

arago
the automation experts

Enterprise IT Under Siege

How Changing an Automation Paradigm Can Change the Odds

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10th December 2014



The Economic Food Chain



Agriculture

Armerment

...

The world as it was a long time ago



Finance

Automotive

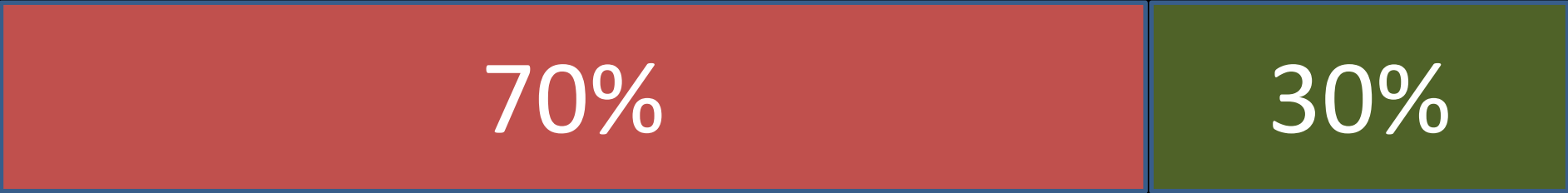
...

The world as it was only yesterday



The world as it is today

The Enterprise Disadvantage



Operations
Keeping the lights on
Job Preservation

Change
Redoing Business
Reinvention

Operational spend

A.C.I.D.

Design for avoiding mistakes

B.A.S.E.

