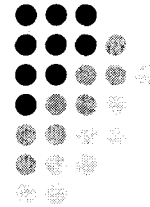


Powering e-Business with Artificial Intelligence

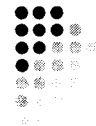
Past, Present and Future

삼성 SDS
대표이사
김흥기



Contents

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XCON (DEC)

- Expert system for hardware/software configuration.
- Validates technical correctness of customer orders.
- Guides actual assembly of customer orders.
- Over 10,000 rules and 30,000 parts.

The screenshot displays the XCON expert system interface. At the top, it shows 'SAMSUNG SOS' and 'XCON (DEC)'. Below this, there is a header section with 'DEC NUMBER: 123456789', 'CUSTOMER NAME: CALYPTO PROD-LINE 0', and 'DATE/TIME: 7-DEC-1988 10:12'. The main content is a list of components and their descriptions, organized into sections like 'COMMENTS ORIGIN', 'COMMENTS PARTS', and 'COMMENTS LISTS'. The list includes items such as '1 1 4323-CP', '12 3232-BA', '1 3 0842-CP', '1 4 0842-CP', '1 2 1015-BA', '1 1 8223-AC', '1 1 1015-BA', and '1 2 1015-BA'. Each item has a description and a comment. Below the main list, there are several smaller tables and sections, including 'COMMENTS LISTS', 'COMMENTS PARTS', and 'COMMENTS LISTS', which provide more detailed information about the configuration and parts.

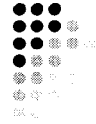
MYCIN (Stanford)

- Diagnoses and recommends treatment for certain blood infections.
- Outperformed Stanford medical school students.
- Never used in practice: ethical and legal issues (whom do you sue?)

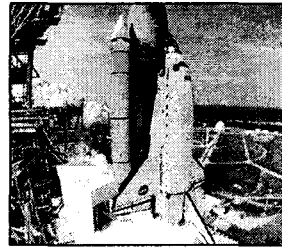
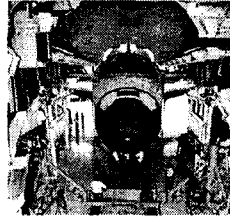
MYCIN: Are there any cultures for JILL EDWARDS which may be related to the present illness, and from which organisms have been grown successfully in the microbiology laboratory?
 User: YES
 MYCIN: From what site was the specimen for the culture taken?
 User: CSF
 MYCIN: Please give the date and time when the pending CSF culture was obtained.
 User: 7-JULY-2001-7:00
 MYCIN: Was a smear examined at the time the specimen was obtained?
 User: YES
 MYCIN: Were any cultures seen on the smear of the specimen?
 User: YES
 MYCIN: Have you been able to obtain.: positive microbiological information about infection of JILL EDWARDS?
 User: YES



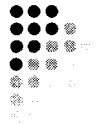
Ground Processing Scheduling System (NASA)



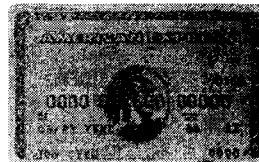
- Scheduling resources for inspecting, repairing, testing space shuttle components.
- Ordered parts can arrive late, tools can break unexpectedly.
- Turnaround time reduced by 25%, (90+ days to 63 days)
- PeopleSoft bought Red Pepper at \$225M.



Authorizer Assistant (AMEX)

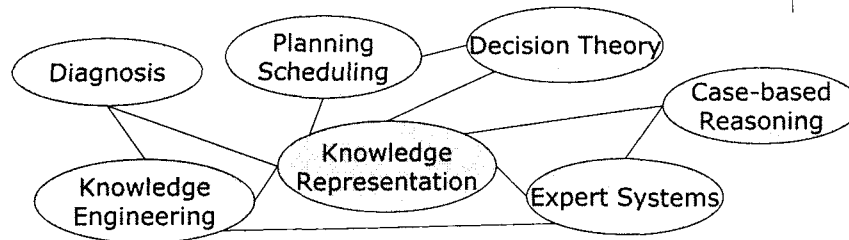


- Expert system providing the first line of service in credit authorization at a point of sale.
- When a possible fraud is detected, contacts human expert skilled in the particular type of the problem encountered.
- Tens of millions of dollars saved, replaced 700 employees.

