

CENTER FOR FORSKNING OG UDVIKLING I LANDDISTRIKTER

INNOVATION OG PERIFERI

- FØDEVARER, MØBLER OG TURISME

**DEN DANSKE DEL AF ISP STUDIET:
INNOVATION SYSTEMS AND THE PERIPHERY**

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Forord

Som et led i det nordiske studium af Innovationssystemer i periferien (ISP) har CFUL stået for undersøgelsen af de danske forhold. Resultaterne af det danske studium er gengivet i dette skrift. Det danske bidrag går tæt på innovation og systemer for samme i virksomheder inden for sektorerne fødevarer, turisme og møbelindustri, beliggende i det nordvestlige Ringkøbing Amt og det vestlige Viborg Amt. Studiet er finansieret af Nordisk Innovationscenter og medfinansieret på forskellig vis i de enkelte lande. CFUL har således selv bidraget til en delfinansiering af den danske del.

Udover CFUL har den nordiske forskergruppe bestået af:

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- Akureyri Universitets forskningsinstitut, Island: Elín Aradóttir
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Projektet er gennemført i perioden februar-december 2004 under koordinering af Elín Aradóttir, Akureyri Universitets forskningsinstitut, Island.

Undersøgelsen har omfattet en række interviews med virksomheder og aktører. Vi takker for, at man har villet bruge en ellers sparsom tid til det. Man kan se listen over deltagere i Appendix 2.

Hvert land har haft to medlemmer i en referencegruppe. Fra Danmark har det været:

- Kontorchef Niels Gøtke, Direktoratet for FødevareErhverv
- Kontorchef Henrik Lodberg, Erhvervs- og Byggestyrelsen

Her benyttes lejligheden til at takke alle for en stor indsats.

Fra CFUL's side har flg. forskningsmedarbejdere bidraget:

- Klaus Lindegaard, overvejende med fælles-nordisk forskningsdesign, tilrettelæggelse og koordinering, konklusioner, analysen af møbelindustrien samt resumeet til nærværende skrift.
- Monica Stoye, overvejende med analysen af fødevarerindustrien
- Marit Vatn Jensen, overvejende med analysen af turistsektoren
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- Undertegnede, overvejende med koordinering, analyse af nationale og regionale rammevilkår, redigering og konklusioner.

Man kan læse mere om projektet på: <http://vefir.unak.is/isp/default.htm>

Esbjerg, maj 2005
Hanne W. Tanvig
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Resume: Innovation og periferi

ISP projektets mål og metoder

Virksomheders udvikling af teknologi, organisation, nye produkter og nye markeder er systemisk og foregår ofte i samarbejde med en eller forskellige partnere udenfor virksomheden, fx kunder, leverandører, forsknings- og videncentre, offentlige myndigheder og interesseorganisationer.

ISP projektet "Innovation Systems and the Periphery" er et komparativt nordisk forskningsprojekt om innovationssystemer i perifere områder, som bygger på den forudsætning, at der er et behov for at øge vores viden om innovationssystemer i udkantsområder og at rette større opmærksomhed mod udformningen og implementering af innovationspolitik og innovationsfremmende praksis i udkantssammenhæng. Projektet fokuserer på innovations rolle og typer af innovationsprocesser i udvalgte industrier i udvalgte udkantsområder/perifere regioner i de nordiske lande.

Undersøgelsen har 4 hovedtemaer: Innovationsaktivitet, viden- og kompetencebase, samarbejde og netværk og innovationsbetingelser med fokus på turisme, fødevarerproduktion og fremstillingserhverv. Parterne i projektet udvalgte undersøgelsesområdet i deres eget land, såvel som det heraf udspringende områdespecifikke fokus med hensyn til hvilken erhvervssektorer,

Projektet omfatter i alt 14 cases fra fødevarerindustrien, anden fremstillingsvirksomhed og turisme fra hvert af de 5 nordiske lande (Island dog 2 cases). For hver case blev de nuværende innovationsforhold kortlagt indenfor hver enkelt erhvervssektor (erhvervsfokus) i det enkelte nordiske område (geografisk fokus). Forskellige tilgængelige informationskilder, dokumenter vedr. politik, relevante forskningsrapporter samt statistikker blev gennemgået for hver af de undersøgte cases. Endvidere foregik indsamling af empiriske data ved hjælp af semi-strukturerede interviews med hovedinformanter (10-15 fra hver case).

Som eksempler på hovedinformanter kan nævnes repræsentanter for virksomheder såvel som repræsentanter for regionale og nationale støtteagenter (repræsentanter for udviklingsgrupper, erhvervsorganisationer, uddannelsesinstitutioner, forsknings- og udviklingsorganisationer etc.). Den empiriske dataindsamling foregik i perioden maj til september 2004. De danske deltagere i caseundersøgelserne er listet i Appendix 2.

Casestudierne af netværk og vidensamarbejder hos virksomheder og støtteagenter i de udvalgte udkantsområder bygger på de udvalgte aktørers udsagn og beskrivelser suppleret med baggrunds- og rammeinformation. Det er således ikke en repræsentativ virksomhedsundersøgelse eller et innovationssurvey. Studiet tager udgangspunkt i systemperspektivet og optrevler relevante aktører og vidennetværk i og omkring udvalgte virksomheders innovationsaktiviteter. Dette billede suppleres med information fra udvalgte aktører indenfor uddannelse, erhvervs-service og -fremme mv. i studieområdet.

De danske ISP cases

Geografisk fokus	Erhvervsfokus
1) Ringkøbing og Viborg amter, Danmark	Landbaseret fødevarerindustri: Mejerier og bryggerier
2) Ringkøbing og Viborg amter, Danmark	Turisme: Rekreative serviceydelser, som fokuserer på lokal natur og kultur
3) Ringkøbing og Viborg amter, Danmark	Fremstillingserhverv: Træindustri (møbler)

Casenes geografiske og sektormæssige kontekst er gengivet fra ISP projektets hovedrapport i Appendix 3 (på engelsk).

Valget af Viborg og Ringkøbing amter og området omkring Limfjorden som studieområde begrundes i deres typiske udkantsstatus i dansk sammenhæng. Valget af erhverv indenfor de 3 sektorer faldt på mejerier og bryggerier, hvor der i begge tilfælde i studieområdet eksisterer flere mindre selvstændige virksomheder i brancher præget af dominerende virksomheder. Møbelindustrien valgtes som en veletableret sektor i området med flere både mindre og mellemstore virksomheder i international konkurrence. Inden for turismesektoren valgtes små virksomheder indenfor natur- og kulturturisme i området. Udvalgets størrelse er bestemt af studiets rammer og muligheder, mens de udvalgte virksomheder selv er bestemt ud fra en positiv opmærksomhed om innovationsaktiviteter og virksomhedsudvikling. Der er så at sige søgt gode eksempler på innovative virksomheder (i det store og i det små), hvis samarbejdspartnere heromkring indfanges, således at der skabes grundlag nærmere beskrivelse og illustration af innovationssystemerne i periferien, deres form, geografi og funktion.