Design for rapid recovery

Legacy thinking

Strategic Change

Self Preservation

Sheep like Execution

Middle management



Innovator's dilemma

How Automation Can Help



Lower cost



Free up minds in the war for talent

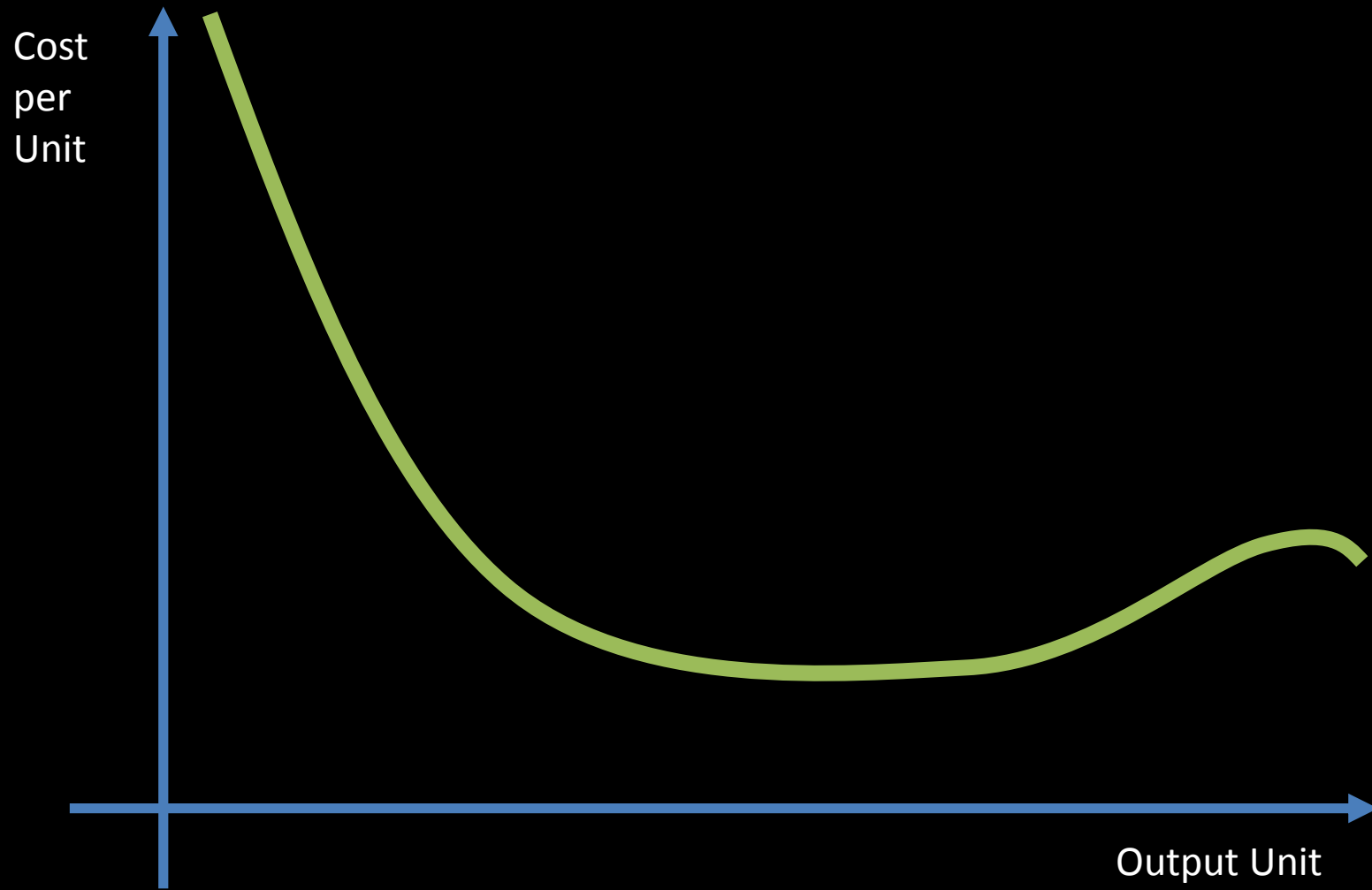


Retain knowledge

Classic Automation and why it only went that far



Industrialization



Economies of scale

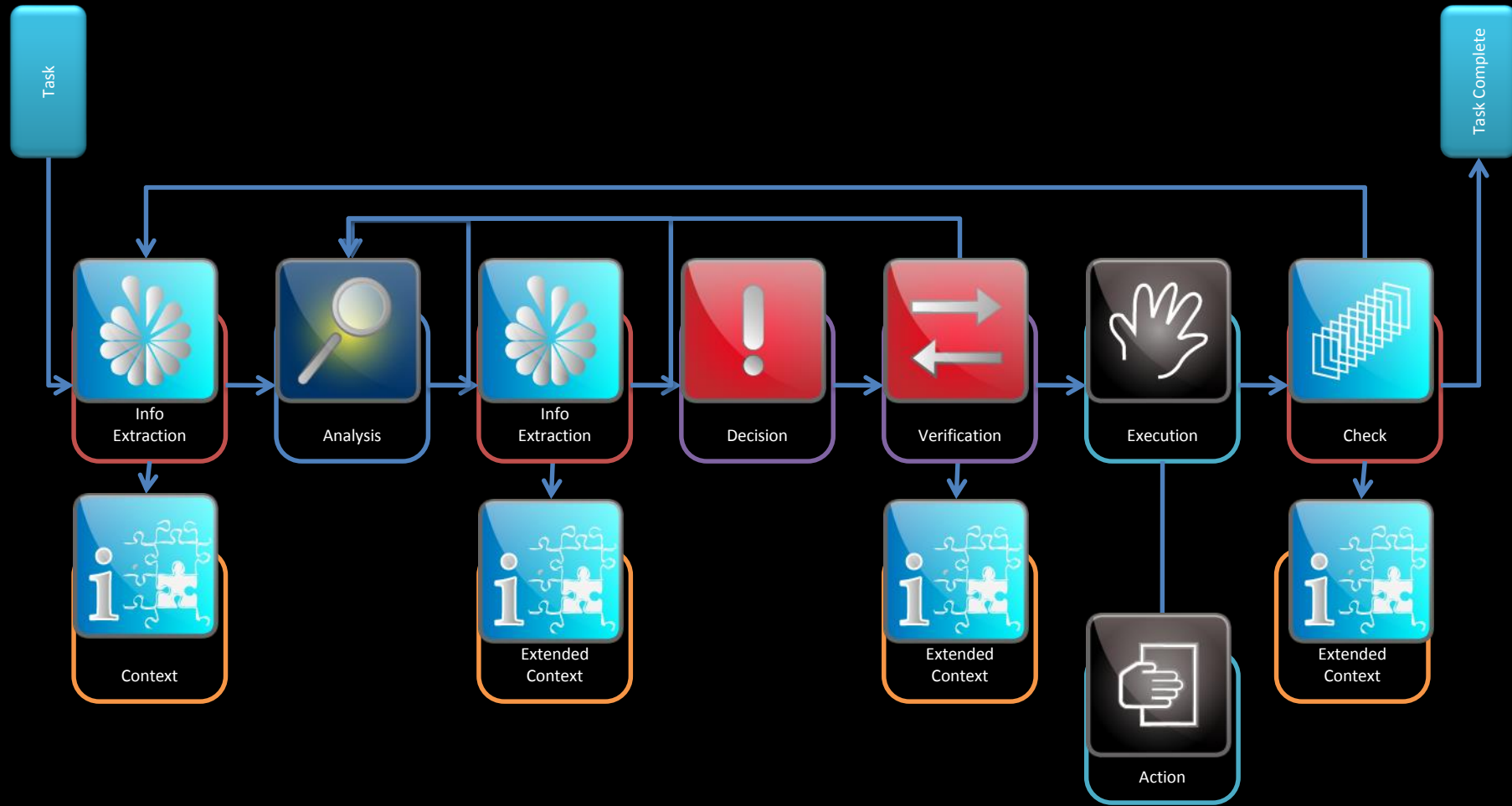
Sphere of influence
too small to create
true standard

