



Backstage | **con**
NORTH AMERICA

Backstage in the Boardroom What Makes a Digital Portal Helpful for C-Level Executives?

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SALT LAKE CITY, NOV 12, 2024

developers

system engineers

architects

CTO



Are we doing it right?

quality

understandability

cost

efficiency

performance

security

availability

observability

CIO

CTO

Board

PMO

Product Owners

Are we doing the right thing?

revenue

cost savings

risks

sustainability

impact

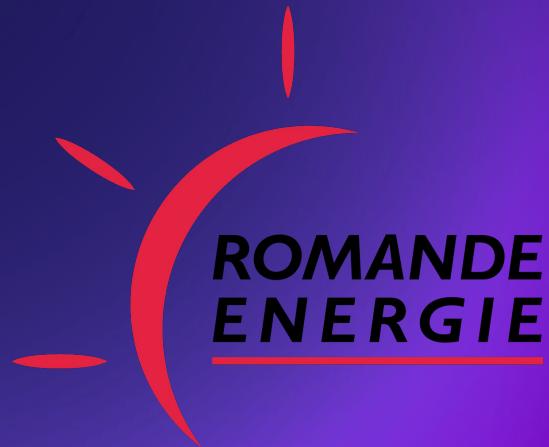
outcomes

client satisfaction

churn



Our discovery journey with 2 clients



Swiss company specializing in the production and distribution electricity and energy services



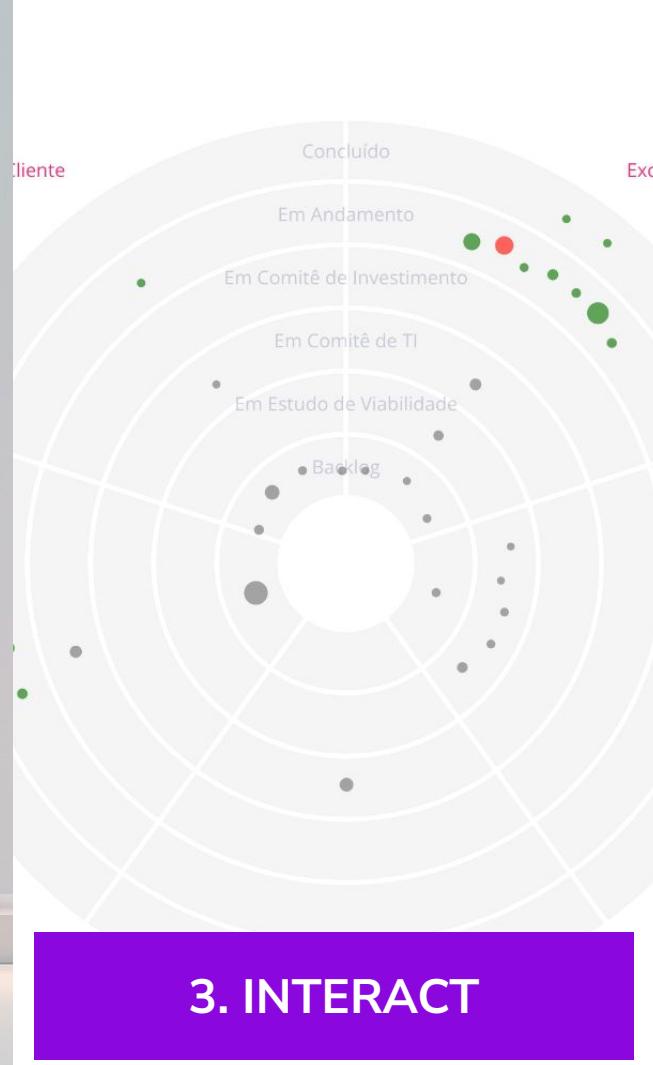
Insurance company in Brazil



1. THE VISION



2. MODEL & MEASURE



3. INTERACT



1. THE VISION



Tagline

Edge Computing

As an *Engineer*, have you ever considered how **Edge Computing** can improve the efficiency and speed of your distributed systems approach by shifting some storage and computing capacity from the primary data center to the data source? Read on to learn more.

