The Triple A Approach to Business Intelligence

About me

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Nearly two decades in healthcare insurance data
    Majority @ CDPHP, 3M

Career in Data Warehousing / Business Intelligence

Family of four: my wife, daughter, son, and me +2🐱





ACCURACY

The most dangerous errors are almost right

ROUNDING

Small differences compound across rates, allocations, currency, and repeated calculations.

DOUBLE COUNTS

Joins at the wrong grain can duplicate members, claims, revenue, or encounters.

DATETIME SHIFTS

Time zones, daylight saving, cutoffs, and date truncation quietly move events.

WRONG CONTEXT

A correct number with the wrong denominator, population, or effective date is still wrong.

G.I.G.O. has changed

The risk is no longer only obvious bad output.

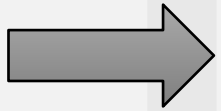
When numbers look reasonable, presentation quality can overpower healthy skepticism—especially now when AI can explain the result confidently.

GARBAGE IN, GARBAGE OUT

The output looked wrong.

Output used to be very closely aligned with Input.

Failure was visible and obvious.



GARBAGE IN, GOSPEL OUT

The output looks plausible.

People have a disposition to believe what is on a screen.

Errors are often obfuscated and invisible.

Accuracy must be engineered from source to target

Define the truth

Agree on metric, grain, population, effective date, and **owner**.

Clear definitions feed into and often create quality tests.

01 Validate — Test completeness, validity, uniqueness, and timeliness.

02 **Model** — Normalized data is key… the whole key, nothing but the key, so help me Codd.

03 Reconcile — Compare outputs to sources, authoritative systems and even expectations.

04 Monitor — Detect drift and failures before users do.

ACCESSIBILITY

Access begins long before someone opens a dashboard

IDENTITY

Can the person authenticate, and does the organization recognize who they are?

NETWORK

Do VPN, device, location, or firewall requirements block the path?

SOFTWARE

Do they have the license, browser, client, and version they need?

PERMISSION

Can and should they see the right data—without seeing more than they should?

Data exports solves one access problem…and can create bigger ones

Exports are often a signal.

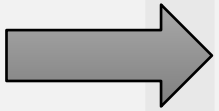
People export when the governed product cannot answer the next question, fit the workflow, or provide the detail they need.

IMMEDIATE ACCESS

Flexible analysis

Familiar tools

Fast local answers



DATA SILOS

Stale copies

Conflicting / undocumented business logic

Uncontrolled sharing

Accessible BI removes friction without abandoning governance

Design for roles

Match the depth and delivery mode to executives, analysts, and operators.

The same truth may need several experiences.

01 **Remove friction** — Simplify authentication, navigation, naming, and discovery.

02 Meet the moment — Deliver insight where decisions and actions happen. KPIs

03 Enable safely — Govern self-service, detailed access, and exports.

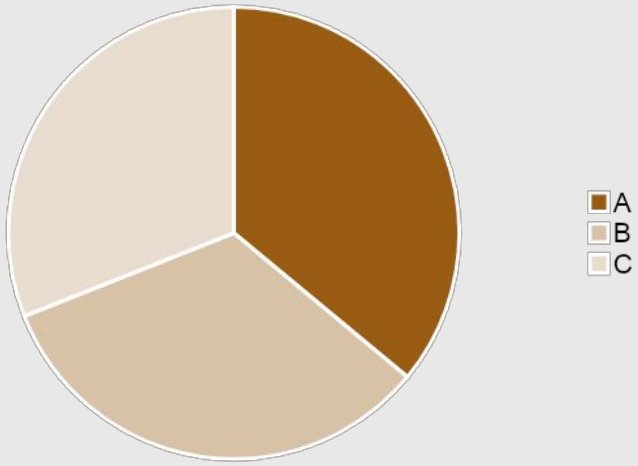
04 Support everyone — Use readable type, contrast, and keyboard-friendly interaction.

AESTHETICS

When to use Pie Charts? Never!

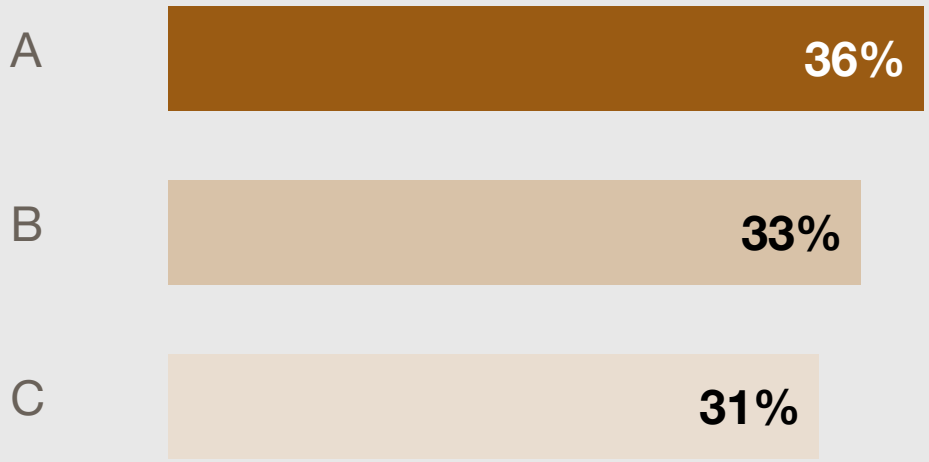
Please don’t use pie, donut, gauge, and any other chart encoding values as angles. Humans interpret angles and radians extremely slow when compared to linear counterparts.

