How AI is impacting ITSM

How will AI transform IT Management?

AI for
ITSM

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srvision

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The AI journey…

Understand and Predict

Generate

Machine Learning

Find patterns in data and build predictive apps

Natural Language Processing (NLP)

Evolving ways of understanding text and speech to build natural language apps

Hey Google!
Alexa, …

Computer Vision

Extract information from images and video to build unique solutions

Generative AI

Generate human-like responses based on natural language input and execute cognitive tasks

ChatGPT

OpenAI

Gemini

Data, Advanced Analytics & AI

| 2000 | 2010 | 2020 | 2022 |

Predictive analytics

Big Data

Chatbot / virtual assistant
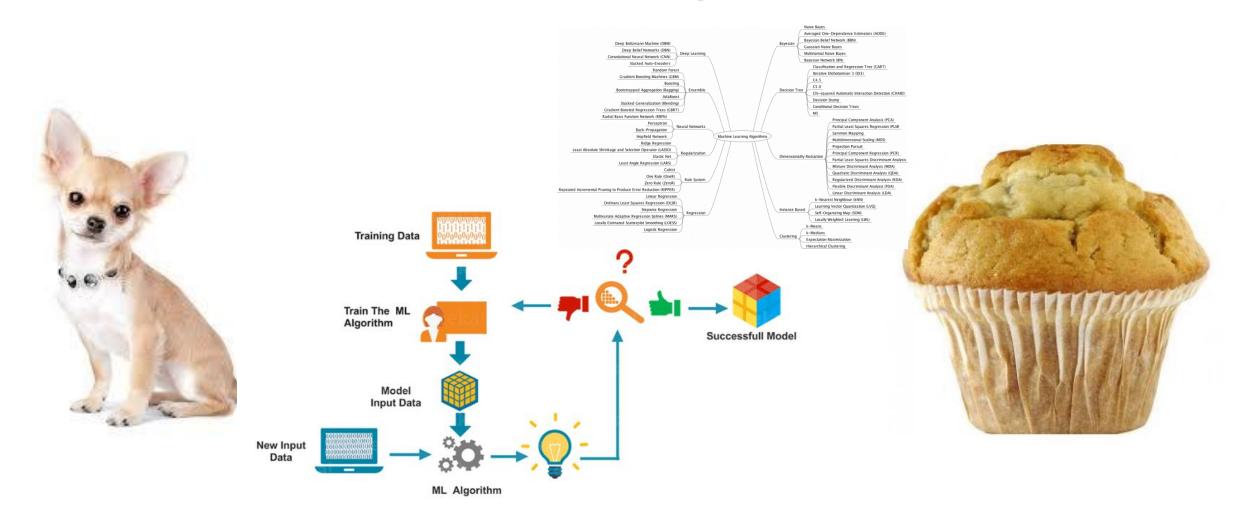
AIOps

Large Language Models (LLM)

Is it a Dog or a Muffin? How difficult is this algorithm?
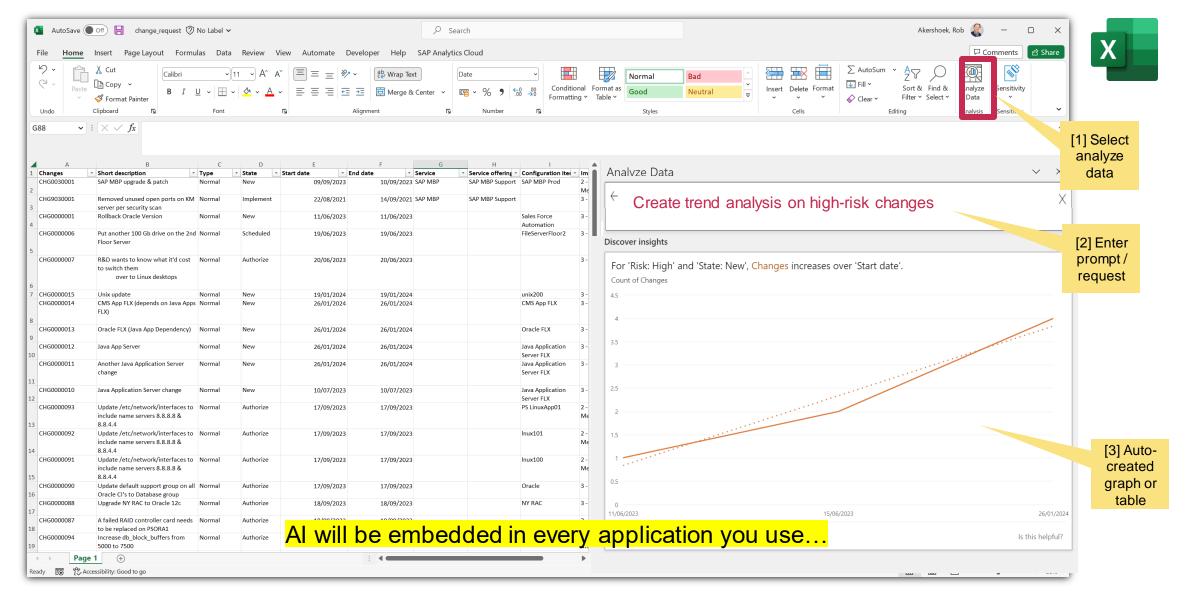
Deep learning and neural networks to recognize patterns …
Training your AI Model: Is it a Dog or a Muffin?

© 2024 / Rob Akershoek
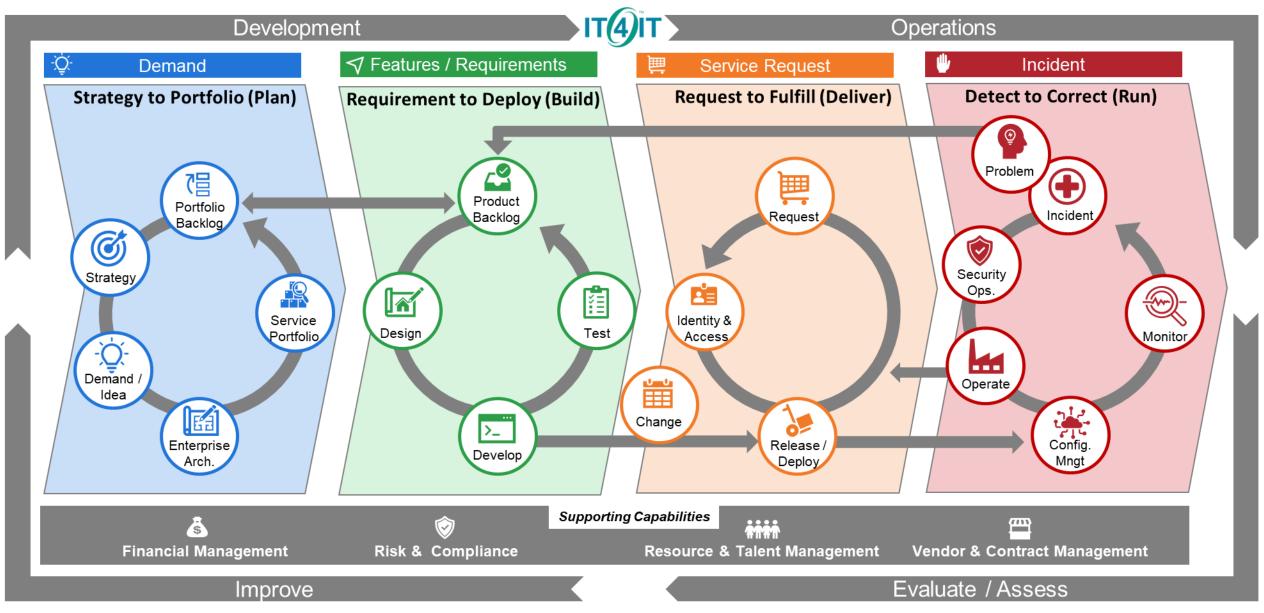
All applications will have embedded AI...For example MS Excel