Konklusioner: Innovationsfremme i danske udkantsområder

Det er et gennemgående træk, at virksomhedernes hyppigst forekommende samarbejdspartnere i forbindelse med innovation er deres kunder og deres leverandører. Nær sagt alle virksomheder samarbejder på denne måde forlæns og baglæns i produktkæden. I mange tilfælde er der tale om samarbejde mellem lokale parter, men beliggenheden af virksomhedernes vigtigste markeder bestemmer alligevel, hvem de især samarbejder med. De eksportorienterede virksomheder som fx møbelindustrien er overvejende internationalt orienteret mod afsætning i Tyskland og England m.m. og får leverancer fra Finland, Sverige, Baltikum, Tyskland og Italien. Fødevarer virksomhederne har nærmere en lokal-regional og national afsætning, mens turismemarkedet er nationalt og internationalt, hvad angår kunder og lokalt og til dels regionalt hvad angår forbrug.

Et dansk eksempel fra hvert af de 4 hovedtemaer (innovationsaktiviteter, viden og kompetencebase, samarbejde og netværk, innovationsbetingelser) i undersøgelsen er præsenteret i Appendix 4.

Det danske ISP studie viser, at danske virksomheder indenfor traditionelle sektorer som mejerier og bryggerier (og primærproducenter og forarbejdningsled),

møbler samt turisme lokaliseret i perifere områder finder og udnytter relevant viden og kompetencer for innovation og udvikling af nye produkter i netværk med såvel geografisk nære som fjerne aktører.

Profil af virksomheders samarbejdsrelationer om innovation

Fødevarer-case: Små- og mellemstore virksomheder	Turisme-case: Mikro- og små virksomheder	Møbel-case: Små-og mellemstore samt større virksomheder
Deltagende støtteagenter: Teknologiske service, videntcenter Markeder: Lokal-regional og national Samarbejdsgeografi: lokal, regional-national (international).	Deltagende støtteagenter: Amt og kommuner Markeder: Lokal-regional (forbrug)/nationalt-internationalt (forbrugere) Samarbejdsgeografi: Lokal-regional (national-international).	Deltagende støtteagenter: Uddannelsesinstitutioner, udviklingscenter, teknologisk service Markeder: International Samarbejdsgeografi: Regional, national, international.

Virksomheders eksterne samarbejde om innovation - en profil af 3 erhvervssektorer i Viborg-Ringkøbing regionen. Baseret på interviews med 10-15 virksomheder og støtteagenter indenfor hver sektor i perioden juni-september 2004.

Indenfor landbrugsproduktion og fødevarerfremstilling finder vi forskellige små og mellemstore virksomheder med succesfuld produktudvikling indenfor delsektorer domineret af en enkel internationalt orienteret andelsvirksomhed sammen med et datterselskab og en lille eksportorienteret virksomhed. Tilsammen repræsenterer de forskellige typer af lokalt forankrede fødevarer virksomheder i det perifere område. I modsætning til den generelle tendens indenfor sektoren, finder vi her livlige, uafhængige og innovative virksomheder.

I turistsektoren finder vi blandt forskellige mikro- og små virksomheder operatører af nye typer af service produkter i et marked domineret af en enkel form for turistvirksomhed, vestkystens sommerhusudlejning. Virksomhederne repræsenterer tilsammen alternative og komplementære produkttyper og er lokalt forankrede i det perifere område. I modsætning til det generelle billede af sektoren, finder vi små, nye og innovative operatører, der arbejder sammen for at opgradere deres produkter.

I møbelindustrien finder vi en varieret gruppe af udvalgte virksomheder, der repræsenterer forskellige typer af produkter og udviser forskellige konkurrence og innovationsstrategier i forhold hertil. De er lokalt forankrede mellemstore og store virksomheder, der opererer på meget konkurrenceprægede internationale markeder.

I modsætning til det generelle billede af sektoren, finder vi innovationsprægede virksomheder, der eksperimenterer med design og nye markeder.

Der er ligheder indenfor og imellem de 3 sektorer. Offentlige myndigheder og teknologiske- og erhvervsserviceleverandører - lokalt og regionalt - deltager desuden som samarbejdspartnere i forbindelse med konkrete innovationsprojekter. Denne interaktion giver en lokal-regional basis for innovationssystemudvikling af viden og kompetencer.

På tværs af alle 3 sektorer finder vi et stort potentiale i brugen af arbejdsstyrkens kompetencer og i opgraderingen af det relativt lave (formelle) uddannelsesniveau hos medarbejdere og ledelse. Vi finder et eksplicit formuleret behov for støtte til finansiering af virksomhedernes innovations- og udviklingsaktiviteter, specielt blandt de små virksomheder. Vi finder endvidere et behov for støtte til støtteagenterne selv, for at styrke deres egne deltagelses- og udviklingsmuligheder og deres viden og kompetenceopbygning i området.

Flere typer af mulige støtteagenter er ikke eller meget sjældent involverede i samarbejdsprojekter med virksomhederne. Det kan delvist skyldes praktiske besværligheder og geografisk afstand til bycentre mv., men også fællestræk ved erhvervskulturen, traditioner og kompetencer, der kan virke som barriere for samarbejde og videnopbygning med utraditionelle innovationspartnere.

Det danske ISP studie peger hen på, at der lægges mere vægt på regional kompetenceudvikling (regionale vækstmiljøer), men suppleret med et lokalt-regionalt perspektiv i stedet for et ensidigt sektorfokus, for at styrke samarbejde og innovation på tværs af sektorerne i perifere områder. Det er endvidere vigtigt at styrke selve uddannelsessektoren og knytte erhvervsuddannelserne tættere til forskningsmiljøer og teknologiske servicecentre m.v., for at udvikle relevante og attraktive aktiviteter for den erfarne, men formelt relativt lavt uddannede arbejdsstyrke.

Det danske ISP studie har fundet et højt bevidsthedsniveau så vel som aktivitetsniveau for så vidt angår innovation i sektorerne. Virksomhederne udvikler deres produkter, forbedre deres processer og organisation og finder nye kunder og markeder. Selvom disse innovationsaktiviteter kan synes minimale i indhold og effekt, så giver alene deres eksistens sammen med bevidstheden om forandring og udvikling en god basis for fremtiden for virksomhederne indenfor sektorerne, som vi har set på i udkantsområdet i Viborg-Ringkøbing amter. Det er vigtigt at sprede denne erfaring til alle virksomheder indenfor sektorerne og ud til virksomheder i andre sektorer i perifere områder.

Nordisk komparativt perspektiv og anbefalinger

ISP projektet undersøgelse af innovationssystemerne ud fra de innovative virksomheders synspunkt formår i alle cases i alle de nordiske lande, at etablere en forbindelse mellem virksomhedernes innovationsaktiviteter og deres brug af omgivende vidennetværk og innovationssystemer indenfor og udenfor produkt-kæden fra leverandører til kunder.

