MIDWEST ARCHITECTURE COMMUNITY COLLABORATION 2020

NOVEMBER 5, 2020

MACC 2020: Adaptable architecture: building resilience in a time of change

MACC MISSION

- The Midwest Architecture Community Collaboration's (MACC) purpose is to bring all domains of architecture together to share information and techniques of interest to all of us. It is our shared belief that through collaboration, we can better understand and promote the significance of architecture to business success.

RESILIENCE

- The American Psychological Association (2014) defines **resilience** as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress

- **Resilience Theory** argues that it's not the nature of adversity that is most important, but how we deal with it. When we face adversity, misfortune, or frustration, **resilience** helps us bounce back. It helps us survive, recover, and even thrive in the face and wake of misfortune – but that's not all there is to it.

Data Contextualization for Better Business Outcome

midwest
architecture community
collaboration

IoT WoRKS™
by HCL Technologies

CONTENTS

midwest architecture community collaboration

IoT WoRKS™
by HCL Technologies

DATA MATURITY MODEL

Aware	Proficient	Savvy	Driven
Manually compile non-standardized reports	Standardized reporting on an organization wide reporting platform	Use data to make critical business decision	Embed data into all business processes
Know Understand Make sense	Regular report Basic analysis Business intelligence (BI)	BI for planning Complex formular Some data integration	Integration for automatic decision making Real OT & IT converge

KEY DATA CHALLENGES

More data relationships

Data from all different places

More data (XTN, IoT, Event)

Not just structured data

Data generated in different frequency

Data in different views
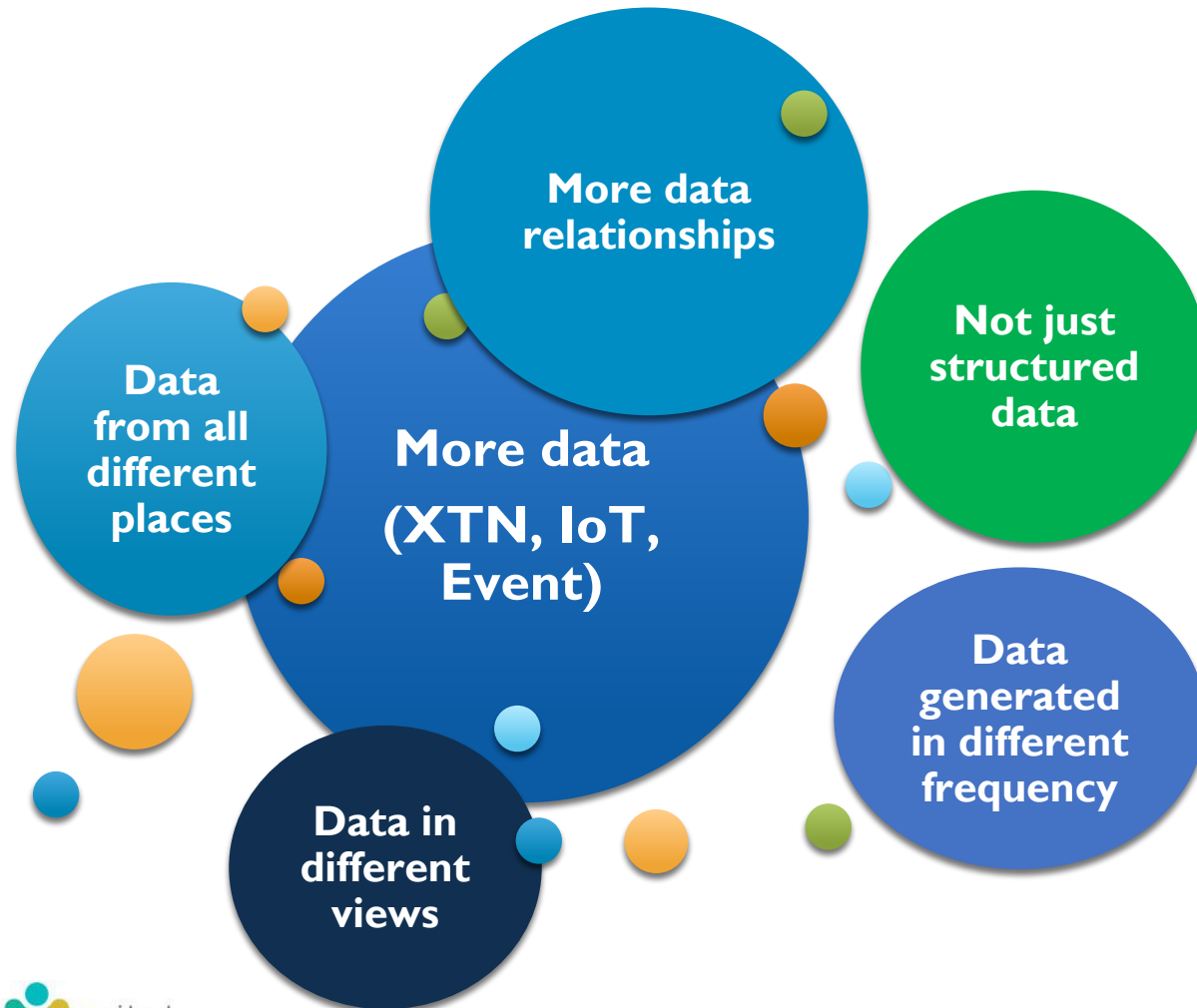
How to effectively utilize the 3V data collected in the data repository (such as data lake) to create business values?