[1] Select analyze data

[2] Enter prompt / request

[3] Auto-created graph or table

Create trend analysis on high-risk changes

Discover insights

For 'Risk: High' and 'State: New', Changes increases over 'Start date'.

Count of Changes

AI will be embedded in every application you use...

How can AI be used for IT Management?

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Development | IT4IT | Operations

Demand — Strategy to Portfolio (Plan)
- Strategy
- Portfolio Backlog
- Service Portfolio
- Demand / Idea
- Enterprise Arch.

Features / Requirements — Requirement to Deploy (Build)
- Product Backlog
- Design
- Test
- Develop

Service Request — Request to Fulfill (Deliver)
- Request
- Identity & Access
- Change
- Release / Deploy

Incident — Detect to Correct (Run)
- Problem
- Incident
- Security Ops.
- Monitor
- Operate
- Config. Mngt

Supporting Capabilities
- Financial Management
- Risk & Compliance
- Resource & Talent Management
- Vendor & Contract Management

Improve | Evaluate / Assess

Make IT Flow…

Make IT flow – Enable Business Outcome !

Provide end-to-end transparency and traceability…

Streamline and Automate IT activities

Feedback loops and insight for continuous improvement

All You Need is Flow…Connecting all the parts…

Strategy to Portfolio : Continuous Evaluation and Planning…

From Strategy to Portfolio…

Service / application portfolio

Architecture

Goals and objectives

Capability Model

Customer Journeys

Business P...

Service & Application Portfolio

Enterprise Architecture

Portfolio Backlog (or Project Portfolio)

Application Rationalization & Simplification

Benefits tracking

Migration planning and roadmaps

Technology refresh

Value, cost and risk analysis & recommendations

Portfolio Backlog

Understand value, risks, costs and user experience…gaps…and roadmaps…

AI in Portfolio Management…

Development — IT4IT — **Operations**

Demand	Features / Requirements	Service Request	Incident
Strategy to Portfolio (Plan)	Requirement to Deploy (Build)	Request to Fulfill (Deliver)	Detect to Correct (Run)

AI capabilities (blue boxes):
- Demand prioritization
- Benefits tracking
- Automated demand creation
- Application roadmap generation
- Technology refresh advisor & planner
- Application portfolio analysis & rationalization Advisor

Callouts (yellow boxes):
- Select the rights initiatives to optimize business outcome or reduce risk (aligned with the strategic goals)
- Demonstrate value realization (of investments)
- Optimizing the service / product portfolio, reduce complexity and eliminate technology debt
- Analyzing current state, defining the target state and create roadmaps

Supporting Capabilities

Financial Management | Risk & Compliance | Resource & Talent Management | Vendor & Contract Management

Improve | Evaluate / Assess

Develop and Maintain IT services / Products….

Develop and Maintain IT services / Products…. (srvision)

Development — IT4IT — Operations

Demand | **Features / Requirements** | **Service Request** | **Incident**

Strategy to Portfolio (Plan) | **Requirement to Deploy (Build)** | **Request to Fulfill (Deliver)** | **Detect to Correct (Run)**

- Portfolio Backlog
- Strategy
- Service Portfolio
- Demand / Idea
- Enterprise Arch.

- Product Backlog
- Design
- Test
- Develop

- Identity & Access
- Change
- Release / Deploy

- Security Ops.
- Monitor
- Config. Mngt

> Enable teams to deliver faster, better and safer… (more frequent delivery, fix issues sooner)

> Reduce risk (e.g. security issues / vulnerabilities, defects) and ensure compliance

Supporting Capabilities

Financial Management | **Risk & Compliance** | **Resource & Talent Management** | **Vendor & Contract Management**

Improve — Evaluate / Assess

Integrating AI into Service / Application Development…

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Development | IT(4)IT | **Operations**

Demand — **Strategy to Portfolio (Plan)**

Features / Requirements — **Requirement to Deploy (Build)**

Service Request — **Request to Fulfill (Deliver)**

Incident — **Detect to Correct (Run)**

Design
- AI supported UX Design
- Threat modeling
- Secure and privacy by design
- Requirement specification (NLP)

Coding:
- AI Pair Programming
  - Code to Documentation (Code Explanation)
  - Text to Code (Code Generation)
- AI Peer Review
- Code review and optimalization
- Bug fixing
- Secure code recommendation
- Infrastructure as code generation

AI Testing:
- Synthetic Data (data anonymization)
- AI test case generation
- Automated Testing
- Security and vulnerability testing

Product Quality Score & Application Health

Root cause analysis

Generate documentation

Software Component analysis (SBOM)

Generate release notes

Enable teams to deliver faster, better and safer… (more frequent delivery, fix issues sooner)

Portfolio Backlog

Strategy

Demand / Idea

Enterprise Arch.

Request

Identity & Access

Release / Deploy

Problem

Incident

Security Ops.

