PDUG

DBA 2.0

Making Change the DBA's Advantage

- Marcus Davage
- BMC Software

POLISH DB2 USERS GROUP

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ABSTRACT

How Dev, Ops and DBAs – and now AI – can not only co-exist, but cooperate effectively to drive business value in an Agile way.

AI is asking the question: what exactly is the DBA for?

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THE DBA WHO AUTOMATES, GOVERNS, AND SHAPES DATA CULTURE, AND EMBRACES CHANGE AS AN ADVANTAGE IS NOT AT RISK.

THE DBA WHO DOESN'T IS.

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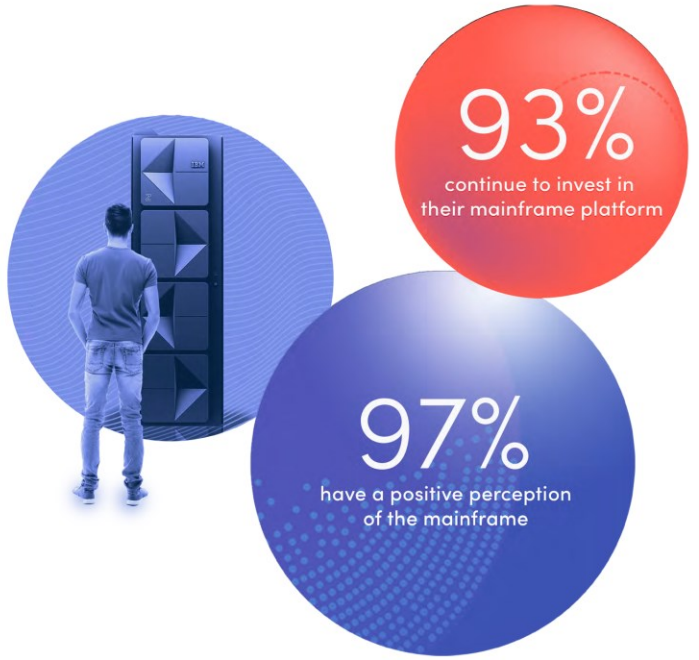
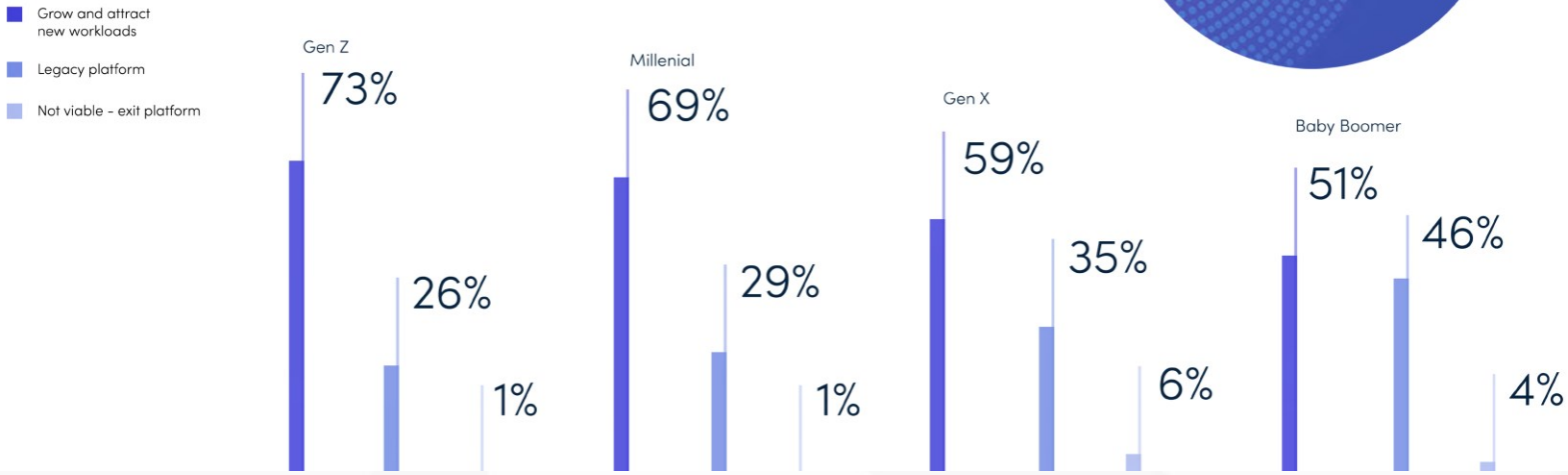
Positive perception, continued growth





BMC Mainframe Survey

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01
DBA 1.0

A Brief History of Time(rons)

A BRIEF HISTORY OF DB2

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1970s

E.F. Codd proposes relational model. IBM's System R pioneers SQL.

1980s

Db2 announced for MVS. Version 1 ships. The Db2 DBA role is born.

1990s

V4: data sharing. V5: sysplex parallelism, online reorgs. V6: LOBs, UDFs.

2000s

V8 ships more new code than V1 had total. Universal Table Spaces.

2010s

V10–V12: online schema change, pending ALTERs, encryption, REST APIs, Continuous Delivery.

2020s

Db2 13: AI integration, AI-native SQL. Many scalability and performance improvements.

What does a DBA do anyway?