midwest architecture community collaboration

IoT WoRKS™
by HCL Technologies

CATEGORIES OF DATA CONTEXTUALIZATION CHALLENGES

Process

Limited and/or manual data contextualization

Information

Limited context information due to digitalization challenges

Integration

Limited context data integration

Controlling

Limited (context) data governance and stewardship

Sharing

Limited knowledge and utilization of context data for data consumers

midwest architecture community collaboration

IoT WoRKS™ by HCL Technologies

LIMITED AND/OR MANUAL DATA CONTEXTUALIZATION

Existing data in cryptic format & limited knowledge to transcribe it

Context information is "missing" & not easy to be accessed

Context information lost due to data transformation & transportation

Data contextualization requirements based on individual use case

No automatic, self-servicing contextualization process

Inconsistent contextualization processes create ambiguities

Context data pulled from multiple systems

midwest architecture community collaboration

IoT WoRKS™
by HCL Technologies

LIMITED CONTEXT INFORMATION DUE TO DIGITALIZATION CHALLENGES

Not in preferable digital formation for automatic process

Not in proper digital formation for easy access

Limited version control with information in unstructured formation

Lack of standardized tools and processes for standardizing common information

midwest architecture community collaboration

IoT WoRKS™
by HCL Technologies

LIMITED CONTEXT DATA INTEGRATION

Not aware contextual data integration as important as the general data integration

Lack of contextual data integration platforms and processes

Incomplete or not integrated with other systems/tools containing contextual information

Lack of proper naming ("coding") standards creating inconsistent contextual information

LIMITED (CONTEXT) DATA GOVERNANCE AND STEWARDSHIP

Lack of effective data governance may lead to missing (contextual) data and (contextual) data quality issues.

Lack of data stewardship may lead to inconsistent and/or incomplete contextual data.

Lack of effective data governance and stewardship may lead to incomplete version control of contextual data and inconsistent interpretation of contextual information

# LIMITED KNOWLEDGE AND UTILIZATION OF CONTEXT DATA FOR DATA CONSUMERS

The people that defined the data collection may not be the same group of people who use the data to make business decisions

Engineers/operation team are mostly operation/process focused while data analysts and data scientists are analytic focused

Data analysts may need to spend time to understand how to decrypt data based on limited contextual information or special knowledge before conducting data analyses

