707.009
Foundations of Knowledge Management „Theoretical Perspectives on KM“

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Overview

Agenda

• Different Roles in Knowledge Management
• Perspectives on Knowledge Management
Problem for today’s lecture

- How to start a Knowledge Management Initiative in Organizations

- What are possible starting points?
- What are possible strategies / techniques?
- What are the implications of choosing one over the other?

Theory of KM in Organizational Contexts
Roles in Knowledge Management and selected KM Support Categories

Knowledge management interventions are typically organised as a project

[Strohmaier2004] Based on [Schreiber et al. 02]
Knowledge Infrastructures

- Knowledge Infrastructures are an Enabler for Knowledge Management [Siv01].
- Knowledge Infrastructures aim to support and improve the work of knowledge workers [DJB95].

3 Main Dimensions:

- Human Systems
  - Culture, CoP, Learning, Mentoring, Experience Mgt., ...
- Organizational Systems
  - Business Processes, Roles, Projects, Institutions, ...
- Technological Systems
  - Intranets, KM-Systems, Portals, CSCW, ...

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The Knowledge Manager

The knowledge manager (or CKO - Chief Knowledge Officer) is regarded to be highest ranked role in knowledge management [Mai02, p.143].

In this steering position, his main responsibility is to develop and implement a knowledge management strategy that is aligned to an organization’s business strategy [Leh00, p. 226], [SAA+02, p. 22], [MHV03, p.107].

He initiates and coordinates knowledge management projects and monitors the results in terms of their contribution to the KM strategy as well as in terms of achieving economic benefits.

In larger organizations, this role is typically performed by one CKO who supervises various knowledge managers in his business unit [Mai02].
The Knowledge Manager – Strategic Considerations Example

figure 4: Visualization of scoring of impact of knowledge areas in a knowledge portfolio.
The Project Manager

The project manager (or knowledge project manager [MHV03]) is in charge of running knowledge management projects [SAA+02, p. 22].

He focuses on aspects related to project management such as the development of project goals and plans or the coordination of project team members [MHV03, p. 107].

The project manager takes a business perspective on the project to ensure that the project goals are met in time and within the provided resources.

He is also responsible for dealing with project monitoring, controlling and/or marketing.
The Knowledge Worker

Knowledge workers are the primary target group of a knowledge infrastructure development project (also see [Mai02, p. 150]).

Knowledge workers are regarded to execute knowledge intensive work within or outside of business processes. They implicitly or explicitly generate, store, transfer and apply knowledge.

Thus, the role of a knowledge worker is broader than that of a knowledge user [SAA+02, p. 22] (additional focus on knowledge generation, storage and transfer), and

is not related to the role of a knowledge management worker [MHV03, p. 108], who is a trained person dedicated to perform operational knowledge management activities such as categorizing or structuring knowledge bases.

Knowledge Intensity:
- Learning time
- Half life
- Decision scope
- Agent impact

Complexity:
- Process steps
- Involved agents
- Interdependency
- Process dynamic

Eppler 2002
The Knowledge Analyst

The knowledge analyst is responsible for analyzing organizational knowledge work executed by knowledge workers.

Similar to the role system analyst [You89, p. 56], he investigates a complex object system (organizational knowledge work) and generates models that illustrate core aspects of the system under investigation.

In doing so, the knowledge analyst provides specific knowledge views on the system that represent a fundament for subsequent activities of knowledge infrastructure designers.
The Knowledge Analyst – Exemplary Models

[Strohmaier 2006]

[Gronau 2006]
The Knowledge Infrastructure Designer

The knowledge infrastructure designer is responsible for transforming the developed models of organizational work into a design that describes a supportive environment for knowledge workers (in analogy to [You89, p. 57]).

He develops a design of the system, which is the basis for implementation.

The knowledge infrastructure designer (or an implementation team) implements the final design.

He also accompanies the validation of the solution with knowledge workers.
The Knowledge Infrastructure Designer – High Level Design Example

Role Portal HR
Role Portal TL
Role Portal VPE

Generation, Storage
Transfer
Application

Knowledge Processes

other Portals
other Sources
Schools of KM
[Earl 2001]

Different Conceptualizations of KM in Organizations
## Schools of KM [Earl 2001]

Choice in „What to do“ and „How to do it“

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Unit of Analysis

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Schools of KM [Earl 2001]

- These perspectives are not mutually exclusive.
- These perspectives are not complete.
- No focus on one single type of knowledge.
- Perspectives span different levels (data – information – knowledge).

- Technocratic perspective
  - Support for knowledge workers, conditioning knowledge workers.