Monitor

Config. Mngt

Supporting Capabilities

Financial Management | **Risk & Compliance** | **Resource & Talent Management** | **Vendor & Contract Management**

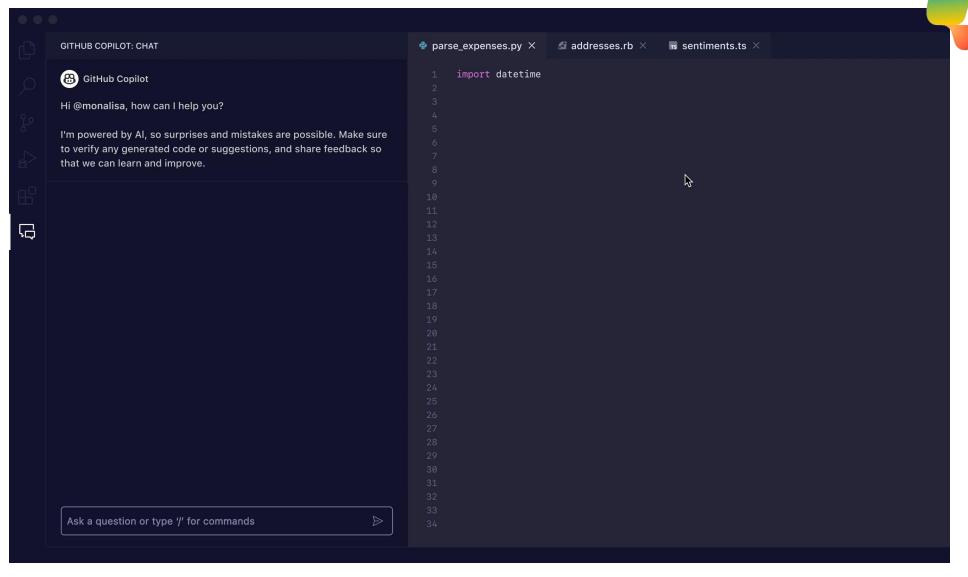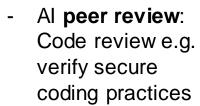**Improve** | **Evaluate / Assess**

DXC TECHNOLOGY

Microsoft / GitHub CoPilot – AI Pair Programming

COPILOT

```csharp
0 references | 0 changes | 0 authors, 0 changes
public static void CreateTables()
{
    using (var context = new TaskContext())
    {
        context.Database.ExecuteSqlRaw("CREATE TABLE tasks (id INT PRIMARY KEY, title VARCHAR(50), priority INT)");
    }
}
```

Auto complete (and suggestions)
Bug fixing support
AI generated test cases
Create code based upon functional requirements
Code quality checks (including secure coding practices
…

AI Assisted Testing & Quality Assurance

- AI **peer review**: Code review e.g. verify secure coding practices
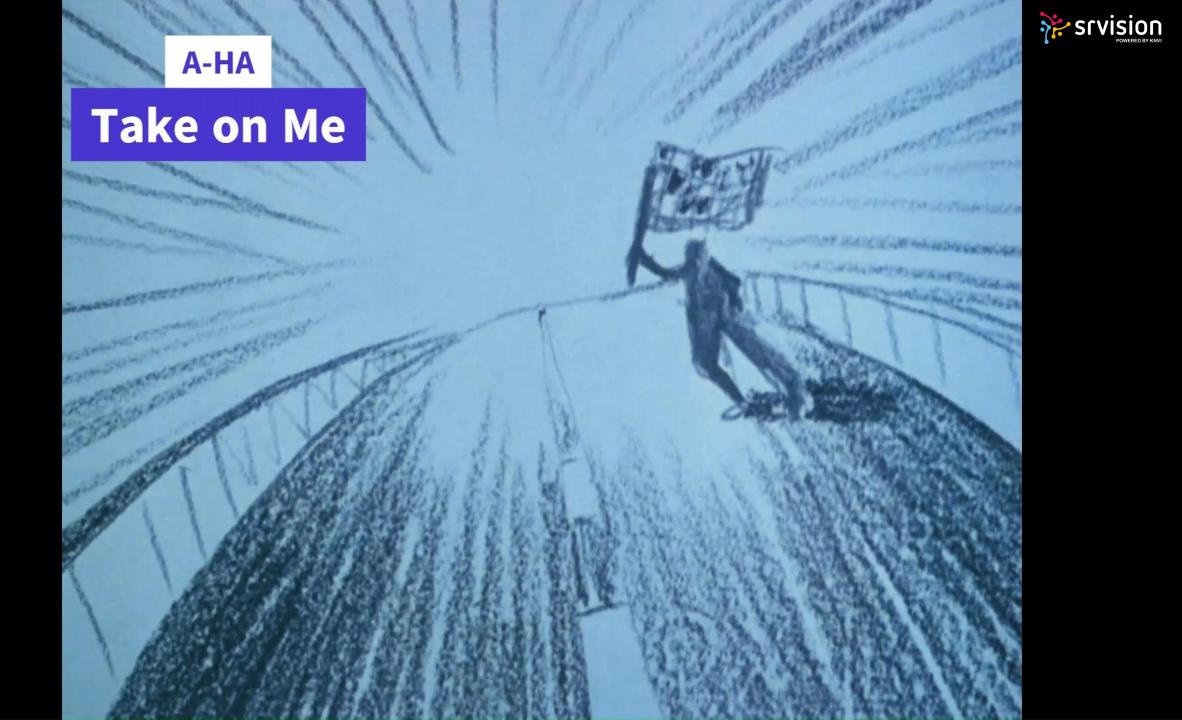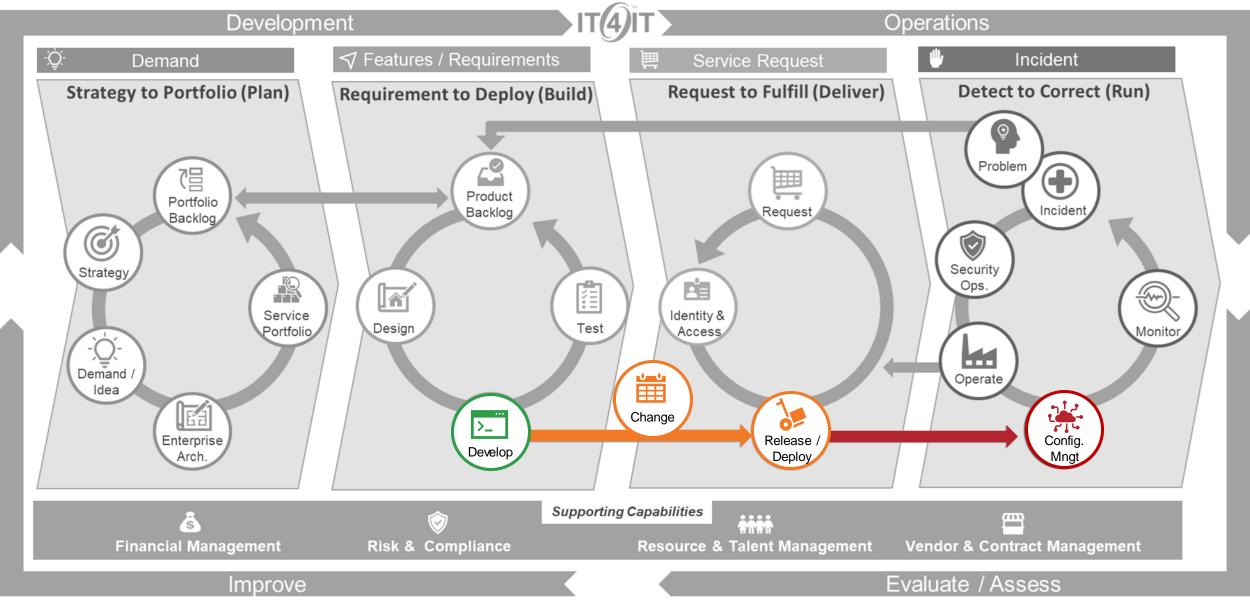
- **Code quality** checks