When similar data comes from different data sources (plants/sites) with ambiguous and/or inconsistent contextual information, across data sources (plants/sites) data analysis becomes almost impossible
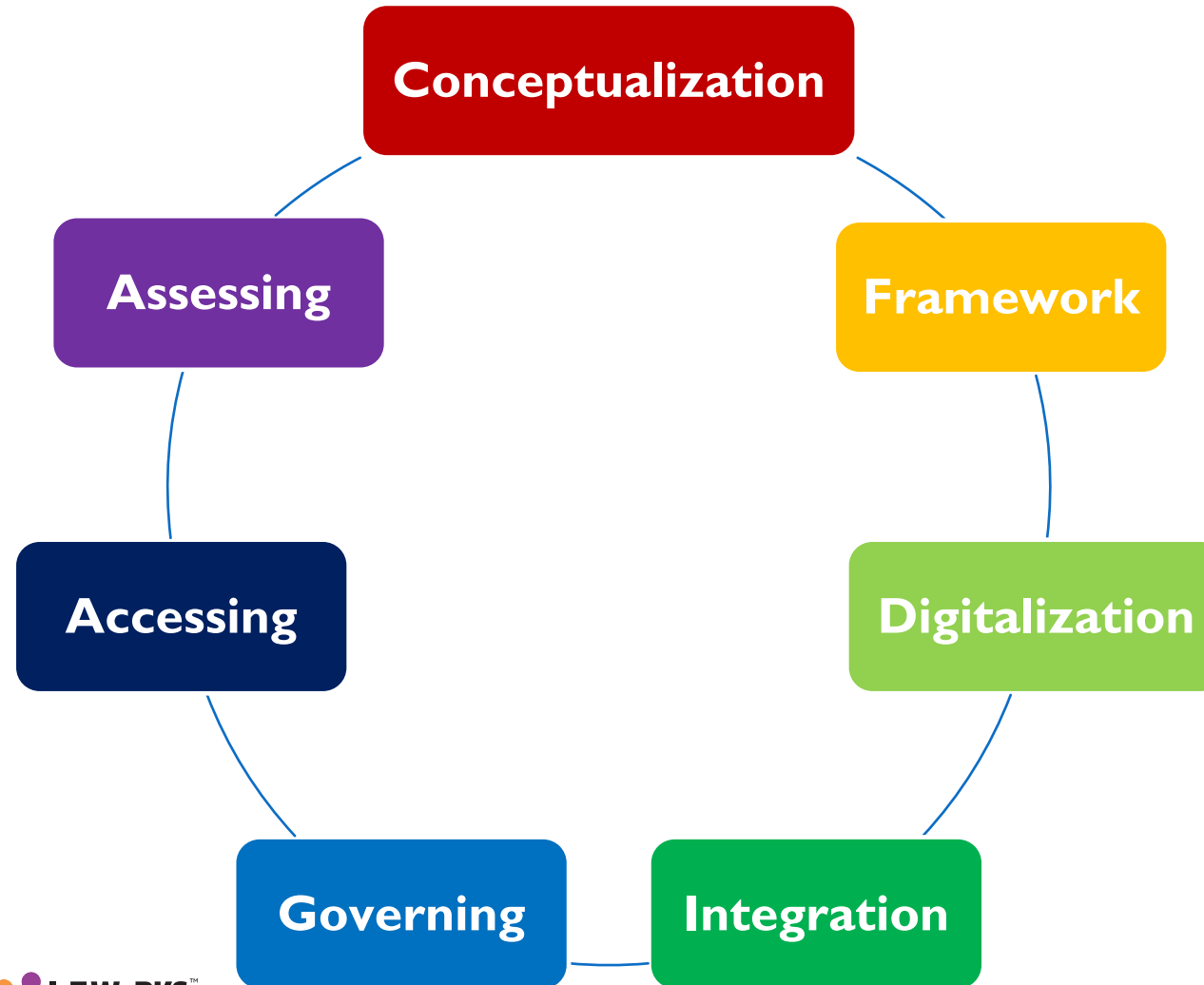
CONCEPTUALIZATION

Systematic consistent data contextualizing process should be executed as early as possible

Consistent quality contextual information can be created even before data is produced