De nordiske ISP cases

Geografisk fokus	Erhvervsfokus
Ringkøbing og Viborg amter, Danmark	Landbaseret fødevareindustri: Mejerier og bryggerier
Ringkøbing og Viborg amter, Danmark	Turisme: Rekreative serviceydelser, som fokuserer på lokal natur og kultur
Ringkøbing og Viborg amter, Danmark	Fremstillingserhverv: Træindustri (møbler)
Central Ostrobothnia, Finland	Landbaseret fødevareindustri: Mejerier, forarbejdning af afgrøder etc.
Central Ostrobothnia, Finland	Turisme: Rekreative serviceydelser, som fokuserer på lokal kultur og miljø
Oulu Syd (Nordlige Ostrobothnia), Finland	Fremstillingserhverv: Elektronisk og trådløs teknologi
Nordvest region, Island	Landbaseret fødevareindustri: Mejerier
Nordvest region, Island	Turisme: Rekreative serviceydelser, som fokuserer på lokal natur og kultur
Lofoten, Norge	Landbaseret fødevareindustri: Mejeri og kødproduktion
Lofoten, Norge	Turisme: Rekreative serviceydelser, som fokuserer på lokal natur og kultur
Lofoten, Norge	Fremstillingserhverv: Torsk akvakultur (fiskeyngel produktion, produktion og vedligeholdelse af maskiner og udstyr)
Dalarna Amt, Sverige	Landbaseret fødevareindustri: Kød, afgrødeforarbejdning og brødproduktion
Dalarna Amt, Sverige	Turisme: Rekreative serviceydelser som fokuserer på lokal natur og kultur
Dalarna Amt, Sverige	Fremstillingserhverv: Træ- og metalindustri

Det skal bemærkes, at på grund af de forskellige nationale og regionale rammer der har været for casene, den brede definition der har været anvendt af hvad innovation er, samt variationen der har været indenfor de virksomheder, der er inkluderet i undersøgelsen (f.eks. med hensyn til størrelse, kompetencer, produkt-

sammensætning, markeder og beliggenhed), bør generaliseringerne af resultater og politiske anbefalinger tilpasses den relevante nationale og regionale sammenhæng. ISP studiets hovedrapport fremdrager en række fællesnordiske konklusioner (a-i).

a) Anerkendelse af innovationer i udkantsområder: Der er identificeret et antal eksempler på "god innovationspraksis". Skønt mange innovationer var små og ubetydelige af natur, demonstrerer disse eksempler at, på trods af nogle åbenlyse ulemper forbundet med placeringen i udkantsområder, er innovation både mulig og nærværende i de nordiske udkantsområder. Innovation er ofte en nødvendighed for at holde en virksomhed kørende og på den måde ses innovation som en overlevelsesstrategi. Det er vigtigt, at beslutningstagere har en positiv holdning overfor innovation i udkantsområder i bred forstand for at skabe en opmuntrende stemning i landdistrikterne. Eksemplerne bør styrke sådanne holdninger og opmuntre beslutningstagere til at indtage en proaktiv holdning med det mål at fremme innovationsaktiviteterne i landdistrikterne.

b) Udnyttelse og udvikling af landdistriktslivet, således at der skabes innovative produkter: Traditionel, praktisk viden (f.eks. viden om kulturelle og natur/miljø-aspekter i landdistrikter), som er tæt forbundet med landdistriktsidentiteter, har produceret innovative produkter, som henvender sig til et bredt marked. Dette gælder især for fødevarer- og turismesektorerne. Landdistriktslivet kan anses for at være kilde til innovationer. Beslutningstagere bør anerkende og styrke udnyttelsen af denne kilde ved at lave specielle tiltag (støtteprogrammer, udviklingsprojekter). Sådanne tiltag bør sigte mod at skabe muligheder for innovatorer for at udnytte lokale værdier i produktudvikling og markedsføring.

c) Gennemsigtighed i politiske og offentlige støtteprogrammer: Mange cases viser at politikker, og i nogle tilfælde tilknyttede støtteforanstaltninger ikke er synlige nok for virksomhederne, som deltog i ISP undersøgelsen. Begrænset opmærksomhed, manglende fortrolighed og i nogle tilfælde manglende tillid til hele innovationsfremmesystemet, synes ofte at karakterisere synspunktet hos repræsentanter for virksomhederne. Som anført ovenfor bør beslutningstagere lægge særlig vægt på at gøre politiske og offentlige støtteprogrammer mere læsevenlige, anvendelige og synlige for slutbrugeren. I denne sammenhæng bør der særligt lægges vægt på det lokale niveau. En sådan understregning burde være en klar del af officielle støtteorganisationers PR rolle. Målet bør være ikke blot at skabe et positivt image, men et operationelt tilgængeligt og velfungerende innovationssystem. Den fremtidige politiske udfordring omfatter et behov for en understregning af, at traditionelle industrier integreres i nationale og internationale innovationsfremmesystemer. Dette kræver først og fremmest en tilretning af de eksisterende, dominerende rationaler for politiske tiltag, som kort kan siges at være stærk støtte til højteknologisk og videnskabeligt baseret innovation. De tiltrængte justeringer går i retning af anerkendelse af ikke-højteknologisk orienteret innovation og ikke-videnskabeligt baserede videninput til innovation.

d) Opløsning af "sektorielle lock-in": I visse nordiske regioner er erhvervssektorer temmelig isolerede fra andre aspekter af det økonomiske liv i de undersøgte regioner. Dette gælder specielt for fødevarersektoren, hvor dette viser sig gennem

strukturen i støttende serviceydelser, virksomheders netværksmønstre, støtteagenters involvering i tværsektorielle udviklingsinitiativer etc. Det er nok realistisk at forudsige, at fremtidige innovationer indenfor landbrug og fødevarerbearbejdning vil kunne drage fordel af tættere relationer til andre specifikke erhvervssektorer (f.eks. turisme, som i det svenske tilfælde med agro-turisme og lokal branding af fødevarer i Dalarna) såvel som fra forskellig anden tværsektoriel interaktion og samarbejde (f.eks. med hensyn til branding). Denne melding er vigtig både for virksomheders og støtteagenters virke. Der er behov for at vægte tværsektoriel tænkning og interaktion højere, når der skal laves politikker. En sådan tværsektoriel politik bør følges af det praktiske arbejde med implementering i form af konkrete programmer eller projekter, som sigter mod en bedre udnyttelse af ikke-fuldtudnyttede muligheder for innovationer.