More details in the CNCF Glossary

Headlines

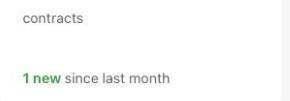
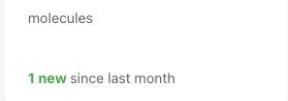
Major IT Outage 2024-06-15

New IT Security Protocol Implementation 2024-07-01

New Disaster Recovery Plan Implementation 2024-08-15

Successful Cloud Migration 2024-09-01

New IT Service Management System Implementation 2024-10-15



Personal Productivity

Tasks completed and time spent on development activities this month

Code Review Metrics

Number of code reviews conducted and improvements suggested this month

**Continuous I
(CI) Metrics**

Build success rate and CI pipeline issues this month

**Tagline****Return on Investment**

Financial return on technology investments this month

Builder**CTO****CEO****Head of HR****CFO**

organisms

3 domains

1 new since last month

molecules

1 new since last month

atoms

5 components

1 new since last month

contracts

1 new since last month

teams

6 groups

1 new since last month

people

5 users

1 new since last month

Development

New technologies implemented this month

Implementation

Implementation

2024-09-01

New IT Service Management System Implementation 2024-10-15

More details in the CNCF Glossary

How might we...

*...create a 360° model of our digital portfolio
and feed it with streams of observations?*

*How could we then use this model to get
clarity and to make better decisions?*

Recurring themes and questions

- *How do we explain and quantify the value that we deliver?*
- *What should we prioritize and why?*
- *What should we measure, and how?*

Some outcomes from the design process

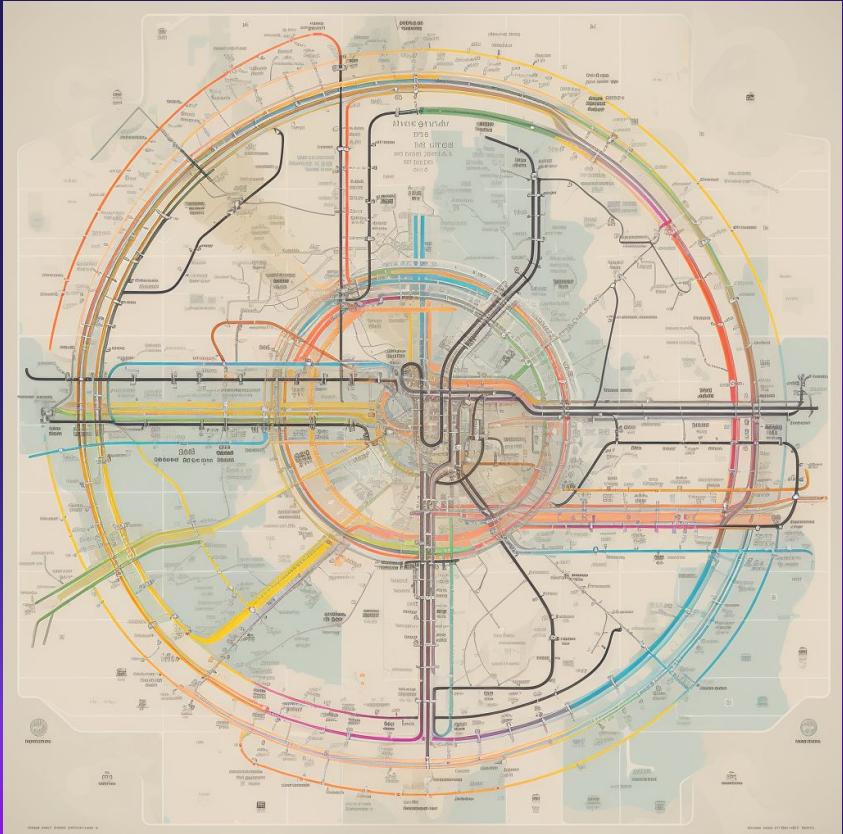


- *CIOs drive the evolution of information systems, of which homegrown services are only a part #ERP*
- *Spreadsheet & diagrams FTW*
- *Naming things is hard, not only in CS*

