Wissensmanagement als Innovationstreiber

TUB-Siemens Forschungskolloquium, May 8, 2003, Berlin
Dr. Josef Hofer-Alfeis, Siemens AG, Corporate Information and Operations,
Enabling Processes and Knowledge Management

Agenda

- **KM principles in Siemens**

- **Using KM to drive Innovation**
  - **Knowledge Management**
  - **Innovation Management**
  - **Knowledge Innovation Management**

- **Open issues for Research**

A journey to the fog lands …

Dr. Josef Hofer-Aleis

Knowledge, Learning and Strategy
Basics for Knowledge and Knowledge Management (KM)

action perspective of all knowledge workers*

- Learn from the things you do and improve your operations fast and effective
- Learn from your colleagues all over the world and multiply your knowledge across operations
- Learn from your customers, partners & competitors and innovate in a smart way

system perspective of the KM organization

Support learning by excellent socio-technical KM systems enabling

- knowledge sharing (focus: existing knowledge)
- knowledge creation (focus: new knowledge)

strategic perspective of the business owner

Improve the way of knowledge working in your business focused by your business strategy and orchestrated across your partners and staff functions:

- coordinate adequate proficiency building
- enable effective knowledge diffusion
- achieve efficient knowledge codification

*Source: Rob van der Spek, CIBIT, NL, Presentation at the 11th Meeting of the Siemens CoP KM, Nuremberg, Nov. 19-20, 2002

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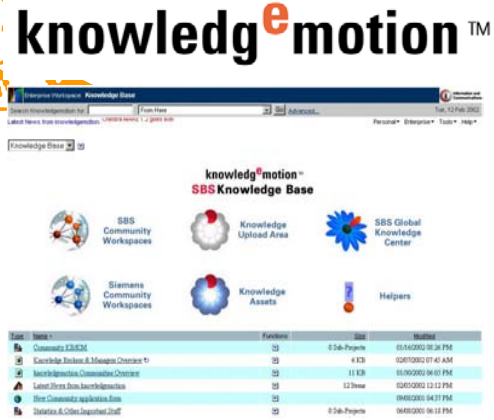
A powerful model: The three dimensions of knowledge

… the capability for effective action of /in…

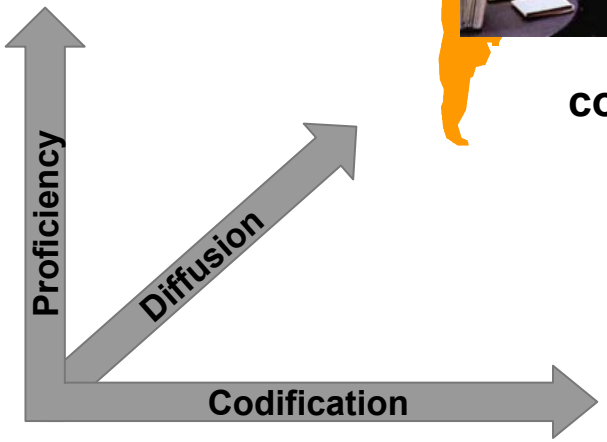
e.g. the CoC-manager and his top experts

e.g. the teams and the world-wide community of practice

the communities of suppliers, partners and customers



e.g. Content structures and Documents (best practices, Methodologies, lessons learned, project plans, references, business cases...)



Sources: Knowledge Concept:: Max Boisot, CIBIT, Siemensw AG,
Slide layout: Frank Rexer, Siemens Business Services

Knowledge Actions and the role of KM and InnoM

… the capability for effective action of /in…

e.g. the CoC-manager and his top experts

e.g. the teams and … of practice

Microsoft SAP

the communities of suppliers, partners and customers

knowledg[e]motion™

learn & leverage, multiply & innovate

effective & efficient by KM & Innovation Mngt.

Proficiency

Diffusion

Codification

e.g. Content structure and Documents (best practices, Methodologies, lessons learned, project plans, references, business cases...)

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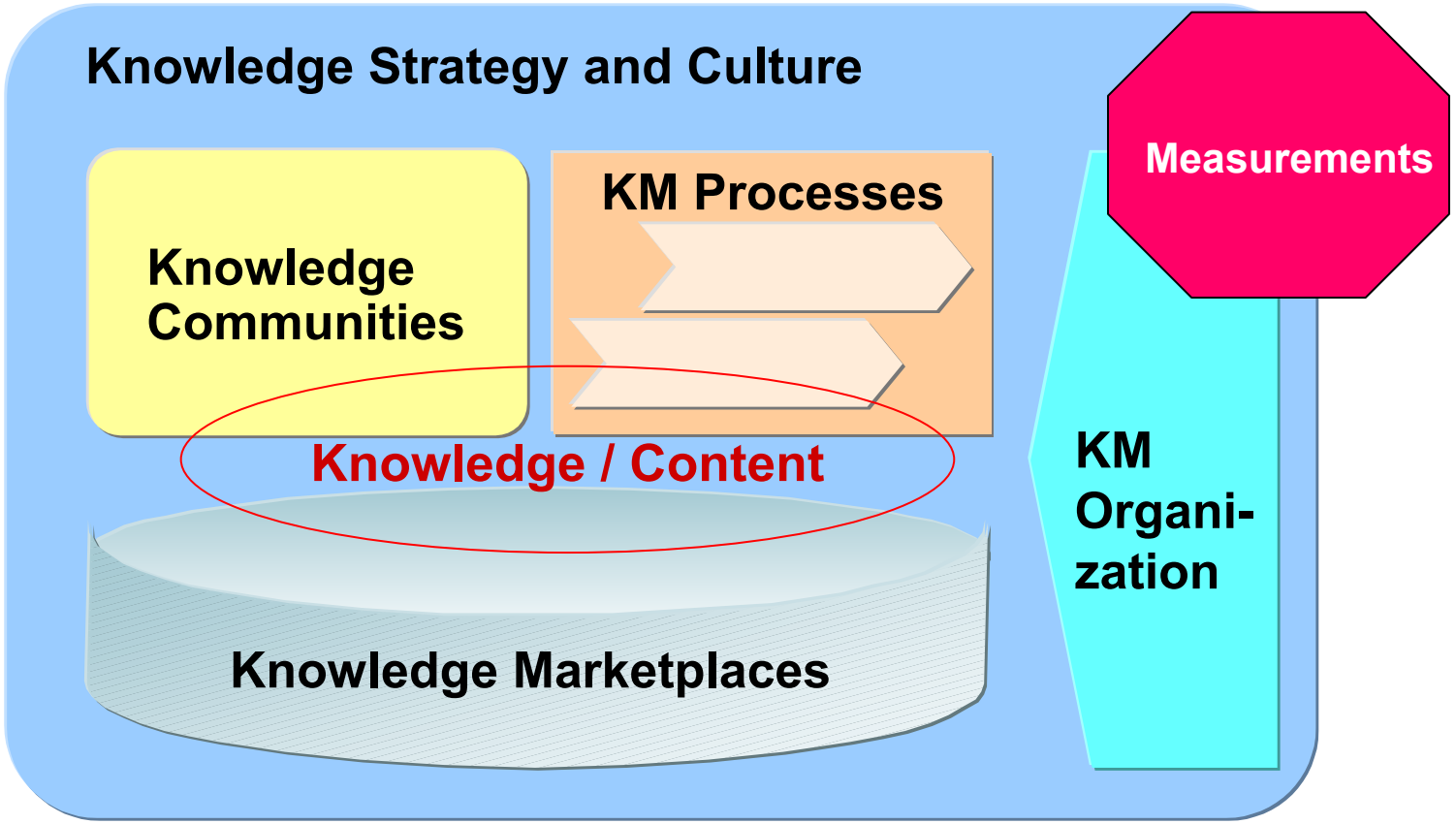
Successful KM solutions are socio-technical systems