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Physical Database Design

Logical Database Design

Database Security

Storage Management

Change Management

Data Modelling

Performance Monitoring and Tuning

Application Design

Data Availability

Data Migration

Database Connectivity

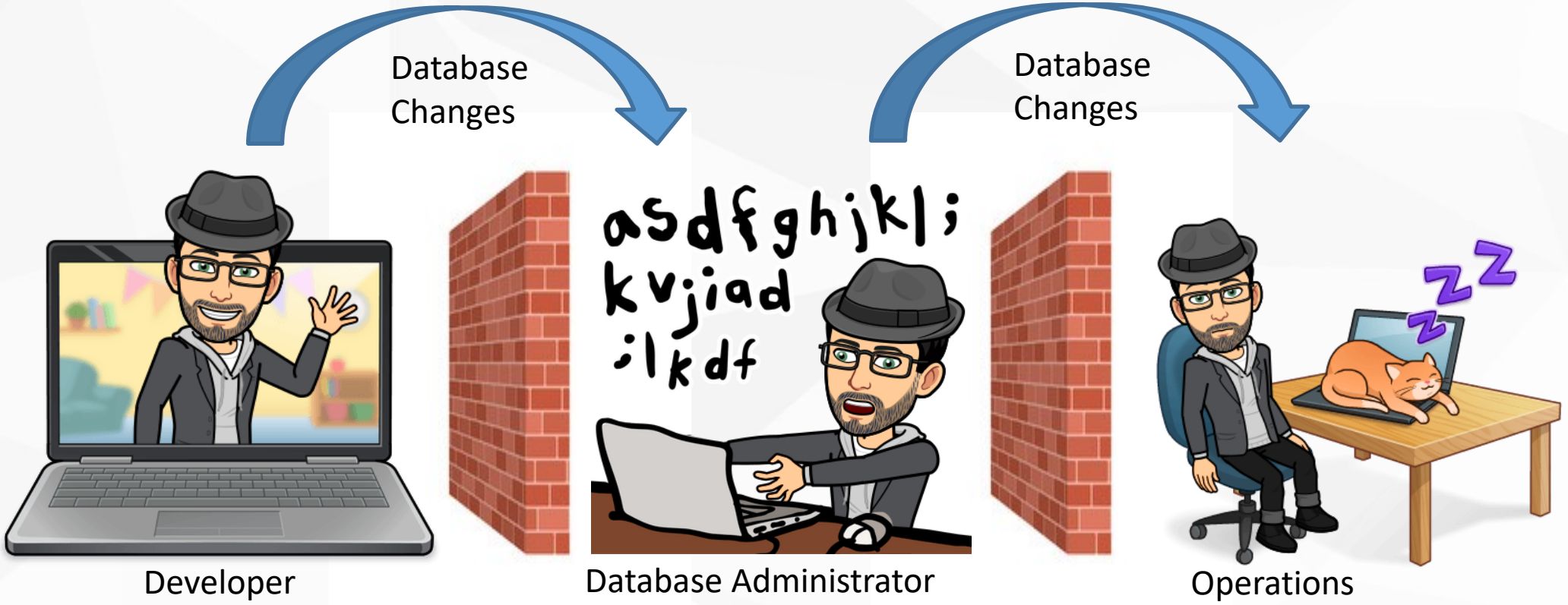
Backup and Recovery

Release Migration

Schema Naming Standards

Disaster Recovery Planning

The Current State of Change Control



The Parallel Pipeline Problem — Current State

A single application change spawns three separate, manually-coordinated delivery tracks:

Track 1: Application Code

✓ Automated end-to-end

Track 2: Database Schema (DDL)

✗ Manual, ticket-driven — days or weeks

Track 3: Coordination Overhead

Synchronising tracks 1 and 2 — keeping the deployment window aligned while each track runs on a different cadence — ties up one to many resources and introduces delay, rework, and risk into what should be a single atomic change.

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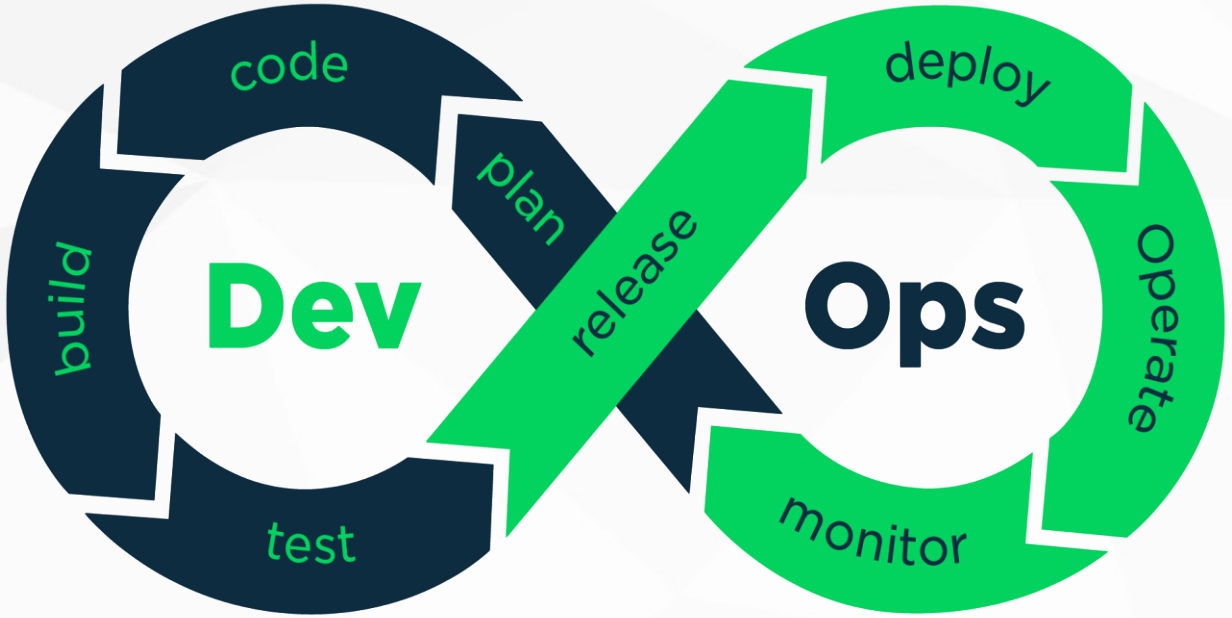
02

DEVOPS AND THE DBA

What it means for the people who own the database.