Part of stack that
can be consolidated
too small

Lock-in to legacy
environments to
justify investment

Economies of scale backfire in IT

What We'd Actually Need: Smart People

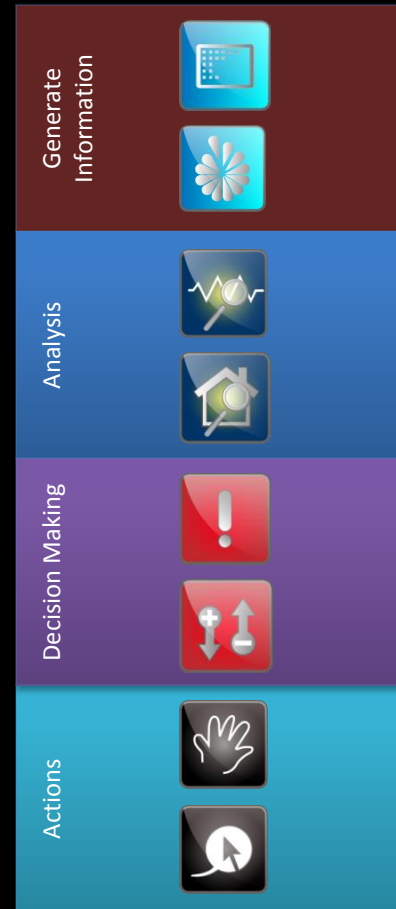


How do smart people work?

Knowledge



Application of Knowledge



Sample

- Identify task
- Analyze log
- Interpret log
- Plan extension
- Feasability check
- Perform extension
- Check result
- Complete task

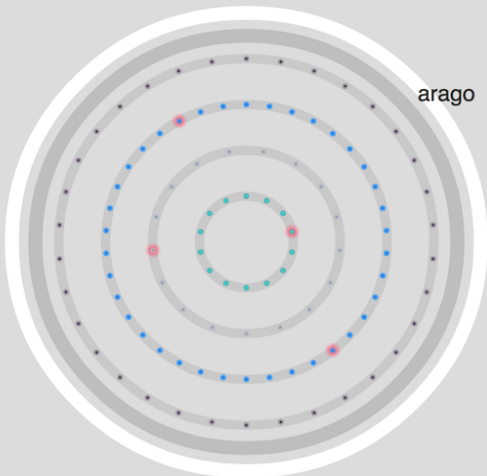
A smart Machine that works like an experts

Now for some Voodoo

Cockpit - AutoPilot 5.1

https://wisdom3.arago.de/new/cockpit/

AUTOPILOT Cockpit KI-Editor Documentation © arago AG



arago

Node: Graphit Server 1

Attributes Timeline Dependencies Issues

```

graph LR
  A((A)) --- R1((R))
  A --- R2((R))
  R1 --- S((S))
  R2 --- S
  S --- M((M))
  
```

ID arago:Intern:Software:graphit1
Name Graphit Server 1
Type Software
SoftwareClass IndividualApplication
SoftwareSubClass IndividualApplication

Extensions

CustomerInformation

ID arago.de
Name arago

Issue: Disk / Used Bytes 80% >= 80% - checkhost: wsc

Attributes History

Issue defaa07e-a18b-4843-b2b6-0c547d0839b2 ejected: issue ejected from engine by eject rule

Status ejected
Node-ID arago:Intern:Machine:wso2
ID aAEDynamic:defaa07e-a18b-4843-b2b6-0c547d0839b2
Modified Sat Sep 06 2014 10:20:40
Created Sat Sep 06 2014 10:15:35

Request:

FileName /app/tomcat/temp/nfs00000000003b7fc0002e5c9
Goal RemoveFile
Node-ID TSI:Abnahme:Machine:uidvhmga01
Output
Status 0

Request:

FileName /app/tomcat/temp/MIME9154238159754397361.tmp
Goal RemoveFile

Nodes 5 3 1182 16

Filter Sort

- R Aetherwave
- S Aetherwave Jar
- M StatisticContainer
- M aetherwave.arago.de
- S cron aetherwave
- R Aetherkraken
- A Aetherwave Auswertung

Issues 2957 155 2299

Filter Sort

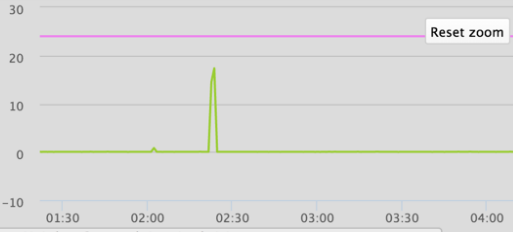
- Disk / Used Bytes 80% >= 80% - checkhost: wso2.arago.c
- Port Critical: localhost :8080 - checkhost: cassandra3.arago
- Port Critical: localhost :8080 - checkhost: cassandra2.arago
- Port Critical: localhost :8080 - checkhost: cassandra2.arago
- Port Critical: localhost :8080 - checkhost: cassandra3.arago