- Create and perform unit **tests**

- Create **test data** (synthetic data), anonymize production data

- Recommend code fixes and **optimalisation**

Change/Release and Update the CMDB…
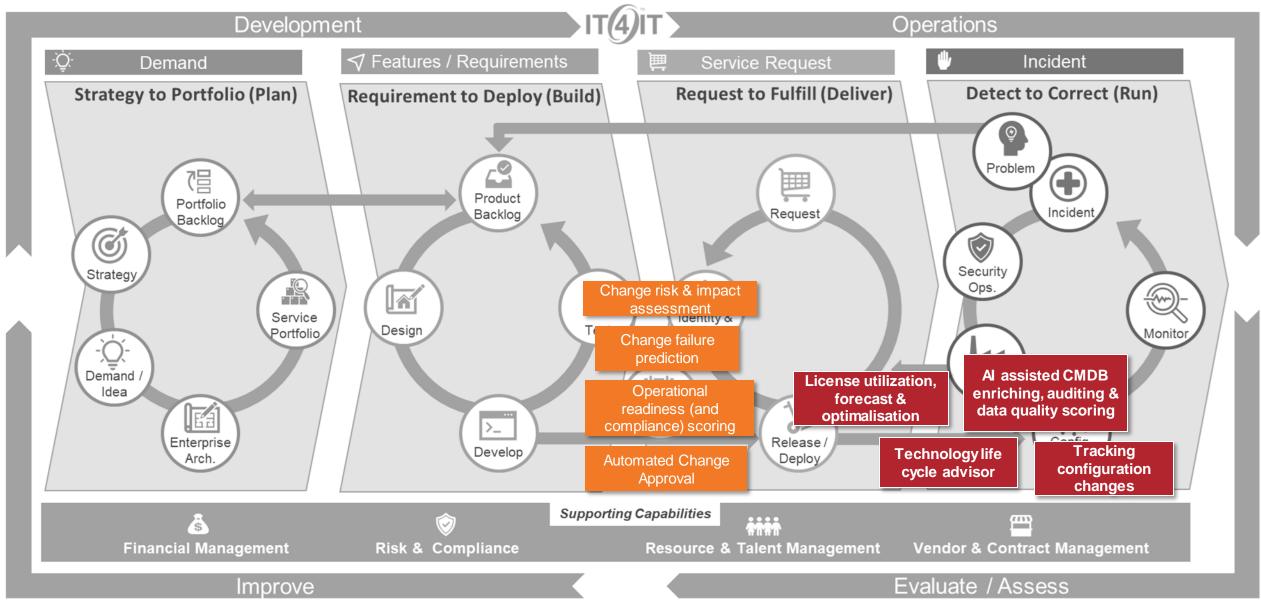
AI in Change/Release and Configuration Management
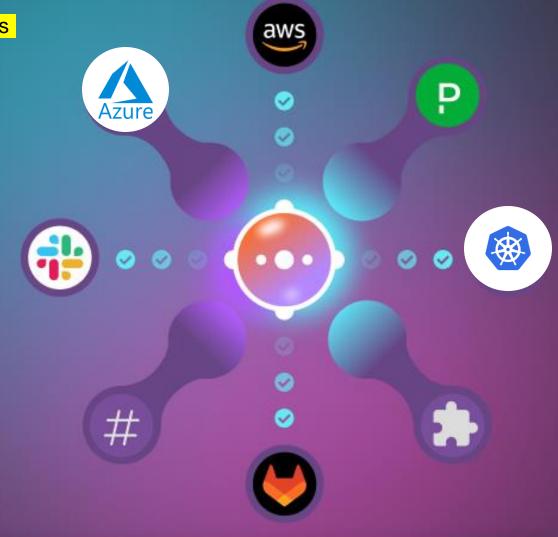
Create infrastructure design, and configure cloud resources you need for your application....

Use ChatGPT to create your infrastructure

What if you had unlimited access to a Staff Engineer who could perform any task, or answer any question for your internal systems, 24 hours per day, 7 days per week? And what if this freed you up to do the work you wanted to do?
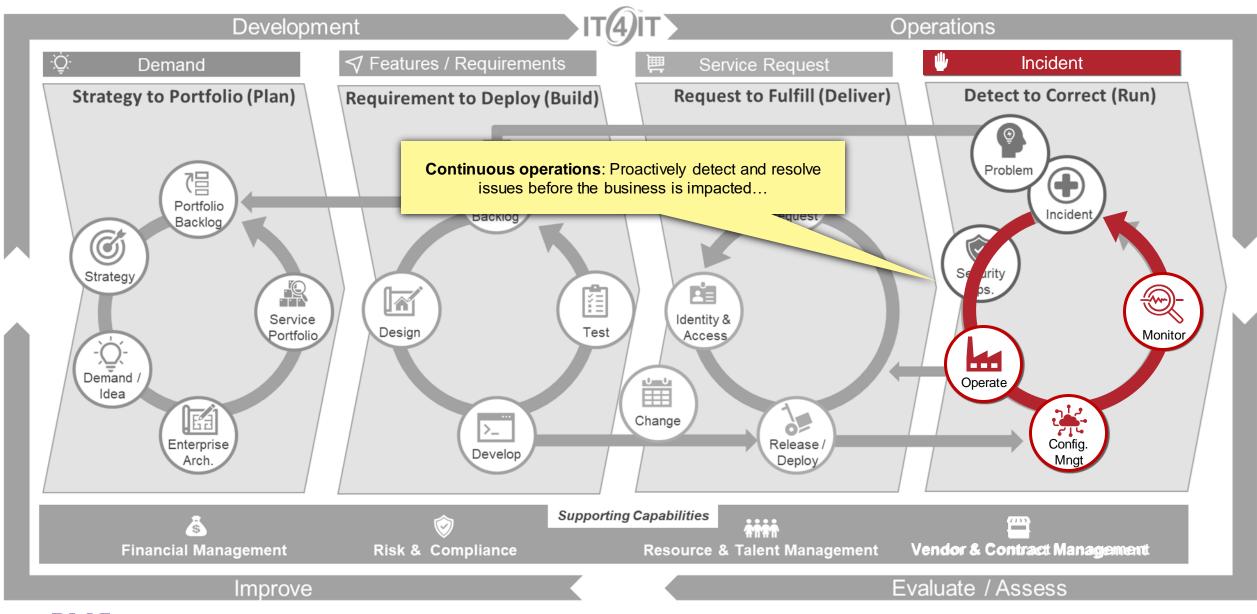
Deploy a web server and database for my application...
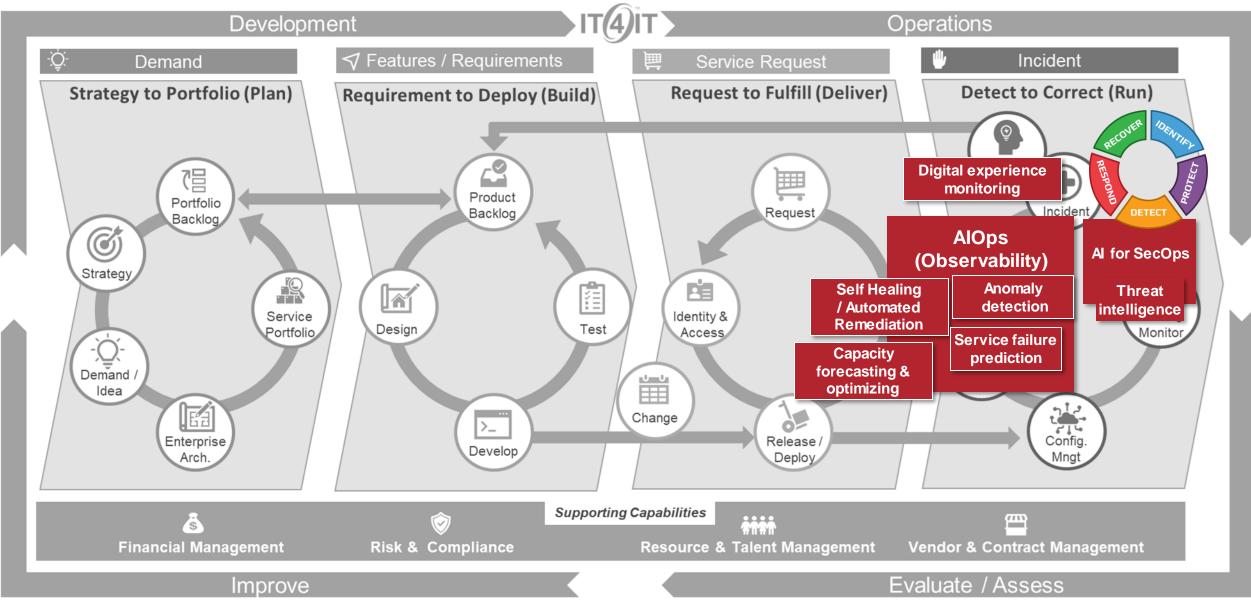
Detect to Correct : Monitoring & Observability