ENTER DEVOPS

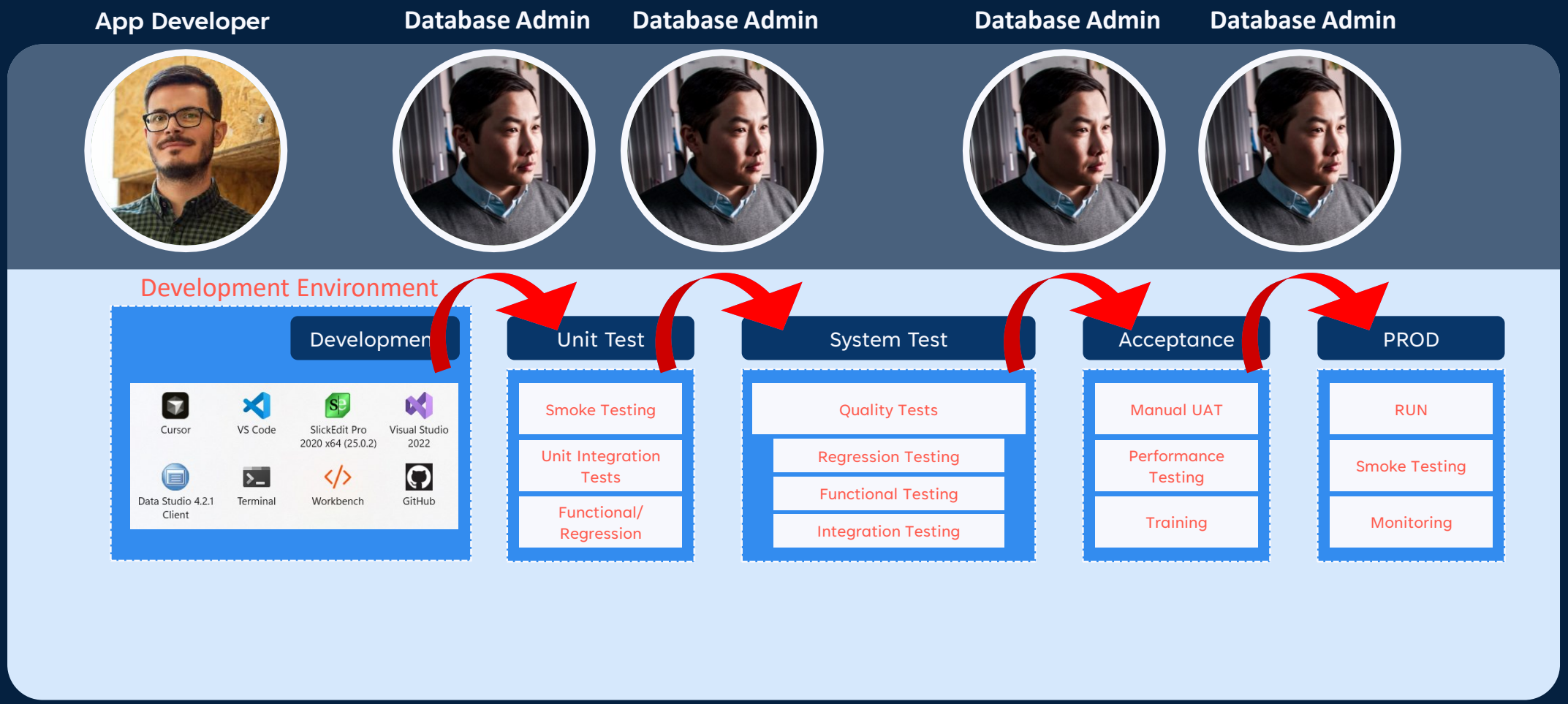
- A culture of communication
- Of people, practice, and process
- Continuous Integration /
- Continuous Delivery
- Better, faster, safer, cheaper and happier
- Pipeline Infrastructure



Schema Changes

Developers have a well-defined automated pipeline to deploy code.

HOWEVER, when there is a schema change involved, the process has to stop.



Here is an Agile DevOps developer delivering database changes to the DBAs.

And here is a DBA being invited to an Agile Scrum.

Not really. This is a joke. DBAs are NEVER invited to Agile Scrums.

Why the DBA Became the Bottleneck

Structural causes

- DBAs not part of Agile squads — invited when already blocked
- No automated pipeline for DB changes, only for app code
- Every change treated as a production incident in waiting
- Standards enforced by human review, not automated tooling

Cultural causes

- "We've always done it this way" — most dangerous sentence in IT
- DBA as custodian: "You shall not pass" mentality
- Developers don't understand production database risk
- DBAs don't understand delivery pressure and business cost
- Agile squads have no knowledge of DBA workload

Shift Left — Find It Earlier, Fix It Cheaper

Relative cost to fix a defect — IBM Systems Sciences Institute

Bad DDL caught in the CI pipeline costs minutes. Bad DDL in production costs hours — and data integrity.

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03

DATABASE AS CODE

If it isn't in source control, it isn't a change process.

Database as Code — Two Approaches

State-Based

"Golden Copy"

- DDL stored as version-controlled text files
- Snapshot of desired DB state is the source of truth
- Compare engine computes delta between current state and desired state
- Engine generates optimised migration script automatically
- Simpler to reason about: 'What should this look like?'
- Risk: must coordinate parallel changes