Holistic KM solutions: the six major dimensions



Integrating KM into business means implementation and integration work in all six dimensions coherently driven by a KM Roadmap

Holistic KM solutions: the six major dimensions - details

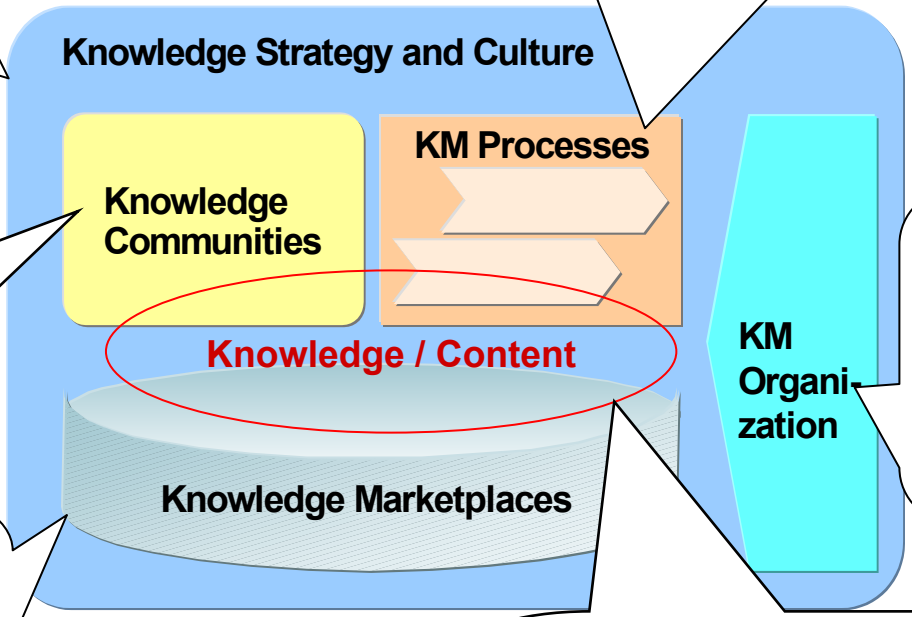
Successful KM solutions are socio-technical systems

... means values, culture, leadership & strategy and rewards & recognition for a knowledge-intensive organization

... are the knowledge creation and sharing processes as well as other KM processes and their integration into the business processes

... are networks of knowledge stakeholders creating and sharing knowledge related to specific knowledge areas

…are the (standard) Knowledge Sharing Platform including technical platforms, tools, workplaces, services, and infrastructure as well as office spaces and communication channels and events;



... are specific Knowledge Management functions which initiate, promote and support KM-activities

... means the capability for effective action in people, organizations and codified in descriptions, processes and systems, which is medium in knowledge repositories and flows. …concerns issues of structure, quality, validity and value

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Agenda

- KM principles in Siemens
- Using KM to drive Innovation
  - Knowledge Management
  - Innovation Management
  - Knowledge Innovation Management
- Open issues for Research

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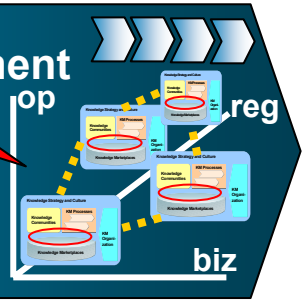
3-drivers model for Using KM to drive Innovation