Development — IT(4)IT — Operations

| Demand | Features / Requirements | Service Request | Incident |

Strategy to Portfolio (Plan) | **Requirement to Deploy (Build)** | **Request to Fulfill (Deliver)** | **Detect to Correct (Run)**

Portfolio Backlog · Strategy · Service Portfolio · Demand / Idea · Enterprise Arch.

Backlog · Design · Test · Develop · Change · Identity & Access · Release / Deploy · Request

Problem · Incident · Security Ops. · Monitor · Operate · Config. Mngt

Continuous operations: Proactively detect and resolve issues before the business is impacted…

Supporting Capabilities

Financial Management · **Risk & Compliance** · **Resource & Talent Management** · **Vendor & Contract Management**

Improve — Evaluate / Assess

Detect to Correct : AI in Monitoring / Observability….

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Development — IT4IT — Operations

Demand | **Features / Requirements** | **Service Request** | **Incident**

Strategy to Portfolio (Plan) | **Requirement to Deploy (Build)** | **Request to Fulfill (Deliver)** | **Detect to Correct (Run)**

Strategy · Portfolio Backlog · Service Portfolio · Demand / Idea · Enterprise Arch.

Product Backlog · Design · Test · Develop · Change

Request · Identity & Access · Release / Deploy

Incident · Monitor · Config. Mngt

RECOVER · IDENTIFY · RESPOND · PROTECT · DETECT

Digital experience monitoring

AIOps (Observability)

AI for SecOps

Threat intelligence

Self Healing / Automated Remediation

Anomaly detection

Service failure prediction

Capacity forecasting & optimizing

Supporting Capabilities

Financial Management | **Risk & Compliance** | **Resource & Talent Management** | **Vendor & Contract Management**

Improve — Evaluate / Assess

Detect to Correct

AI for the Front Door of IT and Service Support

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Development — IT(4)IT — **Operations**

Demand | Features / Requirements | Service Request

Strategy to Portfolio (Plan) | Request to Fulfill (Deliver) | Detect to Correct (Run)

Chatbot / Virtual Assistant (AI Powered Self service + Self Help)

Optimize **user experience** (get issues / questions resolved, communication & collaboration)

Chat summarizing

Sentiment analysis

Ticket summarizing

Knowledge item Creation

Automated Incident Routing

Faster (and more **efficient**) resolution of issues / questions..

Incident Classification, Match Similar Incidents, Automated routing, Root cause analysis, Recommend solutions/ work arounds

Automated request fulfillment

Closure notes creation

Product Backlog

Request

Test

Identity & Access

Monitor

Change

Release / Deploy

Config. Mngt

Supporting Capabilities

Resource & Talent Management

Vendor & Contract Management

Evaluate / Assess

Phone chat:
- I see that you have issues logging into the CRM portal….
- Can you assist you?
- Yes, it seems my account or credentials are not correct?
- ….Let me check…I see that your HR role has changed yesterday….

DXC TECHNOLOGY

Create summary of the virtual assistant conversation with the end-user…

Create summary of the virtual assistant conversation with the end-user…

List   INC0010433   ×   +

DB2 server is down

Priority   State   Opened
3 - Moderate   In Progress   2023-09-29 16:52...

Save   Create change request ▾   Resolve   ...

Overview   Investigation   Details   Related records

Summary

Short description
DB2 server is down

Impact   2 - Medium

Affected CIs
0

Impacted Services/CIs
0

Assets
0

Affected CIs   0
Last refreshed just now

Configuration Item   Class   Support group   Owned by

Compose

Recommended Actions

Current   History

Resolve   ✕

Resolution code ✳

Solved (Permanently)   ▾

Resolution notes ✳

The agent provided the customer with information about the current
status of the DB2 server, which was reported as being down. The agent
also informed the customer that they would investigate the issue further
and provide them with an update as soon as possible.

The resolution of this incident is not explicitly documented in the provided
context.