- Economic perspective
  - Creation of revenue from the exploitation knowledge and intellectual capital.

- Behavioural perspective
  - Stimulating a knowledge culture, social aspects.

How do these broad categories relate to KM roles?
Capture knowledge in knowledge bases

- Make individual knowledge explicit and available to the organization
- Codifying experience and expertise for others
- Knowledge bases tend to be domain-specific, supporting and improving specific knowledge-intensive work tasks and particular sorts of decision-making
- Examples can be found in engineering design and maintenance

- For example, Airbus Industries create CD-ROMs of airplane maintenance technical expertise—maintenance manuals—to distribute to technical staff in airports worldwide. The essence is that authorized technical specifications and repair and maintenance procedures are distributed in a controlled and updateable manner.
Systems Perspective
[Earl 2001]

- Knowledge can not only be derived from data, but from experience and expertise
- This requires efforts in validation
- Underlying philosophy: externalization

Implications:
- IT is essential: without IT, this approach would not be feasible
- Motivation and incentives are essential
- IT which captures, stores, organizes, and displays knowledge provided by knowledge workers is a critical enabler
United States Congress

From Wikipedia, the free encyclopedia

The United States Congress is the legislature of the federal government of the United States. It is bicameral, consisting of a Senate and House of Representatives. The House of Representatives has 435 voting members, with each member representing a congressional district and serving a two-year term. House seats are apportioned among the states on the basis of population. American Samoa, the District of Columbia, Guam, and the United States Virgin Islands send non-voting delegates to the House; Puerto Rico sends a non-voting Resident Commissioner who serves a four-year term; and the Northern Mariana Islands are not represented. The Senate has 100 members serving staggered six-year terms. Each state has two senators, regardless of population. Every two years, approximately one-third of the Senate is elected. Both senators and representatives are chosen through direct election.

The United States Constitution vests all legislative power in the Congress. While the House and Senate are generally equal partners in this legislative process (legislation cannot be enacted without the consent of both chambers), the Constitution grants each chamber unique powers unavailable to the other. Article II of the Constitution gives the President "power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur, and he shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by law: but the Congress may by Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments." Bills for raising revenue must originate in the House of Representatives, which also has the sole power of impeachment of federal officers, while the Senate has the sole power to try cases in which the House has voted an impeachment.

The Congress meets in the U.S. Capitol in Washington, D.C. The term Congress may also refer to a particular meeting of the Congress, reckoned according to the terms of representation. That is, a "Congress" covers two years with the first year called the First Session and the second year called the Second Session. The current 110th Congress first convened on January 4, 2007.

Contents [hide]

1 History
  2 Powers
    2.1 Enumerated powers
    2.2 Implied powers
    3 Limits of power
  3 Checks and balances
  4 Legislative procedure
  4.1 Term
Cartographic Perspective
[Earl 2001]

- Focus on mapping organizational knowledge
- "Who knows what": Increase transparency about who in an organization knows what
- Via, e.g., the construction of knowledge directories or "yellow pages"

- Not so much repositories, but gateways to knowledge
- Importance of orientational/navigational knowledge

- Example: Bain and Company
  Implementation of a "peoplefinder" database
  Emphasis on connecting people and communication instruments such as e-mail, video-conferencing or face-to-face meetings
Cartographic Perspective
[Earl 2001]

• In contrast to the system‘s perspective, focus is on incentivizing exchange of knowledge with others rather than giving knowledge to a system

• Quality and Up-to-dateness of competency / skills profiles / culture of knowledge sharing are critical to this approach

• Based on the assumption that updating profiles is cheaper than mapping what the organization knows in different domains

• The main contribution of IT is to connect people via e.g. intranets, synchronous and asynchronous communication instruments

• And to help them locate knowledge sources
Knowledge Maps


- Vorteile die sich dadurch ergeben sind:

  - Transparenzerhöhung (und damit verbunden ein verbessertes Verständnis von Abläufen, Prozessen und Zuständigkeiten)
  - Erleichterte Lokalisierung von Wissen
  - Erleichterte Erkennung von Wissensdefiziten bzw. -überschüssen
  - Erleichterte Einordnung von neuem Wissen
Wissenslandkarte
[Hackl 2005]

