Emida’s Mobile Wallet (EMW) system is an integration of Debrisys prepaid functionality and ePAID wallet functionality; Debrisys functions support the creation and management of retail distribution chains while ePAID functions provide EMW end-users with account management and payment capabilities. These systems operate to capture and manage various monetary accounts necessary to permit the system to operate on behalf of end-users. The monetary account management aspects of the system have been referred to in other similar systems as liquidity management.

Liquidity management is driven by two primary operations: end-user deposits (or cash-in) to their mobile wallet and end-user withdrawals (or cash-out) from their mobile wallet. In other words, business is flowing if end-users are able to deposit and withdraw at will at EMW merchant locations.

**End-User Deposits (Cash-In)**

The diagram below illustrates the steps required to convert hard currency in the pocket of the end-user into virtual cash held in the end-users mobile wallet. This operation is assumed to be conducted within a prepaid model of accounting. Hence, although the arrows in the diagram seem to indicate a sequential movement of monetary value, this isn’t the case.

![End-User Deposit Accounting Flow](image)

**Figure 1. End-User Deposit Accounting Flow.**

**Notes**

[1] A retail agent or merchant must be enabled within the EMW system prior to taking end-user deposits. Part of this process may require that the merchant prepay an amount of money, typically to a wholesale agent, as a...
credit against future end-user deposits (See Credit Restriction Limitations, below). This prepaid credit account is managed by the Debrisys platform with every dollar prepaid by the merchant resulting in a credit to the merchants Debrisys prepaid credit account.

[2] Wholesale agents are responsible for moving funds into a wholesale agent account held at a depository institution that permits automated withdrawals by the Debrisys platform. These funds represent the sum of amounts held in Debrisys prepaid credit accounts for all retail agents under the management of the wholesale agent.

[3] End-user deposit transactions are processed by a retail agent resulting in cash “in the till” of the retail agent. Associated with this deposit:

• The retail agent’s prepaid credit account is debited the amount of the deposit.

• The end-user’s mobile wallet is credited the amount of the deposit [4].

• Subsequent to the deposit transaction (e.g., on the next business day), funds are debited from the wholesale agent account and credited to an umbrella deposit account that backs the value of all wallets within the system [5].

Credit Restriction Limitations
Merchants may operate under one of several types of credit restrictions: prepaid, limited, unlimited, and shared. The wholesale agent has the freedom and responsibility of deciding the specific credit restriction that should be applied as they are the ultimate guarantor of deposits taken by merchants under their management.

Although any one of these credit restrictions may be applied, only one restriction is permitted and applies globally to all transactions processed by the agent. This means that it is not possible, for example, for an EMW retail agent to operate with an unlimited credit restriction for prepaid products, but to have a prepaid credit restriction for EMW transactions.

End-User Withdrawals (Cash-Out)
The diagram below illustrates the steps required to convert virtual cash held in the end-user’s mobile wallet into hard currency in the pocket of the end-user. As with cash-in, although the arrows in the diagram seem to indicate a sequential movement of monetary value, this isn’t the case.
Figure 2. End-User Withdrawal Accounting Flow.

Notes

[1] End-users execute a withdrawal at a authorized retail agent who has sufficient funds on hand to complete the withdrawal. The user receives hard currency from the merchant’s till.

[2] The end-user mobile wallet is debited funds that may include a service fee.

[3] Subsequent to the retail transaction (e.g., the next business day), funds (the corpus amount plus the fee) are debited from the umbrella account and distributed to the wholesale agent account. The fee represents the wholesale agent’s commission (commission_w). Although the fee may be apportioned among other entities participating in the business and paid as commission, this is not illustrated in this example.

[4] Periodically, the wholesale agent will draw funds from their bank account for the purpose of re-imbursing merchants for withdrawals they have processed. The Debisys system provides accounting functions to support this activity.

[5] Retail agents are re-imbursed for end-user withdrawals they’ve processed and provided a portion of the service fee as a commission (commission_r).
Prepaid Credit Account
The merchant’s prepaid credit account is not required to be adjusted as the prepaid credit account represents collateral for future sale transactions. However, a number of current Debisys customers pay merchant commissions by crediting the prepaid credit account, permitting the merchant to recover their commission through additional, profitable transaction activity.

While that is possible for the EMW system, this is not likely to be the typical case because:

1. There is an inherent requirement that the retail agent have hard currency on hand to support withdrawals. In the simplest case, this may mean that the wholesale agent is visiting the retail agent to provide currency; representing withdrawal reimbursements and commissions.

2. For EMW, the prepaid credit account simply allows future deposits to be processed by the merchant. If no fee is charged for deposits (as was done in M-PESA), then deposits represent non-profitable activity for the retail merchant. Hence, retail agents are likely to want their commissions for withdrawals paid in hard currency.

Merchant Cash-On-Hand
With respect to cash-in and cash-out operations, the primary obstacle impacting end-user satisfaction with EMW is that a retail agent is not able to satisfy a withdrawal request because of too little cash in their till. This requires the end-user to either 1) wait until the agent’s cash supply is replenished or 2) seek another agent that does have cash on hand.

A second concern is too-much-cash-on-hand which represents a security concern as agents with large cash amounts become targets for robbery or theft. The EMW system can help in several ways:

1. **Cash-In-Till Report.** This report would be initiated by retail merchants at their start of day or on-demand. The merchant would provide the current amount of cash-on-hand available for EMW withdrawals. The report output would provide them a suggested cash-on-hand amount based on a historical data or environmental factors (e.g., it’s Christmas shopping seasons) as determined by the system. Subsequent EMW transactions would then allow the cash-on-hand to be tracked by merchant. Resulting in --

2. **Merchants Cash-On-Hand Report.** A wholesale agent would use the current estimates of cash-on-hand provided by this report to help determine their “drive-by” logistics as they plan to visit retail locations to take payment, make reimbursements, and pay commissions. This report identifies which merchants have either too little or too much cash on hand, e.g.:

<table>
<thead>
<tr>
<th>Merchant DBA</th>
<th>Reported Cash-in-till</th>
<th>Current Cash-In-Till</th>
<th>Required Cash-In-Till</th>
<th>Surplus / (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Mart</td>
<td>$ 500.00</td>
<td>$ 750.00</td>
<td>$ 600.00</td>
<td>$ 100.00</td>
</tr>
<tr>
<td>Shorty's Drug Store</td>
<td>$ 800.00</td>
<td>$ 550.00</td>
<td>$ 700.00</td>
<td>$ (150.00)</td>
</tr>
<tr>
<td>Big Bux Retail</td>
<td>$ 1500.00</td>
<td>$ 2750.00</td>
<td>$ 1600.00</td>
<td>$ 1150.00</td>
</tr>
<tr>
<td>Just Rite Retail</td>
<td>$ 400.00</td>
<td>$ 400.00</td>
<td>$ 400.00</td>
<td>$ 0.00</td>
</tr>
</tbody>
</table>

*Red* text indicates merchants that are outside of their norms and should be made a priority for cash servicing.

3. **Cash Locator.** Similar to the Telcel topup locator web service, a cash locator service would provide an end-user with the nearest agent(s) that are able to satisfy a withdrawal request of a given amount. For example, texting **FINDCASH*100#** to the system and it will return a list of agents where $100 is available for withdrawal. This might be developed as a location based service where the cell phone location can be determined and used to find near-by agents.