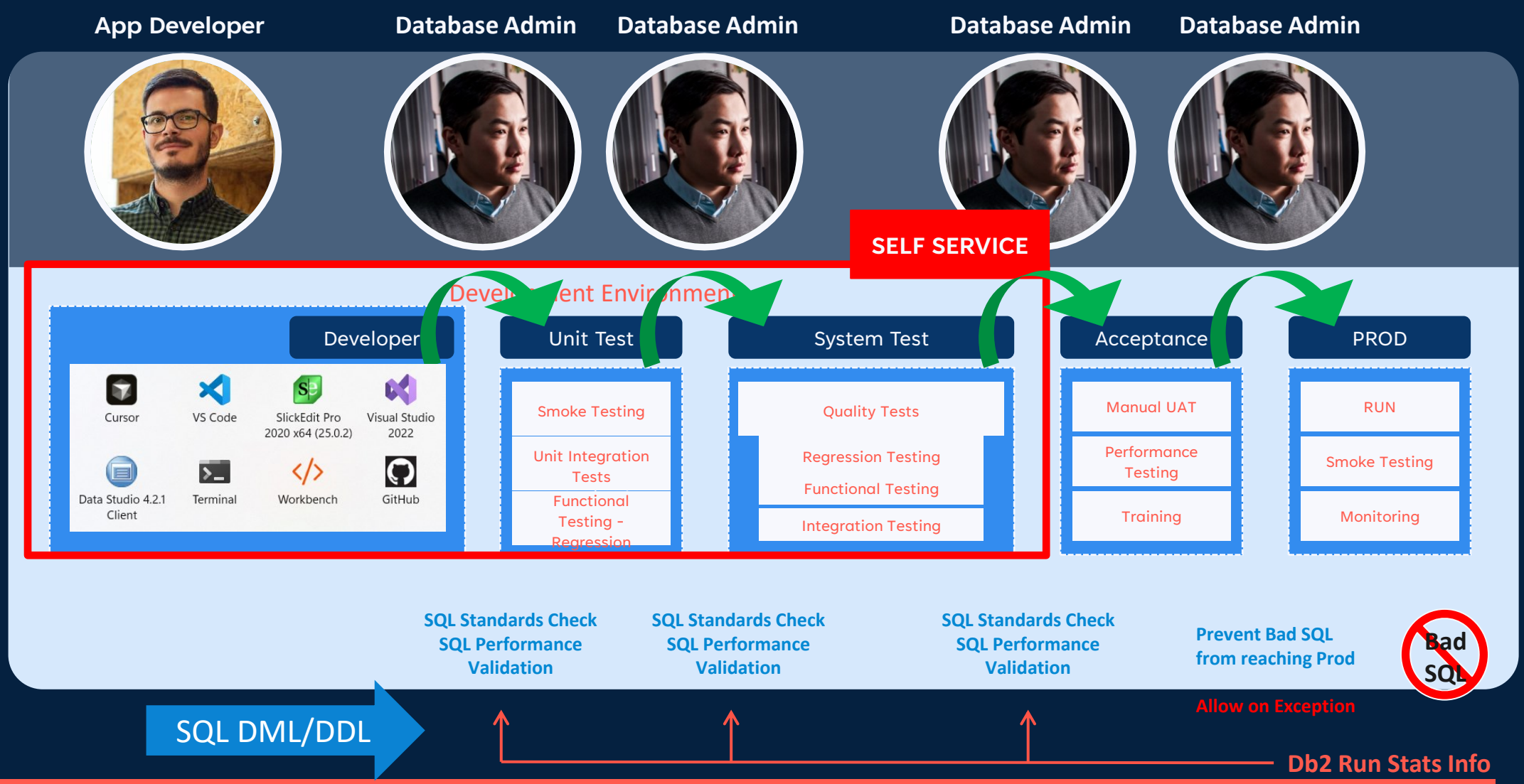
Migration-Based

"Sequence of Deltas"

- Capture baseline state at project start
- Sequenced migration scripts accumulate over time
- Cumulative script execution achieves desired state
- Full audit trail of every change ever applied
- Simpler tooling — widely understood by dev teams
- Risk: script order matters — drift causes complexity

Both require: version control · automated backout scripts · DBA-encoded standards embedded in the pipeline

As Developers make changes to both DML and DDL, the SQL is automatically checked for Best Practices, Site Standards, and Performance issues.



SQL Standards can be different by Environment.
SQL such as “Select *” may be allowed in Unit Test but Not in System Test. Comparison to Prod Run Stats is also included.

BMC AMI SQL Assurance For Db2

Franks Daily*

DB2 Navigator | File Locator | Job Browser | Performance | Scratchpad | **Product Tools**

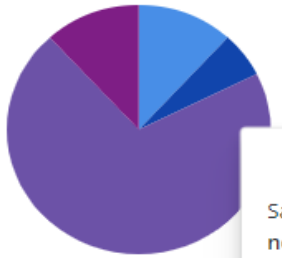
SQL Assurance
- System View

Database Admin

DBAs define rules for each Db2 Environment.

Connection: DEJM Time frame: 12 hours

DB2 Subsystem: DEJM



BMC184000S 24(71%)

Sample message: **BMC184000S-SELECT * on TABLE is not recommended since the answer set may change in the future, which could result in source code changes. It could also cause the optimizer to not choose certain access paths, and sorts are more expensive.**

SQL Assurance Vio

ions to Ignore Rules

Rule set			Collection ID	Name	Version	First logged
AMA.COB1201.BM...	BMC184243S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:40
AMA.COB1201.BM...	BMC184243S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:40
AMA.COB1201.BM...	BMC184022S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:40
AMA.COB1201.BM...	BMC184243S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:40
AMA.COB1201.BM...	BMC184000S	Static SQL	RDAJZL	ACSBQCO	ACS_1120_BPU7868	2020-08-28 05:24:58
AMA.COB1201.BM...	BMC184022S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:41
AMA.COB1201.BM...	BMC184243S	Static SQL	RDAJZL	CROSJOIN	V1.02	2020-08-28 01:57:41
AMA.COB1201.BM...	BMC184402S	Static SQL	RDAJZL	ACSBQCO	ACS_1120_BPU7868	2020-08-28 05:24:58
AMA.COB1201.BM...	BMC184000S	Static SQL	RDAJZL	ACSBQCO	ACS_1120_BPU7868	2020-08-28 05:24:58
AMA.COB1201.BM...	BMC184000S	Static SQL	RDAJZL	ACSBQCO	ACS_1120_BPU7868	2020-08-28 05:24:58

34 violation record(s)

*Prototype subject to change

Schema Standards DDL Analysis | Command Center | Command Center | Command Center | Db2 DevOps Pipeline ['DevOps D

Not secure | db2a.bmc.com:21211/commandcenter/index.html

Update

Apps | CNN | DB2 Home | DB2 Admin | DB2 Roadmaps | Z KT | R&D PMO | JIRA/AHA/BMC | Jenkins/UCD/Doc | CC | BMC EPD | QCV | Rhodes Family Chri... | VPAT Hell | zCares | GitHub | Jenkins installation... | UrbanCode Deploy... | Reading list

bmc AMI Command Center for Db2 | Workspace | Apps | 23 | Signed in as RDAFJR

Franks Daily

BMC AMI Schema Standards for Db2

DB2 Navigator | File Locator | Job Browser | Performance | Scratchpad | **Product Tools** | Schema Management

- Schema Standards
  - My View
  - SS Violations
  - DEJM
  - DBDC
    - Manage Schema Rules
  - DEJT
- SQL Assurance

Database Admin

DBAs define rules for each Db2 Environment.

