#### MORPHIS®

Morphis Enterprise Cash Management Morphis•M1

## ABOUT **OUR WORK**

Today Morphis products are in use across the currency logistics spectrum – central banks, commercial banks, armored carriers, ATM/BTM operators and retailers.

#### COMPANY STATISTICS



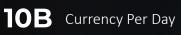
**37** Cash Centers



250,000 Cash Points



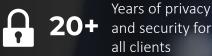






 $(\mathbf{f})$ 

5+ Countries



and security for

#### World Class Currency Supply Chain Solutions

Morphis Suite of Software



#### What is Cash Visibility (CV)?

A multi-year, multi-phase joint industry initiative aimed at bringing greater transparency and efficiency to cash supply chain logistics by developing a framework that will identify, track, and share data about cash packages as they move between cash supply chain organizations.

Using supply chain logistics standards and concepts, the Cash Product Office (CPO), Cash Advisory Group (CAG), Cash Advisory Council (CAC), and GS1 US developed CV data standards that will incorporate the use of scanning technologies with cash shipments to enable significant improvements in cash handling. These improvements will reduce manual data entry by replacing paper-based manifests with electronic manifests.

#### The Opaque Current State

When consumers receive currency notes as change, behind that simple transaction is an intricate network supporting the distribution of cash, better known as the **"cash supply chain."** In the U.S., we continue to rely on paper and physical signatures to document cash package transfers between the supply chain participants. These transactions take longer and have potential for human error.



#### What is e-Manifest?

**e-Manifest** is the Federal Reserve's service product for how Federal Reserve Banks will electronically process deposits and payments with industry partners by using industry supported data standards.

#### **Easy Steps to Get Ready for e-Manifest**

Step 1: Contact the Fed to get started

**Step 2:** Identify your supply chain partners



(financial institutions, armored carriers, service providers, cash bag suppliers, etc.)

Step 3: Work with GS1 US to create your GS1 Company Prefix

# Morphis•M1

Enterprise Banking Solutions

Rationalizes and optimizes currency and coin, by denomination, across your banking enterprise combining the functionality required to manage your ATM fleet, branch network and off-site locations. Divides the cash management process into two steps: Forecasting and Decision making.

## 02

Analyzes historical deposit and withdrawal transaction activity and forecasts future deposit and withdrawal activity.

03

Compares current inventories to projected "Net Demand," considering Upper & Lower inventory Bounds (operating and physical capacity limits,) Cash-in-Transit schedules, Cash-in-Transit costs, and other real-world constraints.



Produces cash orders dramatically reducing workflow processes and cash inventories.



Communicates orders directly to funding and logistics by communicating order to FedLine<sup>®</sup> and your CIT/Vault Processing Provider

ooard - Market Level	ie.								
Totals by Region	Туре	Name	Ci Total \$	US \$1	US \$5	US \$10	US \$20	US \$50	US \$100
	1 Market	Market Total	12,276,620	159,385	308,995	790,950	1,724,440	2,881,150	6,411,700
20%	2 Region	East Texas	2,498,498	8,403	44,365	178,710	309,420	584,600	1,373,000
	3 Region	North Texas	5,640,354	119,649	132,245	274,380	716,180	1,288,500	3,109,400
14%	4 Region	South Texas	2,467,715	14,015	69,760	149,970	313,620	642,450	1,277,900
4001	5 Region	West Texas	1,670,053	17,318	62,625	187,890	385,220	365,600	651,400
46% 20%	6 End Point	Bank Vault	8,308,253	46,173	197,700	519,780	1,105,300	1,810,000	4,629,300
	7 End Point	Smartsafe	3,122,050	107,550	66,030	132,470	306,400	727,200	1,782,400
	8 End Point	Recycler	597,342	5,662	19,640	63,170	164,920	343,950	
	9 End Point	ATM	248,975		25,625	75,530	147,820		
East Texas South Texas North Texas	Totals by	Denomination	By Region - US \$20		Totals by	End Point		Ba	nk Vaults
55%	52	2%	18%			25%		5	6%
55% 23% 13%	23%	6% 14%	<b>42%</b> 18%		68%	50		229	5% <sup>%</sup> 13%
23% 13%	23%	6%	22%	2	68%	50	afe	229	
23% 13%	23%	690 1490	<b>42%</b> 18%		68%	/0	afa	229	/0 139
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23% 13%	23%	690 1490	<b>42%</b> 18%		68%	/0	56	229	/0 139

