

The Last Mile of Analytics – AD14

Turn your SAS® programs and models into interactive and ‘shiny’ apps

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A photograph of a man and a young boy looking at a laptop screen. The man is on the left, smiling, and the boy is on the right, also smiling. They are both looking at the screen. The image has a blue overlay.

Empower Innovation.
Improve Lives.

Our Vision

Business Continuity &
Faster Execution

Increased Focus on Data
Science

Decentralized Hybrid/Virtual Trials

- Last mile of Analytics – Turn your code into Apps leveraging SAS Viya REST APIs and chatbots
- Enable SAS VA content to be easily embedded in a third-party application or web page (SDK)
- Portability of SAS and open-source models
- IOT capabilities incl. streaming data (Example Hack-in-SAS; Health Track)
- Computer Vision (E.g., Home assessments, Drug Intake,...)
- Site & Patient Engagement (leveraging SAS CI360)

Openness

Real World
Evidence

Move to
the Cloud

The image features a vibrant pink background. In the upper right, a detailed jet fighter is depicted in flight, angled upwards and to the right. It has a dark grey body with lighter grey accents on the wings and tail. A bright, glowing white trail follows its path, extending diagonally across the frame. In the lower left, three paper airplanes are shown in flight, also angled upwards and to the right. They are a light tan color with simple, clean lines. A dashed white line connects the tail of the jet fighter to the lead paper airplane, suggesting a comparison or transition between the two. The overall composition is dynamic and modern.

