Sustainable Profitability with CadDo

January 2021
Introduction

Businesses have always focussed on profits

Companies & investors increasingly care about sustainability

Why not bring those two things together?
The maturity curves of profitability and ESG (Environment, Social & Governance) data

CadDo unifies these capabilities
(e.g. Profitability & environmental impact, for every line on every invoice)

- Detailed P&L, down to contribution / trading results by every line on every invoice. Allocations driven by real behaviours
- Availability of ESG metrics, by customer and product (in fact invoice line)

Increasing levels of understanding and insight

Profitability maturity
- Basic P&L, allowing Gross Margin by Customer & Product. Allocations financially driven
- Extend basic P&L down to contribution / trading results

ESG maturity
- Understanding of ESG metrics at the product group level
- Statutory ESG metrics at company-level
Our business

**CadDo Transformation**
Technical expertise in data integration and business modelling with unique cross-functional skills

**CadDo Calculate**
Class-leading calculation Software as a Service (SaaS) running on Microsoft’s global Azure platform

**CadDo Analytics**
Track record of helping clients improve business performance using Data Science methodologies

Underpinned by expertise in profitability & sustainability data, and analytics we help our clients in a broad range of areas, such as:
- Customer & Product Profitability
- Connecting Disparate Data Sources into a Single Version of the Truth
- Holistic Customer Investment

All delivered by a team of cross-functional experts across all these areas, allowing our 3-step model to be delivered efficiently without separate resources.
The process to go-live

Design (weeks 1-2)

Outline end-state reports
(Fully remote via 1-3 design calls)

Analyse required data
(100% CadDo)

Collate data, in currently available formats
(100% client-side)

Development & Go-Live (weeks 2-8)

Build model
(100% CadDo)

Build reports
(100% CadDo)

Review & approve reports
(Fully remote having calls as needed)

Iteratively move between design & development phases

Underpinned by:
- 24/7/365 availability on Microsoft’s Azure platform, as a "Preferred Solution"
- A delivery team fully setup to work remotely, ensuring resiliency
- World-class delivery partners, in ESRI and Microsoft (co-sell Partner)
What is Sustainable Profitability?

- A powerful tool making previously unseen cost & profitability information easily accessible to decision makers
- This cost data is further augmented by including sustainability metrics, such as carbon footprint and water utilisation...so the environmental cost of each product and customer is also understood

How it supports Performance Management

- Uncover hidden opportunities with a clear view of customer / product profitability & environmental impact, at the lowest level of detail, across all business dimensions & activities
- Enrich decision making with automated KPI packs, reports and simulation tools
- Enable cross-functional initiatives, using readily available transactional data

What's the output?

- Much more than analytics: It’s a rich pool of data containing your entire P&L, showing every business activity and environmental metric you define, by every line on every invoice across all business dimensions
- Accessible in Excel, Power BI or any other BI tool of your choice
- In depth analysis & business cases, performed by CadDo, on the pressure points in your market

Question: Are standard costs & allocations enough to manage the business?

Answer: No. Averages hide the reality. Each customer drives different costs & impacts
Why augment profitability data with Sustainability (ESG) data?

The light on ESG is shining brighter than ever before

- Millennials are investing between $15-20t in US-based ESG investments
  (MSCI)
- In 2018, €44.6b net new investment in Europe was in funds with ESG criteria
  (Broadridge)
- 89% of investment consultants anticipate an increase of client interest in ESG
  (Eurosif)

But there is still a gap between expectation and reality

- 40% of advisors say that lack of understanding of ESG holds back investment
  (Cerulli)
- Data challenges make ESG investment more complex and expensive
  (BNP Paribas)
- Lack of comparable data is a major hindrance for 43% of investors
  (CFA)

There is a need to start viewing companies not just by their financial metrics...but by their **ESG Score**

- **Environmental**
- **Social**
- **Governance**
Business Rules as logical equations allocate financial & other data to the lowest-level transactions.

- **Master Data**
  - Products
  - Customers
  - Assets
  - Distribution Centre
  - Etc.

- **Financial Data**
  - General Ledger
  - P&L
  - Transport Systems
  - Etc.