ANGLE-BASED VIEW



A vs B vs C
What question can it answer?

LENGTH-BASED VIEW



Use bars, dot plots, or a table when the users needs to compare values quickly.

Ok, there is one good Pie Chart …



Data visualization makes comparison easier

A chart earns its place when it answers a specific question faster than a table or paragraph.

What should the visual compare?

Choose the visual for the question

Use position and length before area or decoration

Remove detail that does not change the decision

One Key Performance Indicator (KPI)



Direct labels keep the reader focused on the difference instead of decoding a legend.

UI/UX design adds the je ne sais quoi

A dashboard is a product people must navigate, understand, and trust repeatedly.

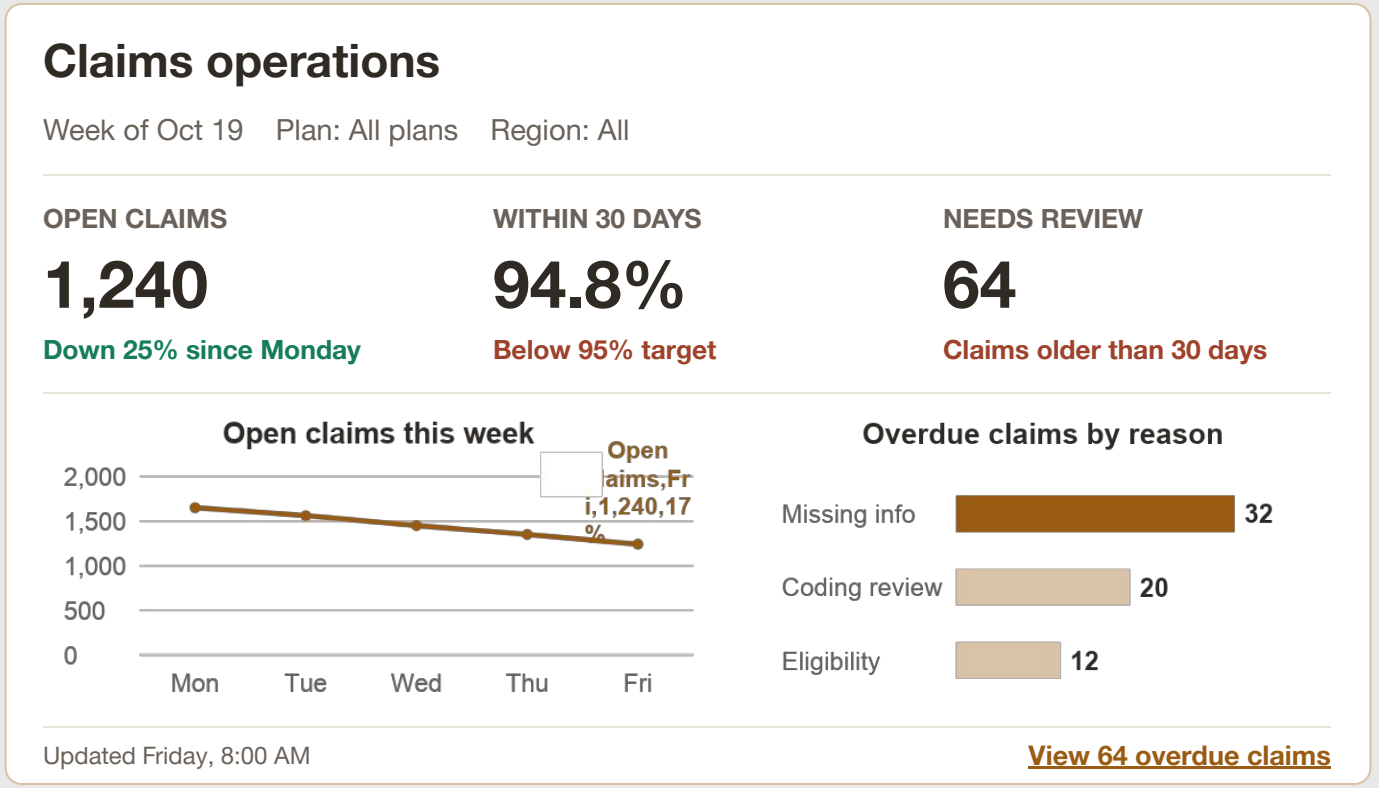
Design for the task

Consistent placement reduces relearning

Clear states explain filters, loading, and errors

Accessible detail supports executives and analysts

Readable fonts, contrast, and combining shapes with colors include more users



Good UX shortens the distance between a question and a confident decision.

The three A’s reinforce—and expose—one another

Balanced BI

A beautiful dashboard with disputed numbers is decoration. Accurate data nobody can reach is inventory. Accessible data nobody can interpret is noise.

TRUSTED

Accuracy creates confidence

USED

Accessibility creates adoption

UNDERSTOOD

Aesthetics create clarity

TRIPLE A BI

Make it right.
Make it reachable.
Make it clear.

Accuracy earns trust.

Accessibility earns use.

Aesthetics earns understanding.

Thank you