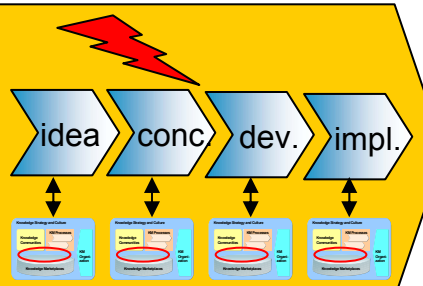
(3) Knowledge Innovation Management
- K Inno. focused & orchestrated
- enhanced capability and interaction of dispersed KMSs and InnoM



systematic K Creation

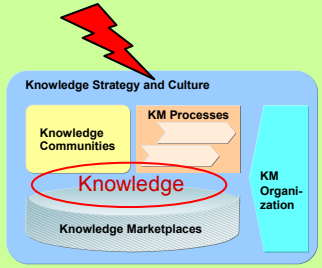
K reuse by chance

(2) Innovation Management
- InnoM focused & measured
- efficient InnoM Process supported by KM systems



systematic Business & Knowledge prototyping

(1) Knowledge Management
- KM focused & orchestrated
- effective KM systems



systematic K reuse

K Creation by chance

excellent Business Creation

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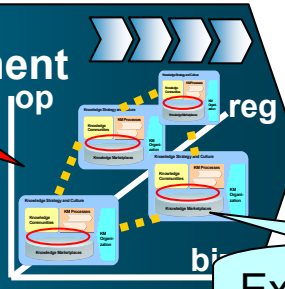

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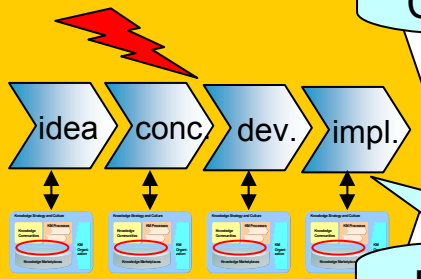

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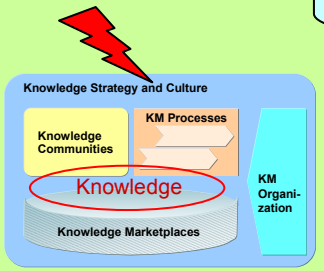
- effective KM systems



K reuse by chance

systematic K Creation

Excellent Knowledge Creation, Combination and Revolution

systematic Business & Knowledge

excellent Business Creation

Excellent KM for Innovation Management

K Creation by chance

systematic

Excellent KM maturity & K Evolution

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3-drivers model for Using KM to drive Innovation

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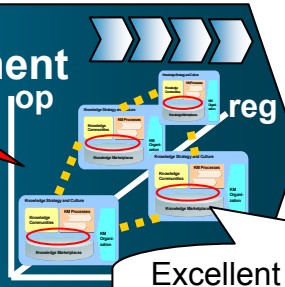
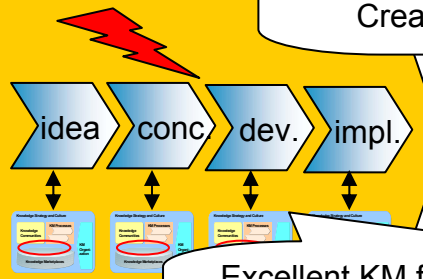


K reuse by chance

systematic K Creation

Excellent "Knowledge Innovation". World-class capability and environment for Knowledge Creation, Combination and Revolution

(2) Innovation Management
- InnoM focused & measured
- efficient InnoM Process supported by KM systems

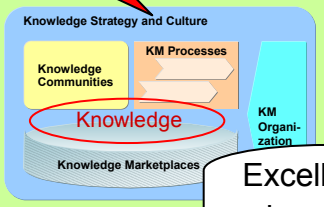


systematic Business & Knowledge prototyping

excellent Business Creation

Excellent KM for Innovation Management. State-of the-art KM instruments and solutions specifically in Innovation Management processes and organizations

(1) Knowledge Management
- KM focused & orchestrated
- effective KM systems



K Creation by chance

systematic

Excellent KM maturity & K Evolution. "Siemens knows what Siemens knows" – appropriate, self-optimizing knowledge repositories and knowledge processes

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(1) Effective socio-technical KM systems

KM state indicators for March 2003

Overview from the top 4 group initiatives and from corporate activities:

- Communities of Practice (CoP): >1500, including >250 cross-group or corporate, >90,000 community members
- Knowledge Marketplaces on team/org unit/group/corp. level with >75,000 users and >250,000 knowledge objects (codified knowledge shared as documents)
- KM organization:
  - 6 full-/part-time experts on corporate level
  - ~25 full-/part-time KM drivers on group, region, central unit level
  - >1000 part-time KM supporters (moderators, facilitators, ..)
  - CoP KM: ~300 members; CoP Innovation Mngt.: ~90 members

Example: KnowledgeSharing@MED

- ▸ Communities of Practice: >650 with >7000 members worldwide
- ▸ Expert locator system >1800 Knowledge Profiles
- ▸Knowledge Marketplaces: >9000 users in 65 countries
  >20,000 knowledge objects, >7000 downloads/month

Sources: Andreas Manuth, Information & Communication Networks, Dirk Ramhorst, Siemens Business Services, Bernhard Schoen, Information & Communication Mobile, Bodo Winkler, Siemens Med, Dr. Josef Hofer-Alfeis, Corporate Information & Operations, March 03

Information Portal: basic information flow V1

User

- Employee
- Customer
- Partner

User Information

Portal

Generic Functionality:

- Mapping
- Navigation
- Search
- Simulation …

Extended Organization

Information Space:

- Repositories
- Applications
- Directories

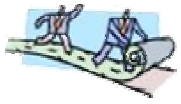
Complementary Information

Compound Information

individual/org. learning

knowledge

effective action



Knowledge Portal: basic knowledge flow V1

socio-technical system perspective

User

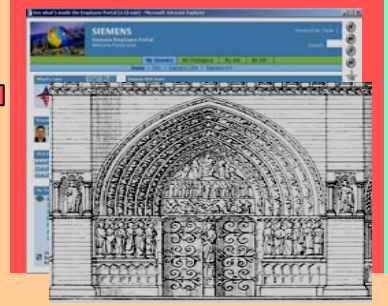
- Employee
- Customer
- Partner

User Knowledge

Portal

Gen. Functional--ities from, e.g.:

- Info. Portals
- K. Brokers
- Collaboration Environments
- Education & Training spaces
- Office spaces & Exhibitions, …



Extended Organization

Knowledge Space (capabilities for effective action):