e) Udvidelse af viden- og kompetencebasen: Forbedring af den grundlæggende viden- og kompetencebase i de undersøgte virksomheder, kan bidrage til udnyttelse af innovationspotentialerne i virksomhederne og de regioner, de virker i. Skønt generel kapacitetsopbygning kan ses som det primære behov i denne sammenhæng, kan vi også argumentere for, at der er behov for at forbedre beholdningen af formel, højtudviklet viden, især blandt de virksomheder og industrier, som har nået et vist niveau af modenhed og avancerethed. Beslutningstagere bør sigte mod en styrkelse af den rolle, uddannelsesinstitutioner spiller i udkantsområderne. Et sådant engagement kan f.eks. være i form af samarbejdsprojekter, som inkluderer parter fra lokale/regionale udviklingsgrupper eller -organisationer, eller i form af specielle uddannelsesprogrammer eller kurser, specielt målrettet mod relevante videnområder.

f) Fremme af iværksætterkultur: ISP projektet har fundet eksempler på innovative virksomheder, som ledes af førsteklasses iværksættere. Det synes rimeligt at argumentere for, at uden i det mindste et vist mål af iværksætter-drivkraft har avancerede innovationsfremmesystemer kun lidt mening. Denne lære forudsiger, at beslutningstagere bør kunne træde ud af de almindelige diskussioner om strategier, programmer, serviceydelser etc. Beslutningstagere bør også overveje initiativer, som bygger på endogene tilgange til samfundsøkonomisk udvikling, med det mål at opbygge generel kapacitet og højne motivation og selvtilliden hos potentielle innovatorer (f.eks. terapeutiske programmer for at styrke positiv og proaktiv tænkning eller konstruktiv identitetsopbygning på kommunal eller lokal niveau). I nogle nordiske regioner er der blevet etableret lokale partnerskaber, som også omfatter erhvervslivet, og de rapporteres at være en succes mht. at opstille mål for og fuldføre innovative programmer

g) Bedre udnyttelse af eksisterende netværk: Den store vigtighed forskellige horisontale netværksforbindelser har for innovationsprocesser er et klart og konstant resultat i ISP projektet. "Virksomhed til virksomhed" relationer synes at være en meget vigtig del af det systemiske aspekt i innovationsprocesser, såvel som virksomheders interaktioner med erhvervsorganisationer, kunder og leverandører. Beskeden til beslutningstagerne bør i denne sammenhæng være at skabe bedre adgang til at udnytte de eksisterende netværk. Beslutningstagere bør sigte mod at give aktørerne en stærkere rolle i de politiske beslutningsprocesser samt styrke deres konkrete rolle i udformning og inddragning af politiske tiltag gennem

særlige støtteprogrammer og udviklingsprojekter (styrkelse af offentlig/private partnerskaber).

h) Udkantsproblematikkens rammebetingelser og problemer: Når der tales om emnet innovation i udkantsområder, så har de generelle rammebetingelser i det enkelte lands økonomiske miljø en meget stor indvirkning på innovationspotentialer og processer. At styrke de overordnede rammebetingelser for virksomhedernes konkurrenceevne og innovation vil altid være en politisk udfordring, både i land- og bysammenhæng. En vigtig lære for beslutningstagere, som kan uddrages af den udkantsspecifikke diskussion i ISP projektet, er vigtigheden af at anerkende, at bestræbelser på at fremme innovation og økonomisk udvikling i udkantsområder ikke skal ske isoleret fra andre mere generelle regional/(udkants-) udviklingstiltag (og vice versa). Her bør bestræbelser og støtte til fælles kapacitetsopbygning og innovative tiltag fremhæves snarere end støtte til enkeltpersoner og de enkelte virksomheder (LEADER lignende tilgang).

i) Behov for fortsat forskning: Alle de nævnte ISP anbefalinger kræver fortsat forskning på de områder, anbefalingerne handler om. I denne sammenhæng er det vigtigt at bemærke, at forskningen og innovationsundersøgelserne generelt ikke har fokuseret på de økonomiske realiteter i landdistrikter og små centre i udkantsområder. ISP projektet har først og fremmest fokuseret på perspektivet omkring virksomheder i udkantsområder, snarere end på det overordnede perspektiv vedrørende lokaliteter, regioner og mellemliggende politiske systemer. Der er derfor et betydeligt behov for en bredere dataindsamling og analyser på dette område i innovationsundersøgelser. I den videre forskning bør der lægges særlig vægt på forskellene i de kulturelle, økonomiske og institutionelle rammer i de nordiske lande for at lære mere tværnationalt og tværregionalt.

ISP projektet og innovationssystemer

I ISP projektet er flere forskellige typer af de såkaldte systemiske aspekter i innovationsprocesser blevet identificeret. Disse systemiske aspekter antager forskellige former, hvor de geografiske og sektorbestemte understøtninger og påvirkninger varierer betydeligt og også blandes sammen. En af hovedkonklusionerne i ISP projektet er at innovationssystemer hverken er udelukkende et geografisk fænomen og heller ikke udelukkende et sektorbestemt fænomen. Virkelighedens innovationssystemer er meget mere komplekse.

Resultaterne i ISP projektet indikerer, at innovationernes afhængighed af interaktioner og videnovertagelse mellem forskellige parter varierer meget blandt de forskellige cases og eksempler på innovation, der er blevet undersøgt. De fleste virksomheder synes at have en stor tiltro til deres eget initiativ, og de kommunikerer eller samarbejder generelt kun med nogle få udvalgte aktører. Men nogle virksomheder har mange forskellige interaktioner med forskellige aktører. Så det systemiske aspekt er derfor i nogle tilfælde temmelig svagt, men i andre tilfælde stærkt.

En generel tendens i alle casene var den relativt store betydning forskellige horisontale netværksrelationer har for innovationsprocesser. "Virksomhed til virksomhed" relationer synes at være meget vigtige og i nogle tilfælde spiller erhvervsorganisationer en vigtig rolle. Også interaktion med kunder og leverandører synes både at producere nye ideer (det, der driver innovation) lige såvel som de er vigtige i den overordnede innovationsproces. Forskellige personlige kontakter (skolekammerater, familie, naboer, venner, kollegaer osv.) var endvidere også vigtige kilder til information, ideer og rådgivning. Generelt betragtet, så spillede ovennævnte aktører en større rolle end forskellige offentlige støtteydere. Den blotte tilstedeværelse af forskellige støtteorganisationer, såvel som opfattelsen af effektivitet i disse organisationer har indflydelse på det faktiske antal af samarbejdsrelationer, som virksomheder kan forventes at have med sådanne organisationer. Dette var helt åbenlyst ved sammenligningen af casene i ISP projektet, især indenfor turistsektoren, hvor en del af undersøgelsesområderne nød godt af højtudviklet politisk infrastruktur og støtteforanstaltninger, mens andre ikke gjorde. Dette relaterer sig til diskussionen om vigtigheden af at have effektive rum til interaktioner mellem de økonomiske aktører på plads. Når det er sagt, må man også sige at resultaterne i ISP projektet indikerer, at det bør understreges, at et stort, bredt udvalg af samarbejdsrelationer ikke en absolut betingelse for at succesrige innovationer kan forekomme. Antallet af samarbejdsrelationer, som hver virksomhed har med andre agenter, er sikkert ikke det, der påvirker innovationsprocesserne mest, men snarere hvor godt de etablerede relationer virker.