Abbildung 3: Benutzerschnittstelle der Wissenslandkarte
Wissenslandkarte
[Hackl 2005]
<table>
<thead>
<tr>
<th>Methode Kodifizierung</th>
<th>Methode Personalisierung</th>
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<tbody>
<tr>
<td><strong>Ökonomie der Wissenswiederverwendung:</strong></td>
<td><strong>Ökonomie der individuellen Expertise:</strong></td>
</tr>
<tr>
<td>- Einmalige Investition in ein Wissenskapital, das viele Male wiederverwertet wird.</td>
<td>- Berechnung hoher Honorare für höchst klientspezifische Lösungen einzigartiger Probleme.</td>
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<tr>
<td>- Einsatz großer Teams mit verhältnismäßig vielen Beratern pro Partner.</td>
<td>- Einsatz kleiner Teams mit verhältnismäßig wenigen Beratern pro Partner</td>
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<tr>
<td>- Ausrichtung auf hohe Gesamteinahmen.</td>
<td>- Ausrichtung auf das Erzielen hoher Gewinne.</td>
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<td><strong>Dokumentenbasierter Wissensaustausch:</strong></td>
<td><strong>Interpersoneller Wissensaustausch:</strong></td>
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<tr>
<td>- Entwicklung eines elektronischen Dokumentensystems, mit dem Wissen kodifiziert, gespeichert und wiederverwendet werden kann.</td>
<td>- Entwicklung von Personennetzen, so daß individuelles, implizites Wissen unter den Beteiligten ausgetauscht werden kann.</td>
</tr>
<tr>
<td>- Erhebliche Investitionen in die Informations-technik mit dem Ziel, den Beratern den Zugriff auf wiederverwendbares, kodifiziertes Wissen zu ermöglichen.</td>
<td></td>
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<tr>
<td>- Einstellung junger Hochschulabsolventen, die sich dafür eignen, Wissen wiederzuverwenden und im System bereits vorhandene Lösungen zu realisieren.</td>
<td>- Einstellung von Hochschulabsolventen mit MBA-Abschluß, die Freude am Problemlösen haben und Ambivalenz aushalten können.</td>
</tr>
<tr>
<td>- Schulung in Gruppen und durch Aufnahme von Wissen aus dem Computer.</td>
<td>- Schulung jedes einzelnen durch direkt zugeordnete Mentoren.</td>
</tr>
<tr>
<td>- Vergütungen nach dem Maß, in dem Dokumentenspeicher genutzt und um eigene Beiträge bereichert werden.</td>
<td>- Vergütungen nach dem Maß, in dem die Betreffenden ihr Wissen mit anderen teilen.</td>
</tr>
</tbody>
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**Andersen Consulting:** Ernst & Young

**Beispiele:** McKinsey & Company; Bain & Company
## Schools of KM

[Earl 2001]

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Assumption: Performance of business processes can be enhanced by providing operating personnel with knowledge relevant to their tasks

- Critical success factors both knowledge and information needs to be provided by IT
- „Give knowledge workers the knowledge and information to do the job“
- Essential contribution of IT: the provision of shared databases across tasks, processes, and organizational levels.

What type of knowledge does this approach focus on?
Engineering Perspective
[Earl 2001]

• Example HP:
  Identifying key knowledge areas within divisions in order to
capture and make available known knowledge to support
knowledge workers

  Mapping knowledge links between divisions so that ideas may
be shared among different groups of knowledge workers
Engineering Perspective

[Diagram showing a flowchart with processes such as Sales and Acquisition Process, Products, Customers, Product Development Process, and Marketing Process.]
# Schools of KM

[Earl 2001]

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<td><strong>EXAMPLE</strong></td>
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Commercial Perspective [Earl 2001]

• Focus on protecting and exploiting a company’s knowledge or intellectual assets to produce revenue streams

• Including intellectual assets such as
  – Patents (Patent management)
  – Trade marks
  – Copyrights
  – know-how

• Most concerned with **exploitation**, and least concerned with **exploration**

• Intellectual capital often characterized as the difference between book and market value

• Success factor:
  – Organizational roles that aggressively manage knowledge property
  – Techniques and processes to measure *and* manage IC as a routinized process

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Managing knowledge as an „asset“
Commercial Perspective
[Earl 2001]

- Example: Dow Chemical Company

- Turned the management of its patent portfolio into an active management process
- Patent department was incurring costs of $30 mio per annum, and generated revenues of only $25 mio.
- A patent can cost up to $250,000 over its entire lifetime
- Critical reflection on patents that Dow was holding and considering
  - Abandoning, donating, licensing or selling them.
- Over $40 mio savings in 18 months
Example IC Report http://www.akwissensbilanz.org/

1.5 Definition Geschäftserfolg

Die erste Ergebnisdarstellung zeigt deutlich: Das größte Einflussgewicht haben Human- und Strukturkapital (jeweils 34%), gefolgt vom Beziehungskapital (21%).