Proficiency: K. abstraction levels, e.g. of inidvidual experts, …

Diffusion: K. distribution levels (organizational K.) in org's, teams, com's …

Codification: K. externalization levels, e.g. of representations in info space, media …

Complementary Knowledge

Compound Knowledge

by K. adaptation, transfer, combination a/o creation in real a/o virtual learning a/o collaboration spaces

e.g. via learning from codified K., collaboration with expert, networking a/o collaboration with org/team/community

effective action

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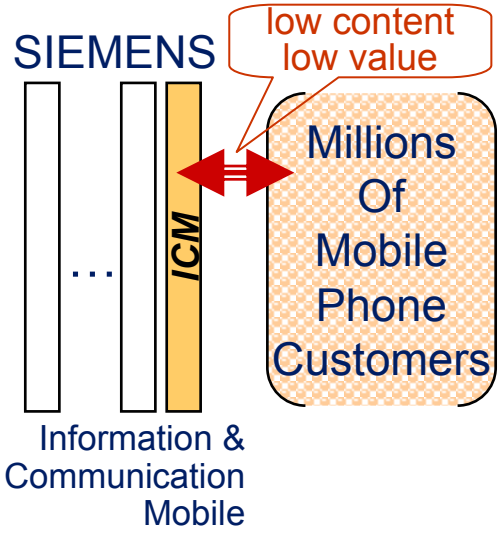
(1&2) Learning / innovating with Customers and Partners

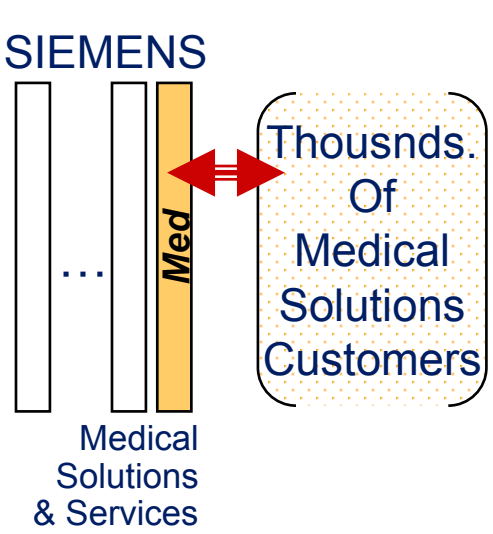
Effective interfaces for customer knowledge flows

Knowledge flows

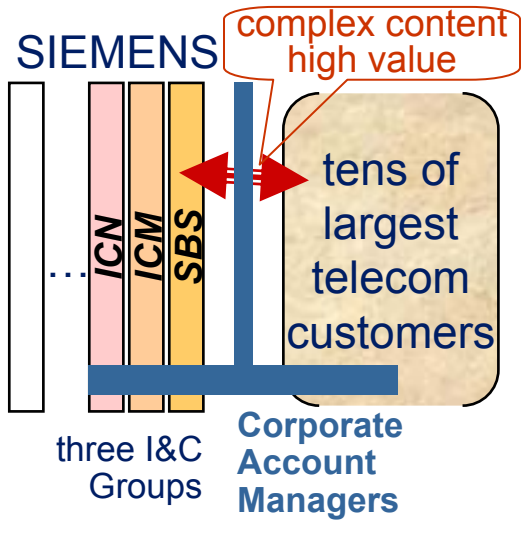
- **using/creating Relationship Capital**
- **creating opportunities and value**



Filtering for knowledge nuggets in customer responses



Knowledge Sharing with customers in extranet-supported communities



Optimizing complex K. flows via Knowledge Strategy for Account Mngt. organization

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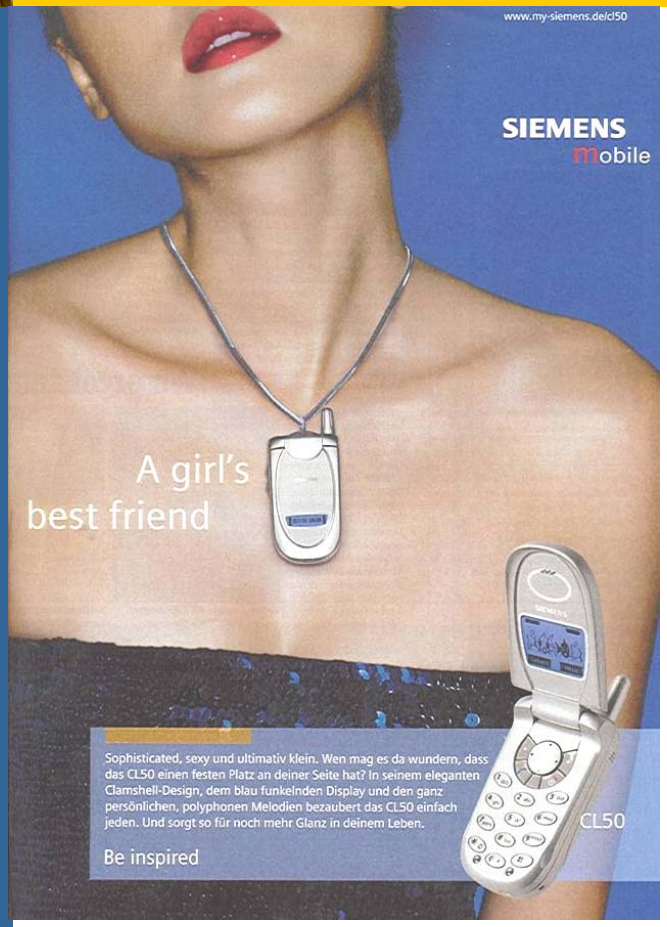
Filtering for knowledge nuggets in customer responses

Information & Communication Mobile, ICM MP CCQ



Innovation examples:

- smaller mobile phone for ladies
- ear to carry mobile on a ribbon

More than 74 worldwide, local service org.'s:

- technical support
- service management

7 Call Centers supporting the world-wide ICM market

- ~ 5 million calls/year
- > 200,000 e-mails/year
- ~ 27,000 written inquiries/year in Germany
- ~ mass of conversations in shops

KM approaches:

- structured and integrated communication from/to the customer (website, FAQ's, …)
- concept mining and knowledge-tree-based organization and message routing
- diagnosis knowledge base
- integrated proficiency building (academy,…)

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New Increased Knowledge Intimacy with the customer/partner

Example: Extra-net based collaboration in joint Knowledge Communities (Med)

Requirements
- **Collaboration policy**
- **Openness**
- **Trust**
- **K Quality**
- **Security**
- **Risk**

Joint Business – integrated KM Systems

Joint sections in Knowledge Space
Experts
Networks
Documents

Joint Learning in Projects
Joint Project debriefings
Good & bad practice sharing
"Bench-Learning"

Connected K Communities … KM Systems … (K Strategy)

Customer-oriented knowledge release … topic-restricted benchmarking
Manuals, FAQs,
CBR-based Self-Help
Experience exchange

Siemens Med: currently 13 extranet-based communities for the extended organization with ~300 members (50/50). Cost and time savings in Process Mngt. and Project Mngt. e.g. for Shared Services. High potential for knowledge creation/innovation expected

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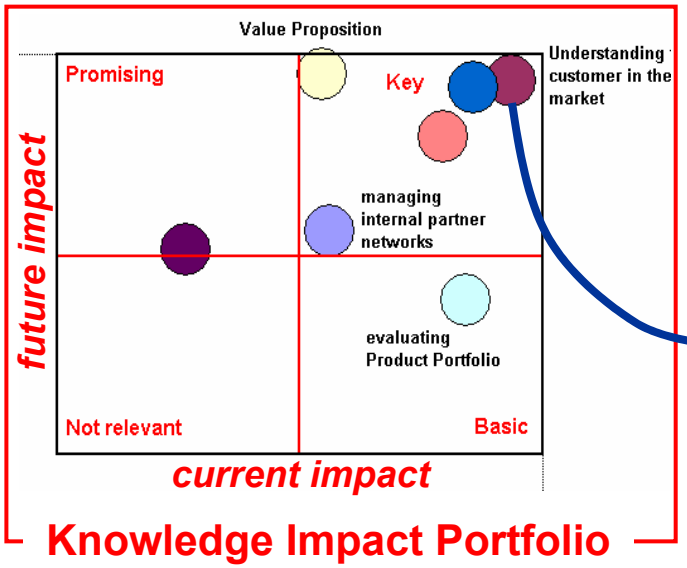
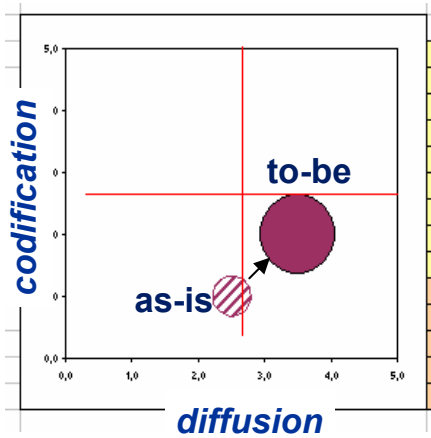
Optimizing complex knowledge flows via Knowledge Strategy Process
Example: Corporate Account Management organization

Key Performance Indicators:
- Client success and satisfaction
- Org. performance
- Employee satisfaction



Knowledge Impact Portfolio

Knowledge Cockpit



	Proficiency	
Int. Stakeholder	as-is	to-be
s1	3	4
s2	2	3
	0	0
s4	2	2
s5	2	4
	0	0
	0	0
	0	0
Ext. Stakeholder	as-is	to-be
s7	3	4
s8	2	3
s9	3	4
s10	3	4

Action proposals to improve knowledge work

P: Experten von Corp. Function einladen, Methodik diskutieren und Methodentransfer durchführen lassen
P: Benchmarking mit anderen Firmen die nicht direkt Konkurrenten sind, z.B DaimlerChrysler
D: Mit Kunden reden, persönliche Kontakte ausbauen
all: Mit s7/s8 eine Wissensgemeinschaft aufbauen, im ersten Schritt feststellen wo welches Wissen vorhanden ist und dann einen
C: Gemeinsame Checkliste zur Einschätzung der Wettbewerbssituation erarbeiten (Input von CD?)

Knowledge Actionplan execution

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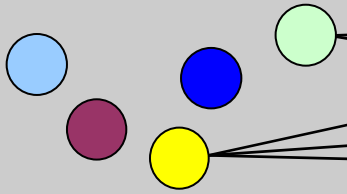
The Siemens-CIBIT Knowledge Strategy Process (KSP)

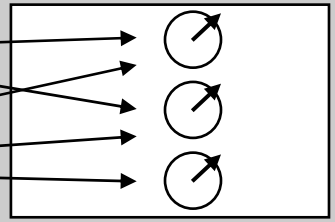
Top-down process with six steps and results

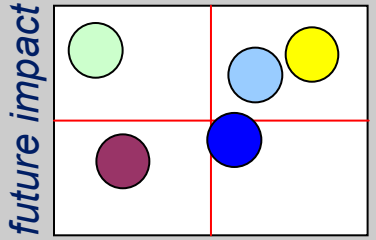
1 ***Business and ambitions (focus specific topic like Process, Org., Product …)***

