level of Importa				
Org Type	Crucial	Important	Not Important	Somewhat Important	Grand Total
Consultancy				1	1
Development Org		1		1	2
Investment Firm	2			2	4
Other	2			2	4
PAYGo Company		4	1	3	8
Grand Total	**4**	**5**	**1**	**9**	**19**

Keep as KPI?

Sum of Number Responses	Answer		
Org Type	Yes	No	Grand Total
Consultancy	0	1	1
Development Org	2	1	3
Investment Firm	2	2	4
Other	3	0	3
PAYGo Company	5	3	8
Grand Total	**12**	**7**	**19**

Comments for NOT Keeping Unit Customer Deposit

This KPI is either 1) a proxy for how much credit risk a provider is taking, and you would do better to look at uncollected revenue, or 2) a subset of your cash revenue, and you may as well look at this holistically and in a discounted cash flow manner.

Is this actionable? How would a company act on this information?

I don't see why this is a relevant KPI. Over time, there will be a plethora of payment plan configurations, so not sure what we will get from this.

(Deposit received [Local Currency])/ (Cost of hardware plus cost of transportation, import taxes, stock insurance, and installation [Local Currency]). What is the aim of this KPI? needs to be defined for me to understand. Just shows if a downpayment or deposit covers to a certain extent the initital cost by x % of the cost.

Not sure this is necessary, as most deposits are relatively small in the sector, around 0-10%, and therefore do not really mitigate product costs. While debateable, deposits are interesting from a credit scoring perspective, but less from product cost risk management perspective.

Unit Customer Deposit – Review of Survey Responses (cont'd)

Agreement with Definition

Sum of Number Responses	Agree with Defi		
Org Type	No	Yes	Grand Total
Development Org	0	3	3
Investment Firm	1	3	4
Other	0	3	3
PAYGo Company	3	5	8
Consultancy	0	1	1
Grand Total	**4**	**15**	**19**

Comments for NOT Agreeing with Definition

Again, comparing the deposit vs average expected revenue might be more useful than comparing with costs.

Should this be measured as a % of price (aka average expected revenue)? I'm not following the logic for pegging this against cost. In fact, I doubt companies would want to use this metric b/c you can back-out a companies margins this way

No need to divide by active units as you woulds already know the actual deposit and the actual cost per individual unit   Also need to clarify whether the deposit is refundable or not

Relevant to All Business Models

Sum of Number Responses	Relevant for All		
Org Type	No	Yes	Grand Total
Consultancy	0	1	1
Development Org	2	1	3
Investment Firm	1	3	4
Other	1	2	3
PAYGo Company	2	6	8
Grand Total	**6**	**13**	**19**

Comments for NOT Being Relevant to All Business Models

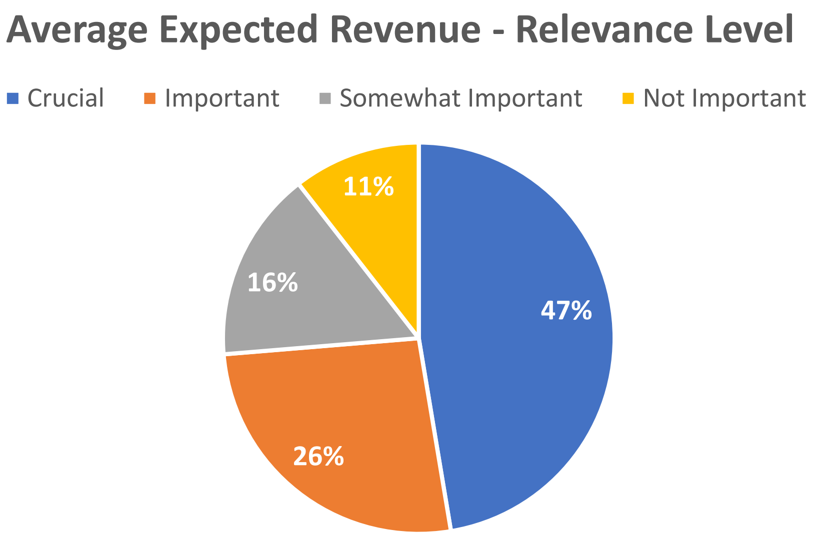
It's not a useful metric

Not applicable to cash sellers. May not apply to all PAYGo products (no deposit plans, upgrade sales)

Depends on business model whether deposit is required.