Knowledge 247 474

Filter Sort

- "BindeTestGraphExplorer"
- "CountParentNodes"
- Action-Timeout-Bug
- ActivateOnStart
- AddSSHKey-Linux
- AddStringToFile-BeforeString-Linux
- AddStringToFile-Linux

Timelines for vm-pmsf-mysql01.arago.de



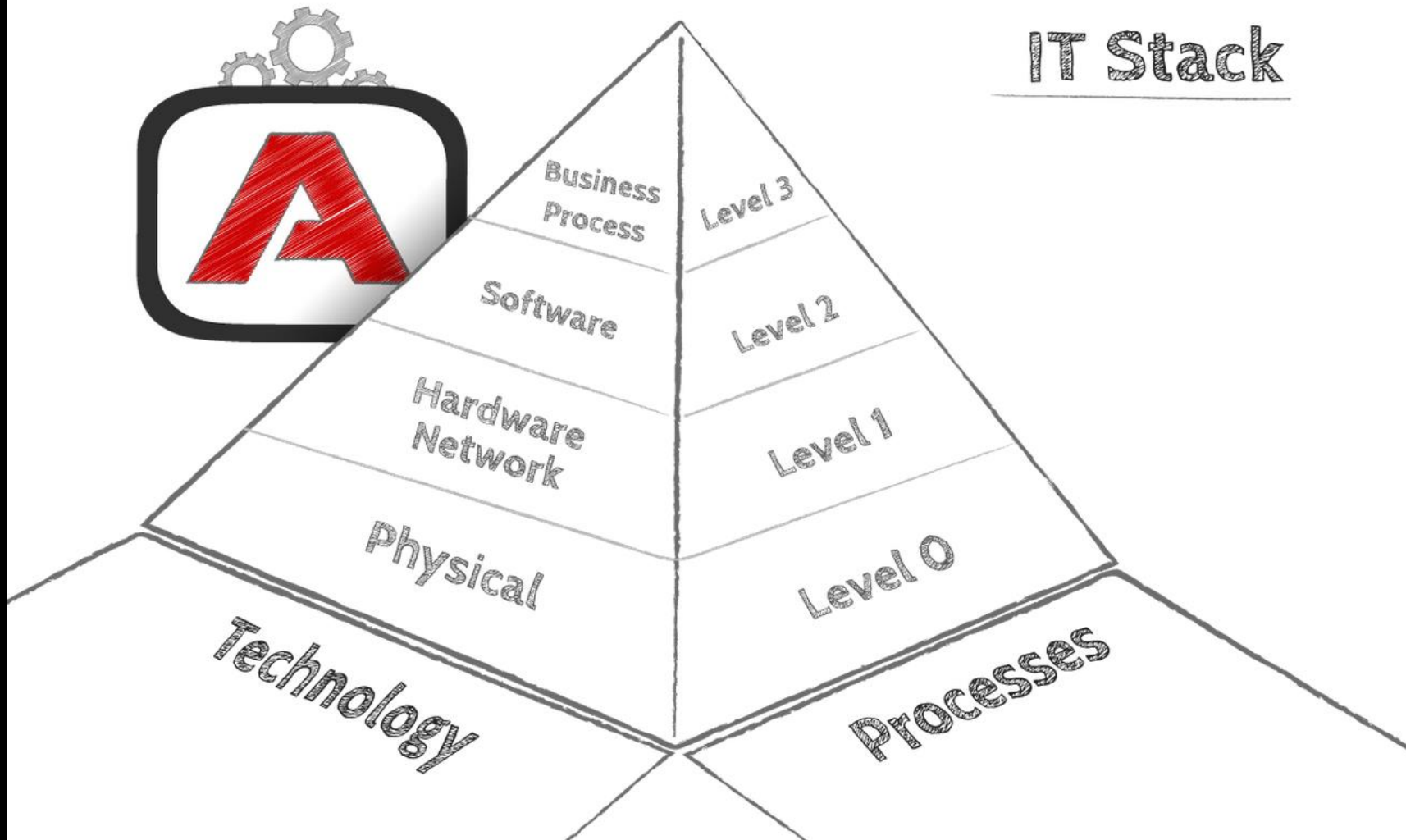
Reset zoom

01:30 02:00 02:30 03:00 03:30 04:00

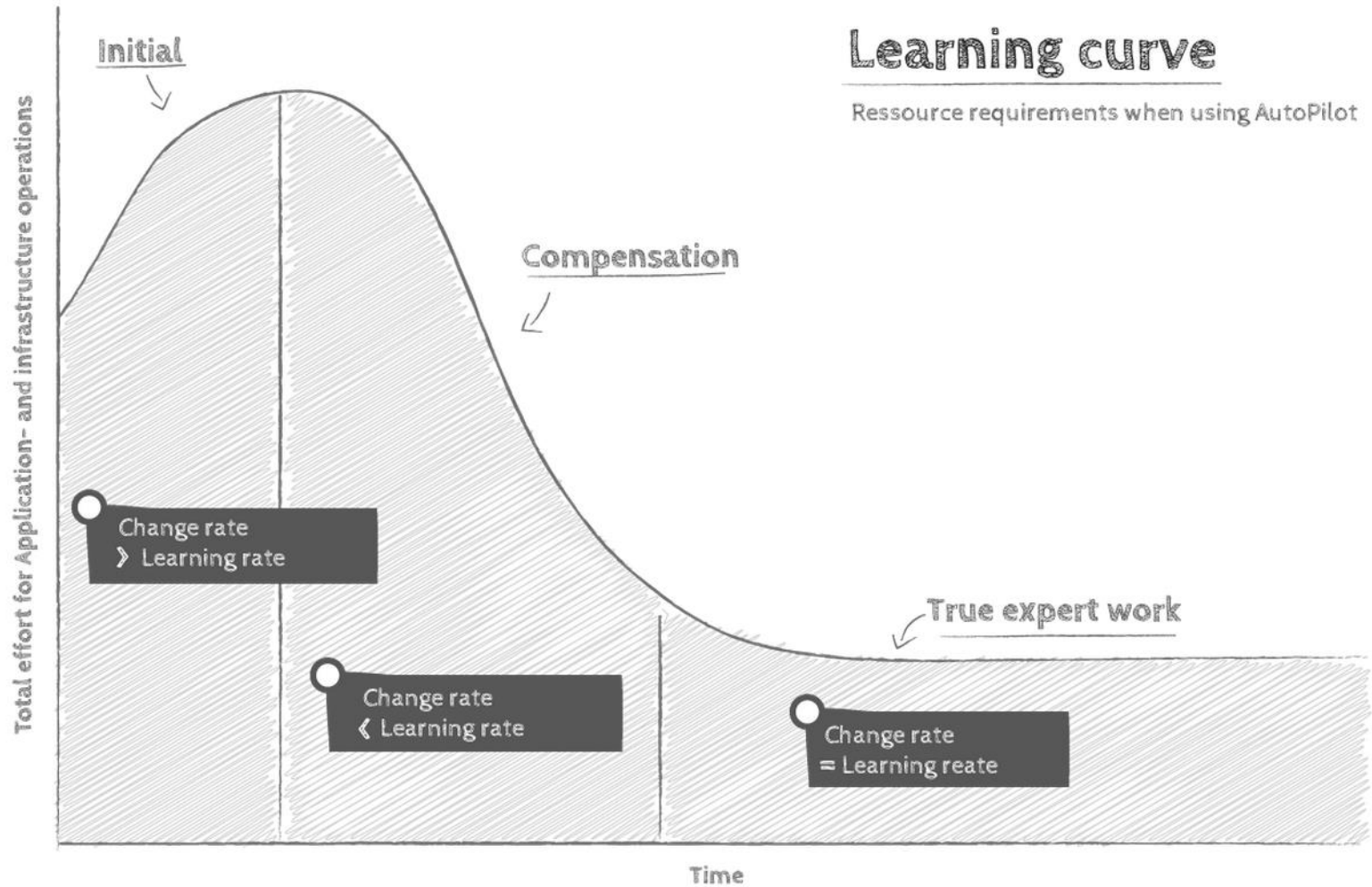
https://wisdom3.arago.de/new/cockpit/

Less Intrusive

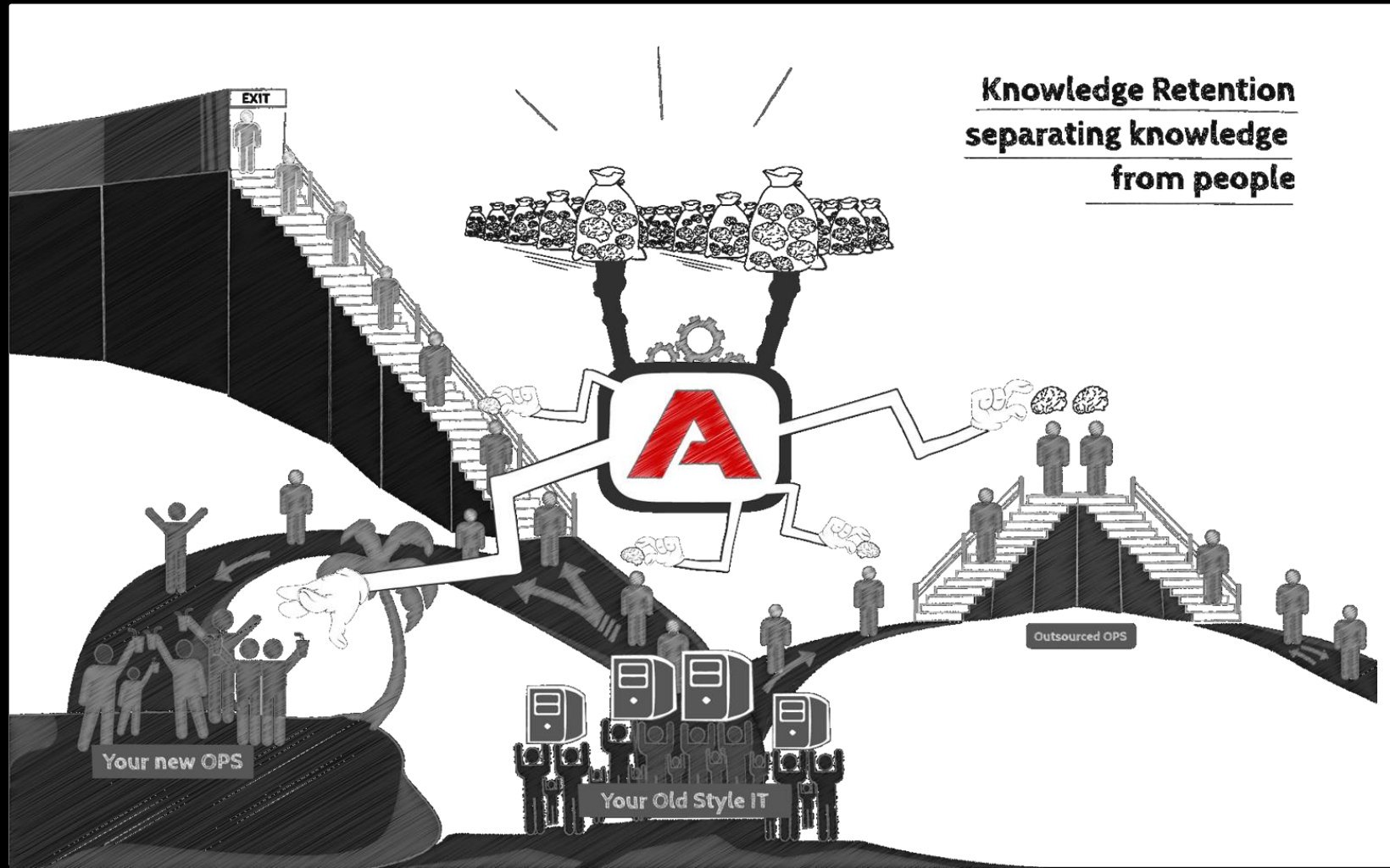