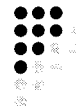




Enabling AI Technologies



- Technologies overlap with another.
- These technologies are still core research areas in artificial intelligence.
- Human expert was major critical success factor.

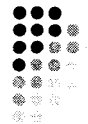


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SAMSUNG

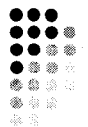
Why People Are Seeing Less Artificial Intelligence?




- Once we see an AI product working, we take it for granted:
 - Minolta Maxxum 7000: The first auto-focus camera using AI vision.
 - Tax preparation software (Quicken Turbo Tax): rule-based AI.
 - MS Office paperclip: Bayesian belief network.
 - MS Word spell/grammar checking: Natural language processing.

SAMSUNG

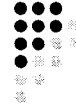
Other AI Technologies We take for Granted







- Amazon.com amazon.com.
 - Rule-based AI and collaborative filtering for personalized recommendations.
- Dell.com 
 - Rule-based AI to configure PCs to meet customer's requirements.
 - Dynamic pricing.
 - Personalized support.
- Buy.com buy.com
 - Dynamic pricing to beat competitors.



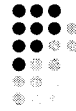
Artificial Intelligence Powers Fortune 500





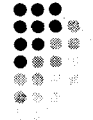
- ADP 
 - Tax rules/calculation engine for payroll.
- Visa 
 - Profile management system for processing credit card applications.
- AMEX 
 - Authorizer Assistant.
- FirstData 
 - Rule-based engine for maximizing commission.



Artificial Intelligence Powers Fortune 500

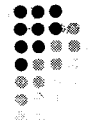
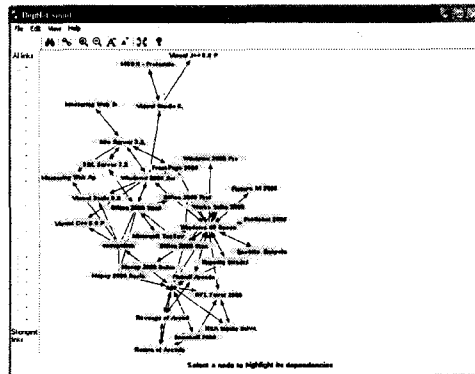


- Equifax **EQUIFAX**
 - Credit scoring business rule engine.
- Countrywide  **Countrywide**
 - Loan approval engine.
- Orbitz.com
 - Intelligent flight & airfare search engine.
- American Airlines **AA.com**
 - 1-to-1 personalized frequent flyer program.
- Northwest Airlines 
 - Airport gate scheduling system.



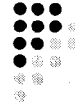
Microsoft WinMine (MSR)

- Business intelligence visualization tool.
- Uses Bayesian belief network.
 - Identifies statistical dependencies between entities.
- Included in SQL 2000 and Commerce 2000 servers.

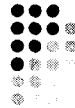
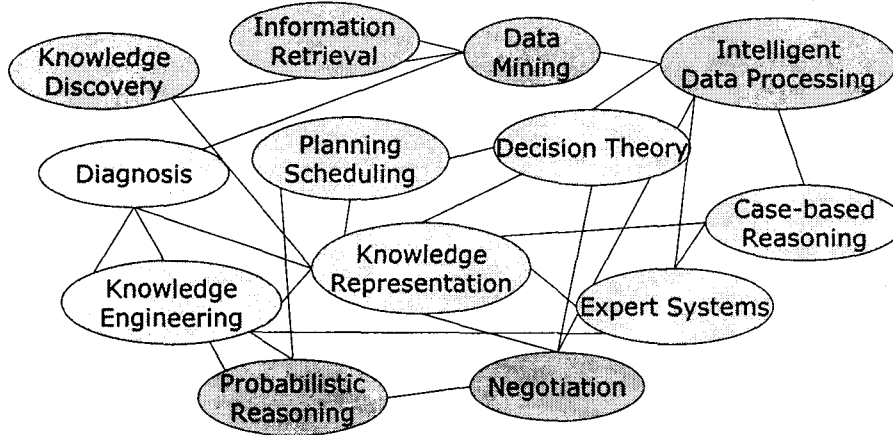