Average Expected Revenue – Review of Survey Responses

Relevance of KPI



Sum of Number Responses	Level of Importance				
Org Type	Crucial	Important	Not Important	Somewhat Important	Grand Total
Consultancy	0	1	0	0	1
Development Org	3	0	0	0	3
Investment Firm	3	1	0	0	4
Other	1	1	0	1	3
PAYGo Company	2	2	2	2	8
Grand Total	**9**	**5**	**2**	**3**	**19**

Keep as KPI?

Sum of Number Responses	Answer		
Org Type	Yes	No	Grand Total
Consultancy	1	0	1
Development Org	3	0	3
Investment Firm	3	1	4
Other	3	0	3
PAYGo Company	5	3	8
Grand Total	**15**	**4**	**19**

Comments for NOT Keeping Avg Expected Revenue

Revenue can be different depending on revenue recognition policy.

The KPI is very general and doesn't add any value for Paygo company leader / investors / lenders or any other stakeholder.

Total expected revenue is both wrong for as a service companies and this value really conveys no information that could not be clearer just saying the age of the current machine park.

Average Expected Revenue – Review of Survey Responses (cont'd)

Agreement with Definition

Sum of Number Responses	Agree with Def		
Org Type	No	Yes	Grand Total
Development Org	0	3	3
Investment Firm	2	2	4
Other	1	2	3
PAYGo Company	2	6	8
Consultancy	0	1	1
Grand Total	**5**	**14**	**19**

Relevant to All Business Models

Sum of Number Responses	Relevant for Al		
Org Type	No	Yes	Grand Total
Consultancy	0	1	1
Development Org	0	3	3
Investment Firm	1	3	4
Other	1	2	3
PAYGo Company	2	6	8
Grand Total	**4**	**15**	**19**

Comments for NOT Agreeing with Definition

Discount it based on real collection timing, expected non-collected revenue, and use local currency discount rates for the calculation.

Just a suggestion: the denominator may also potentially be volume of units to improve comparability across companies with different unit size. I guess if the numerator is a flow, then it would be better if the denominator was an average (beginning and end of period).

I think this metric is trying to calculate the average expected revenue for a given product or portfolio mix. As such, if product X is worth $100 and product Y is worth $200, and its a 50:50 portfolio mix, then I think we would say the average expected revenue is $150. However, based on the current formula, if we have a portfolio diversified by time, where some contracts are near the end, say with only $25 left, then this would reduce the average expected revenue. This could be solved by looking at cohorts, otherwise difficult to intepret.

Expected total revenue should be revenues expected from all units, whether active or not

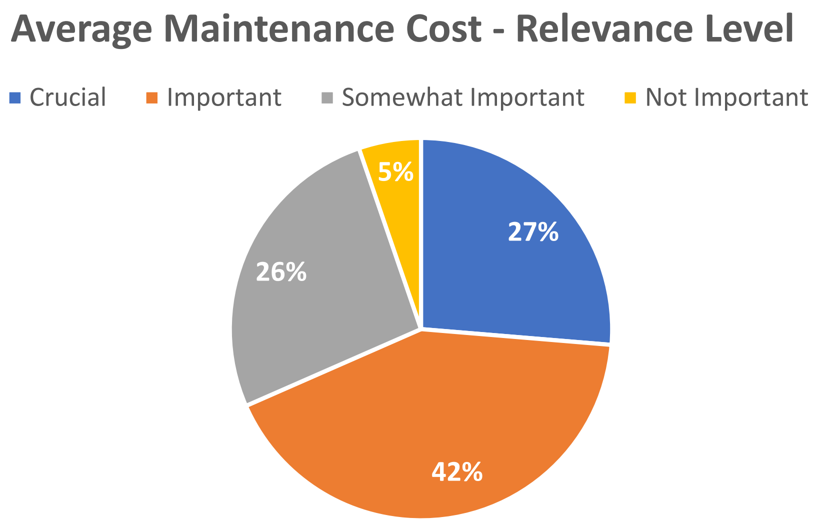
Comments for NOT Being Relevant to All Business Models

If the customer pays for an ad hoc service that does not require a consistent commitment as a contractual condition but is PAYG then calculating this may be challenging as the period of service is not necessarily finite.

Depending on revenue recognition policy. If a company applies for example cash vouchers it would be received cash rather than expected revenue.

