# Case Based Reasoning

- providing advice to questions (e.g. at help centres) based on similarity with other cases

- example: Reuters in 1996, building knowledge bases using CBR

- Reuters 1994

  - a style guide

  - which product domains to cover

  - time for people building case base (case authors)

  - users (helpdesk people, not customers) self-training

- challenges

  - knowledge acquisition: expert authors the cases or knowledge engineer interviews experts and then encodes

  - needed global style guide

  - combining knowledge from existing efforts, distributed geographically

- positions

  - global project manager

  - global technical manager

    * single global style for KB

    * customizing CBR authoring environment to support Reuter style guide

  - area project coordinators (UK, Middle East and Africa, US)

    * building case bases

    * supervising domain authors and case authors

    * training authors and end users

    * testing locally-built KBs

  - domain authors: responsible for particular case base, split according to products; look for redundancies, etc.

  - case authors: used by domain author to help author the K in a particular base

- CBR technology

  - tool to develop global K repository, readily built, maintained and reused

  - past cases (situations): descriptions and features; applicable actions

  - case base searched against in response to new situation
    * similar cases: basis of solution, response

    * evolves as new knowledge emerges, modify/update existing cases

- applying CBR technology in customer-support help-desk environment

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    * customer calls with a problem or issue

    * customer support rep. tries to solve with case base; enters description of problem, through Q/A dialogue

    * search for relevant cases to solution

    * answering questions to narrow search

    * tools for building cases and for deployment of system

    * writing effective questions: defined by a style guide

- features

  - single uniform template for cases, questions and actions

  - GUI front end to CBR express authoring environment with Reuter style-guide constraints

  - always same first questions: what product are you using and what is the nature of your call

  - standardized product names as part of case title

- challenges in knowledge management

  - centralized vs. distributed: expertise was distributed so this was way to go

  - segmentation of knowledge bases: done on basis of product; 1 region, 1 product mapping

  - versions for different audiences: customer support reps, help desk support, customers

  - global vs. local KBs: local info. under global cases

  - one global style vs. multiple styles: used global; could be product-specific

  - expert authoring vs. knowledge engineered: used both, depending on time constraints of people

— maintenance: same domain and case authors to add and update, regions handle own

- other issues

  - knowledge distribution: no worldwide standard for all databases, so distributed cases as text files

  - localization issues: regions can customize cases for their own use; edit files locally, tracking their changes

- benefits

  - lots of first call resolution of problems

  - less reliance on technical support; experts don't have to deal with redundant problems

  - single knowledge base, then distributed

  - sharing knowledge across suborganizations

  - consistency; high-quality 24 hr. service

  - enhanced customer satisfaction

  - experts learned to explain better because of rigour of authoring process

  - authors became more experienced over time