Edit rule set: FRANKS SAMPLE RULE SET | DB2 Subsystem: DBDC

Rules | Related Rule Sets | Options

Rename rule

Rule name	Object type	Explanation	Updated by	Last updated	Comment
DB CREATORTYPE I...	Database	Creator Type for Database was not an AUTH...	RDAFJR	2021-09-13 12:29:14	Creator Type can only be checked for
DB NAME	Database	Database name :DBNAME does not start wit...	RDAFJR	2021-09-13 12:29:14	If DB Name is at least 3 bytes long, ve
DBCCSID AT CREATE	Database	Database is being defined with CCSID :DBCC...	RDAFJR	2021-09-13 12:29:14	DB should NOT be ASCII or UNICODE
NEW IX PRI SEC QT...	Index Partition	PRIQTY or SECQTY not set to -1 for new Index	RDAFJR	2021-09-13 12:29:14	For an Index being created, The PRIQ
NEW TS MUST BE U...	Table Space	Tablespaces being created is not a Universal...	RDAFJR	2021-09-13 12:29:14	All new Tablespaces being created wi
NEW TS PRI SEC QT...	Table Space Partition	PRIQTY or SECQTY not set to -1 for new Tabl...	RDAFJR	2021-09-13 12:29:14	For a Table space being created, The
ONE TB PER TS	Table	Tablespaces should only contain a single Ta...	RDAFJR	2021-09-13 12:29:14	Can only create a single table in a tab
TB NAME RULE	Table	New Tables must have their name start with...	RDAFJR	2021-09-13 12:29:15	All New TBs start with AMA
TS MAXPARTS 2 OR...	Table Space	Partition by Growth Tablespaces need to ha...	RDAFJR	2021-09-13 12:29:15	Maxpartitions needs to be 2 or greate
VARCHAR COLS M...	Table Column	Table cannot be created with column define...	RDAFJR	2021-09-13 12:29:15	Do not allow tables to be created with

10 schema rule(s)

File Edit View History Bookmarks Tools Help

Command Center | Viewing expert rule violations - Doc

https://bmca.bmc.com:3683/commandcenter/index.html

bmc AMI Command Center for Db2 | Workspace | Apps | Signed in as MKTMXC

demo*

DB2 Navigator | File Locator | Job Browser | Performance | Schema Management | Recovery Management | Scratchpad | Product Tools

SQL Assurance

Edward Jones

DJJ1

Manage Violations to Igno

Manage Violations to Ignore Rules | Add filter

DB2 Subsystem: DJJ

Rule set	Rule name	Type	Collection ID	Name	Version	Overri
%	BMC184000S	Dynamic SQL	%	%	%	2024-1
%	BMC184240S	Dynamic SQL	%	%	%	2024-1
%	BMC184396S	Static SQL	MKTCWR_COLLID	CRIN2PK	%	2021-0
%	BMC184422S	Static SQL	ASU131_D_MAIN	SCCQCAT	SCC_1310_202203...	2023-0
%	BMC184422S	Static SQL	BMCSCC	SCCQCAT	SCC_1310_202203...	2023-0

5 Violations to Ignore rule(s)

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04

AI AND THE DBA

Threat, tool, or the most significant transformation in the role's history?

AI in Database Management — What Is Actually Here

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Not prediction. Not hype. Production capability available now.

Query Optimisation

AI analyses execution patterns and recommends optimal access path changes, index additions, or statistics updates — reactively and proactively.

Anomaly Detection

ML models learn normal access patterns; detect unusual behaviour (access times, locations, volumes) indicative of breach or misuse in real time.

Predictive Performance

Historical data + ML = proactive RUNSTATS scheduling, buffer pool tuning, and tablespace growth predictions before they become incidents.

Intelligent Automation

AI-driven automation adapts: REORG triggered not by schedule but by real-time fragmentation thresholds and actual workload patterns.

Natural Language DBA

Database Assistant: ask plain-English questions about your specific Db2 version. Get tuning recommendations and root-cause analysis.

AI-Assisted Code Review

Code Assistant for Z: AI-driven COBOL/SQL analysis, refactoring, schema change impact assessment. AI workloads grow from 3% to 25% by 2026.

Will AI Replace the DBA? — The Honest Answer

Some analysts claim AI will reduce manual DBA tasks by up to 75% within 5 years. Let's be precise about what that means.

AI WILL automate

- Routine backup scheduling
- Threshold-based alerting
- Index advisor recommendations
- RUNSTATS & REORG scheduling
- Pattern-based anomaly detection
- Simple point-in-time recoveries
- Query plan analysis for known anti-patterns

AI CANNOT replace

- Long-term architecture strategy
- Regulatory & compliance reasoning
- Application context & data semantics
- Complex application recovery decisions
- Business-driven trade-off judgements
- Novel or compound failure diagnosis
- Trust-building

DBA must own

- AI model governance & oversight
- Training data for DB-specific ML
- Explainability of AI outputs
- Automated compliance audit trails
- Vector data & AI pipeline management
- Knowing when NOT to trust the AI
- The next skills investment