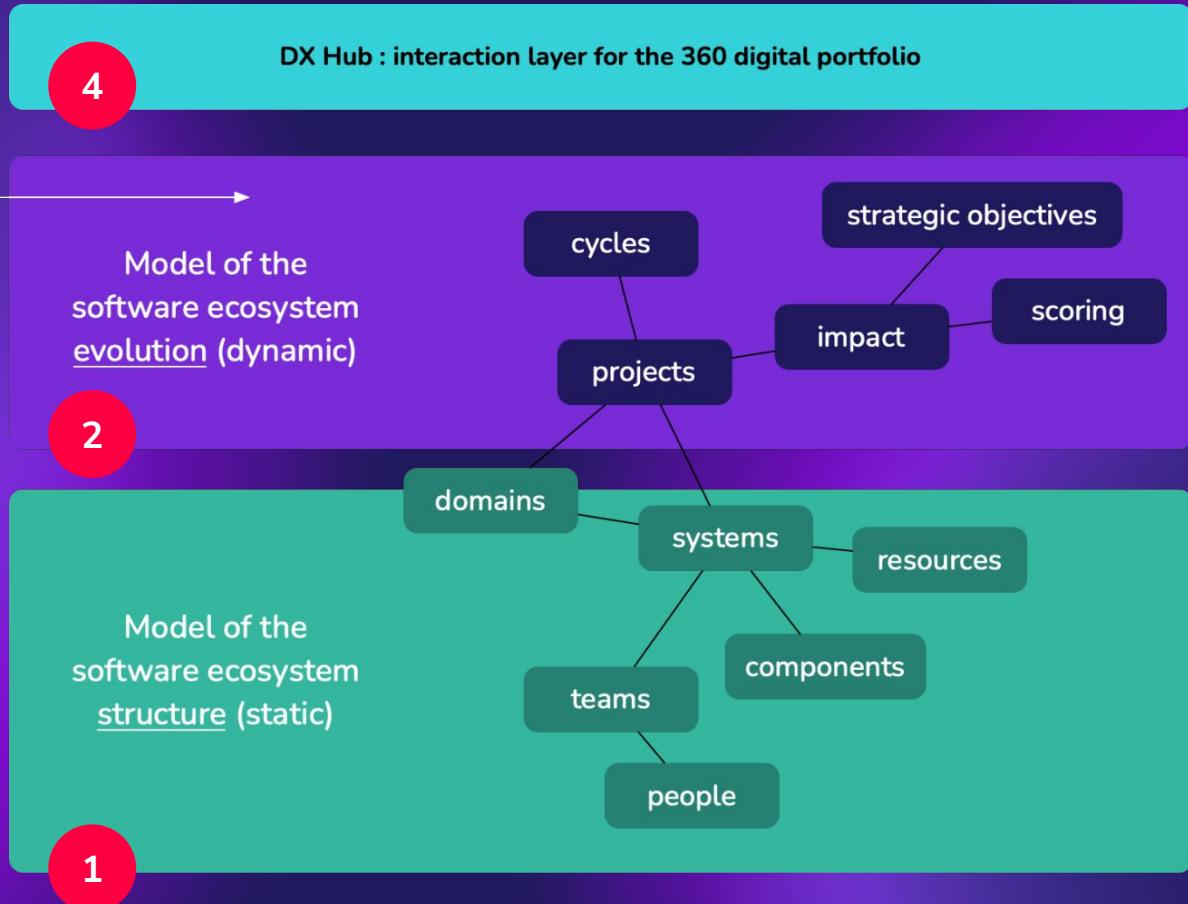


2. MODEL & MEASURE

Expand the **structural** System Model with **dynamic** aspects



Conceptual model



Société, environnement et économie

Externe et interne

Analyse des flux de développement

Clients et équipes

Impact**Qualité****Efficience****Satisfaction**

Cycles agiles

	CYCLE	DESCRIPTION	FICHES	IMPACT SOCIETAL	IMPACT ENVIRONNEMENTAL	IMPACT ECONOMIQUE	EQUIPES	EPT	ETAT	DÉBUT	FIN
>	Cycle 5	Thème du cinquième cycle	52							2023-10-01	2023-03-31
▼	Cycle 4	Thème du quatrième cycle	43							2023-04-01	2023-09-01
>	Cycle 3	Thème du troisième cycle	56							2022-10-01	2023-03-01
>	Cycle 2	Thème du second cycle	54							2022-04-01	2022-09-01
>	Cycle 1	Thème du premier cycle	50							2021-06-01	2022-03-31