Et sidste vigtigt resultat i ISP projektet er, at i de fleste tilfælde synes forsknings- og udviklingsenheder samt uddannelsesinstitutioner at have en ubetydelig direkte rolle i innovationsaktiviteterne i de undersøgte virksomheder - med den danske møbelindustri som en klar undtagelse. Samtidig er det formelle uddannelsesniveau i virksomhederne (især indenfor fødevarerindustri og turistsektoren) generelt set temmelig lavt. Der er derfor plads til en målrettet indsats i et samarbejde mellem virksomheder og institutioner, som fokuserer på generel kapacitetsopbygning og uddannelse. Sådanne institutioner har også en formidlende rolle som et element i innovationssystemet som de, der sammenkæder generel kapacitetsopbygning med den formelle, højere uddannelses- og viden -infrastruktur. Vi vil hævde at en yderligere styrkelse af sådanne relationer efterhånden vil styrke innovationer i udkantsområder i de nordiske lande.

Innovation, for det meste inkremental produkt og teknologiudvikling, finder sted inden for de traditionelle sektorer i perifere områder, ligesom viden og kompetencer udvikles, til trods for svage eller manglende formelle forsknings- og udviklingsaktører og institutioner, universiteter m.v. Alle, både virksomheder og støtteagenter kan drage nytte af mere interaktion og læring på tværs af sektorer og erhverv i områderne. Der er et fælles behov på tværs af sektorer for støtte til støtteagenterne til at forbinde sig indad og udad områderne og på tværs af sektorerne. Dette er en del af innovationsfremme og brobygning for viden-spredning og kapacitetsopbygning.

Det er et vigtigt resultat af ISP projektet, at pege på eksistensen af mange af uformelle og halvformelle aktørers betydning som en del af virksomhedernes og

sektorernes netværk og videninfrastruktur. Dette er tilfældet enten på grund af de innovative virksomheders perifere lokalisering og store afstand til de formelle aktører, fordi de simpelthen er traditionelle "lavteknologiske" sektorer uden tradition eller kapacitet for interaktion med forskningen eller fordi dette er tilfældet for de fleste virksomheder i alle sektorer og geografiske områder. I de førstnævnte 2 tilfælde kan den uformelle infrastruktur fungere som en substitut for de formelle forsknings- og udviklingsinstitutioner m.v. i periferien.

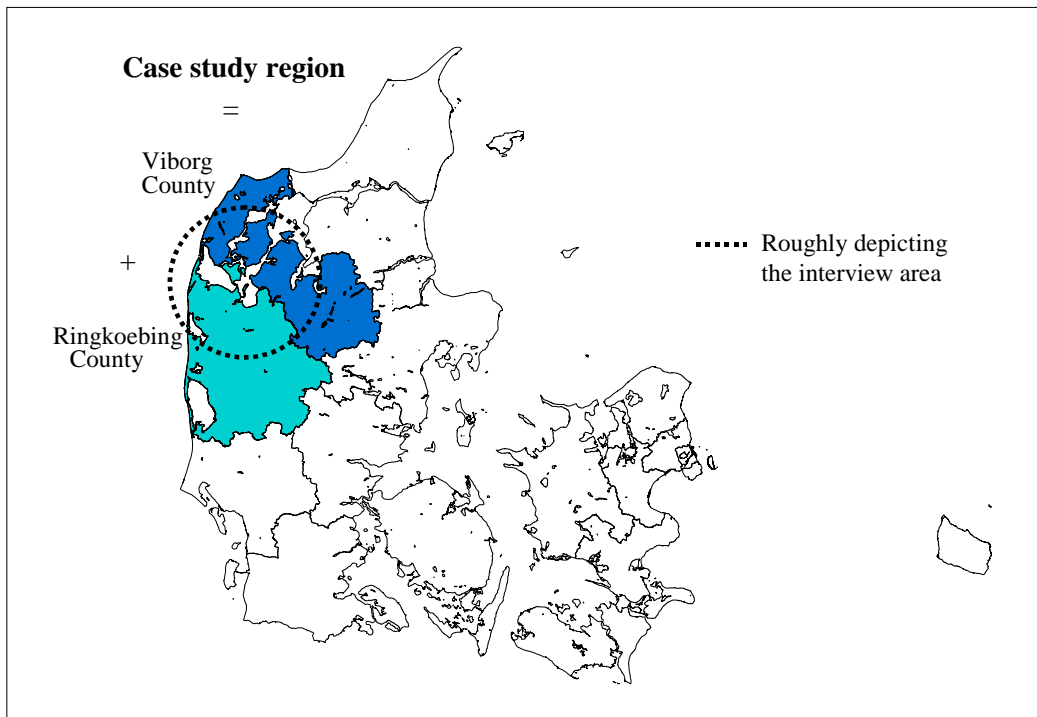
1. The research context

1.1 Case study region and selected industry sectors

The case study region selected for Denmark consists of two counties in North West Jutland - Viborg County and Ringkøbing County. The case study region was chosen because it is considered to be peripheral with typical development traits and because of the presence of activities within all three sectors of interest to the ISP project - agri-food, tourism and manufacturing.

Within the region, interviews were carried out in the bordering area between the two counties, cf. Map 1.

Map 1. Case study region and interview area



Apart from having a fairly large food production, this area has some activity within food processing (e.g. dairies and beer breweries). In addition to the summerhouse tourism along the Danish West Coast, some inlet-based tourism activities are revolving around the inlet *Limfjorden*. Finally, manufacturing industry is present in the area, e.g. the furniture industry with a fairly high concentration.

Therefore, the following sectors and sub-sectors were selected:

- Agri-food sector: Farmers and among processing firms: dairies and beer breweries;
- Tourism sector: Tourism revolving around the inlet Limfjorden;
- Manufacturing sector: The furniture industry.

The selection of sub-sectors has been guided by a wish to focus on sectors with locally anchored operators whose operation is unique to the area.

The interviewed dairies and beer breweries are thus independent of the nationally dominant companies Arla Foods and Carlsberg. These two companies are also present in the area with various affiliates, but the innovative activities of these affiliates are likely to be determined nationally by their mother companies, and not by peripheral innovation systems.

Coastal mass tourism build around the many summerhouse areas is the most dominant tourist industry in the case study region. However, this is also the case for all other municipalities located at the West Coast of Jutland. Innovation in and around this industry tend to occur on an aggregated level, and innovations, if successful, are likely to spread out to the rest of the industry. It is therefore more interesting to look at tourism activities that are unique to the area - such as tourist activities around the Limfjorden.

The furniture industry is an obvious choice within manufacturing industry. For a long time, the furniture industry has had a stronghold in the area and the vast majority of companies are locally owned and operated.