## MARKET LEVEL VIEW



## BRANCH LEVEL VIEW

	Terminal	ItemSize	TrmType	Bal	ance Shi	oInDate	ShipInQty	ShipOutDate	ShipOutQ	ty RunOu	Date Rur	hOf	fDate	fDate III
1	BRN0007		Bank Branch		,753	pinoute	ompangey	5/27/2021				27/20	100	12000
2	BRN0007	5	Bank Branch		,415									-
3	BRN0007	10	Bank Branch	64	,200								1	10000
4	BRN0007	20	Bank Branch	144	,240								1	8000
5	BRN0007	50	Bank Branch	201	,050 5/	26/2021	30,400			5/26	2021		1	0000
6	BRN0007	100	Bank Branch	421	,500 5/	26/2021	79,700			5/26	2021			6000
7	ATM0013	5	АТМ	2	,935 5/	27/2021	1,330			5/27	2021		1	
8	ATM0013	10	ATM	8	,030 5/	26/2021	1,360			5/26	2021		1	4000
9	ATM0013	20	ATM	11	,820 5/	26/2021	14,040			5/26	2021			
10	REC0009	1	Recycler		702									2000
11	REC0009	5	Recycler	2	,060 5/	27/2021	115			5/27	2021			1 ×
12	REC0009	10	Recycler	5	i,120 5/	27/2021	180			5/27	2021		1	0
13	REC0009	20	Recycler	15	,600 5/	26/2021	1,120			5/26	2021			410, 410,
14	REC0009	50	Recycler	35	,800 5/	27/2021	13,350			5/27	2021			Exp. Ir Inv. Up
							BR	N0007 - US \$1	- Expected A	Activities			20.	J
	TransDate	ExpWdr	Is ExpDep	InExpWdrls	InExpDeps	PenWdrls		ExpBal	ExpTxnIn E	and the second	ExpBal2	Maxi	Inv	inv IUBound
1	5/26/2021	1,1	34 1,25	7				8,876			8,876	10,0	000	10,000
2	5/27/2021	1,8	24 2,52	5				9,577		613	8,964	10,0	000	10,000
3	5/28/2021	1,0	27 2,06	3				10,613			10,000	10,0	000	10,000
4	5/29/2021		0	0				10,613			10,000	10,0	000	10,000
5	5/30/2021		0	)				10,613			10,000	10,0	000	10,000
6	5/31/2021	1,2	85 1,52	5				10,853		240	10,000	10,0	000	10,000
7	6/1/2021	1,5	51 1,09	3				10,400			9,547	10,0	000	10,000
8	6/2/2021	1,1	10 1,32	+				10,614			9,761	10,0	000	10,000
9	6/3/2021	1,4	68 1,17	2				10,318			9,465	10,0	000	10,000
10	6/4/2021	1,4	26 1,65	1				10,546			9,693	10,0	000	10,000
11	6/5/2021		0	0				10,546			9,693	10,0	000	10,000

### FORECAST DETAILS

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anizations iearch Organizations dd Organization Irganization Groups Irganization Types ple minals		tional Bank Drive, Dallas TX 99999 P: 999-9999 F: 999-999-9999
nsactions		sand surprient orders
oment Orders	Carrier:	Provider (Ship-in-from):
arch Orders		
Orders	Excellent Armored / East Texas Branch 415 East Texas Drive	Money Reserve Bank / Eastern Branch 14255 Eastern Road
oment Report	Tyler, TX 99999	14255 Eastern Road Tyler, TX 99999
Transfers	Phone: 999-999-9999	Phone: 999-999-9999
neous	Fax: 999-999-9999	Fax: 999-999-9999
	Email:	Email:
Tasks		Pickup Date: 5/25/2013
ement	Deliver To	Delivery Date Total Shipment Run Type Order II
	Excellent Bank Tyler 1 - BRN0001	5/25/2013 \$186,000.00 Unscheduled 75
	12000 Excellent Road Tyler, TX 99999	Shipment Details
	Phone: 999-999-9999	Item Name Item Value Item Count
	Fax: 999-999-9999	Nickel \$26,000.00 520,000
	Email:	Quarter \$100,000.00 400,000
		Dollar \$60,000.00 60,000

### ORDER DETAILS

**The orders** are sent via FedLine WEB and the instructions to the CIT.

Select RefType Customer Location TerminalID SealNumber PkgType     Picked up from I Bank of America Bank of USA TCB02 12345 TCB Bank		Status essed/C
Select RefType Customer Location TerminalID SealNumber PkgType		
		essed/C
Totals of Selected Package Contents by Customer, Item, and Vault	rpe LooseCoun Loos	seValue
Bank of America Customer Vault Picked up from I US \$5 5.00 0 Strap	1	5.00
Bank of America Customer Vault Picked up from I US \$20 20.00 0 Strap	1	20.00
Totals of Selected Package Contents by Item and Vault		
Totals of Selected Package Contents by Item and Vault           ✓ VaultName         RefType         ItemName         CashValue         Units         Units           Customer Vault         Picked up from loca         US \$5         5.00         0         Strap	LooseCount Loos	eValue 5.00