Common Trends So Far

- Business environment changes so fast.
- IT needs instant delivery.
- Still heavy use of rule-based AI : Business rules management
 - Storing business rules as data (vs. hard-code) for making systems smarter, easier to code, and easier to maintain.
- Other AI technologies have been deployed for complex and routine problem-solving tasks.

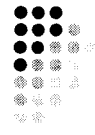


Enabling AI Technologies



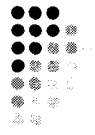
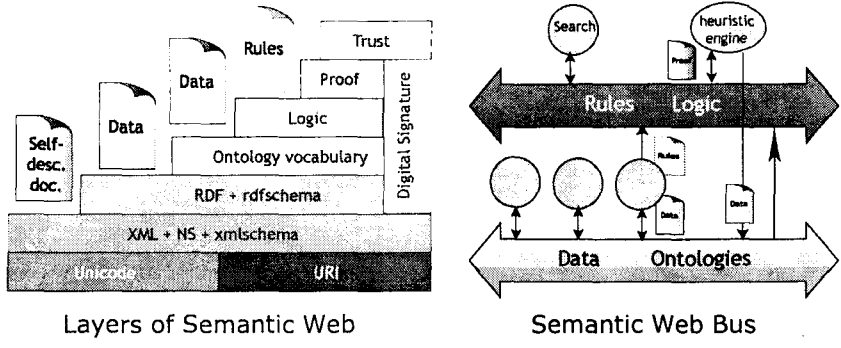
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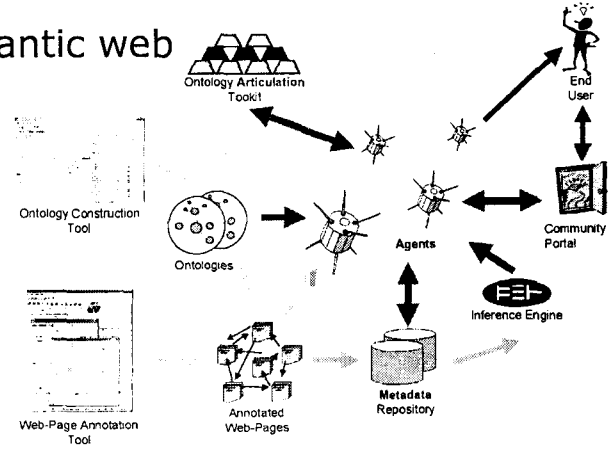
Future Trends

- Semantic web



Future Trends

- Semantic web



The big picture of semantic web



Future Trends

- Semantic web

- B2B/EAI

```
<product>
<type>Car</type>
<name>Daimler 230 SE</name>
<price>$23,000</price>
</product>
```

Product Catalog #1
Business #1

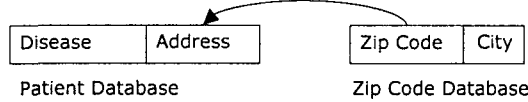


```
<auto>
<model>Daimler 230 SE</model>
<price>W39000000</price>
</auto>
```

Product Catalog #2
Business #2

- Inference

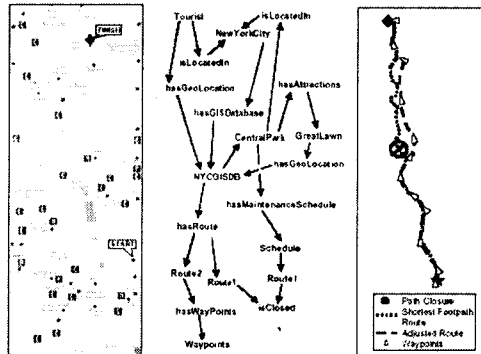
- What disease should I be aware of during trip to NYC?