Generative AI on the rise

57%
Problem detection

47%
Automated testing

36%
Compliance reporting

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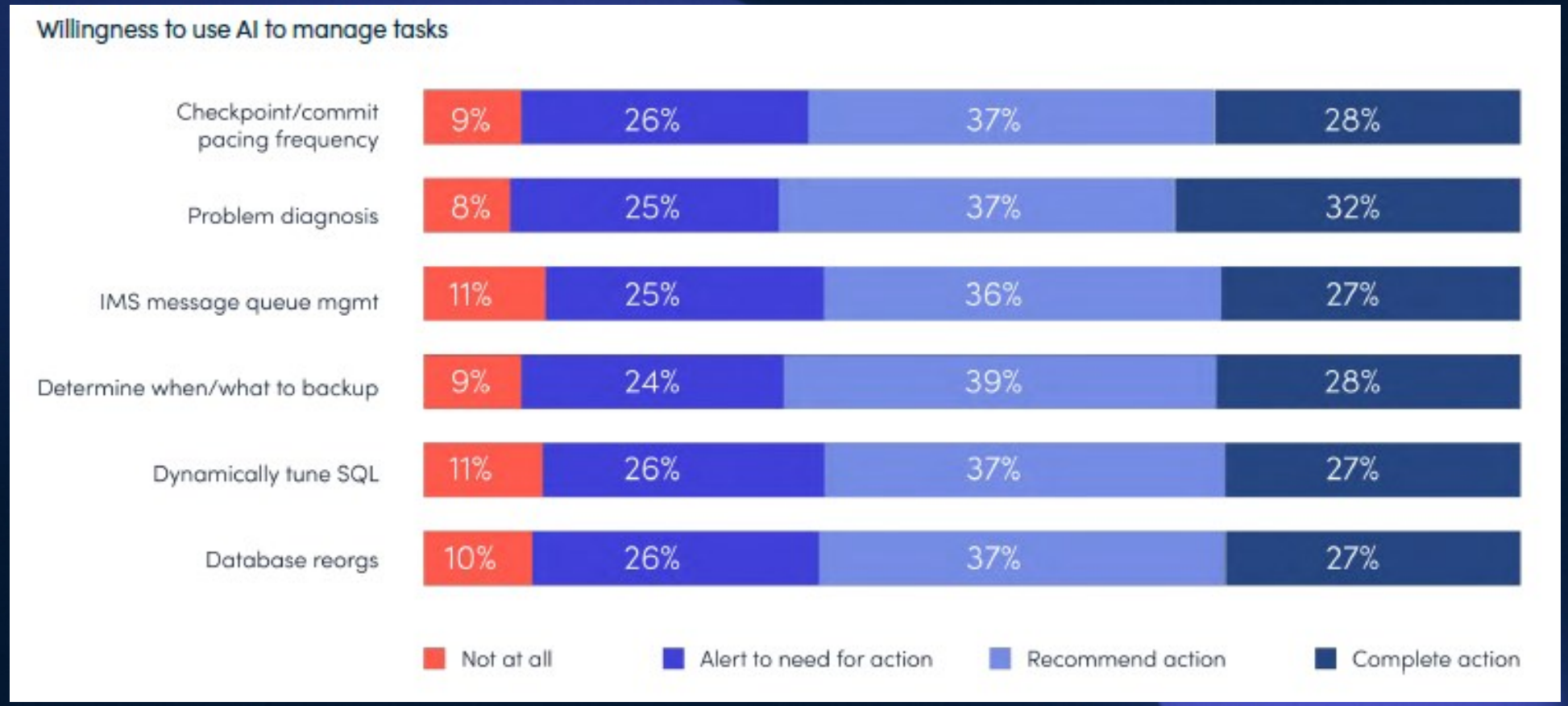
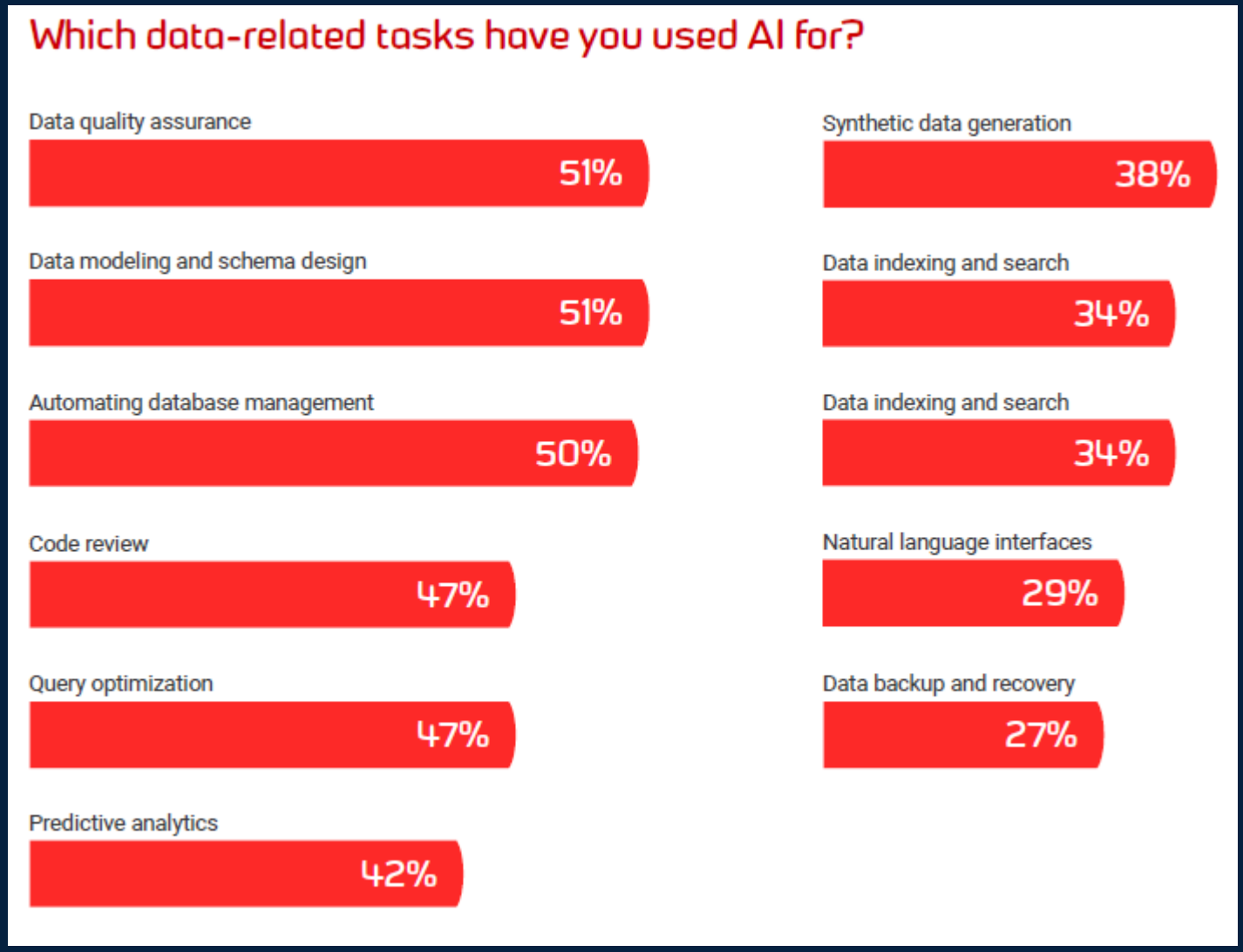
Shifting towards agentic AI – A spectrum of trust