IT Stack



Applicable throughout the stack



Adapts to change

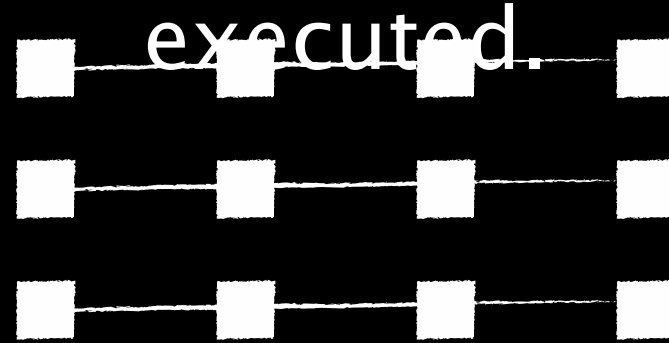


Knowledge Retention
separating knowledge
from people

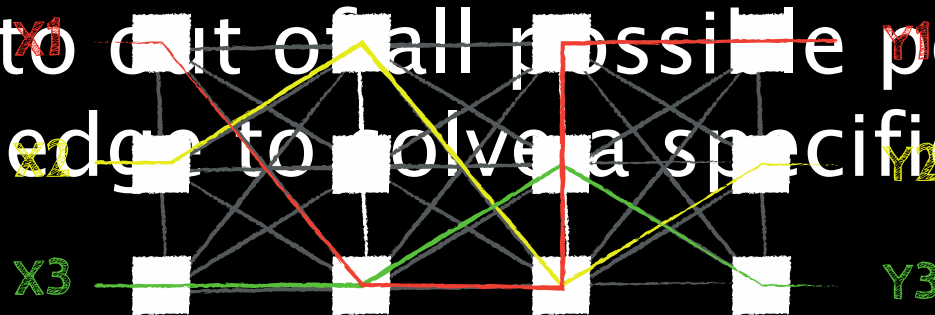
Retains knowledge

How Is this Different

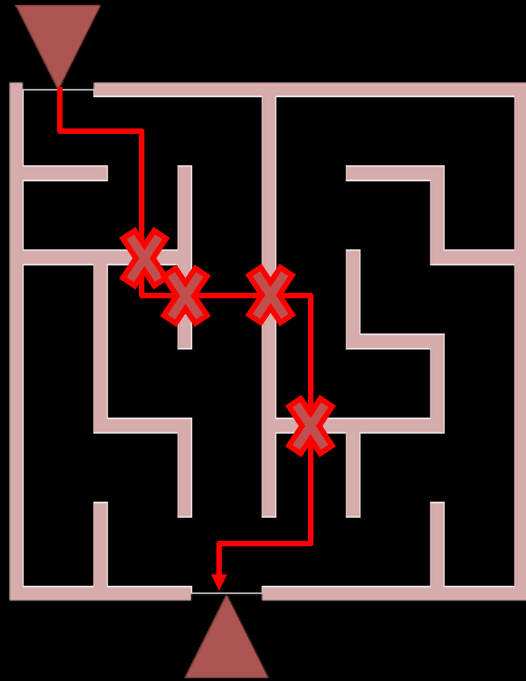
Standard operating procedures, scripts, etc. all look the same: a predefined sequence of steps to be



In Autonomics the results looks much like a script,