dealing with

disruption

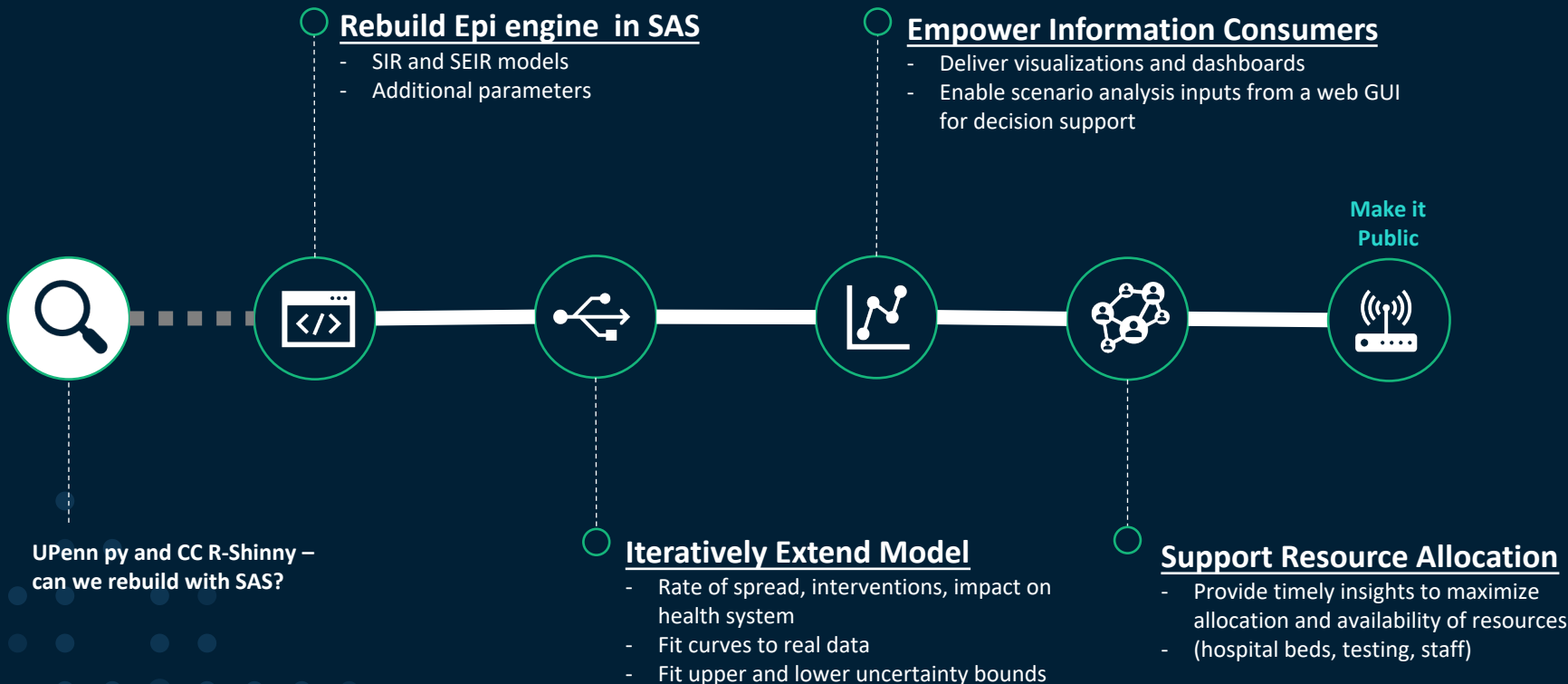


SAS Epidemiological Scenario Analysis



SAS® / CC COVID-19 - Epidemiological Scenario Analysis

- Project Origin and Overview -



SAS® / CC Covid-19 – What does the Epi Engine do?

COVID-19 Epidemiological Scenario Projection Tool

Generate COVID-19 Projections using SIR and SEIR models.

▼ Choose Action to Perform

- ☒ Create Adhoc Scenario
- ☐ Replace All Global Scenarios
- ☐ Add New Global Scenario

Assign Projection Parameters

All rate parameters must be assigned a value between 0 and 1.

▼ Covid-19 Virus Statistics

Day Zero:	⑦	03/14/2020
Incubation Period:	⑦	0
Recovery Days:	⑦	14
Doubling Time Before Social Distancing (Days):	⑦	5
Sigma (Days):	⑦	3
Beta Decay Rate:	⑦	0.0

► Regional Statistics

► Hospital Statistics

Number of Days to Project:



► Global Scenarios Management

SEIR with PROC (T)MODEL

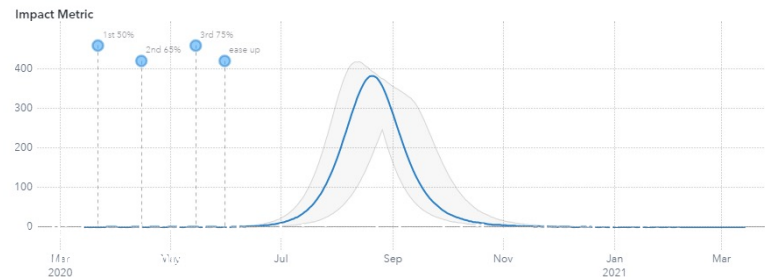
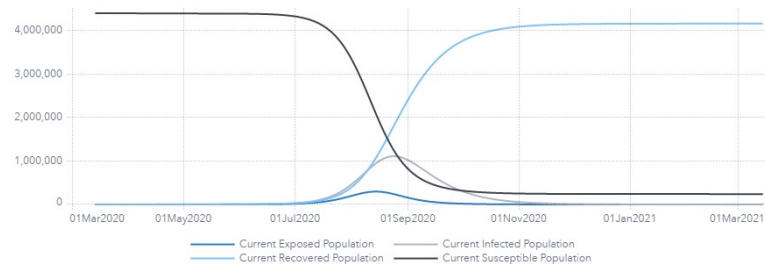
14Mar2020 to 14Mar2021

Impact Metric

- ☐ Dialysis
- ☒ ECMO
- ☐ Hospitalized
- ☐ ICU
- ☐ Ventilator

[Scenario Parameters](#)
[S\(E\)IR Model View](#)

Adhoc Scenario Outputs



social distancing

- Calculates impact on hospital resources – ICU beds, Ventilators, ECMO, Dialysis
- Compares different model approaches, overlay observed data
- Produces upper and lower uncertainty bounds
- Translate SEIR numbers to newly infected each day
 - Not yet infected = sum of S and E (monotonic decreasing)
 - Newly infected = yesterday's not yet infected – today's not yet infected

- Accumulate discharges
- Derive hospital occupancy and utilization from accumulated admissions and discharges
- Uncertainty bounds created by varying Sigma, Recovery Days, and Social Distancing around input values entered

WHAT DOES THE 'APP' DO? ...

SAS® / CC Covid-19 – What does the 'app' do?

SAS® Visual Analytics - Explore and Visualize

COVID-19 | VA reporting | Scenario Analysis

Projection Engine | Model vs. Market Share | Peak Analysis | Model Impact | Compare Scenarios

COVID-19 Epidemiological Scenario Projection Tool

Generate COVID-19 Projections using SIR and SEIR models.