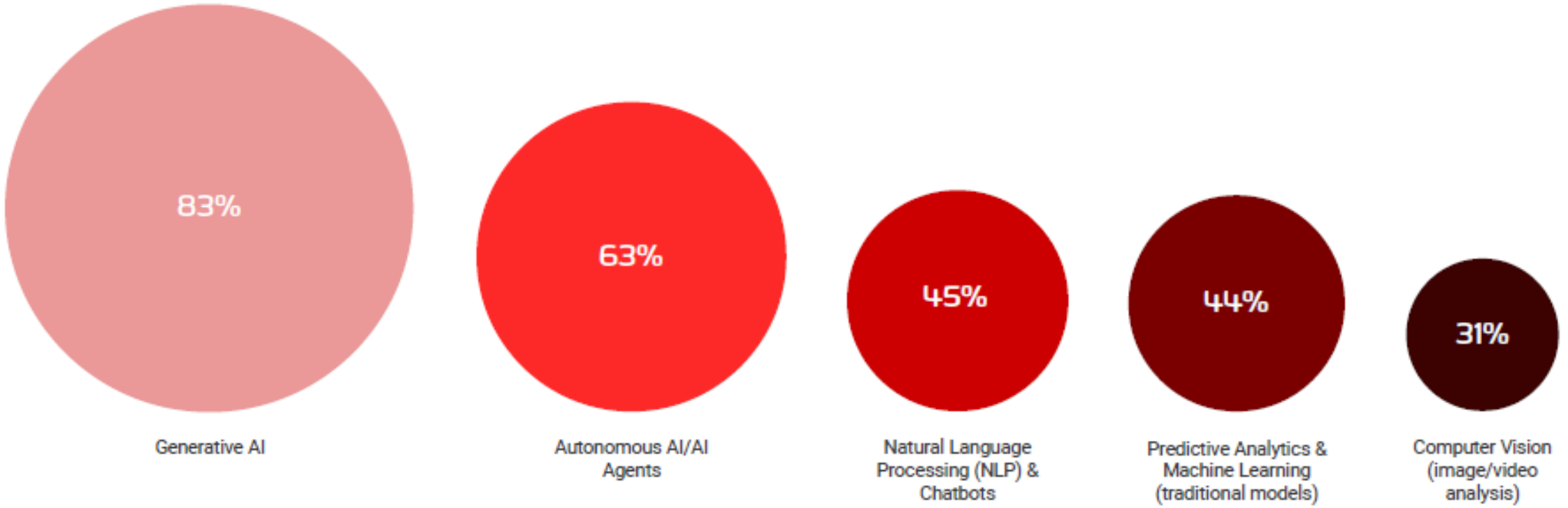
BMC Mainframe Survey

State of the Database Survey 2026



State of the Database Survey 2026

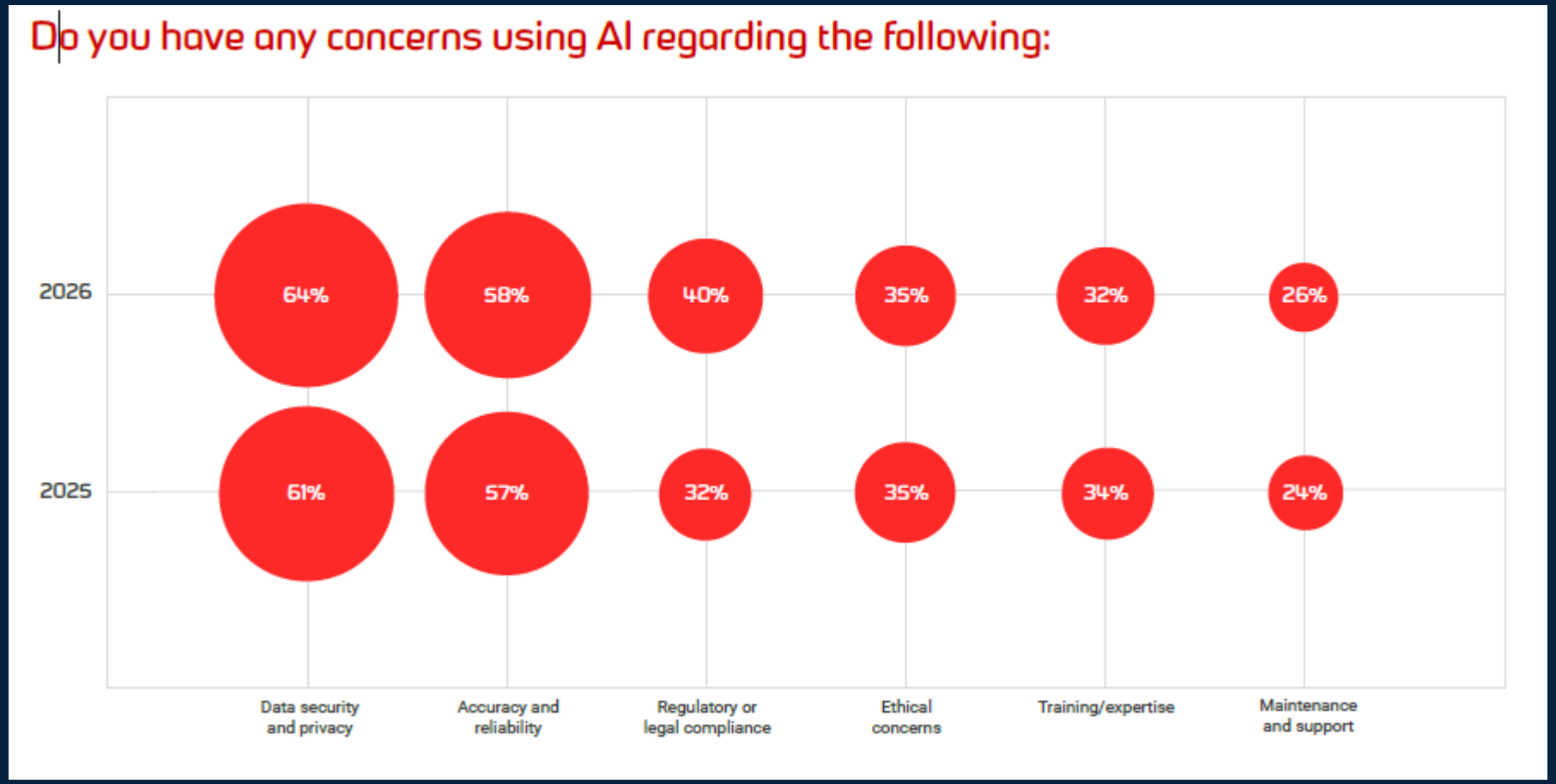
What types of AI technology are you using?