10 rows



1-5 of 5



Fiches d'incrément



ACTIONS	DOMAINE	SYSTÈME	TITRE	UA/US	ETAT	EPT	PROGRESSION	SATISFACTION EQUIPE	LIVRAISONS	EQUIPE
	Links to domain and system entities		Commodo deserunt dolore irure magna.	Unité 4	en cours	4	<div style="width: 50%;"><div style="width: 100%;"> </div></div>		1	
			Tempor dolor cillum officia ullamco ullamco veniam cupidatat occaecat mollit.	Unité 6	en cours	1	<div style="width: 10%;"> </div>		3	
			Exercitation fugiat in voluptate pariatur exercitation do voluptate enim.	Unité 1	en cours	5	<div style="width: 10%;"> </div>		2	
			Ea deserunt nisi ex ipsum reprehenderit reprehenderit culpa esse occaecat pariatur in ex.	Unité 6	en cours	1	<div style="width: 10%;"> </div>		9	
			Enim ipsum voluptate minim minim deserunt nisi Lorem magna fugiat nisi ut anim quis ea.	Unité 5	en cours	3	<div style="width: 10%;"> </div>		1	
			Veniam magna mollit ad pariatur amet anim fugiat esse ut cupidatat exercitation cillum exercitation.	Unité 3	en cours	1	<div style="width: 10%;"> </div>		6	
			Sit est et sunt nostrud occaecat id officia do quis velit.	Unité 5	en cours	4	<div style="width: 10%;"> </div>		3	
			Qui elit cupidatat nisi Lorem occaecat id.	Unité 6	en cours	2	<div style="width: 10%;"> </div>		6	
			Sint esse velit sint irure non sit magna veniam ut labore consectetur amet qui mollit.	Unité 4	en cours	4	<div style="width: 10%;"> </div>		5	
			Ea esse adipisicing ex sint anim commodo duis occaecat ut velit ex qui.	Unité 5	en cours	4	<div style="width: 10%;"> </div>		8	

Design a measurement system



Software Modeling and Measurement: The Goal/Question/Metric Paradigm¹

Victor R. Basili

Institute for Advanced Computer Studies
Department of Computer Science
University of Maryland

Abstract

This paper discusses the use of the Goal/Question/Metric paradigm as a mechanism for defining and interpreting software measurement. Templates are provided for defining goals and generating questions. Different types of metrics are discussed. Examples of both process and product goals are defined.

Introduction

Any engineering process requires feedback and evaluation. Software development is an engineering discipline and measurement is an ideal mechanism for feedback and evaluation. The measurement and information fed back to all parties, e.g., developers, managers, customers and the corporation, helps in the understanding and control of the software processes and products, and the relationships between them. It helps in making intelligent decisions and improving over time. But measurement must be focused, based upon goals and models. We need to establish goals for the various software processes and products and these goals should be measurable, driven by the appropriate models.

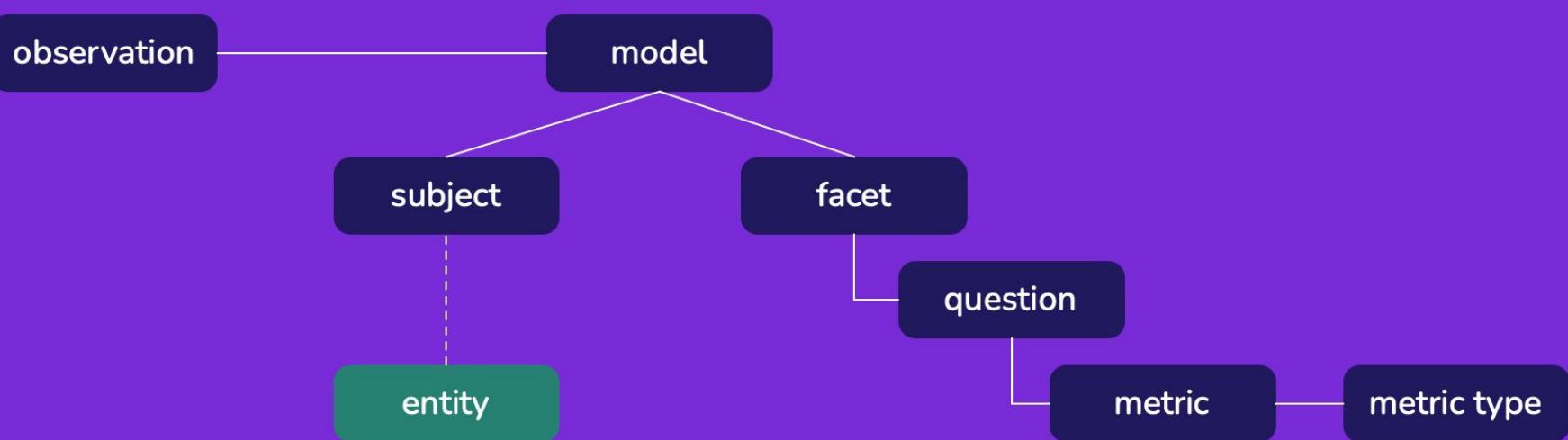
There are a large variety of software goals, defined from a variety of perspectives, including the customer, the project, and the corporation. Sample customer goals include customer satisfaction and that the product contains needed functionality. Sample project goals include the need for a high quality process and on time delivery. Sample corporate goals include that the product be salable and that the quality of the software development process improve over time.