Cancel   Resolve

AI created resolution
notes...and email
updates to the end-
user

Continuous Evaluation & Improvement…

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Development — IT(4)IT — Operations

Demand — Features / Requirements — Service Request — **Incident**

Strategy to Portfolio (Plan) — **Requirement to Deploy (Build)** — **Request to Fulfill (Deliver)** — **Detect to Correct (Run)**

Portfolio Backlog

Strategy

Product Backlog

Design

Test

Develop

Change

Request

Identity & Access

Release / Deploy

Problem

Incident

Security Ops

Monitor

Operate

Config. Mngt

AI assisted problem creation

Trend analysis, Predictive analytics

AI supported Service Reviews (and Sentiment Analysis)

Technology refresh advisor

Service improvement recommendation

Service health analysis

IT Consumption Analytics & Optimalization

AI assisted risk assessment

Compliance monitoring & reporting

End-of-contract monitoring

Supporting Capabilities

Resource & Talent Management

Vendor Management

Improve — Evaluate / Assess

How does AI revolutionize ITSM?

AI enabled search and data querying / cognitive search

- AI assisted surveys / collect customer feedback (and sentiment analysis)
- AI Assisted Demand articulation & classification
- Self service / Self help (e.g. Chatbot / Virtual Assistant)
- AI for User Experience, Capture feedback, Sentiment Analysis (e.g. NPS)
- AI Assisted Knowledge item Creation
- Backlog item prioritization
- Onboard / Off-boarding employees
- Call & work note summarization
- Design
  - Generative AI UX Design
  - Requirement specification (NLP)
- AI assisted approvals
- Robotic Process Automation (RPA)
- AI problem creation
- Incident classification, routing, root cause analysis, recommended solution
- Change impact assessment
- Coding:
  - AI Pair Programming
    - Code to Documentation
    - Text to Code
    - Re-use code
  - AI Peer Review
  - Code review and optimization
  - Code quality check
  - Bug fixing
  - Secure code recommendation
- AI Testing:
  - Synthetic Data (data anonymization)
  - Test case generation
  - Automated testing
- Change failure prediction
- Digital experience monitoring
- AIOps (Monitoring / Observability – Anomaly detection & Service failure prediction)
- Threat intelligence
- AI Driven SecOps
- IAM (access controls, revocation)
- Vulnerability detection & remediation
- Service assessment & evaluation
- Capacity forecasting & optimalisation
- AI assisted application rationalization advisor
- Technology refresh advisor & planner
- Generate release documentation
- Automated remediation / Self healing
- Identity unauthorized configuration changes
- Infrastructure as code generation
- Software Component analysis (SBOM)
- ChatOps
- Configuration compliance verification
- Data discovery & classification
- Desired State / Policy automation
- License utilization, forecast & optimalisat...
- Augmented FinOps
- AI TRISM (Trust, Risk, and Security Management)
- AI training generation e.g. security awareness.
- AI assisted Contract analysis
- Service analytics & intelligence
- AI data visualization
- IT Consumption & Analysis, forecasting & optimization
- AI assisted risk analysis
- Compliance monitoring & reporting
- AI resource allocation (talent matching)
- Process mining
- Data privacy scanning
- AI supported employee onboarding

What is the biggest problem in ITSM today?

Data is the Oil in the Machine

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Development | IT(4)IT | Operations

Lacking insight and transparency

Strategy to Portfolio (Plan) | **Requirement to Deploy (Build)** | **Request to Fulfill (Deliver)** | **Detect to Correct (Run)**

- Demands
- Project Portfolio & Portfolio Backlog
- Service / product & Technology portfolio
- Technology life cycle
- Enterprise Architecture

- Product backlog e.g. features, stories, …
- Design documents
- Test cases
- Test data
- Source code
- SBOM
- Builds

- Service catalogue
- Service Requests
- User identities & Access Rights
- Change records
- API register

- Knowledge items
- Incident & Problem records
- Monitoring data (Metrics, Logs, Events, …)
- Security events
- Vulnerabilities
- Capacity & Usage Data
- Configuration & Asset Data
- Software licenses
- Cloud resources

Strategy | Demand / Idea | Product Backlog | Design | Test | Request | Incident | Monitor | Deploy

- Consumption & Costs
- IT risks & compliance
- Reports & KPIs
- Contracts

Financial Management | Risk & Compliance | Resource & Talent Management | Vendor Management

Improve | Evaluate / Assess

Lacking insight for continuous improvement…

ONLY **5%** OF AVAILABLE **IT DATA** IS USED IN **IT MANAGMENT**

- **Service / applications?**
- **User experience?**
- **Business value and outcome?**
- **SLA performance?**
- **IT resource usage?**
- **Costs?**
- **Risks?**
- **Vulnerabilities?**
- **Technology debt?**
- **…**