State of the Database Survey 2026

"Everyone wants to move faster with AI, but few are truly ready for it. It isn't just about algorithms – it's whether your data, systems, and teams are prepared to support intelligent automation safely and effectively."

Jeff Foster, Director of Technology and Innovation at Redgate.



State of the Database Survey 2026

- AI adoption in database management has surged
- AI is now embedded in core database work
- Security, privacy, and compliance concerns persist
- AI's benefits are measurable and widespread
- AI adoption is outpacing operational readiness
- AI amplifies 'downstream' risks
- AI is reshaping roles and hiring
- "Unready data" threatens AI success
- Despite risks, AI usage will continue to grow
- Generative AI dominates usage

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05
DBA 2.0

Define your role before someone else does it for you.

redgate

State of the Database Survey 2026

Teams are moving faster than their ability to manage risk

AI is reshaping how teams are built

Database estates are getting more complex, not less

The role of AI in data quality

Data quality remains the unsolved problem

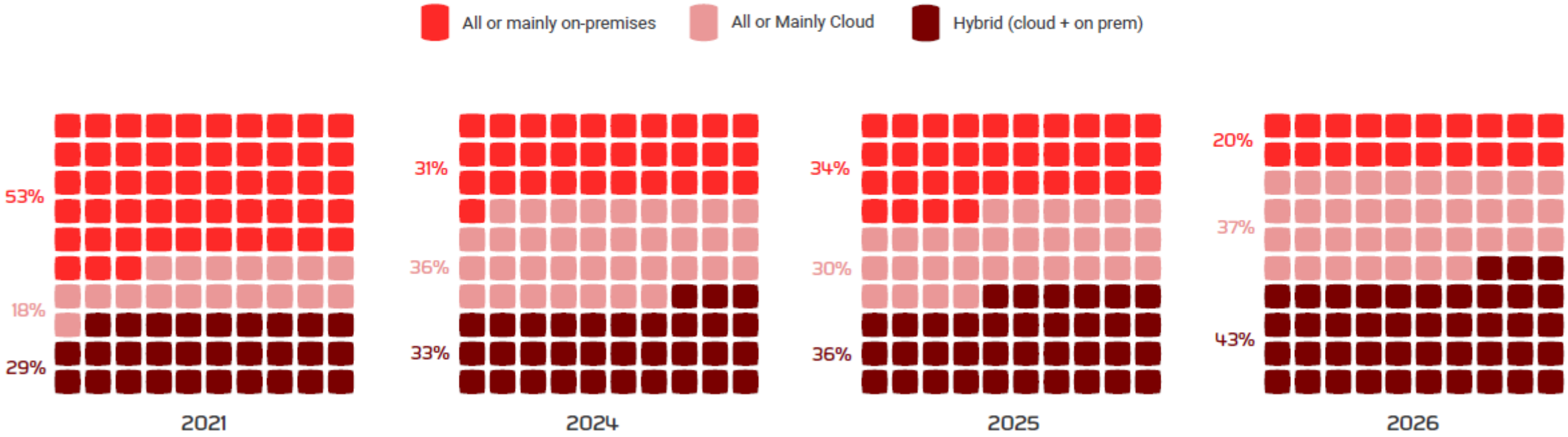
Data security has become a board-level concern

AI adoption is outpacing operational readiness

bmc

State of the Database Survey 2026

Where are your organization's production databases hosted?



DBA 2.0 — The Role Defined

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1 Automation Architect

You don't perform the change. You design and govern the pipeline that performs it safely. You encapsulate your SQL Rules as code, your Schema Naming Standards as code. Build automatic backouts as code.

2 Embedded Team Member

You attend every sprint from Sprint Zero, not just invited when you are a blocker. You review user stories for data implications before a line of DDL is written.

3 AI Co-pilot

You leverage AI-driven monitoring. You validate its outputs. You provide the domain expertise it cannot infer alone.

4 Security & Compliance

You own encryption policies, row-level security, data masking, and audit logging. DevSecOps is incomplete without you anchoring the data layer.

5 DataOps Engineer

You design the physical data model. You optimise pipeline performance through the database tier. You own data quality metrics for analytical consumers.

6 Continuous Learner

Python, Ansible, Git, REST APIs, vector databases, AI governance. The DBA who stopped learning in 2015 is already invisible. The one learning now is critical.

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You leverage AI-driven monitoring. You validate its outputs. You provide the domain expertise it cannot infer alone. Document your standards and methods.

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Making Change Your Advantage — The Culture Shift

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"DevOps is not only adequate automation, sufficient scheduling, and tolerable tooling. It's about a culture of communication, of people, practice, and process."

FROM		TO
"You shall not pass"	→	"Here's how to pass safely"
DBA as solo gatekeeper	→	DBA as embedded team architect
Ticket-based schema requests	→	Self-service pipeline with DBA-authored guardrails
3-week change lead times	→	Same-sprint schema deployment (with automation)
Standards enforced by review	→	Standards enforced by automated pipeline gate
AI as threat to my job	→	AI as multiplier of my expertise

Call to Action — Five Things to Do This Week

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1. Ask to attend the next sprint planning meeting for a development project — not to block anything, but to listen for data implications early.
2. Identify one manual change process in your organisation. Write down the steps. That's your first automation candidate and your first conversation starter.
3. Read/Research: IBM Db2 and Vendor announcements. What AI-assisted DBA tooling currently offers…
4. Add one new skill to your development plan this quarter: Rexx, Python for Db2, REST for Db2, Git for DDL version control…
5. Start the conversation about site standards as code. Standards that live in a document that nobody reads are not standards — they are wishful thinking.

QUESTIONS

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Do you automate your database changes?

What tools do you use?

Do you use AI in any way in your job as a DBA? How?

Thank you.
Questions?

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