2 ***Knowledge areas***



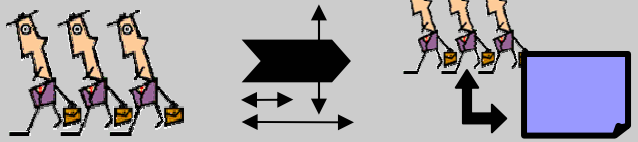
3 ***key performance indicators***

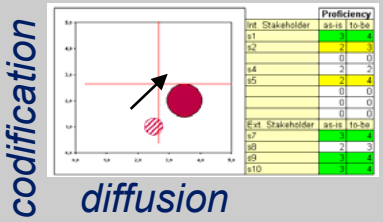




4 ***Knowledge Portfolio***

5 ***Knowledge State Guide***





Proficiencies and K Stakeholders

6 ***Improvement Action Proposals***
Bus. perspective

Consolidation & Integration
of actions

Knowledge Action Plan, Execution & Solution Strategy
enriched by state-of-the-art KM

This approach has originally been developed by CIBIT CONSULTANTS | EDUCATORS

Business Improvement Projects execution and controlling

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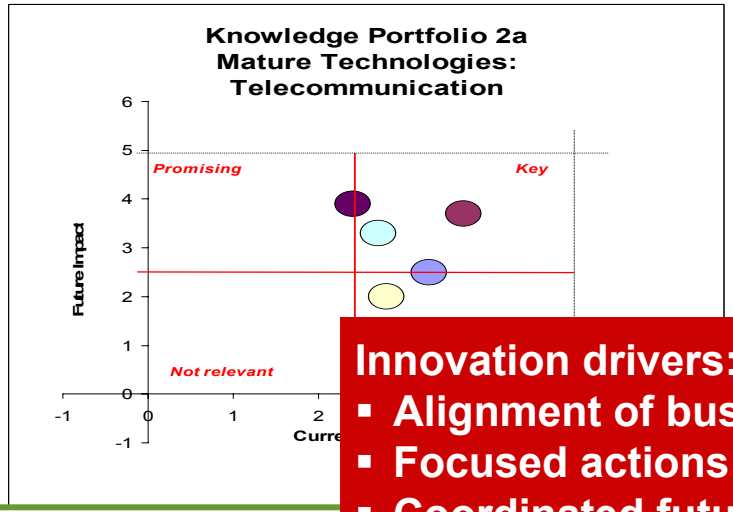
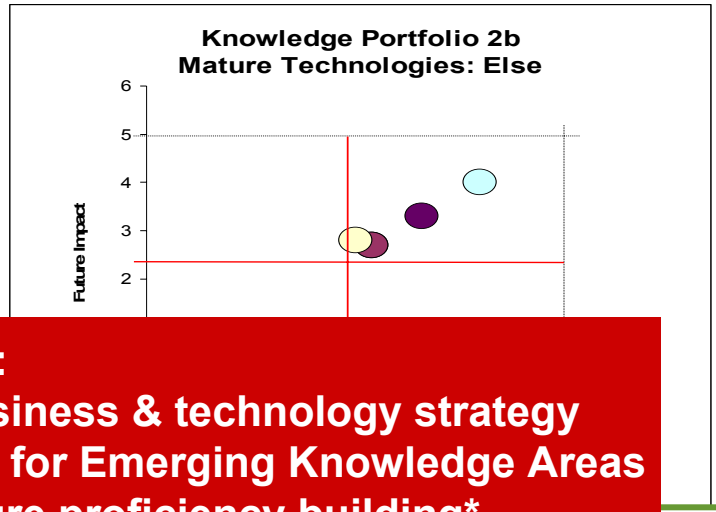
Knowledge Strategy driving innovation
Example: RD&E org - Knowledge Portfolios for Mature and New Technologies

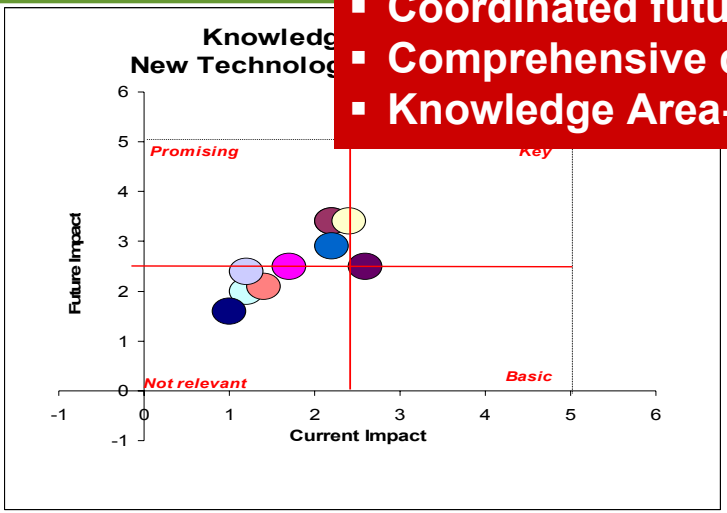
Mature Technologies

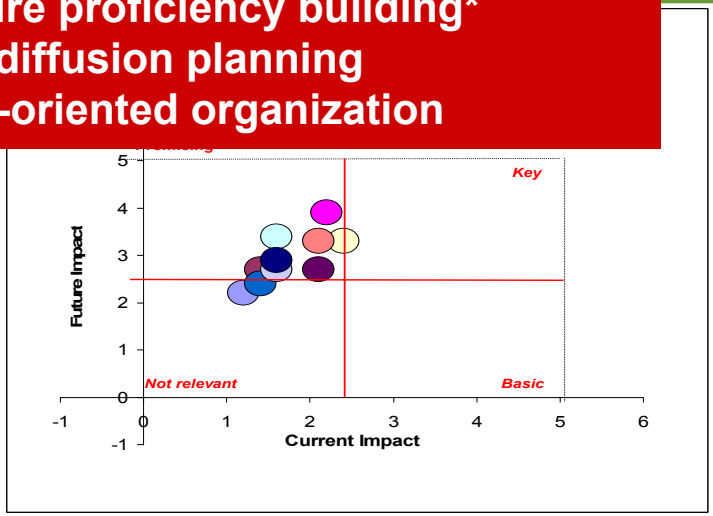




Innovation drivers:
- **Alignment of business & technology strategy**
- **Focused actions for Emerging Knowledge Areas**
- **Coordinated future proficiency building***
- **Comprehensive diffusion planning**
- **Knowledge Area-oriented organization**

New Technologies





* CEOs identified a lack of implementation resources as a key constraint to innovation. Accenture Survey Aug/Sept. 02

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(3) Knowledge Innovation ??