FRAMEWORK

A contextualization framework must be established to ensure consistency and quality of contextual information
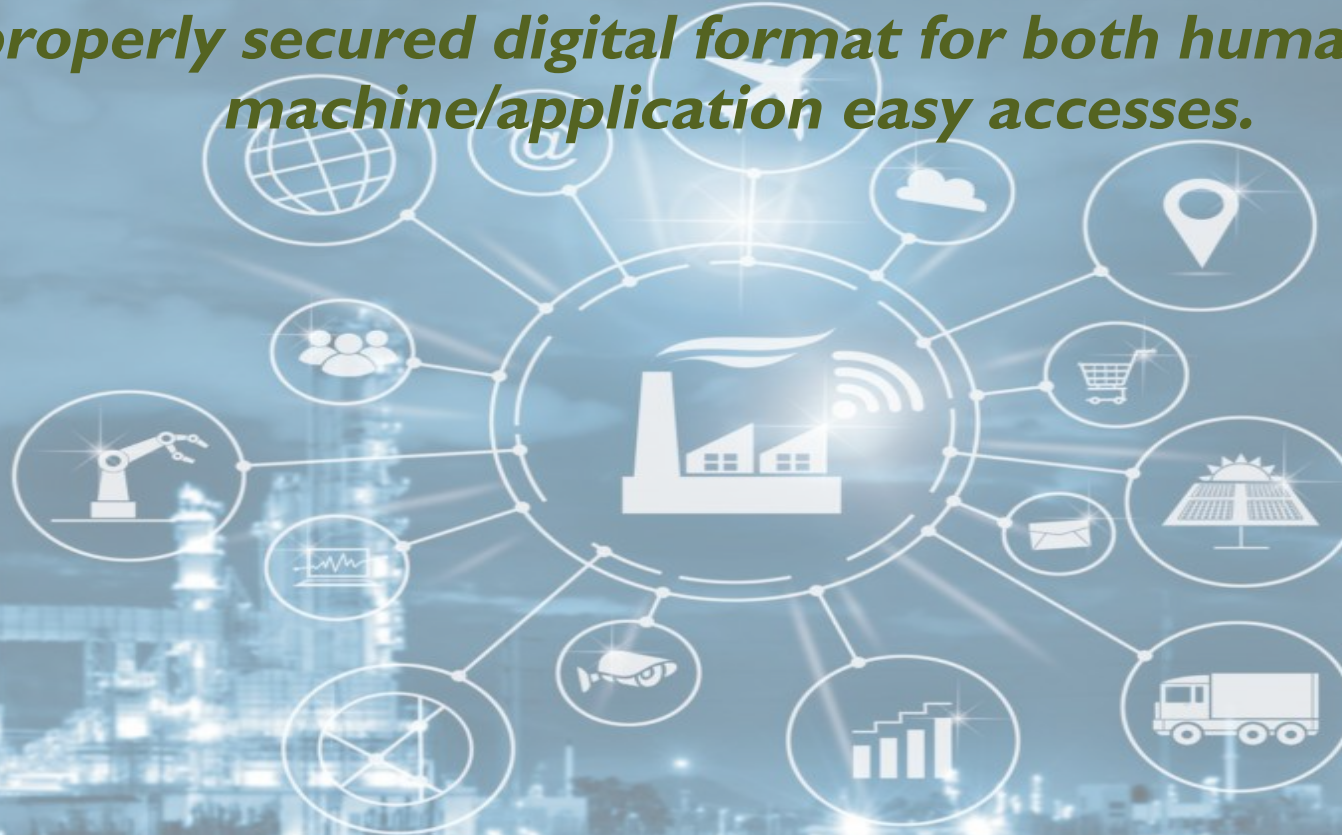
Includes an integration focused contextual information repository and a set of standards (i.e. data models, data integration interfaces) for data contextualization

DIGITALIZATION

When contextual information is created, it should be stored in a properly secured digital format for both human and machine/application easy accesses.