Average Maintenance Cost – Review of Survey Responses

Relevance of KPI



Sum of Number Responses	Level of Importar				
Org Type	Crucial	Important	Not Important	Somewhat Important	Grand Total
Consultancy	0	1	0	0	1
Development Org	2	1	0	0	3
Investment Firm	1	2	0	1	4
Other	1	1	0	1	3
PAYGo Company	1	3	1	3	8
Grand Total	**5**	**8**	**1**	**5**	**19**

Keep as KPI?

Sum of Number Responses	Answer		
Org Type	Yes	No	Grand Total
Consultancy	1	0	1
Development Org	3	0	3
Investment Firm	4	0	4
Other	3	0	3
PAYGo Company	5	3	8
Grand Total	**16**	**3**	**19**

Comments for NOT Keeping Avg. Maintenance Cost

Very subjective, not sure how to calculate maintenance costs.

Our customers do not pay for maintenance - it's priced into their solar kits

Average Maintenance Cost – Review of Survey Responses (cont'd)

Agreement with Definition

Sum of Number Responses	Agree with Def		
Org Type	No	Yes	Grand Total
Development Org	2	1	3
Investment Firm	1	3	4
Other	0	3	3
PAYGo Company	5	3	8
Consultancy	0	1	1
Grand Total	**8**	**11**	**19**

Comments for NOT Agreeing with Definition

Again, very difficult to calculate.

Please see explanation above. Whenever we use "cost" that should be a cost to the business, not a price to the customer. This metric would actually measure revenue for the business for their maintenance services. There's some opportunity to clarify this, if you choose to keep this metric

Relevant to All Business Models

Sum of Number Responses	Relevant for		
Org Type	No	Yes	Grand Total
Consultancy	0	1	1
Development Org	1	2	3
Investment Firm	0	4	4
Other	0	3	3
PAYGo Company	4	4	8
Grand Total	**5**	**14**	**19**

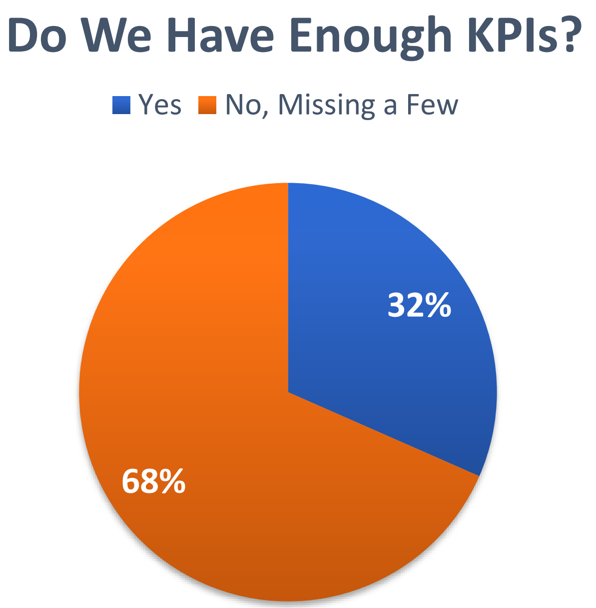
Comments for NOT Being Relevant to All Business Models

Cash sellers

Not sure all business models include maintenance.

Not all business models have a maintenance fee.