BUT it actually is a solution specifically compiled
automatically to cut out of all possible permutations of
knowledge to solve a specific task.

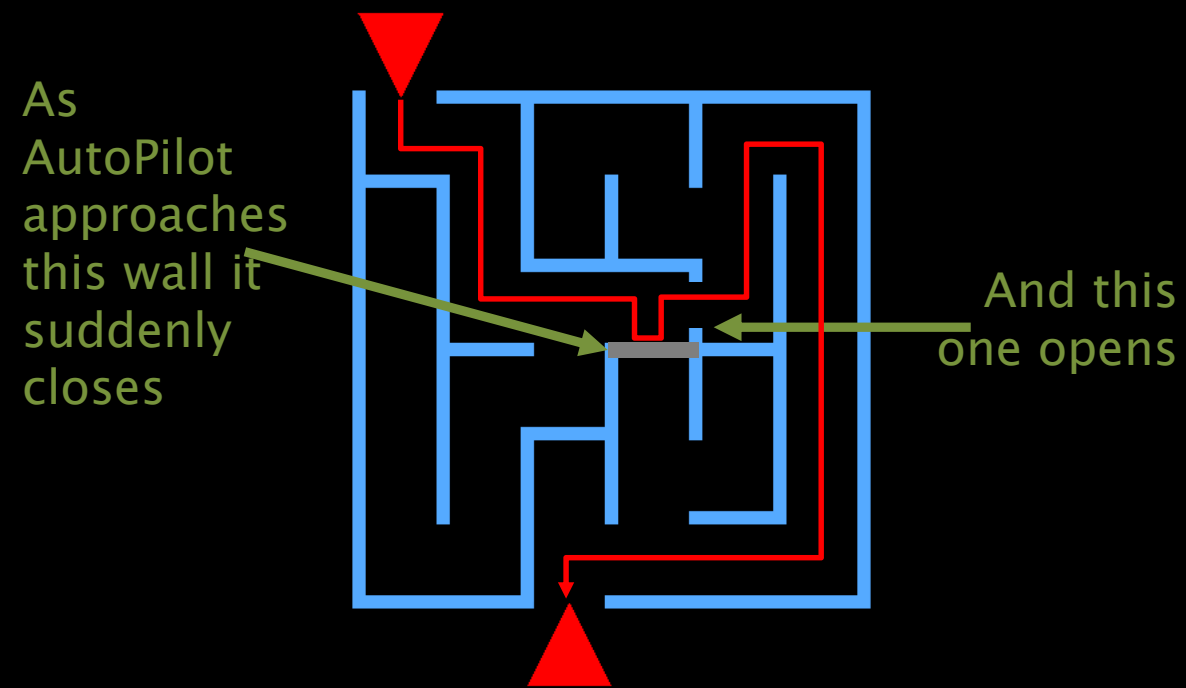


Same same, but different



- 1. Go forward 1
- 2. Turn left
- 3. Go forward 1
- 4. Turn Right
- 5. Go forward 2**
- 6. Turn left
- 7. Go forward 2
- 8. Turn Right
- 9. Go forward 3
- 10. Turn Right
- 11. Go forward 1
- 12. Turn left
- 13. Go forward 1

Scripts vs. Autonomics – the SOP



Unexpected events

Storage Management

Make more disks available to volume manager

OpSys Management

Extend operating system volume to make space available to application

Application Management

Shut down and revive the application for the procedure and know when that is possible

To write an old style automation to perform this ultra simple task these three “cylinders of excellence” have to cooperate, coordinate, etc. – how likely will change be possible?

