Knowledge bases
To start with

- Knowledge is important in all sectors, high-tech as well as low-tech
  - Most innovations are not ‘high-tech’ or ‘science-based’ but still knowledge-based
- Codified knowledge is easy to transfer over spatial distance
- Tacit knowledge
  - We know more than being able to explicate
  - Embedded in people and organizations
  - Impossible to transfer over spatial distance

Knowledge base specifies how, when and why geography matters for interactive learning/innovation
Differentiated knowledge bases
analytical – synthetic – symbolic

• Characterise the nature of the **critical knowledge** which the innovation activity cannot do without
  - Knowledge base understood as an ideal type

• Useful in understanding innovation processes in different types of economic activities
  - Seeing beyond dichotomies of local/global, tacit/codified, high-tech/low-tech etc

(Asheim & Coenen 2005)
## Knowledge bases

(Asheim et al 2011; Manniche 2012)

<table>
<thead>
<tr>
<th>Analytical</th>
<th>Synthetic</th>
<th>Symbolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing new knowledge about natural systems by applying scientific laws; know why</td>
<td>Applying or combining existing knowledge in new ways; know how</td>
<td>Creating meaning, desire, aesthetic qualities, affect, intangibles, symbols, images; know who</td>
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<tr>
<td>Scientific knowledge, models, deductive</td>
<td>Problem solving, custom production, inductive</td>
<td>Creative process</td>
</tr>
<tr>
<td>Collaboration within and between research units</td>
<td>Interactive learning with customers and suppliers</td>
<td>Experimentation in studios, project teams</td>
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<tr>
<td>Strong codified knowledge content, highly abstract, universal</td>
<td>Partially codified knowledge, strong tacit component, more context specific</td>
<td>Importance of interpretation, creativity, cultural knowledge, sign values; implies strong context specificity</td>
</tr>
<tr>
<td>‘Theoretical understanding’</td>
<td>‘Instrumentally solving problems’</td>
<td>‘Culturally creating meanings’</td>
</tr>
</tbody>
</table>
Watch industry / Jura Arc (Switzerland)

Figure 1: Evolution of knowledge dynamics and market strategies in the Swiss watch sector

- **Synthetic knowledge base dominates**
  - Swiss watch industry from the late 1980s to early 2000s
    - (development of the industrial design, product of social distinction)

- **Swiss watch industry before the 1970s**
  - (local industrial production, technological trajectory, technological competitiveness)

- **Symbolic knowledge base in the core**
  - Swiss watch industry since 2001
    - (development of the authentic fine watch making, interdependence of production-consumption systems, emotional differentiation)

Source: Joannerat and Croceosier 2008
Case Lapland

• "Help us" -> champions of experience economy

• From seeing darkness, long distances and low population density as weaknesses to seeing them as assets