Knowledge workers spent about **20%** of their time for searching for and gathering information (Research McKinsey Global Institute).
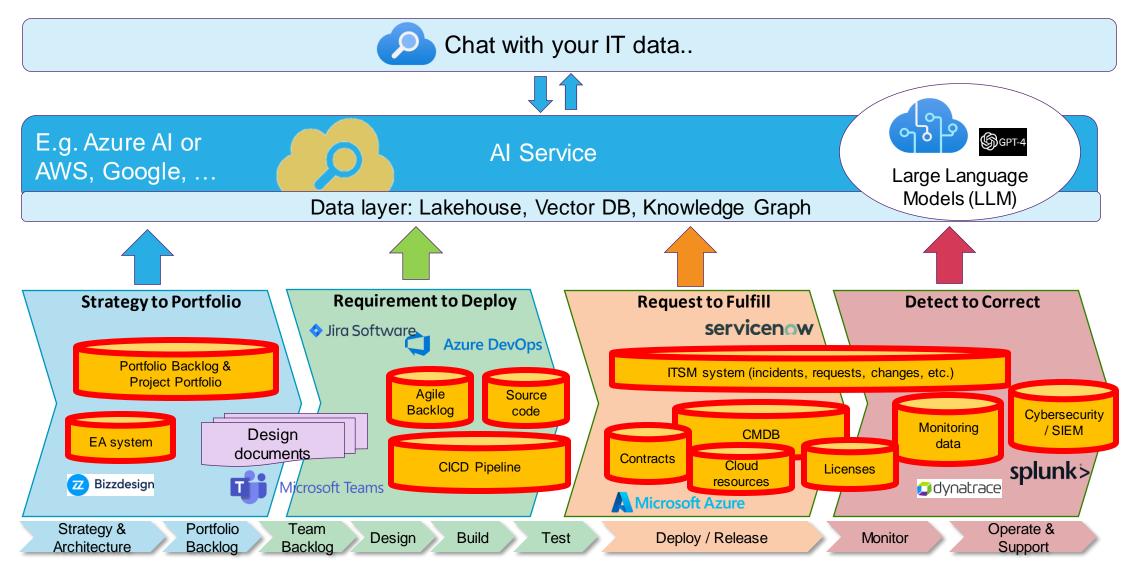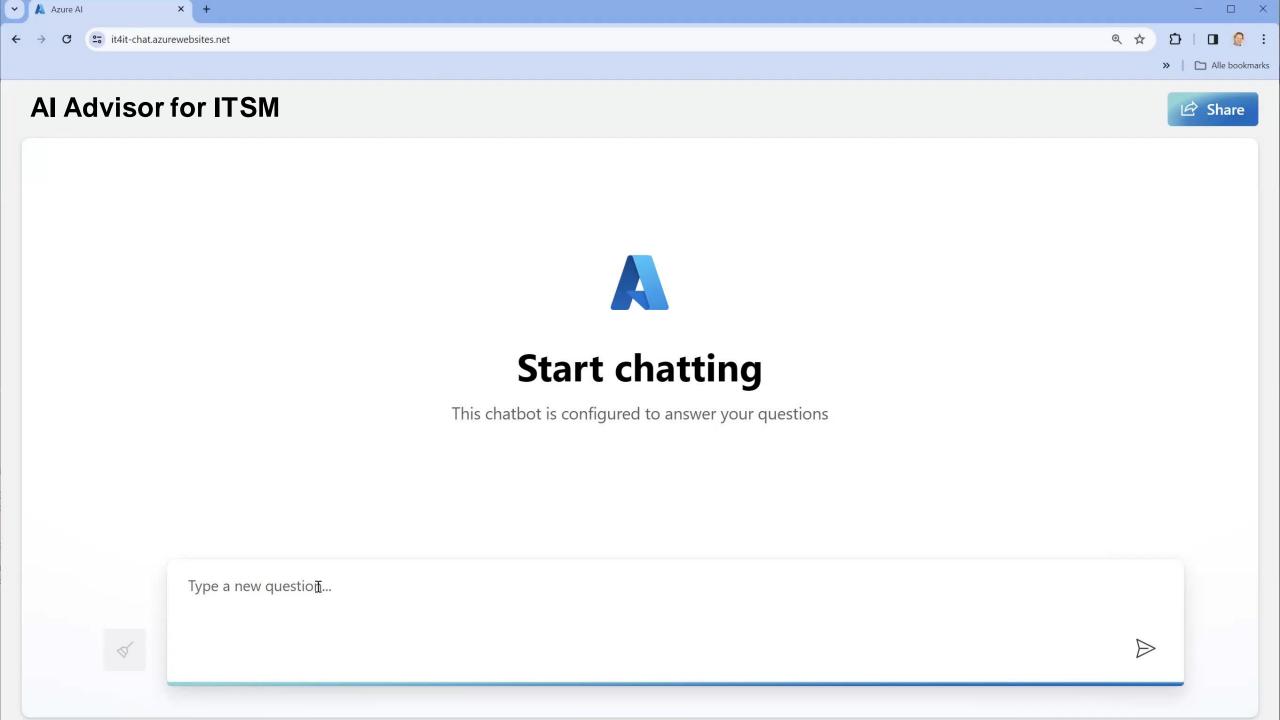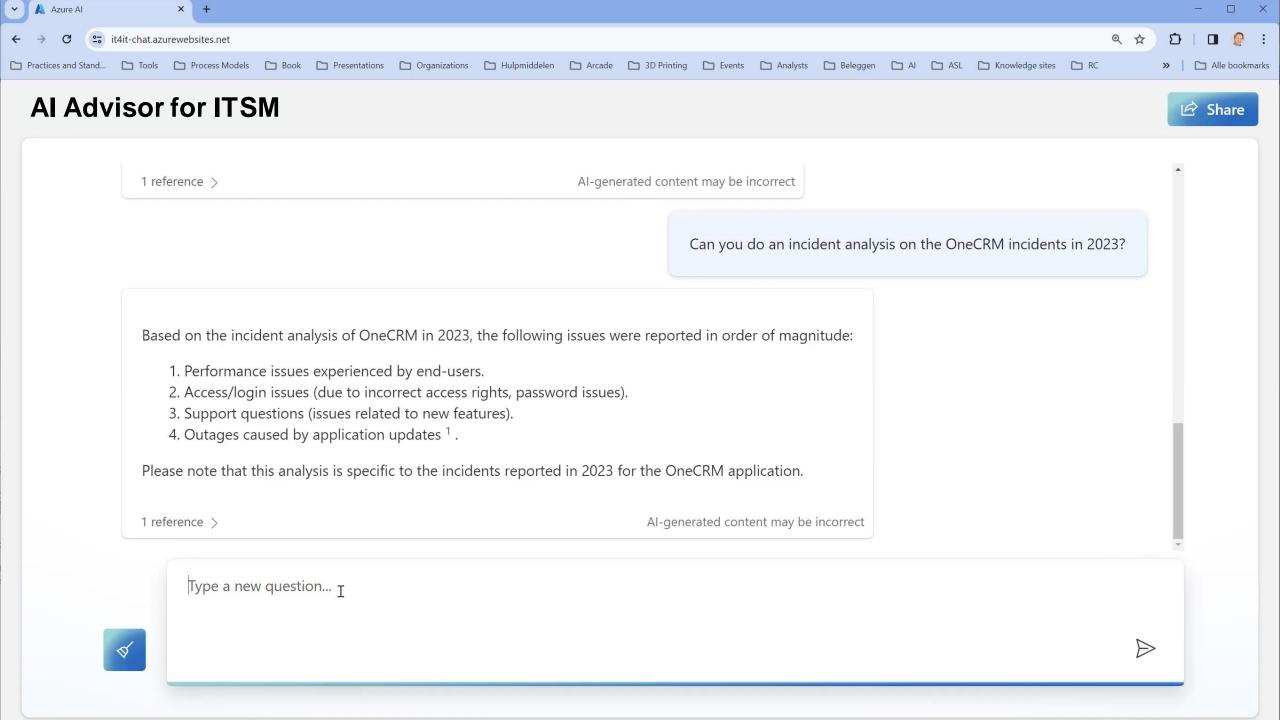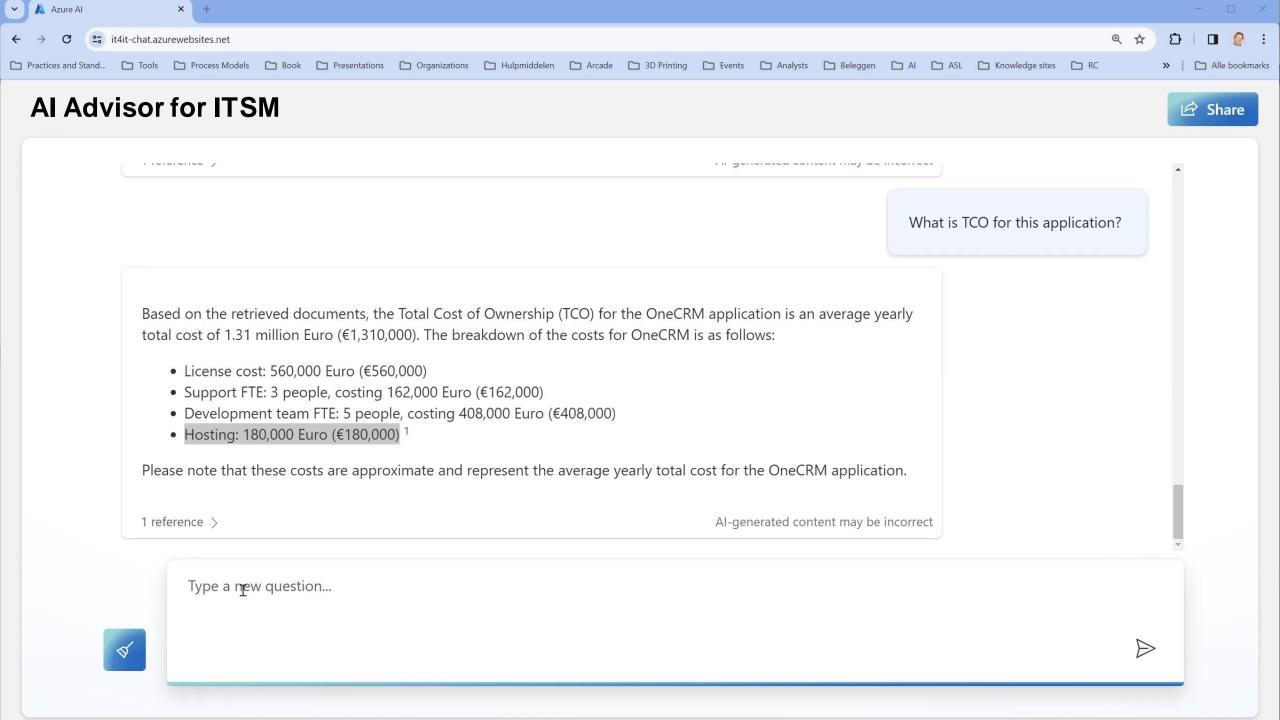
New Era of ITSM: Chat with your own ITSM data...