INTEGRATION

Contextual information can be enhanced systematically as per business needs when it travels through the enterprises

*Contextual information shall "travel" through the parallel path of the related data*
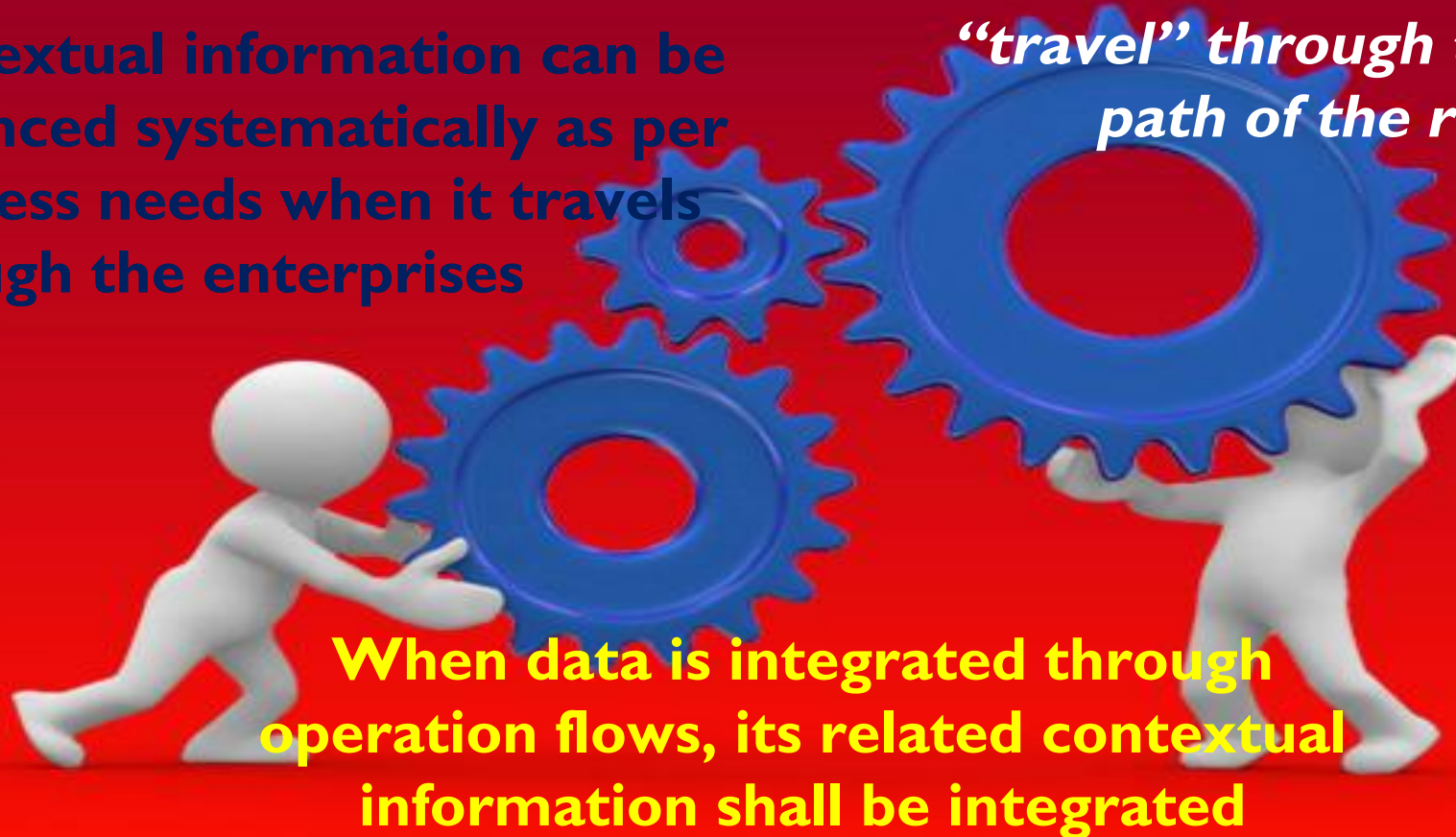
When data is integrated through operation flows, its related contextual information shall be integrated