- Underlying each business innovation there is new knowledge (K) due to a mix of knowledge combination, adaptation and creation
- How to achieve faster and more focused “Knowledge Revolution”?
  Analogy: Knowledge Revolution in a Restaurant: Nouvelle Cuisine – Fusion …
- “…Supply orchestration and innovation orchestration …: You must become more than an active player, you must become a 'knowledge-shaper'. Dr. Erkki Ormala, Sr. Vice President and Director of Technology Policy, NOKIA
- Learn more/faster from and with the world, i.e. tapping systematically/in new ways into external/internal knowledge sources, mobilize and transfer sticky, complex knowledge to operations

Examples:

- R&D/Usability Labs in various cultures
- multiple expertise & multiple perspective melding methods: XENIA, …
- thought models as magnets: Pictures of the Future, Research Corridors, ...
- Knowledge Community Breeding: PSE’s Technology Development, …
- …

Supporting the individual knowledge worker to probe the world

The knowledge community / technology breeding process from Call-for-Network to Complete Integration into business

	Who can create it?	task	role in techn. mgmt	participants
Call for Network	everybody	find partner for an Interest Net	awareness of new technology	-
Interest Net	everybody	know each other	contributes to the TM of the subject	voluntarily
Expert Net	OK from Contr.-Board necessary	work together (consulting...)	Recognized TM-experts for the subject	more commited
Support Center	OK from head of PSE necessary	strategic PSE-institution	Established TM-instance for the subject	Core team + network

Complete Integration

Source: Dr. Michael Heiss, Siemens AG, PSE, Wien

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Driving and measuring the knowledge (community) maturity by TechnoWeb (Siemens PSE, Austria)

SIEMENS

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List of Technologies | Centers & Networks | Technology-Tips | Technology Management | About TechnoWeb

List of Technologies

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

List A-Z
Search
Objectives

PSE TechnoWeb

320 Technologies

Technologies	Links	Partnership	Tools	Evaluation	Application	Coaching	Consulting	Workshops	Literature	Helpdesk	Trainings	Projects	Best Practice	Miscellaneous	Supported by
Agententechnologie	☺	☺	☺	☺	☺	☺	·	·	☺	☺	☺	☺	·	☺	☺	☺	4 Networks
Application Server	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	·	☺	·	·	3 Networks
Architektur	☺	·	·	·	·	·	·	·	☺	☺	·	·	·	·	·	·	2 Networks
ASP	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	Call for Network
Aspect-oriented Programming	☺	·	·	☺	·	·	·	·	·	☺	·	·	·	·	·	·	Support Center
ATM	☺	·	☺	·	·	·	·	·	·	·	·	·	·	·	·	·	
Aufwandsschätzung methodenunabhängig	☺	☺	☺	☺	·	·	·	☺	☺	☺	☺	☺	☺	☺	·	·	2 Networks

2100 Services

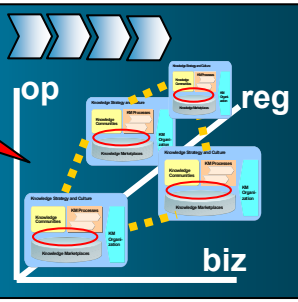
Siemens Intranet: http://technoweb.siemens.at

Agenda

- KM principles in Siemens
- Using KM to drive Innovation
  - Knowledge Management
  - Innovation Management
  - Knowledge Innovation Management
- Open issues for Research

Open issues for Research

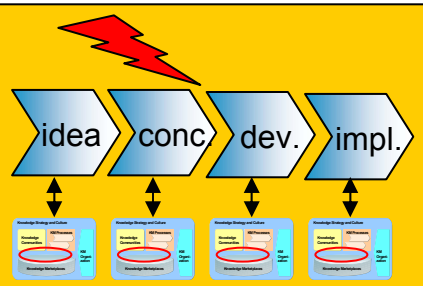
(3) Knowledge Innovation Mngt.



Developing capabilities, systematics and environment, e.g. for:

- sense-mobilize-deliver new K for innovations
- guided K revolution
- external K shaping

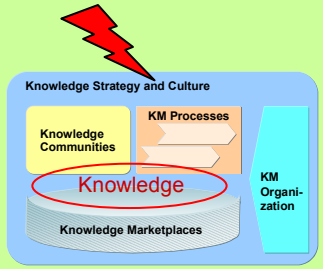
(2) Innovation Mngt.



Optimizing interaction of KM and Innovation Mngt., e.g.:

- K Community-driven innovation
- "K Intimacy" with customers
- integrated processes & strategies

(1) Knowledge Management



Integrating KM systems into business infrastructure and organization, e.g.:

- K Communities landscapes
- K Marketplaces & K Portals
- K Quality & Value
- K-oriented enterprise organization

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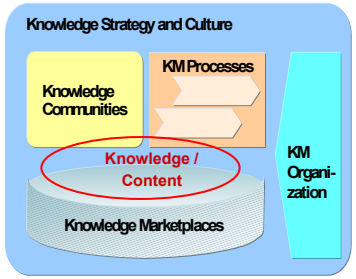
Integrating KM systems into business infrastructure and organization: major issues