There are a variety of reasons for measuring the software development process and product. Measurement is a mechanism for creating a corporate memory and an aid in answering a variety of questions associated with any software development. It helps support project planning, (e.g., how much will a new project cost?); allows us to determine the strengths and weaknesses of the current process and product; (e.g., are certain types of errors commonplace?); provides a rationale for adopting/refining techniques, (e.g., what techniques will minimize current problems?); allows us to assess the impact of techniques, (e.g., does functional testing minimize certain error classes?); evaluate the quality of the process/product, (e.g., what is the reliability of the product after delivery?) and the functionality and user friendliness (e.g., to determine if the system is easy to use and does what the user wants it to do.)

Measurement must be defined in a top down fashion, bottom-up approach won't work. There are a large variety of software metrics: calendar time, number of open problems, cyclomatic complexity, lines of code/module, number of defects found in inspections, severity of failures, total effort, total number of defects, machine time, lines of code/staff month, total lines of code number of failures during system test. But which metrics does one use and how does one interpret

¹This work was supported by NASA/GSFC contract NGS-5123 and AFOSR contract 90-0031.

Data model for the DX Hub plugin



A **Subject** is anything that you want to observe and measure. **Projects, teams, applications** are typical examples of Subjects.

A **Facet** addresses a measurement goal. It is a perspective to look at a Subject. For a “project” subject, facets might include costs, progress, and team satisfaction.

A **Question** is derived from the measurement goal of a Facet. It helps clarify what you want to assess about the Subject from the perspective of the Facet.

A **Metric** is a quantitative measurement in the context that helps answer a given question. Examples include number of bugs, team velocity, or uptime.

An **Observation** is a recorded data point for a specific Metric, for a specific Model, at a given point in time. It includes has a value, a timestamp and optional notes.

Design Facets, Questions & Metrics in Backstage

The screenshot displays the Backstage application interface, specifically the 'PDTI Portfolio Metrics' section. The top navigation bar includes language options: EN, FR, and PT-BR.

Universes: Each universe defines a measurement system for your organization, with its own subjects, facets, and metrics.

Subjects: The primary entities of interest, including software applications, teams, and projects.

Facets: Curated sets of metrics specifically chosen to analyze subjects from a particular perspective.

Metric types: Quantitative measurements used to assess different areas of our organization.

Facet Details:

- Key:** EXP
- Name:** Experiência do Cliente
- Description:** Fomentar junto às áreas da empresa suporte tecnológico adequado para garantir a melhor experiência para os clientes da CSH
- Labels:**
- Question:** Como está evoluindo o incremento do NPS?

Metric	Description	Metric type	Unit	Periodicity
NPS	Net Promoter Score.	Percentage	%	Monthly
Meta NPS	Meta para o NPS	Percentage	%	Monthly

Question: Como está evoluindo o incremento do CES?

Metric	Description	Metric type	Unit	Periodicity
CES	Customer Effort Score	Percentage	%	Monthly
Meta CES	Meta para o CES	Percentage	%	Monthly

Bottom Navigation: Includes a plus icon for adding new items, a back arrow, a page number (1), and a forward arrow.

Get direct access to Subjects and their properties

The screenshot shows a user interface for managing organizational subjects. At the top, there are four cards: 'Universes' (description: 'Each universe defines a measurement system for your organization, with its own subjects, facets, and metrics.'), 'Subjects' (description: 'The primary entities of interest, including software applications, teams, and projects.'), 'Facets' (description: 'Curated sets of metrics specifically chosen to analyze subjects from a particular perspective.'), and 'Metric types' (description: 'Quantitative measurements used to assess different areas of our organization.'). Below these cards is a search bar labeled 'Search'.

The main content area displays a list of subjects:

Subject	Key	Description	Project status
Access Control Protocol (ACP)	999016	Project	General status for the project
Actuarial		Application map element / application group	
Agent's Guild: The Broker Portal		Project	
ALM		Application map element / application	
Ampliar Schoo		Application map element / application	
Appointment Scheduling System		Application map element / application	
Assistance		Application map element / application group	
Audit & Control		Application map element / application group	
Auto Database: The Complain Pursuit		Project	

On the left side, there is a sidebar with icons for Home, Application Map, Backstage Entity Reference, Labels, Properties, and a Plus sign for adding new subjects. At the bottom of the sidebar, there are navigation links for pages 1 through 14.

On the right side of the subject details, there is a pink circular button with a white pencil icon, and a callout box stating: "This subject is measured with these facets. Click on the card to view the corresponding observations." Below this, there is a section for "Project status" with the text "General status for the project".