- **Other Measures**
  - Carbon Emissions
  - Water Stress Levels
  - Distances
  - Etc.

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**Transactional Data**

(e.g. Delivery Lines or Sales Invoice Lines)
We are a team of cross-functional experts across all these areas, allowing this 3-step model to be delivered efficiently without separate resources

**CadDo Transformation**
- Extract, Transform and Load clean data into CadDo Calculation
- An essential task at the start of the process to enable disparate data sources to be collated
- Business logic does not reside here: This is a data transformation process

**CadDo Calculate**
- Perform the logical calculations & allocations needed
- 100% of business logic sits here
- Allows understandable equations to be written & kept transparent
- Ensures logic is valid and dependencies maintained
- Allows for calculation logic changes to sit independently of source data

**CadDo Analytics**
- Acts as the user-facing layer
- Allows ‘approved’ data to remain static whilst the back-end model is adjusted or reprocessed
- Does not contain business logic
- Attributes & measures come from the Calculation Engine
- OLAP cubes can be access by your BI tool of choice
Define the model

- Cost Object (a.k.a. Business Dimensions)
- Drivers (metrics and calculations, written in logical syntax)
- Custom tables and views (for specialist areas outside the Cost Object structure)
- General Ledger structure

Process Model

- System triggers the ETL process to import data from source files into CadDo Calculation
- Trigger calculations that execute the allocations defined by the drivers

Report

- Produce OLAP cubes to access the results of the calculation
- Access these cube in whichever reporting tool meets the needs of your business
Example Screenshots
Sustainable Profitability

Turnover: £12.8M (+22.3%) > Dashboard
Sustainability Score: 7.1 (! 5.2-6.5) > Product Mix
Carbon Emissions: 5.32 (! 5.1-5.9) > Geography

Powered By CadDo™
Dashboard: Profitability & Sustainability

TO £12.8M\(^{+27.3\%}\) GP £7.7M\(^{+50.4\%}\) GM 59.6\(^{+18.2\%}\) Cases 1,754K\(^{+3.8\%}\)

Trends
- Gross Profit
- Gross Margin
- Net Margin

Carbon pT 5.32\(^{+5.2\%}\) Water pT 643\(^{+1.0\%}\) Waste pT 6.43\(^{+1.6\%}\) Sust. Source 67.7\(^{+0.1\%}\)

Sustainability Score: 7.1

Turnover Gains
- Tesco
- Sainsbury
- Makers
- Greene
- Amazon

Turnover Falls
- Co-Op
- One Stop
- Mitchell
- Family
- Costco

Select all
- PET
- NRGB
- RGB

Select all
- Budweiser
- Bass
- Becks
- Corona
- Boddingtons
- Stella Artois

Menu

Powered By CadDo™
**Logistics**

Case Pick | Full Pallets | Kg
---|---|---
6.3% | 35K | 31M
(325,468) | (53,832) | (53,832)

Volume | Deliveries | Kg pDelivery | Trans Emis... | Whs Emissi...
---|---|---|---|---
175K | 2,345 | 13,312 | 36K | 33K
(153,832) | (2,377) | (16,348) | (16,348) | (15,348)

Case Picking vs Logistics Costs

Kg per Delivery

Case Pick

- Cash & ...
- Distribu...
- Distribu...
- Hyperm...
- Superm...
- Cash & ...
- Distribu...
- Distribu...
- Hyperm...
- Kiosk

Select all
PET
RGB
NRGB
Budweiser
Casie
Bass
Corona
Boddingtons
Stella Artois

Powered By CadDo Analytics: Interactive Dashboards – Sample 3
CadDo Analytics: Interactive Dashboards – Sample 4
CadDo Analytics: KPI Packs & Simulation Tools

Monthly KPIs, Fed from Cost to Serve

- Gross Profit per HL: 987
- Gross Profit per HL: 1,493
- Margin (GP / GM): 34%
- Opex Per HL: 956
- Gross Profit Per Shipment: 146,214
- Gross Weight per Shipment: 22,635
- YL per Shipment: 172
- Full Pallet Pick Rate: 95.8%