Done!

Choose Action to Perform

- ☒ Create Adhoc Scenario
- ☐ Replace All Global Scenarios
- ☒ Add New Global Scenario

Global Scenario Name: ?

Assign Projection Parameters

All rate parameters must be assigned a value between 0 and 1.

COVID-19 Virus Statistics

Day Zero: ?

Incubation Period: ? 0

Recovery Days: ? 14

Doubling Time Before Social Distancing (Days): ? 4.25

Sigma (Days): ? 5

Beta Decay Rate: ? 0.0

Regional Statistics

Population: 4390484

Initial Exposed: 0

Initial Recovered: 0

Known Admits: 10

Hospital Market Share: 0.29

Run Scenario

Global Scenarios Management

Status tracker

drcole@wnt.sas.com

Scenario(9-drcole@wnt.sas.com-UI)

SEIR with PROC (T)MODEL

SIR with PROC (T)MODEL

14Mar2020 to 14Mar2021

14Mar2020 14Mar2021

Adhoc Scenario Outputs

Collaborate

Current Exposed Population

Current Infected Population

Current Recovered Population

Current Susceptible Population

Impact Metric

Impact Metric

- ☐ Dialysis
- ☐ ECMO
- ☒ Hospitalized
- ☐ ICU
- ☐ Ventilator

Scenario Parameters

Adhoc Projections

Help

Day Zero

SD 65 - strict

SD 35 - relax

SD 70 - wave 2 - strict

Mar 2020 May Jul Sep Nov Jan 2021 Mar

Custom VA objects

Help and Support

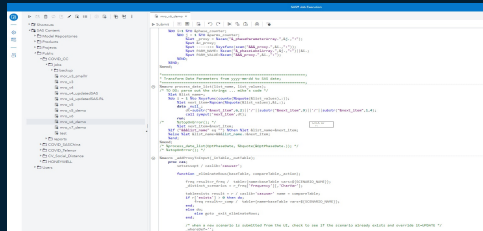
User-driven 'clean-up'

Engine prompts

User Actions

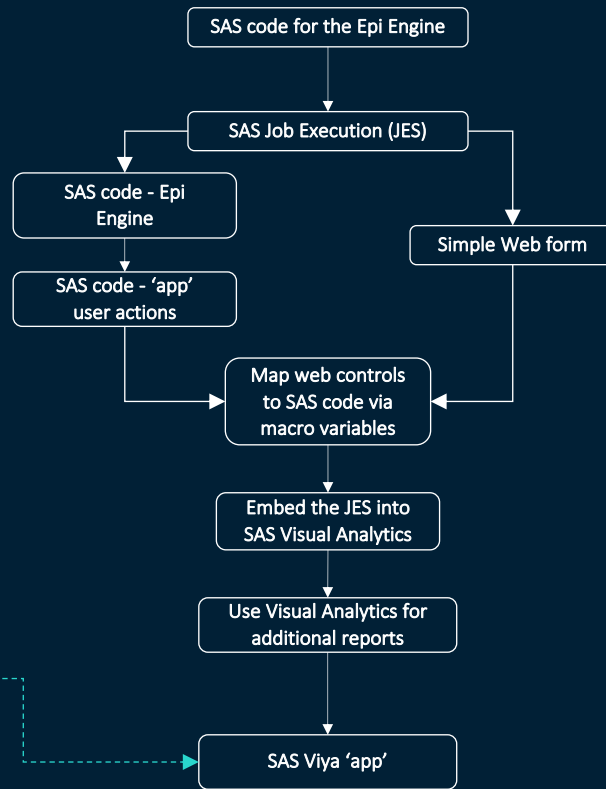
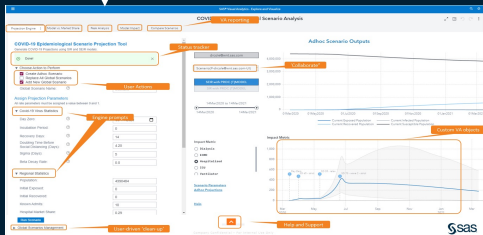
SAS® / CC Covid-19 - how can SAS do this? - SAS Viya 'Apps'

(SAS code as the analytics engine = Epi Engine)