1.2 Rural Denmark

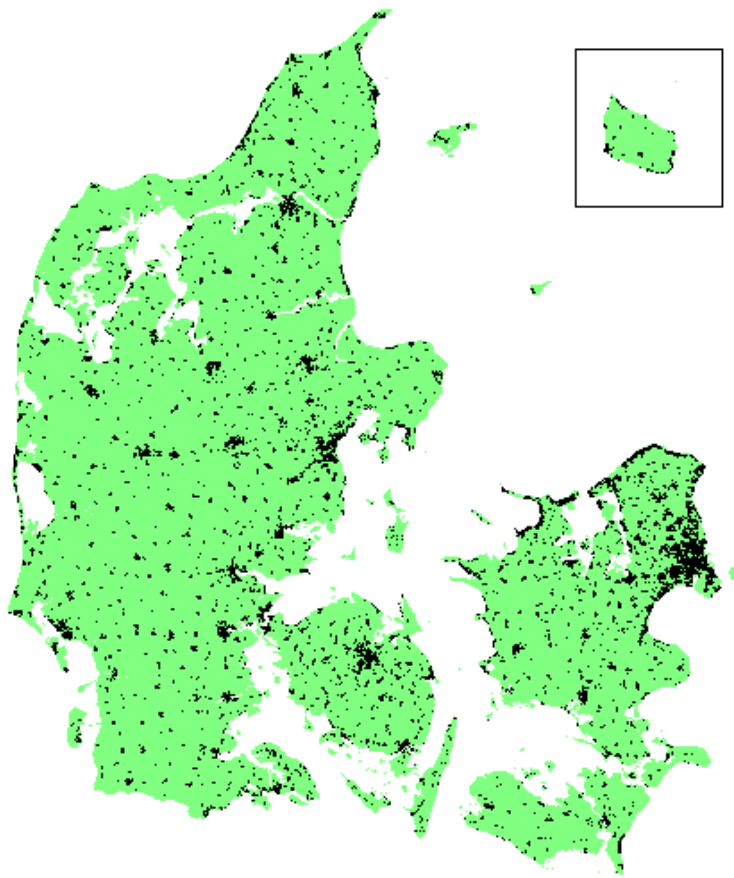
This section will provide a brief overview of the extent and location of rural areas in Denmark. The recent population development will also be shown.

1.2.1 Various definitions of rural areas and regions

Whether an area can be characterised as rural or peripheral depends on the definition. Statistics Denmark uses the distinction between urban areas and rural districts. Urban areas are defined as coherent settlements of at least 200 inhabitants. Rural districts are the areas outside the urban areas. Danish rural districts had about 790,000 inhabitants in 2002, corresponding to 14.8 % of the total population¹. Map 2 shows rural districts and urban areas in Denmark in 2002.

¹Indenrigs- og Sundhedsministeriet (2002).

Map 2. Danish urban areas and rural districts in 2002

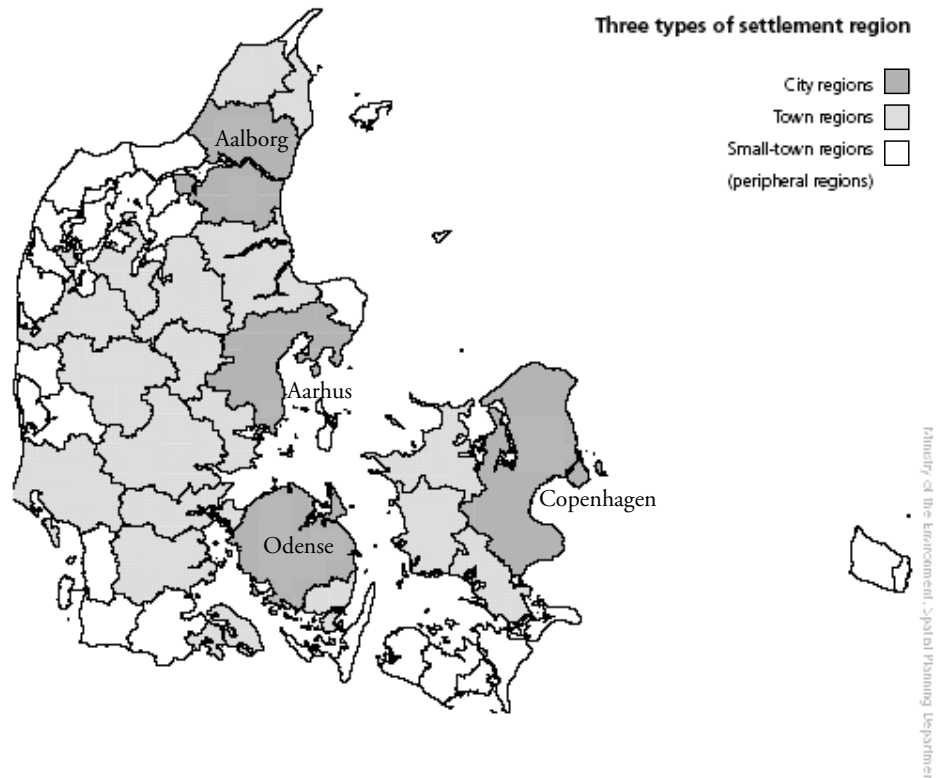


Note: The urban areas marked with black on the map constitute both urban settlement and summerhouse areas.

Source: Indenrigs - og Sundhedsministeriet (2002).

In connection with their national spatial planning work, the Ministry for the Environment operates with three types of settlement regions: city regions, town regions and small-town regions, the latter also called peripheral regions. City regions are the commuting regions for Denmark's four largest cities with more than 100,000 inhabitants: Copenhagen and the three provincial cities of Aarhus, Odense and Aalborg. Town regions are the commuting regions for towns with 20,000 to 100,000 inhabitants. Peripheral regions are the commuting regions for towns with less than 20,000 inhabitants.

Map 3. Three types of settlement region



Note: The settlement regions are defined so that at least 80 % of the inhabitants have their workplace in the region. The map shows commuting regions as of 1992.
Source: Miljøministeriet (2003).

Map 3 shows the settlement regions in Denmark. The main settlement is found in the four city regions with 55 % of the total population. Town regions hold 35 % of the total population and, finally, peripheral regions hold 10 % of the population. Peripheral regions are mainly made up of smaller islands and some coastal (western) areas in Jutland.

1.2.2 Population development

Table 1 shows the population development in rural areas in Denmark based on the definition of rural districts used by Statistics Denmark.

Table 1. Population development in rural districts and urban areas, 1992-2002

Definition	Type	Share of total population, 1992	Share of total population, 2002	Growth in number of inhabitants, 1992-2002
Statistics Denmark	Rural districts	15.2 %	14.8 %	1.4 %
	Urban areas	84.8 %	85.2 %	4.5 %

Source: Indenrigs- og Sundhedsministeriet (2002).