Contextual information should be in the scope of data governing

The ownership / people structure and technology can be different but the processes and procedures should be similar, especially the change control, version control, and data quality
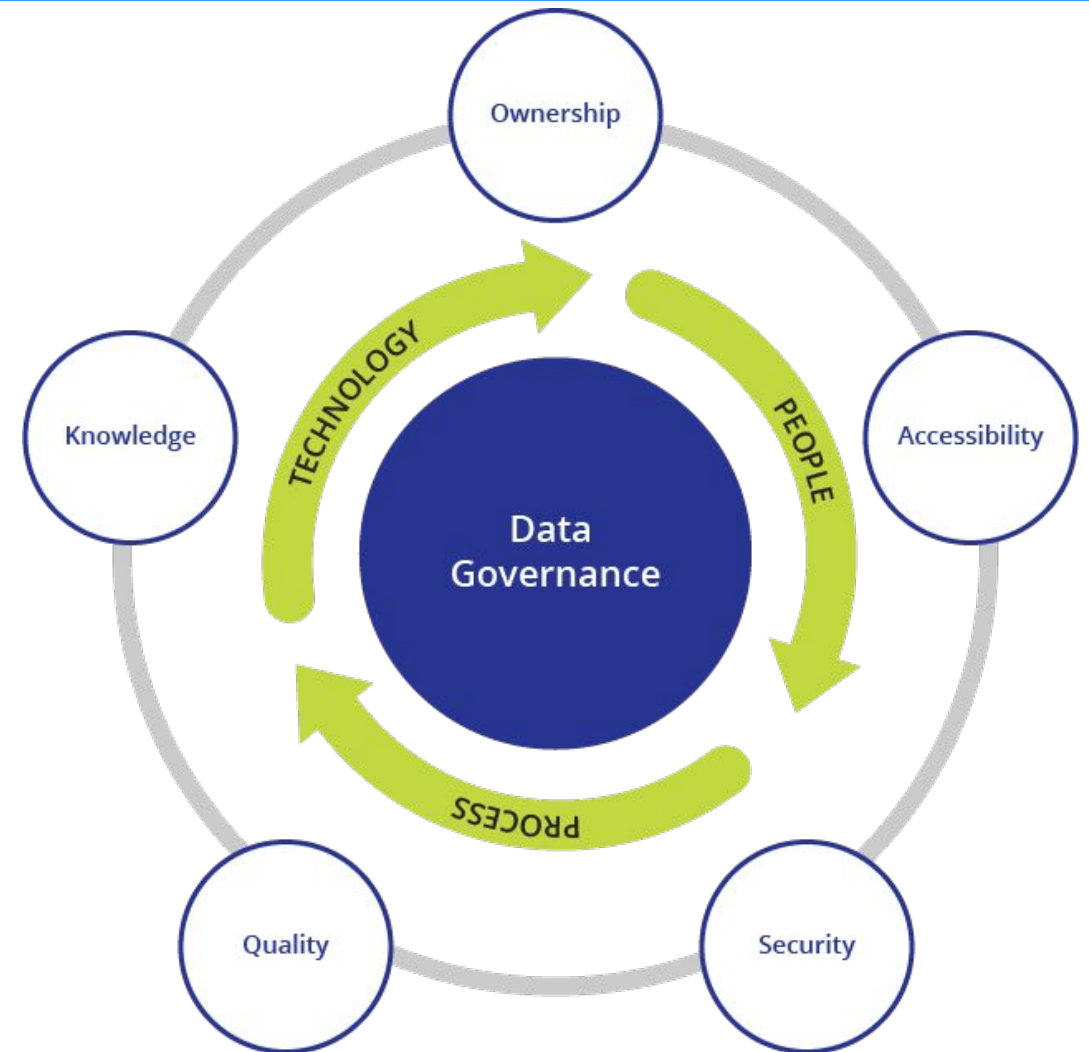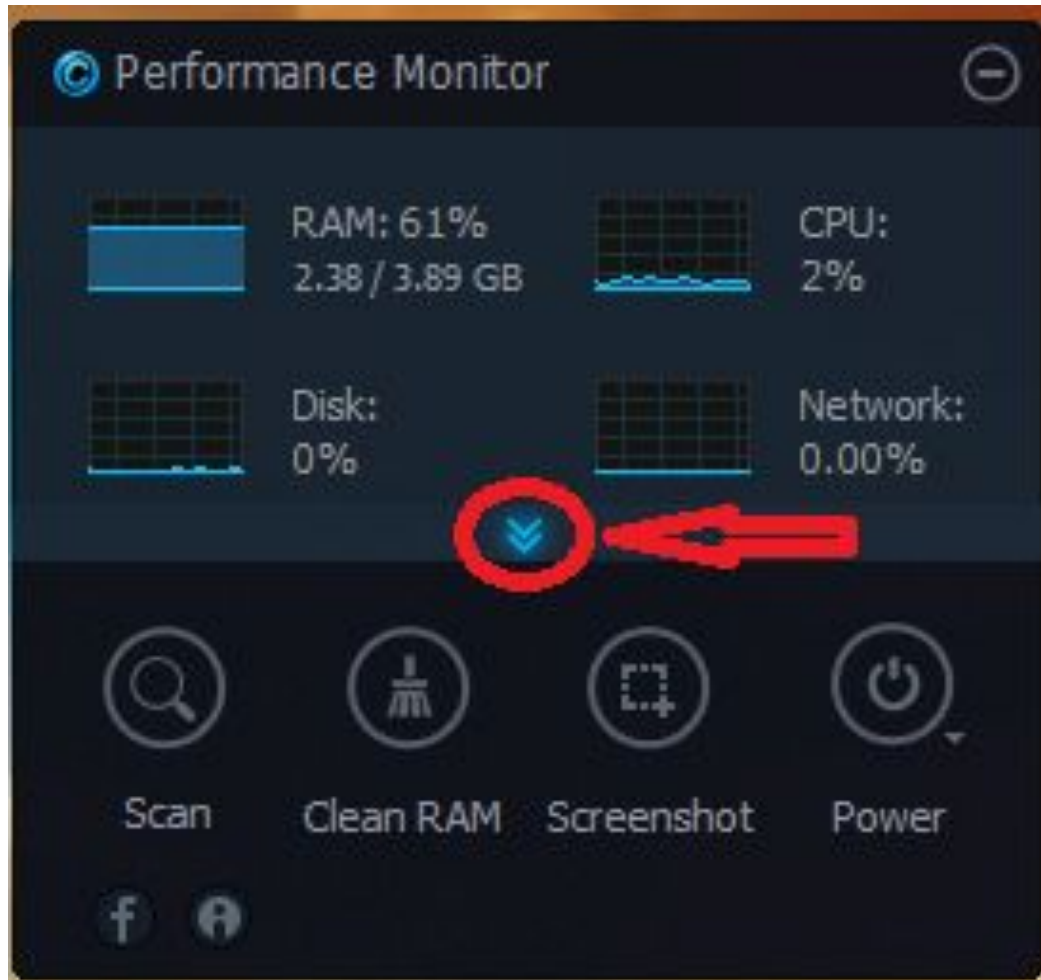
ACCESSING