## ON BOARD DETAILS

**Track and Trace** of package locations at all times. Fulfillment of order with signatures is sent via mTrack.

Package:       FS54321       Location:       McDonalds - 10 Arport Bivd, Pensacola, FL 32505 - TCBL#0000193 - ABC BANK       Dk         Envelope:       Item Type:       USDollar       Difference:       0         Declared Total Value:       12,352       Difference:       0       Cougter         Declared Total Veight:       Actual Total Veight:       Difference:       Cougter       Cougter         Actual Total Veight:       Difference:       0         Cougter         Actual Total Veight:       Difference:       Cougter         Actual Total Veight:       Difference:       Cougter         Multised       GrandTotal Declared Difference         Multised       350       350       10       350       10         Tew       70       350       350       11,000       <	🏄 Actual Pac	kage Cont	tents - USDol	lar									
Envelope: Item Type: USDollar   Declared Total Value: 12,352.00 Actual Total Value: 12,352   Declared Total Weight: Actual Total Veight: Difference: 0   Actual Total Weight: Actual Total Weight: Difference: 0     Counter     Mutilated   One 52   Stree   Two   Five   70   350   Ten   95   950   11,000     Fitty	Package:	FS54321		Location:	McDonal	ds - 10 Airpo	rt Blvd, Pensacola	, FL 32505	- TCBL#0000	193 - ABC BAN	К		<u>D</u> k
Declared Total Value:       12,352.00       Actual Total Value:       12,352       Difference:       0         Declared Total Weight:       Actual Total Weight:       Difference:       0       Counter         Counted/Processed         TemName       Code       LooseCnt       LooseValue       UnitCnt       UnitType       UnitSTotalA       FakeVal       UnitSTotalE       GrandTotal       Declared       Difference         Mutilated       Image: Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">LooseValue       UnitType       UnitSTotalA       FakeVal       UnitSTotalE       GrandTotal       Declared       Difference         Mutilated       Image: Colspan="4">Col	L			Item Type:									
Declared Total Weight:       Actual Total Weight:       Difference:       Counter         LooseCnt       LooseValue       UnitCnt       UnitType       UnitsTotalA       FakeVal       UnitsTotalE       GrandTotal       Declared       Difference         Mutilated       0       6       1       <	L		10.050.00				10.050		D://	0		<u></u> os	upon o
ItemName     Code     LooseCnt     LooseValue     UnitCnt     UnitType     UnitsTotalA     FakeVal     UnitsTotalE     GrandTotal     Declared     Difference       Mutilated			12,352.00				12,352			U			
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Two         Image: Constraint of the state of the s													]
Five         70         350         350         350           Ten         95         950         950         950         950           Twenty         550         11,000         11,000         11,000         11,000           Fifty         0         0         0         0         0         0			52	52						52			
Ten         95         950         950         950         950           Twenty         550         11,000         11,000         11,000         11,000           Fifty			70	350						350			
Twenty         550         11,000         11,000         11,000           Fifty         0<													
Hundred													]
	Hundred												

## DEPOSIT DETAILS

All package contents are accounted for throughout the supply chain.

			Vault Check-in I	Report	,		
Vault: ABC Branch: A - Pe	nsacola			ivityDate: eck-in By:	5/28/202 Debra M		: 5/28/2021
Customer: ABC E	ANK						
51	USDollar Default Usage			i. Type: um ID:	Picked up 86	o from location (TCB)	
Item Na	me	Item Size	Cash Value	Units		Loose Value	Weight
One		1.00	\$3.00	0	Strap	\$3.00	
Five		5.00	\$80.00	0	Strap	\$80.00	
Ten		10.00	\$140.00	0	Strap	\$140.00	
Twenty		20.00	\$960.00	0	Strap	\$960.00	
Totals:			\$1,183.00			\$1,183.00	