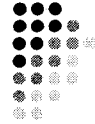


Future Trends

- Semantic web

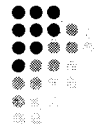
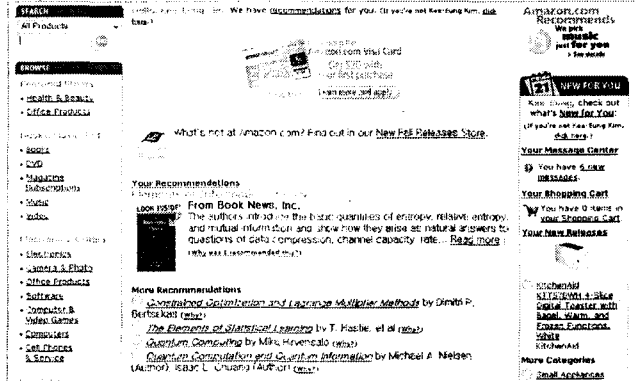
- Geological information services





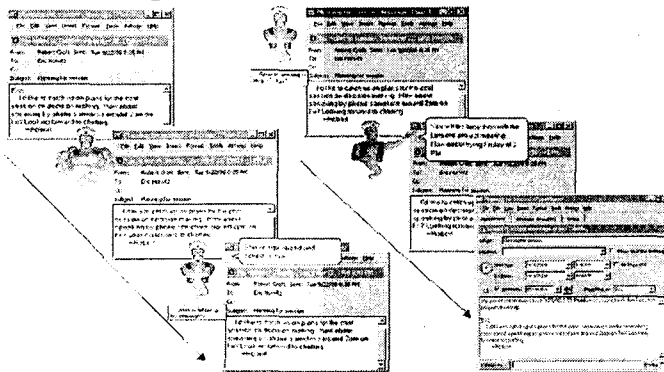
Future Trends

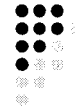
- Adaptive Intelligent Systems (AIS)
- Adaptive web sites



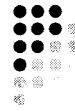
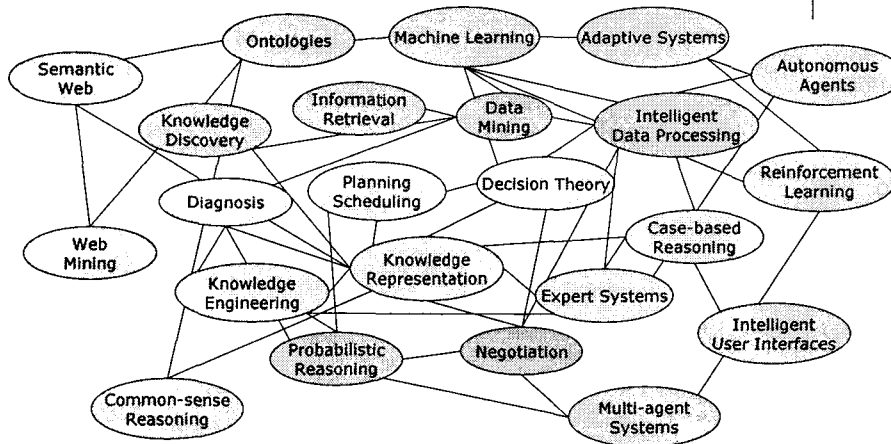
Future Trends

- Adaptive Intelligent Systems (AIS)
- Software agents





Enabling AI Technologies



Keywords for the Future

- "Adaptive" or "Learning"
 - The software should adapt itself to the ever-changing environment.
 - The software starts with a crude (and often incorrect) set of knowledge and refine as it interacts with the environment.
 - The software automatically improves performance with experience.