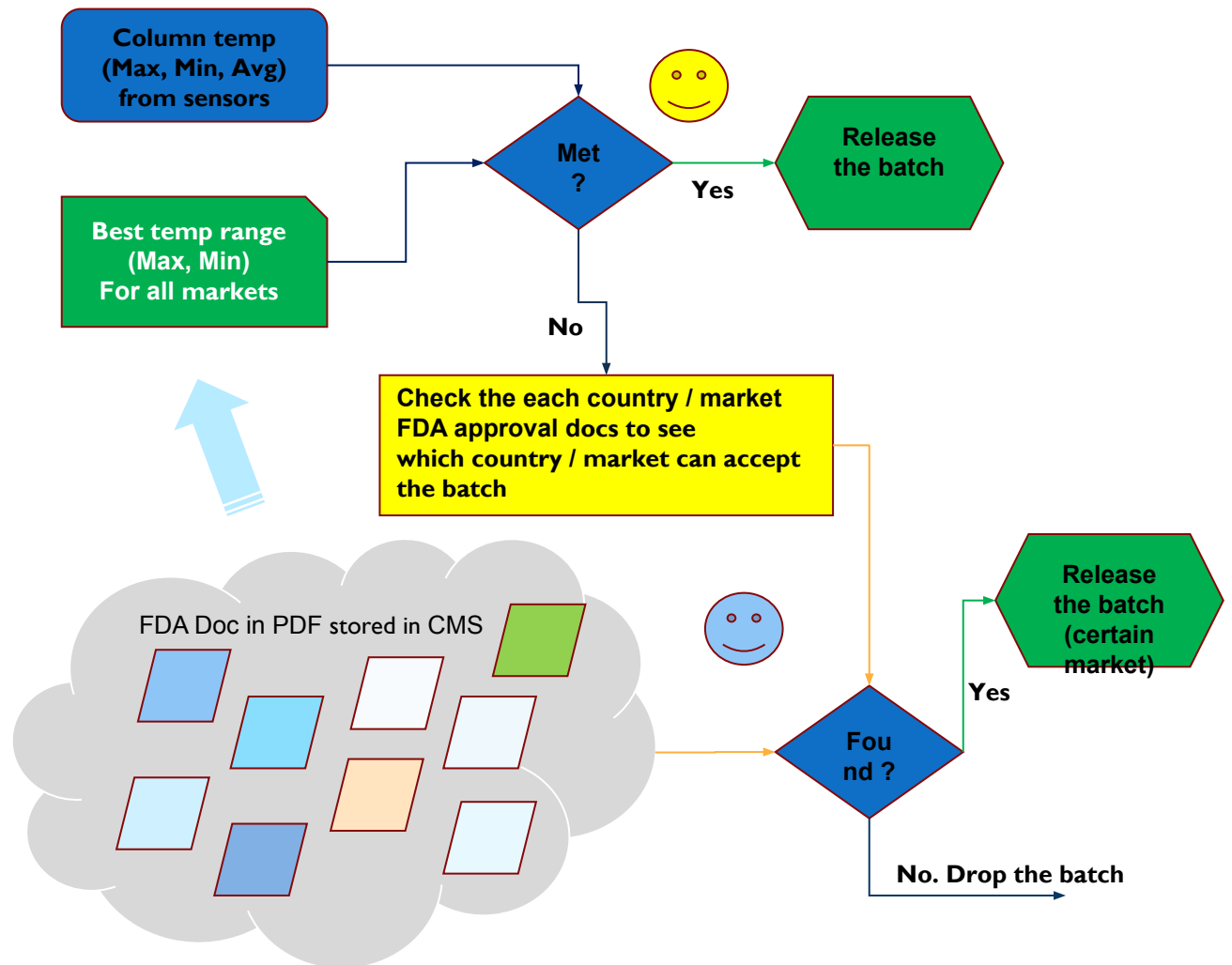*Access control and protection frameworks should be applied*

ASSESSING

A set of related Key Performance Indicator (KPI) should be defined, calculated, and evaluated to assess the implementation, execution, progression, and impacts of data contextualization

This should also include quality and quantity measurements of contextual information

Process, Data, Technology, Effectiveness

Column temp (Max, Min, Avg) from sensors

Best temp range (Max, Min) For all markets

Met ?

Yes

Release the batch

No

Check the each country / market FDA approval docs to see which country / market can accept the batch

FDA Doc in PDF stored in CMS

Found ?

Yes

Release the batch (certain market)

No. Drop the batch

USE CASE – AFTER

Drug spec:
Column temp
(Max, Min, Avg)

Digital

Data Store

Context
(structured,
Semi-structured)

Column temp
(Max, Min, Avg)
from sensors

Best temp range
(Max, Min)
For all markets

Met ?

Yes

Release
the batch
To market

No. Drop the batch

PDF
For
FDA

Digital

FDA Doc in PDF stored in CMS

**Quick product release process
More products for more markets
Less drug wasted**

Q&A

HCL

www.hcltech.com

$8.6 BILLION | 137,000 IDEAPRENEURS | 44 COUNTRIES

midwest architecture community collaboration