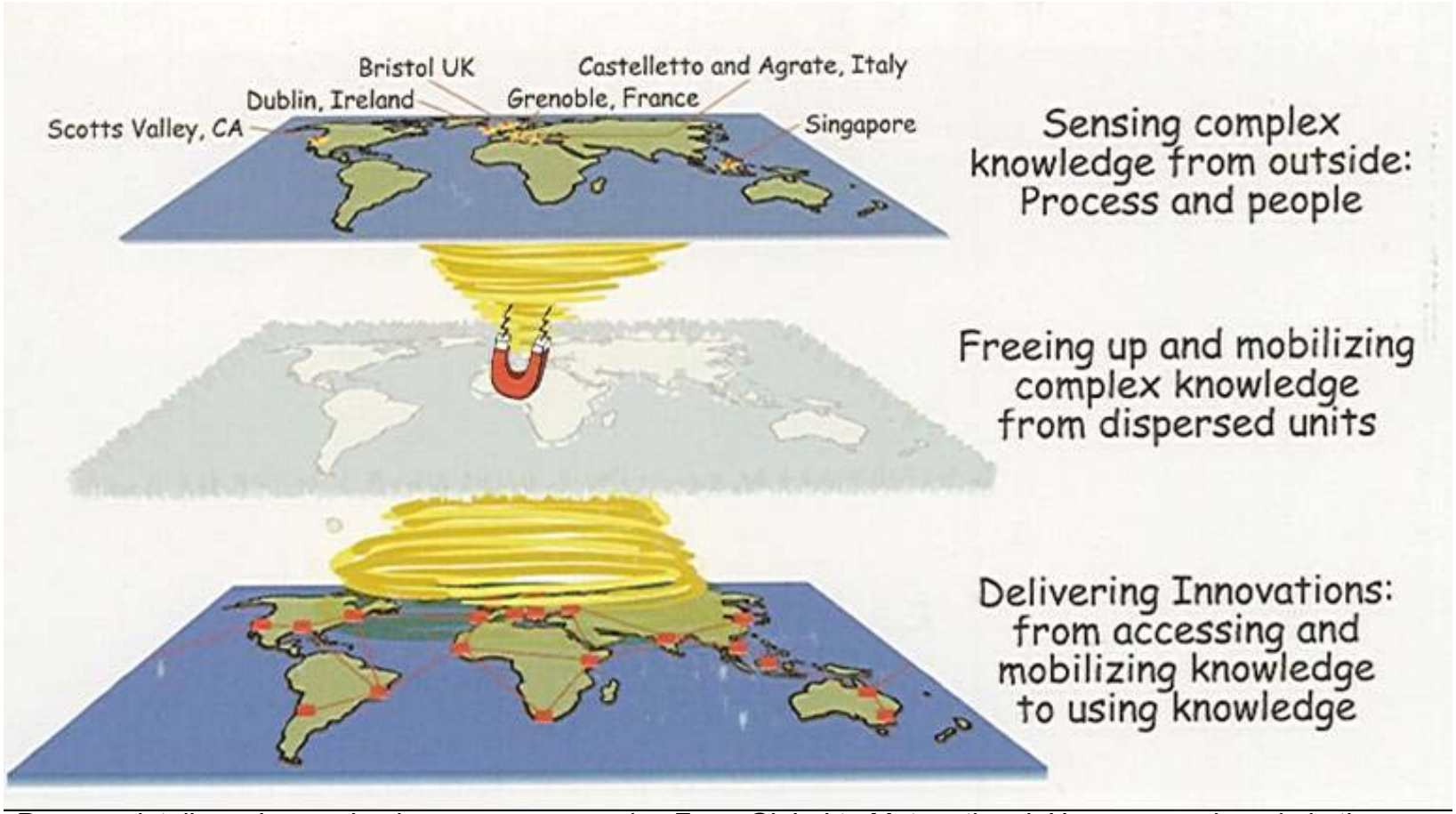
exisiting business infrastructure & organization

- Knowledge communities ↔ formal organization
- Knowledge marketplaces ↔ I&C infrastructure
- Knowledge/KM processes ↔ business processes
- Knowledge-friendly culture ↔ company principles and culture of leadership and collaboration
- Knowledge structures & quality ↔ information and content management
- KM organization ↔ formal organization, esp. staff functions like Strategy, HR, IT, Org./Process/Quality, Innovation
- Knowledge Strategy ↔ business strategy & measurements

Dr. Josef Hofer-Aleis

Managing Global Innovations: Learning from the World

INSEAD Research/Yves Doz: http://www.metanational.net/conference2.htm



Process details and many business cases, see also From Global to Metanational: How companies win in the Knowledge Economy, Harvard Business School Press, 2001

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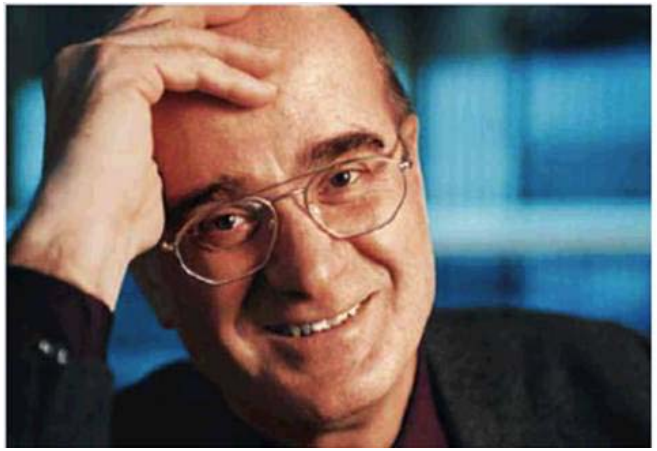

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CT IC 1 Competence Center KM: http://intranet.ct.siemens.de/en/technologie-kompetenz/ic/ic1/index.htm

Further Readings on Siemens KM

Current Siemens KM books:

- T. Davenport, G. Probst (eds): Siemens KM Case Book, 2nd edition, Wiley/Publicis, 2002

Books with Siemens Contributions:

- M. Bellmann, et al (Hrsg): Praxishandbuch Wissensmanagement, Symposion, 2002
- C. W. Holsapple: Handbook on KM, Springer, 2002
- Ulrich Reimer, et al (eds.): WM2003: Professionelles Wissensmanagement – Erfahrungen und Visionen, GI-Edition, Lecture Notes in Informatics, 2003