Table 2 shows the population development in rural municipalities by settlement region. Rural municipalities are here defined by the number of inhabitants in the biggest town.

Table 2. Population developments in rural municipalities by settlement region

	Population, (1,000) 2003	Growth in number of inhabitants, 1990-2003
City regions		
Rural municipalities with < 10,000 inhabitants in biggest town	564	7.2 %
Rural municipalities with < 5,000 inhabitants in biggest town	369	5.9 %
Rural municipalities with < 2,000 inhabitants in biggest town	68	5.4 %
Town regions		
Rural municipalities with < 10,000 inhabitants in biggest town	844	3.3 %
Rural municipalities with < 5,000 inhabitants in biggest town	630	3.3 %
Rural municipalities with < 2,000 inhabitants in biggest town	216	3.2 %
Peripheral regions		
Rural municipalities with < 10,000 inhabitants in biggest town	375	-1.4 %
Rural municipalities with < 5,000 inhabitants in biggest town	236	-2.4 %
Rural municipalities with < 2,000 inhabitants in biggest town	75	-4.1 %
All of Denmark	5,384	4.8 %

Source: Miljøministeriet (2003).

Rural municipalities in city and town regions have had a positive population development, whereas rural municipalities in peripheral regions have had a negative one. Almost systematically, the population development goes from a very positive one, over a less positive one, to a more and more negative one, the more peripheral the region gets and the smaller the municipality gets.

1.2.3 The degree of rurality in Denmark in a European context

Denmark is not as “rural” as the other Scandinavian countries. There are no large stretches of more or less uninhabited land like in Norway, Sweden and Finland and you will not find areas with extremely low population densities.

However, Denmark is quite rural compared to other West European countries. This is seen in Table 3, showing the degree of rurality in the 15 old EU member states.

The table is based on an OECD terminology that defines a rural community (or municipality) to be a community with less than 100 inhabitants /km². Regions are then distinguished by their degree of rurality depending on what share the population in rural communities makes up of the region's total population. Regions are grouped into the three types: predominantly rural areas, significantly rural areas and predominantly urban areas.

Of the 15 countries in Table 3, Denmark is surpassed only by Ireland, Finland and Sweden in terms of rurality. Austria lies more or less on the same level. Denmark clearly has a high score on rurality compared to the average for all 15 countries (EUR-15).

Table 3. Degree of rurality in 15 EU member states

	Population in rural communities (a)	Population by type of regions		
		Predominantly Rural (b)	Significantly Rural (c)	Predominantly Urbanised (d)
	(% of national population)			
Denmark	32.4	39.6	31.3	29.1
Finland	50.6	58.9	41.1	0.0
Sweden	66.8	63.2	17.7	19.1
Belgium	4.9	3.4	4.9	91.7
Germany	12.0	5.4	25.2	69.3
Greece	30.8	28.1	28.3	43.6
Spain	24.4	12.7	41.5	45.8
France	23.7	10.5	56.6	32.9
Ireland	43.1	46.6	15.1	38.3
Italy	14.1	4.1	27.1	68.8
Luxembourg	19.3	-	100.0	-
Netherlands	3.1	0.0	6.7	93.3
Austria	34.6	30.2	28.9	41.0
Portugal	21.2	18.1	22.8	59.1
UK	8.7	1.0	18.7	80.3
EUR-15	17.5	9.7	29.8	60.5

Note:

a) Population of local communities with population density below 100 inhabitants/km².

b) Predominantly rural regions: >50 % of the population living in rural communities.

c) Significantly rural regions: 15-50 % of the population living in rural communities.

d) Predominantly urban regions: <15 % of the population living in rural communities.

Source: European Commission (1997).

1.3 Profile of the region

The following will give a brief description of the history and present socio-economic structure of the case study region: Viborg County and Ringkøbing. Both counties are *predominantly rural regions*, using the OECD methodology for types of regions².

1.3.1 Development history in short

A few years ago, this part of the country and other western parts of Denmark were the places that had the highest growth rate in employment and local economy due to the late industrial development. For instance, 50,000 new jobs were created between 1960 and 1980 in the production sector, only in the counties of Ribe, Ringkøbing and Viborg. Moreover, a very high number of jobs were created in the local administrative sector due to a strengthening of the decentralised administrative structure, created by a Municipal Reform in 1970. This Reform was followed by a number of other reforms, all with the purpose of implementing the decentralised Danish Welfare State.

By far the most of the new jobs in the production sector were in local small and medium sized industrial companies, either as jobs in new companies or as jobs in expanding older trade companies and the like. This was at a time when former industrial companies in the cities, especially in the eastern parts, had to close down due to overheated labour markets and reorganize production, so that the production tasks could be placed elsewhere and thereby ensure their survival. So in this way tasks were transferred to the areas in the country (and outside the country) where there were idle, enterprising and motivated forces (due to the withdrawal of the agricultural society), and still with a sufficient qualification structure and other infrastructure at their disposal. This is where the effects of the Welfare State come into action³.

During only a few years, the counties of Ringkøbing and Viborg went through a development from primarily an agricultural society to primarily an industrial society. Still, agriculture plays a relatively bigger role here than in the rest of the country, but does not even come close to neither employment rate in the production sector or for that matter the employment rate in the private and public service sector. Furthermore, the position close to the North Sea has led to streams of tourists, which has again led to activities and employment.

The areas have now changed from having favourable conditions to facing an agenda where the weighty production sector is threatened by the competitiveness of low-pay countries. A coming Structural Reform, dramatically reducing the number of municipalities and jobs in this sector, is also expected to reduce the

² Predominantly rural regions are defined as regions with more than 50 % of the population living in communities (municipalities) with less than 100 inhabitants pr. km². As of 1/1 2004, in Viborg County and Ringkøbing County, 70 % and 55 % of the population were living in such municipalities, respectively (own calculations based on data from Statistics Denmark).

³ Tanvig (1995).