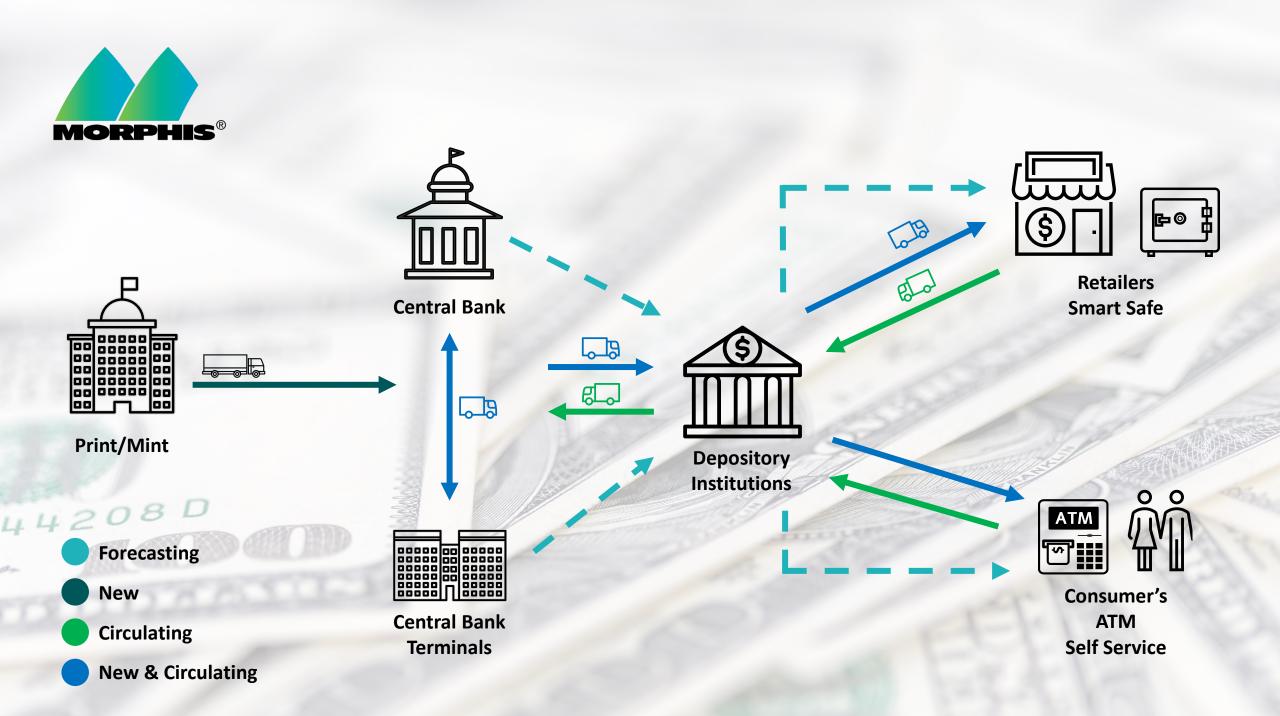
Filter Criteria											
Branch Name:	A - Pensacola	<ul> <li>Customer Name:</li> </ul>		~							
Process Date:	5/28/2021	Vault Name:		~							
Pkg. Processor	:	<ul> <li>Activity Date:</li> </ul>									
					Package Processing Records						
R	eturniD VautName	PkgProcessor	Customer	RefType	ActivityDate temType	Category	TotalValueOrCount	OverShort	Select	Comment	
	85 ABC 86 ABC	Debra Miller	ABC BANK ABC BANK	Picked up from location (TC	4/26/2021 USDollar	Default Usage	\$1,200.00 \$1,183.00				
	86 ABC	Debra Miller	ABC BANK	Picked up from location (TC	5/28/2021 USDollar	Default Usage	\$1,183.00		M		
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## RECONCILE DETAILS

All vault activities are accounted for and reported.

Store/Loc# Amount: \$3,355.0	CASH IN TICKET Date: 02/01/2021 Account: 9876542210 Processing Site: Detroit OFFSITE CASH VAULT Total Armored Car <0 7 24, 14, 310: 98 76, 54, 3 2 10* 70 1 *0000 3 3 5 500*
Front Image	Rear Image
Field	Field Name
	Record Offset (not in file)
	Record Length
1	Record ID
2	Awxiliary On-Us
3	External Processing Code
4	Payor Bank Routing Number
5	Payor Bank Routing Number Check Digit
6	On-Us
7	Item Amount
8	ECE Institution Item Sequence Number
9	Documentation Type Indicator
10	Return Acceptance Indicator
11	MICR Valid Indicator
12	BOFD Indicator
13	Check Detail Record Addendum Count
14	Correction Indicator
15	Archive Type Indicator

### GL ENTRIES WITH X9 INTEGRATION



## **GET IN TOUCH** with Morphis

If you want to see how Morphis can speed up your business, reduce your costs, and improve customer satisfaction please reach out.