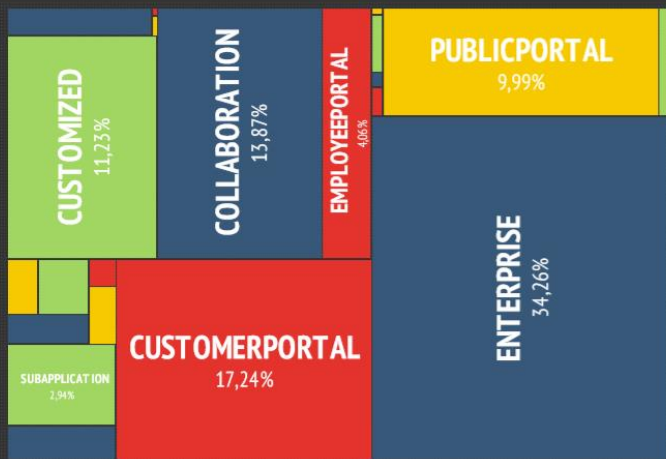
In Autonomics each expert put in special knowledge, the machine puts it together as needed and no overhead is required.

Results that Matter

Application Automation

69.78% of 46,138 Issues

For business applications our automation rate achieved is 69.78%. The graphic below shows the distribution (larger means more) of tickets solved by AutoPilot for the respective application type.



Resource Automation

97.67% of 254,298 Issues

For resources our automation rate achieved is 97.67%. The graphic below shows the distribution (larger means more) of tickets solved by AutoPilot for the respective application type. Resource:Resource in this depiction stands for individual software solutions employed by clients.

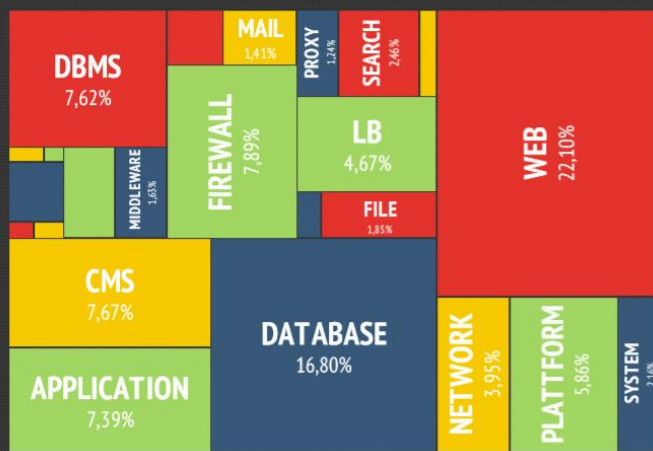


Applicability Distribution Throughout the Stack

Software Automation

87.90% of 988,498 Issues

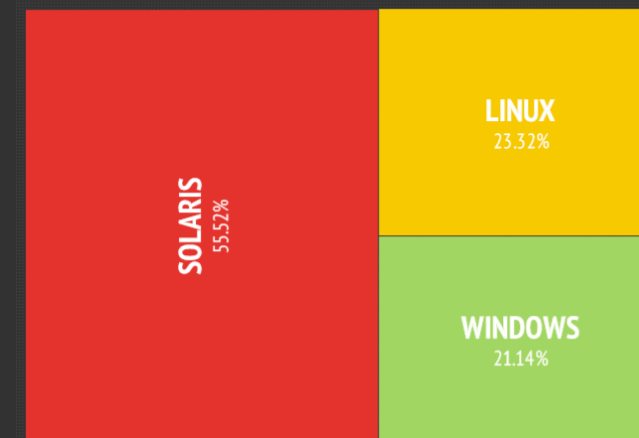
For business software our automation rate achieved is 87.90%. The graphic below shows the distribution (larger means more) of tickets solved by AutoPilot for the respective software type.



Machine Automation

83.85% of 663,975 Issues

For machine types our automation rate achieved is 83.85%. The graphic below shows the distribution (larger means more) of tickets solved by AutoPilot for the respective machine type.



| | Technology | # Operations Issues | KI Developpd | Effort Savings |
|-----------------------------|-------------------|---------------------|--------------|----------------|
| Platform as a Service | Database (Oracle) | 237 | 58 | 62% |
| Infrastructure as a Service | Windows | 330 | 47 | 59% |
| | Linux/Unix | 280 | 113 | 69% |
| | Storage/ Network | 325 | 150 | 26% |
| Total | | 1172 | 368 | 35% |

Learning curve of system after 3 months
in this environment

| | before | traditional | new |
|--------------------|---------------|---------------|---------------|
| Storage | 50,79 | 50,79 | 26,84 |
| Backup | 68,68 | 68,68 | 43,63 |
| Compute (incl. NW) | 69,93 | 69,93 | 28,80 |
| OpSys | 30,88 | 30,88 | 5,98 |
| Database | 15,29 | 15,29 | 9,29 |
| Middleware | 21,14 | 21,14 | 13,81 |
| Manpower | 48,28 | 33,80 | 24,27 |
| Special Bids | 51,62 | 36,13 | 38,08 |
| Total Mio € | 356,62 | 326,65 | 190,70 |

Case study on a
3 year operating
budget:
Before 356M€
After 191M€
Savings 46,34%

*Business case on
traditional
automation was
8,14% savings*

Business Case

Thank you for your time which we hope was well invested,
because dismissing good ideas can harm your future



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