For top-5 Customers (by HL Sold in latest month)
- Share of HL: 30%
- Share of Gross Profit: 30%
- Gross Profit per HL: 989
- Outlets Delivered To: 283

For top-5 SKUs (by HL Sold in latest month)
- Share of HL: 60%
- Share of Gross Profit: 42%
- Gross Profit per HL: 691
- Share of SKUs that are sold: 54%

Product Mix

Key Financials

Secondary Distribution per HL, by dispatch day

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
Welcome to CadDo

Define Model
Define the model and its characteristics and rules

Process Model
Publish changes and process the model

View Data
View model data or select to export
### CadDo Calculate – User Interface

#### Drivers

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Architecture Summary
High-level Components

**CadDo Transformation**
A set of native SQL procedures, invoking SSIS for just the step of importing data from the Excel source files

SQL and SSIS steps follow our standardised and proprietary methodology

**OUTPUT:**
Clean data loaded into CadDo Calculate

**CadDo Calculate**
Multi-dimensional calculation engine, with all logical calculations in place

Application (coded in SQL) converts user-written simple formulae into native SQL which is executed against the database

**OUTPUT:**
All calculations performed and available for reporting

**CadDo Analytics**
Microsoft SQL Server Analysis Services (SSAS) reporting cubes sourcing data from CadDo Calculate

Power BI reports fed from the SSAS cubes
(Other reporting tools like Tableau, Qlik, Excel etc. also supported)

**OUTPUT:**
The end-user report
Technical Elements of Process

Fileshare (Windows 2019 VM)

Accessible via sFTP or browser-based

Users with VPNs can access fileshare via Windows Explorer

SQL Server 2019 (Windows 2019 VM)

Import from files (Excel, CSV, TXT etc.) using SSIS

Core ETL (data ingestion from remote servers, data transformation and data cleansing) runs using native SQL procedures. These are bespoke for each client, but follow CadDo’s standard methodologies & approaches

The standard CadDo Calculate application engine (SQL control logic with Java APIs) is installed on each client database, and accessed via a Web UI (Java)

Users configure all model/calculation elements through the Web UI. No Java or Stored Procedures or advanced SQL required.

CadDo Calculate acts to:
- Maintain the database (tables, columns, views, stored procedures, indexes, security etc.)
- Convert simple user-written logic into native SQL statements that execute the core calculations at the right time in the right order

Analysis Services 2019 (Windows 2019 VM)

Supporting both OLAP and Tabular models, though OLAP is the preferred route due to the maturity of the solution

No logic reside in this layer. It simply pulls data from the SQL database and presents to the final reporting toolset
### Multi-Tenancy

Client-specific databases sit on shared SQL Server instance alongside other client databases.

- No cross-contamination of data or functional procedures. Each database fully self-encompassing.
- Client-specific fileshares
- Client-specific reporting cubes on shared SSAS server
- Only CadDo resources allowed back-end access

### Dedicated Instance

Client-specific databases sit on dedicated SQL Server instance on shared Virtual Machine.

- No cross-contamination of data or functional procedures. Each database fully self-encompassing.
- Client-specific fileshares
- Client-specific reporting cubes on shared SSAS server
- Client resources allowed back-end access

### Dedicated Environment

100% client-specific infrastructure (SQL Server, Virtual Machines, Analysis Services etc.)

- Power requirements of dedicated VMs would be determined as part of scoping and pricing discussions
- Client resources allowed back-end access
Azure Virtual Network: Three Subnets (Front End | Back End | Domain Services)

- **Gateway**
  - Fileshare & Primary Data G'way VM: CompleteFTP
  - SSAS 2019 VM
  - Monitor & Secondary Data G'way VM: Radius & Scheduler
  - PowerBI Embedded
  - Load Balancer

- **Front End**
  - SQL 2019 VM
  - WEB UI VM

- **Back End**
  - Azure AD
  - Azure SQL DB

- **Domain Services**
  - Azure Domain Services
  - Azure Monitor | Log Analytics | App Insights
  - Azure Storage Account

- **VPN Users (Internal Only)**
- **Client Users (https)**
- **Power BI Only Users**
- **ConnetU**
- **Clients S2S VPN**