Additional / New KPIs

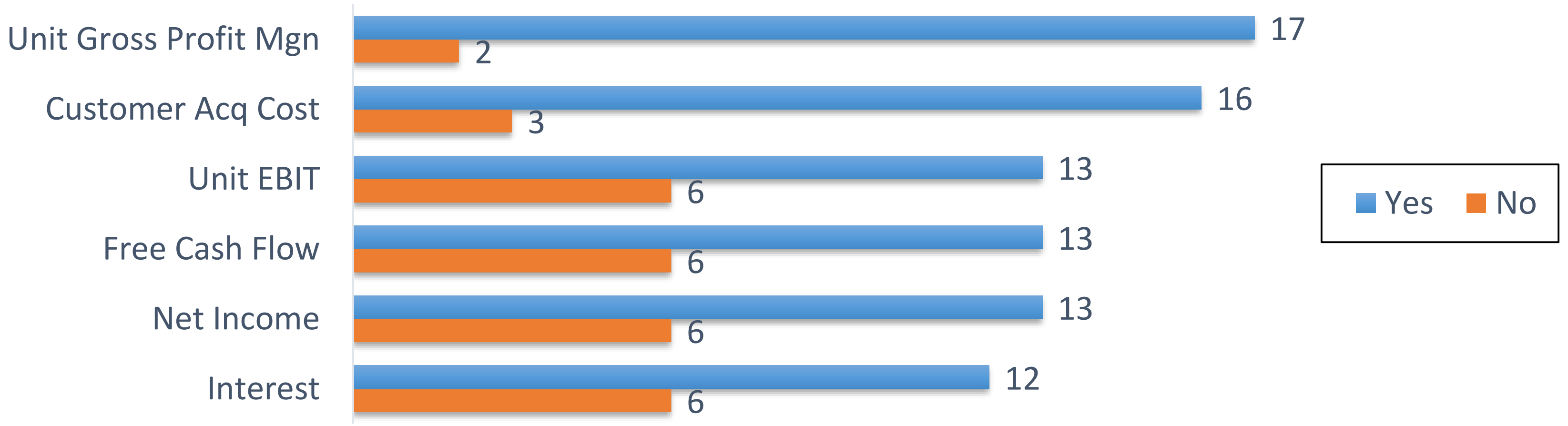


Survey Responses by Organization Type

Positive Responses / Org Type	Customer Acq Cost	Free Cash Flow	Interest	Net Income	Unit EBIT	Unit Gross Profit Mgn
Consultancy	1	0	0	1	1	1
Development Org	3	3	3	2	2	3
Investment Firm	3	3	2	2	2	3
Other	3	2	1	2	2	3
PAYGo Company	6	5	6	6	6	7
Grand Total	**16**	**13**	**12**	**13**	**13**	**17**

New KPIs

Survey Responses by KPI



Additional / New KPIs (cont'd)

New KPIs - Comments
EBITDA not appropriate since these companies have embedded banks -- and the letter "I" in EBITDA is a critical input to a banking business model.
Are interest (income/expense) or free cash flow actionable KPIs?
Thinking very much from a start-up company perspective - the KPIs need to be kept brief and simple so adding too many more is not a good idea. The key about the indicators is to contextualise the project in terms of their stage of development so net income, free cash flow , EBIT margin/ unit EBIT are perhaps not the best in this case.
Interest (income/expense): Not sure how this is calculated. Is the idea similar to a financial margin (financial income – financial expenses)? Gross Profit Margin / Unit Gross Profit : Would be useful to have value instead of numbers in the denominator (e.g. turnover) Earnings Before Interest and Taxes (EBIT) Margin / Unit EBIT : Looks more informative than EBITDA, ideally with value instead of numbers in the denominator (e.g. turnover)
I think EBIT and net income are well understood accounting definitions and need not be covered specifically for PAYGo. Will be covered clearly in standard financial statements
Gross profit margin, EBIT can be determined based on a companies accounting policy and hence you wouldn't get any comparability benefit from it.
Interest expense, EBIT, Net Income, and Free Cashflow are standard business wide metrics, so traditional financial analysis is appropriate. Also, revenue recognition principles will distort these metrics. I think for Unit Economic analysis, metrics can be limited to just the portfolio level metrics, and not cover other business metrics.
I think customer acquisition and call center are 2 important costs to consider to get to unit profitability measure. Overheads then get you to EBIT and CF profitability measure. Dont think interest and provisions should enter the fray (e.g. with NI measure)
Net Income is an absolute measure that doesn't add value to any analysis, if not linked to another KPI (for instance Net Income / Revenue)

New KPIs – Comments (cont'd)
CAC too vague. Free cash flow not important to KPIs.
Interest and FCF - not sure why this is helpful? Also, it's' something companies will likely want to keep to themselves. Esp. FCF with respect to fundraising
Interest is driven by macro economics of country & can't be a KPI for the product or its company.
Not necessarily another KPI but we should look at unit econ on a cash basis as well
Net profit margin: Net income / turnover Average unit value (a lot of higher unitary elements differ depending on the size of units sold, so it is a good indicator to keep in mind while doing analysis, and to possibly do peer analysis in the future) Average loan balance (same as above)
We should have KPIs for all key unit revenues and costs such that you can add them together to arrive at unit margin/profitability, which is what we are ultimately trying to measure
1) Interest coverage ratio = EBIT / Interest Expenses   2) Cashflow interest coverage = Operating cashflow / debt repayments PAYGo companies are becoming more leveraged and this measure allows to understand their ability to repay the debt back
Net Revenue + Interest Income - OpEx   Should capture the company health. All the others depend on the business model and will always be different. F.e. PAR30 is interesting, but the interest income is the only thing that really matters (IF you book real collections, not expected collections.)