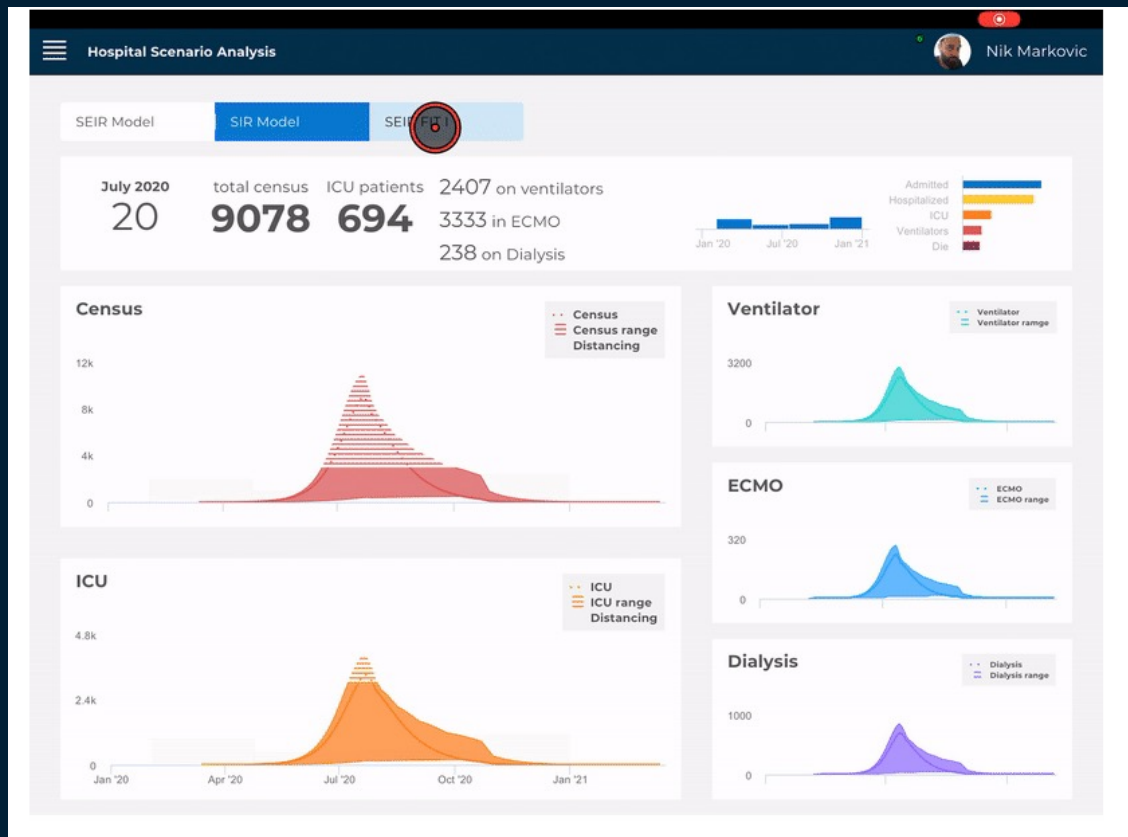


- Add UI functions
- Create custom charts
- Leverage VA for additional reporting

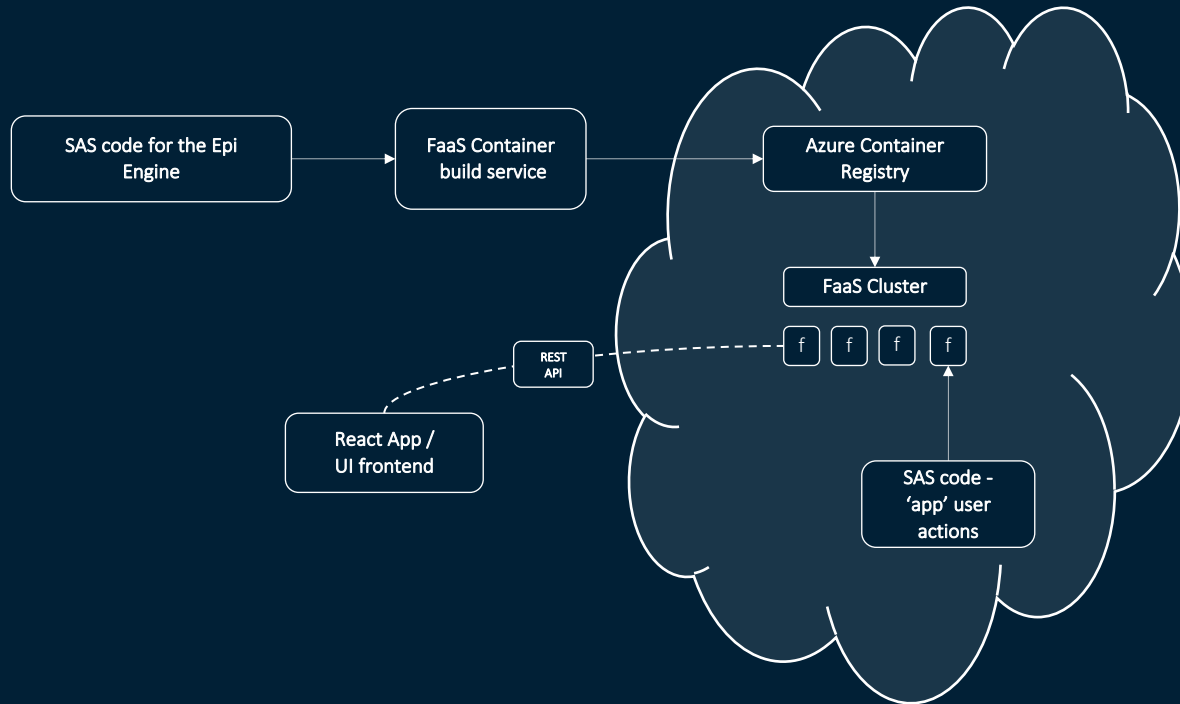
(custom UI inside Visual Analytics)



SAS App development – What's next



SAS App development – What's next



SAS App development – What's next

Value Creation

- ✓ Low code
- ✓ From interactive dashboards to Enterprise-wide workflows
- ✓ Scalability and Low cost to run
- ✓ Qualification
- ✓ Federated Learning (patient data does not leave premise)

Questions ?

Thanks !

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App development

Want to know more ...

SAS News

- [Acquired technology will integrate with SAS Viya, significantly reduce customer cost for cloud analytics and improve portability of models into mobile and enterprise apps](#)

SAS Blog(s)

- <https://blogs.sas.com/content/sgf/2020/08/31/building-custom-apps-on-top-of-sas-viya-part-one-wheres-the-value/>
- <https://blogs.sas.com/content/sgf/2020/09/08/building-custom-apps-on-top-of-sas-viya-part-two-understanding-the-integration-points/>
- <https://blogs.sas.com/content/sgf/2020/09/14/building-custom-apps-on-top-of-sas-viya-part-three-choosing-an-oauth-flow/>
- <https://blogs.sas.com/content/sgf/2020/09/25/building-custom-apps-on-top-of-sas-viya-part-four-examples/>