Record Observations manually

PDTI Portfolio Metrics ▾ EN FR PT-BR

Experiência do Cliente PDTI Portfolio

Edit Mode Add notes

Como está evoluindo o incremento do NPS?

monthly

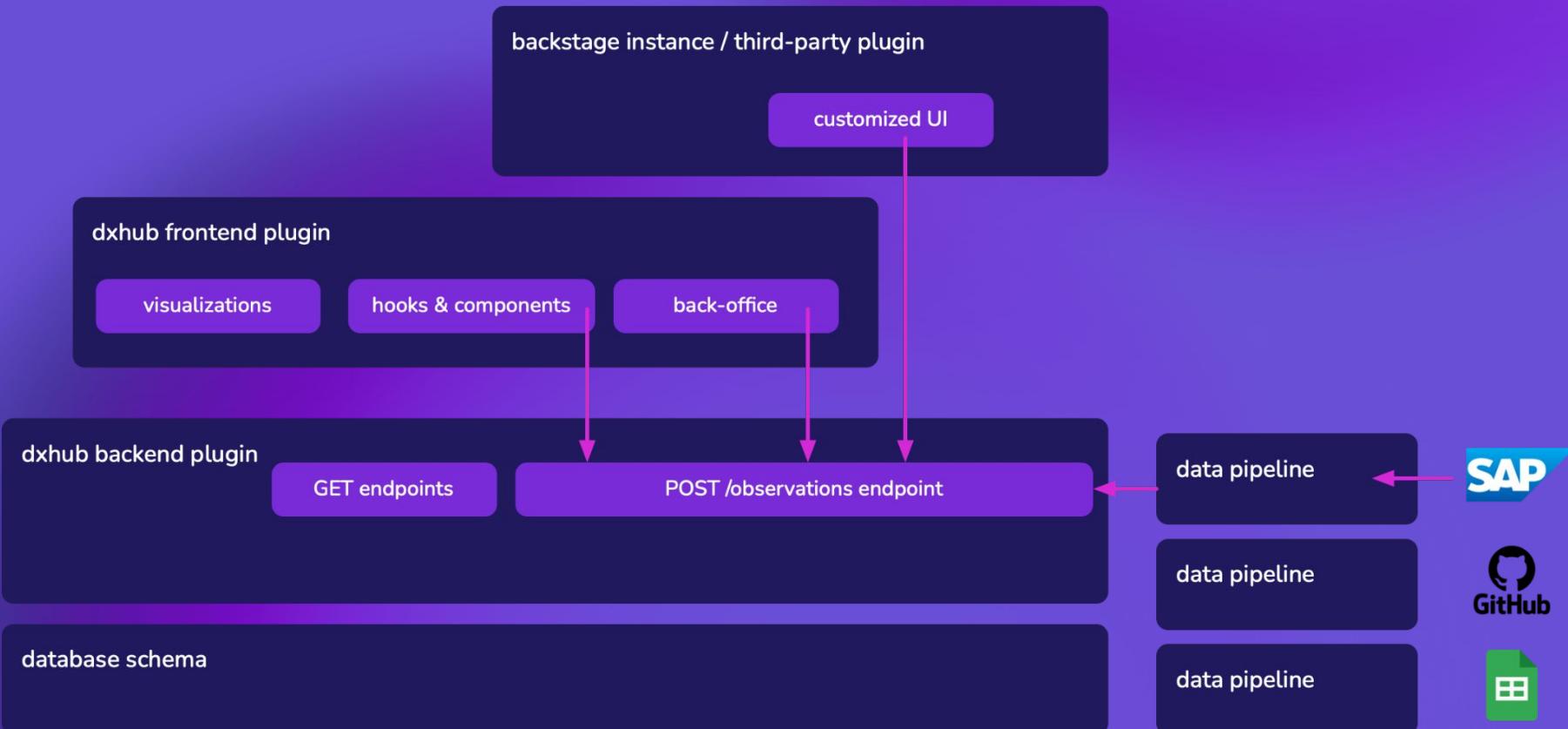
	2023-12	2024-01	2024-02	2024-03	2024-04	2024-05	2024-06
NPS %		65.1	65.4	63.5	64.8	69.3	
Meta NPS %		65	65	65	65	65	