Die ausführliche Beschreibung und Bewertung der Einflussfaktoren erfolgt in Kapitel 5.

1.6 Einflussfaktoren (Übersicht)

Die angeführten Faktoren aus dem intellektuellen Kapital haben besonders großen Einfluss auf den Geschäftserfolg von reinish:

**Geschäftsprozesse (GP)**
- Vertriebsprozess inklusive Angebots erstellung und Vertragsabschluss
- Projektplanung und Durchführung

**Humankapital (HK)**
- Serviceorientierung
- Fachkompetenzen
- Soziale Kompetenzen
- Führungskompetenzen
- Mitarbeitermotivation

**Strukturkapital (SK)**
- Lernfördernde Arbeitsumgebung
- Vertrauensvolle Unternehmenskultur
- Wissensorientierte Prozesse und Methoden
- Wissenstransfer
- Produktivität, Prozessleistung
- Innovation

**Beziehungskapital (BK)**
- Kundenorientierung
- Neue und potenzielle Mitarbeiter
- Marke reinish
- Netzwerke

- Wissens- und Innovationsmanagement
  - Grundlage für das Management des „reinish-Wissens" ist die Bereitschaft der Mitarbeiter, sich zu öffnen und vertauchvoll zusammenzuarbeiten. Die Unternehmenskultur fördert den Austausch von Wissen und Informationen sowie das Erarbeiten von Innovationen, Methoden, Systeme und eine geeignete Struktur unterstützen die Mitarbeiter bei Wissenstransfer und Innovationsentwicklung.

- Die reinish Unternehmens- und Führungskultur wird aktiv gelebt

- Weiterentwicklung von reinish zu einer lebendigen, wissens- und lerngetriebenen Organisation

- Leistungsm PWM

- Leistungsm PWM reinish wird nicht nur als Dienstleister gesehen, sondern als kundenorientierten Lösungsanbieter und „Wertschöpfungsgetragan“
# Schools of KM

[Earl 2001]

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Organizational Perspective
[Earl 2001]

• Focuses on the use of organizational structures or networks to share or pool knowledge
• **Knowledge communities**, the archtypal organizational arrangement of a group of people with a common interest, problem or experience
• Designed and maintained for a **business purpose**
• Inter- or Intraorganizational
• Bringing together knowledge and knowers
• Combine both systems- and cartographic perspective
• A new role: knowledge intermediary

• Behavioural, because
  – Knowledge is exchanged in a nonroutine, personal and unstructured way

What type of knowledge does this approach focus on?
Organizational Perspective
[Earl 2001]

• Example:
  Shell: Three different types of „forums“
  – Best Practice Forum: Most codified and structured, Maintained and validated by the community
  – Discussion Forum: Least codified, around a topic of common interest
  – Task Forum: intermediate level of codification, centred around a community of people brought together to solve a significant challenge, e.g. turning around a business

• Each forum has a moderator, a „human hub“

Role of IT:
• Knowledge is often captured on video
• Knowledge base does not contain everything that could be externalized, but integrates cartographic aspects
• Videoconferencing
• Community support

~ same technology, different purposes
Organizational Perspective
[Earl 2001]

• Critical success factors:
  – Culture of knowledge sharing and networking
  – „Human hubs“ are essential to increase connectivity between knowledge workers
## Schools of KM

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<td>Intellectual Asset Register and Processing System</td>
<td>Groupware and Intranets</td>
<td>Access and Representational Tools</td>
</tr>
<tr>
<td>Commercialization</td>
<td>Collaboration</td>
<td>Contactivity</td>
</tr>
</tbody>
</table>

### Table 1. Schools of Knowledge Management
Spatial Perspective [Earl 2001]

- More of a philosophy
- Focuses on the use of space – or spatial design – to facilitate knowledge exchange
- Examples: the water cooler, coffee kitchen
- Basic assumption: Spatial layout of an organization (how teams are grouped in offices, how a building provides for serendipitous encounters) has an influence on the way knowledge is being shared
- Tacit knowledge is most likely to be discovered and exchanged through discussion
- Encourage socialization as a means of knowledge exchange
Spatial Perspective

- Example: Skandia Future Centre, a waterside villa
Spatial Perspective
[Earl 2001]

• **Example: Skandia‘ Future Centre**
  – A converted waterside villa where groups can meet and where individuals can reflect
  – Building designed for contactivity: to create contact and activity
  – Dining area where individuals have to mingle with others