Partner Blog(s)

- <https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2020/4260-2020.pdf>
- <https://www.linkedin.com/pulse/create-apps-sas-viya-app-nikola-markovic/?articleId=6680928408073043968>
- https://www.sas.com/de_de/news/press-releases/2020/may/sas-and-climedo-develop-symptom-diary-for-covid19-contacts.html

App development

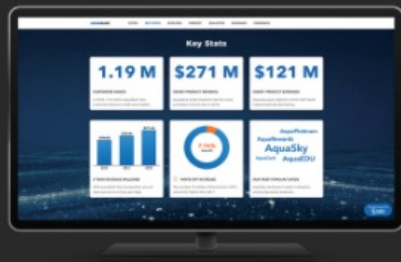
Want to know more ...

[Home](#)

[SAS Trials](#) ▾

[Developer GitHub Resources](#)

[SAS Communities](#) ▾



SAS Visual Analytics SDK

for developers

<https://developer.sas.com/guides/visual-analytics-sdk.html>

Getting Started with SAS® Visual Analytics SDK

The SAS Visual Analytics SDK is a collection of JavaScript libraries that web developers can use to embed SAS Visual Analytics content within custom web pages and web apps. The SDK provides a framework that enables you to:

- Embed entire reports or individual charts and objects from SAS Visual Analytics reports
- Embed charts and objects from multiple SAS Visual Analytics reports
- Support actions between SAS Visual Analytics report objects on your web page or in your web app
- Share data between SAS Visual Analytics report objects on your web page or in your web app