Retrieval Augmented Generation (RAG)

Chat with your IT data..

E.g. Azure AI or AWS, Google, ...

AI Service

Large Language Models (LLM)

GPT-4

Data layer: Lakehouse, Vector DB, Knowledge Graph

Strategy to Portfolio

Portfolio Backlog & Project Portfolio

EA system

Design documents

Bizzdesign

Microsoft Teams

Requirement to Deploy

Jira Software

Azure DevOps

Agile Backlog

Source code

CICD Pipeline

Request to Fulfill

servicenow

ITSM system (incidents, requests, changes, etc.)

CMDB

Contracts

Cloud resources

Licenses

Microsoft Azure

Detect to Correct

Monitoring data

Cybersecurity / SIEM

splunk>

dynatrace

Strategy & Architecture → Portfolio Backlog → Team Backlog → Design → Build → Test → Deploy / Release → Monitor → Operate & Support

AI Advisor for ITSM

Share

Start chatting

This chatbot is configured to answer your questions

Type a new question...

it4it-chat.azurewebsites.net

AI Advisor for ITSM

Share

1 reference >

AI-generated content may be incorrect

Can you do an incident analysis on the OneCRM incidents in 2023?

Based on the incident analysis of OneCRM in 2023, the following issues were reported in order of magnitude:

1. Performance issues experienced by end-users.
2. Access/login issues (due to incorrect access rights, password issues).
3. Support questions (issues related to new features).
4. Outages caused by application updates [1].

Please note that this analysis is specific to the incidents reported in 2023 for the OneCRM application.

1 reference >

AI-generated content may be incorrect

Type a new question...

it4it-chat.azurewebsites.net

Practices and Stand... · Tools · Process Models · Book · Presentations · Organizations · Hulpmiddelen · Arcade · 3D Printing · Events · Analysts · Beleggen · AI · ASL · Knowledge sites · RC · Alle bookmarks

AI Advisor for ITSM

Share

What is TCO for this application?

Based on the retrieved documents, the Total Cost of Ownership (TCO) for the OneCRM application is an average yearly total cost of 1.31 million Euro (€1,310,000). The breakdown of the costs for OneCRM is as follows:

- License cost: 560,000 Euro (€560,000)
- Support FTE: 3 people, costing 162,000 Euro (€162,000)
- Development team FTE: 5 people, costing 408,000 Euro (€408,000)
- Hosting: 180,000 Euro (€180,000) [1]

Please note that these costs are approximate and represent the average yearly total cost for the OneCRM application.

1 reference >

AI-generated content may be incorrect

Type a new question...

New Era of ITSM: Chat with your own ITSM data...

Retrieval Augmented Generation (RAG)

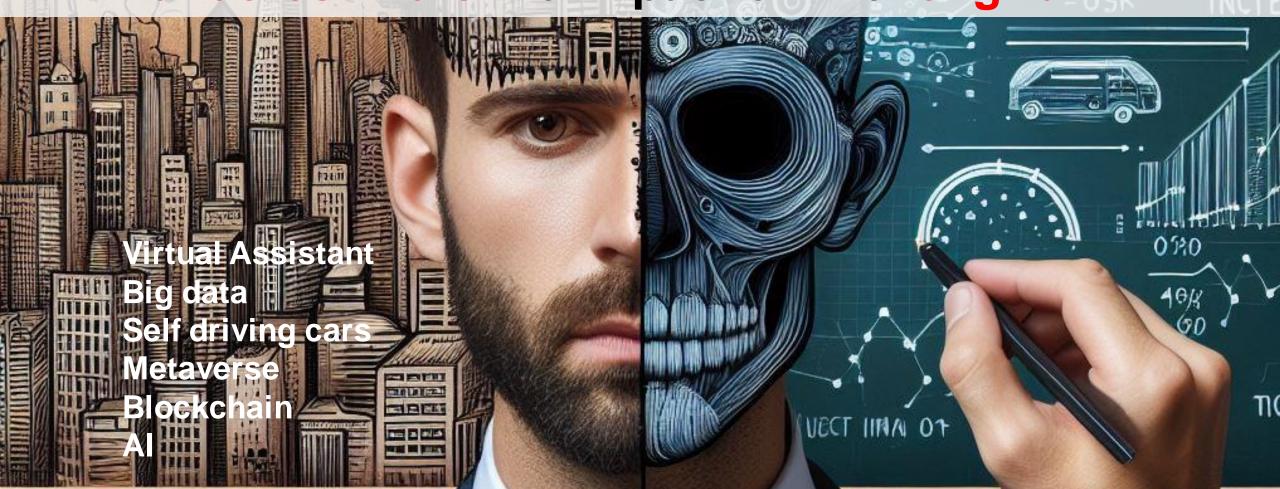# Biggest Obstacle in IT Service Management…is your BAD IT data…

Garbage in, AMPLIFIED garbage out, applies to AI

We tend to **overestimate** the effect of technology on the **short run** and **underestimate** the impact on the **long run**...

Virtual Assistant
Big data
Self driving cars
Metaverse
Blockchain
AI

Questions

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?

Rob Akershoek
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