• **Other examples:**
  – Open space coffee bars, „main streets“, etc

• **Success factors:**
  – Contactivity as a driving objective
  – Encouragement and legitimization („it is good to talk“)
Table 1. Schools of Knowledge Management

<table>
<thead>
<tr>
<th>SCHOOL ATTRIBUTE</th>
<th>TECHNOCRATIC</th>
<th>ECONOMIC</th>
<th>BEHAVIORAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Technology</td>
<td>Income</td>
<td>Networks</td>
</tr>
<tr>
<td>Aim</td>
<td>Knowledge Bases</td>
<td>Knowledge Assets</td>
<td>Knowledge Pooling</td>
</tr>
<tr>
<td>Unit</td>
<td>Domain</td>
<td>Activity</td>
<td>Communities</td>
</tr>
<tr>
<td>Example</td>
<td>Xerox</td>
<td>Know-how</td>
<td>BP Amoco</td>
</tr>
<tr>
<td>Critical Success Factors</td>
<td>Content Validation Incentives to Provide Content</td>
<td>Knowledge Learning and Information Unrestricted Distribution</td>
<td>Specialist Teams Institutionalized Process</td>
</tr>
<tr>
<td>Principal IT Contribution</td>
<td>Knowledge-based Systems</td>
<td>Profiles and Directories on Internets</td>
<td>Intellectual Asset Register and Processing System</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Codification</td>
<td>Connectivity</td>
<td>Commercialization</td>
</tr>
</tbody>
</table>

Sources: [Earl 2001]
Strategic Perspective
[Earl 2001]

- Knowledge management as a competitive strategy
- Knowledge and intellectual capital are viewed as the key resource
- The company chooses to compete on knowledge and is conceptualized as a knowledge business
- Knowledge as a source of differentiation

- Role of IT:
  - Open, depends on the conclusions drawn from developed knowledge strategies

What type of knowledge does this approach focus on?
Strategic Perspective [Alfeis 2003]

Figure 1: The Siemens – CIBIT Knowledge Strategy Process: The six steps and the results

Markus Strohmaier 2008
Two Approaches

<table>
<thead>
<tr>
<th></th>
<th>Laissez Faire</th>
<th>Reengineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy</strong></td>
<td>hire good people and leave them alone</td>
<td>get people to do work differently</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>inputs/outcomes</td>
<td>activities</td>
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<tr>
<td><strong>Detail</strong></td>
<td>macro</td>
<td>micro</td>
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<tr>
<td><strong>Evaluation</strong></td>
<td>multi-yearly</td>
<td>hourly/daily</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>individual</td>
<td>large group</td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td>broad</td>
<td>narrow</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>persuasion</td>
<td>mandate</td>
</tr>
<tr>
<td><strong>Analytic Emphasis</strong></td>
<td>understanding existing environment</td>
<td>design new environment</td>
</tr>
<tr>
<td><strong>Work Done By</strong></td>
<td>insiders</td>
<td>outsiders</td>
</tr>
<tr>
<td><strong>Primary Barrier</strong></td>
<td>loyalty to discipline</td>
<td>fear of change</td>
</tr>
</tbody>
</table>

Two Approaches to Knowledge Work Improvement

Davenport „Improving Knowledge Work Processes“
## Schools of KM

[Earl 2001]

Table 1. Schools of Knowledge Management

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<tbody>
<tr>
<td>ATTRIBUTE</td>
<td>SYSTEMS</td>
<td>CARTOGRAPHIC</td>
<td>ENGINEERING</td>
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<td>FOCUS</td>
<td>Technology</td>
<td>Maps</td>
<td>Processes</td>
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<tr>
<td>AIM</td>
<td>Knowledge Bases</td>
<td>Knowledge Directories</td>
<td>Knowledge Flows</td>
</tr>
<tr>
<td>UNIT</td>
<td>Domain</td>
<td>Enterprise</td>
<td>Activity</td>
</tr>
<tr>
<td>EXAMPLE</td>
<td>Xerox Shorko Films</td>
<td>Bain &amp; Co AT&amp;T</td>
<td>HP Frito-Lay</td>
</tr>
<tr>
<td>CRITICAL SUCCESS FACTORS</td>
<td>Content Validation Incentives to Provide Content</td>
<td>Culture/Incentives to share Knowledge Networks to Connect People</td>
<td>Knowledge Learning and Information Unrestricted Distribution</td>
</tr>
<tr>
<td>&quot;PHILOSOPHY&quot;</td>
<td>Codification</td>
<td>Connectivity</td>
<td>Capability</td>
</tr>
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</table>
Any further questions?

See you next week!