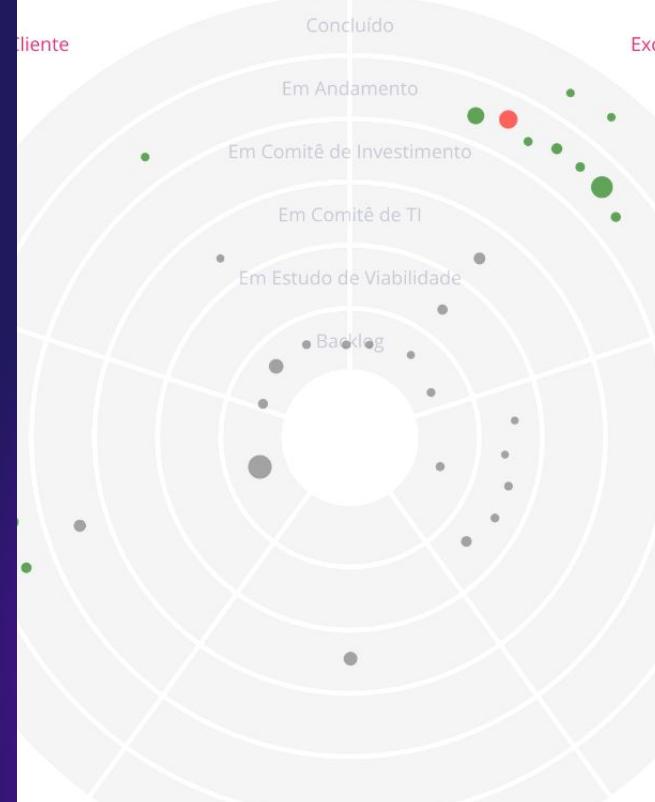
Como está evoluindo o incremento do CES?

monthly

	2023-12	2024-01	2024-02	2024-03	2024-04	2024-05	2024-06
CES %		78.2	78.1	77.5	78.5	78.1	
Meta CES %		80	80	80	80	80	

Feed the model with *Observations*





3. INTERACT

Personalized Widgets in dashboards

The plugin enables us to define **Widgets**, that plot the history of **Observations** for a given **Metric** and **Subject**.

Custom views: Subjects, Facets and Observations

The view displays a list of **Subjects**. In this case, they are the projects in the portfolio.

We have decided to use a “project status” **Facet**. The current stage, the evaluation of the risk, the financial investment, the start and end dates are some of the metrics in the facet.

Observations are used for grouping, sorting and presenting information in the view.

Custom views: Subjects, Facets and Observations

The screenshot displays a project management interface with three main sections:

- EM COMITÉ DE TI**: A table showing projects like "Face/Off Installation", "The Fellowship of the Customer", and "The New Order" with their status, total value, and financial projections for 2024 and 2025.
- EM COMITÉ DE INVESTIMENTO**: A table showing projects like "Data Consolidation: The Sequel" with their status, total value, and financial projections for 2024 and 2025.
- EM ANDAMENTO**: A table showing projects like "Access Control Protocol (ACP)", "Cloud Wars: Modernization", and "Code Source Reloaded" with their status, total value, and financial projections for 2024 and 2025. This section includes a timeline at the bottom.

To the right, a sliding panel is open for the project "591941 - Access Control Protocol (ACP)". The panel has tabs for **DETALHES**, **GESTÃO** (selected), **EVENTOS**, **EXCLUIR**, and **BACK-OFFICE**. The **GESTÃO** tab contains:

- A button to **MUDAR DE FASE**.
- A section to **Selecionar o status** with three colored circles (red, orange, green).
- A dropdown menu for **Tipo de gestão**.
- A text input field for **Escreva seu comentário** with a **ENVIAR** button.
- A list of observations:

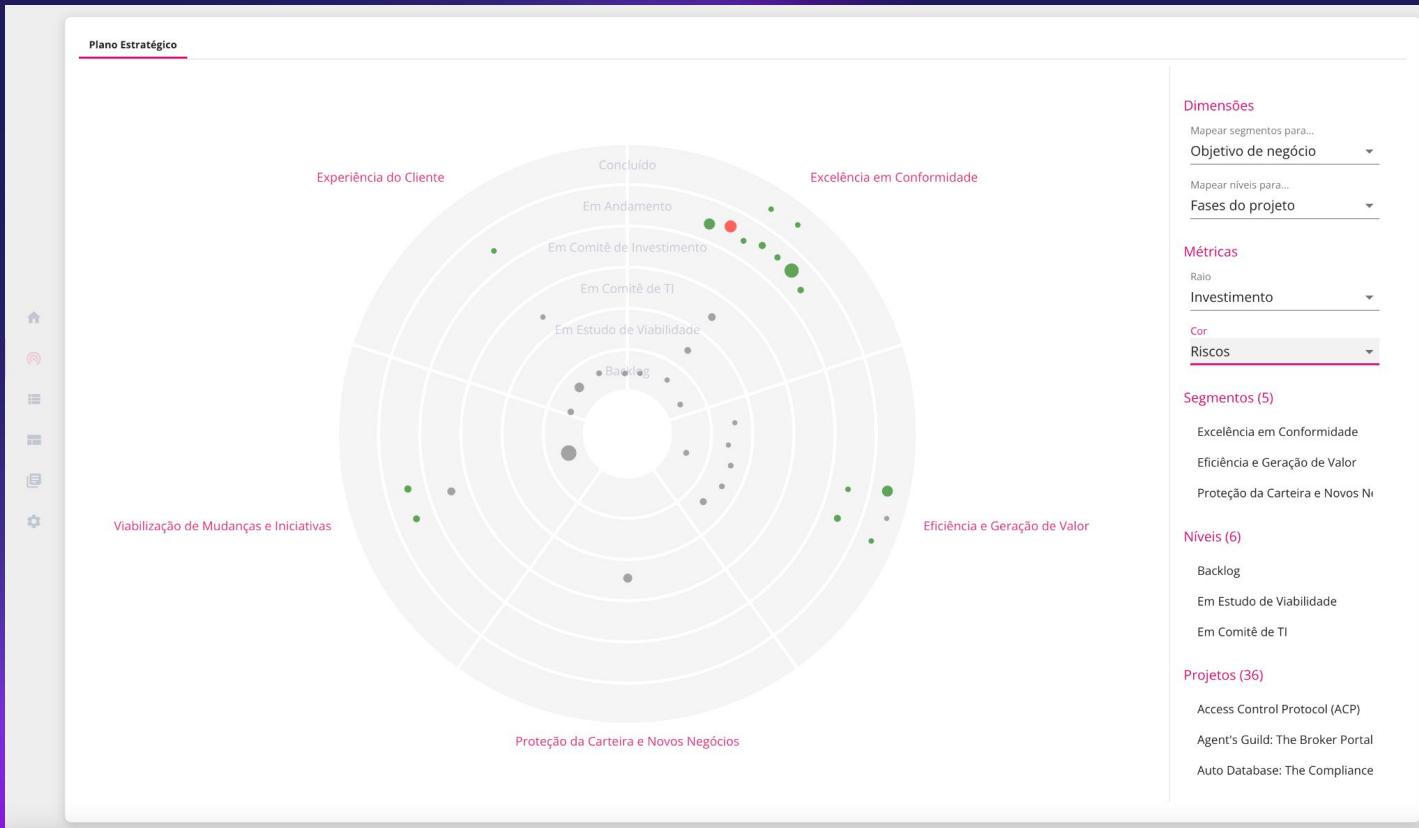
 - SCOPO**: 25/09/2024 às 13h14 por Rodney Reis. Comment: Estamos reduzindo o escopo e o risco está diminuindo.
 - SCOPO**: 20/09/2024 às 08h41 por Rodney Reis. Comment: Mudaram completamente o escopo do projeto!
 - RISCO**: 31/07/2024 às 06h00 por setup. Comment: Aqui estava o status do projeto quando configuramos inicialmente o Portal DTI.
 - ORÇAMENTO**: 31/07/2024 às 06h00 por setup. Comment: Aqui estava o status do projeto quando configuramos inicialmente o Portal DTI.
 - PRAZO**: 31/07/2024 às 06h00 por setup. Comment: Aqui estava o status do projeto quando configuramos inicialmente o Portal DTI.
 - SCOPO**: 31/07/2024 às 06h00 por setup. Comment: Aqui estava o status do projeto quando configuramos inicialmente o Portal DTI.

Clicking on a project opens a sliding panel, with all the details.

The view displays the history of **Observations** for some metrics. In this screenshot, we see how the PMO is assessing risk factors over time.

The view also allows authorized users to send update. In technical terms, they **POST Observations** to the backend plugin.

Support decision making with data visualization



When combining the measurement model with interactive visualizations, there are endless opportunities to uncover insights for decision making.

In this 360 view, the user can map Subject properties and metrics with geometric properties: the position on the radial grid, the radius, the color.

The PMO can identify underserved strategic objectives, high-risk projects, etc.

Enterprise architecture maps to provide context



Concepts from enterprise architecture, such can be modeled as Subjects.

Think of **capabilities**, **value streams**, **application groups** or **applications**.

Here, applications (light grey) are grouped into application groups (dark grey).

Projects can be connected to applications, if they impact them.

These relations are shown with the red dots.

Are we doing the right thing?



Are we doing it right?

*Backstage is an enabler for holistic and
connected models, bridging the gap
between business and IT*



**ONLINE November 20-21
REGISTER NOW**

<https://innersourcecommons.org/events/isc-2024>





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