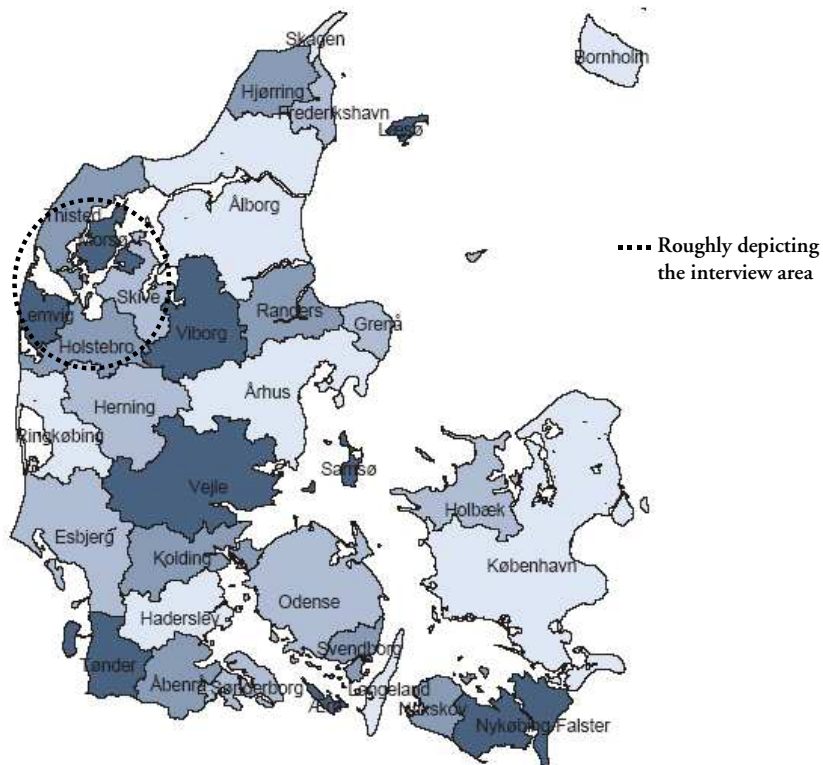
possibilities of making a living for the inhabitants in the region. At the same time fishing and agricultural sector is still under pressure and the number of jobs here is reduced.

Especially the western parts of the two counties are so far away from the new growth centres - namely the big cities and their hinterlands, especially in the Eastern parts - that loss of jobs locally cannot just be compensated for by commuting to another job elsewhere. Furthermore, there is no doubt a mismatch between the qualifications gained in the industrial labour market (many of the people working here are unskilled and semi-skilled workers) and the needs for the knowledge based economy for qualifications with its employees. The following will give a kaleidoscopic outline of the socio-economic situation of the chosen region.

1.3.2 Statistical indicators

A lot of data sets are only on county level, while some are on commuting regions. With regards to the commuting regions it is mainly Lemvig, Holstebro, Skive, Morsoe and Thisted that are relevant for the interview area. See Map 4 below.

Map 4. Commuting regions, 2000



Note: The commuting regions are defined so that at least 80 % of the inhabitants have their workplace in the region. The different colours are only used to differentiate between the regions. Source: Miljøministeriet (2003).

Population

The two counties cover an area of about 9,000 km², which gives a population density of around 57 inhabitants pr. km². The density is thereby under half of the national average of 125 inhabitants pr. km², cf. Table 4.

Table 4. Population density, 2004

	Number of inhabitants, 1/1 2004	Area, km ² 1/1 2004	Population density, 1/1 2004
Ringkoebing County	274,830	4,854.0	56.6
Viborg County	234,659	4,122.5	56.9
Denmark	5.397,640	43,098.3	125.2

Source: Danmarks Statistik (received data file) (2004).

The population in the two counties makes up 9.4 % of the total population in Denmark. The total number of inhabitants in Denmark has been more or less constant for a number of years, but in some commuting regions of the study region there has been a decline in population of up to 5.5 % in the period 1982-2002⁴. By comparison, some growth areas in Denmark have seen a growth of up to 13.8 %. The National Planning Report of 2003 documents a direct association between distance to cities and the development of the number of inhabitants in rural municipalities. Those that lie furthest from the biggest towns and cities have witnessed a marked decline, while those that lie close have not had decline, but growth⁵.

Demographically, the share of young people is lower than in the rest of the country. This is primarily caused by young people moving out of the area in connection with their enrolling in an institution of further and higher education in larger cities. On the other hand, the share of older people is relatively big, especially in some of the municipalities in our study area⁶. A population projection states that the share of older will increase in the coming years⁷.

There is a big difference in migration patterns across Denmark, which means that the commuting regions in our study have a net out-migration (up to -7.3 %) in the period 1982-2001, while there is a net in-migration to the large cities⁸.

Industry and trade and labour market

In terms of occupation, industrial activity carries more weight in the two counties than in Denmark as a whole. The difference is outweighed by a relatively smaller

⁴ Indenrigs- og Sundhedsministeriet (2003: 31).

⁵ Cf. Table 2 in previous section.

⁶ Indenrigs- og Sundhedsministeriet (2003: 32/33).

⁷ Markeprand et al. (2003).

⁸ Indenrigs- og Sundhedsministeriet (2003:36)

occupation within service trade. Agriculture is not very dominant; although occupationally it is twice as big relatively compared to the rest of the country, cf. Table 5.

Table 5. Employed persons by sector, 2003

	Ringkoebing County	Viborg County	Denmark
Primary trade	7.3 %	7.5 %	3.7 %
- <i>herein agriculture, forestry</i>	6.4 %	6.9 %	3.3 %
Manufacturing	26.7 %	25.0 %	16.1 %
Construction etc.	6.4 %	7.1 %	6.7 %
Service trade	30.2 %	28.3 %	38.2 %
Public and private services	29.5 %	32.1 %	35.4 %
I alt	100.0 %	100.0 %	100.0 %

Source: Danmarks Statistik (2004), www.statistikbanken.dk

The occupational conditions in the study area hold characteristics that are relevant to ISP's case choice and purpose. Especially in the western parts of the study area, the occupational development has been worse than in other areas in recent years⁹. As for the population development, a direct association has been showed between location of workplaces in relation to the largest cities and the development in the number of workplaces. The further away, the more has the stock of workplaces been reduced within recent years¹⁰.

The former positive development mainly within manufacturing has resulted in quite low unemployment figures in peripheral areas during a number of years, as is seen in other countries as well. As a matter of fact, the unemployment rate in the study area was under 5 % in 2002, whereas some other parts of the country had rates of 5-7 % or more¹¹. Since then, especially within recent months, a number of large companies have closed down in the peripheral areas and especially the loss of workplaces for unskilled workers is noticeable.

The primary trades and food processing sector have "always" had a relatively big importance, but the employment in this field has in recent years been reduced considerably in the study area and even more so than in the rest of the country. There has been a decline of 4 % in 1994-2002 in the workplaces related to fishing and agriculture in the concerning commuting areas, whereas the figures are from 0 to -2 % in the biggest part of the rest of the country¹².

⁹ Especially the commuting regions Lemvig, Thisted, and Morsoe have had a weak occupational development. Økonomi- og Erhvervsministeriet (2003:30).

¹⁰ Miljøministeriet (2003:31).

¹¹ Økonomi- og Erhvervsministeriet (2003:40).

¹² Ibid. (2003:31).

The number of VAT registered companies in the two counties was 17,600 (Ringkøbing County) and 15,546 (Viborg County) in 2001. Of these, 1,453/1,182 was manufacturing companies. In Ringkøbing County, there are especially many within the textile and leather industry and manufacturing and processing of iron and metal. In Viborg County, there are also many within manufacturing and processing of metal, but the number of companies within the furniture industry is also high, 159/175. The number of companies within food, drinking and tobacco industry was 134/130¹³. For statistic-technical reasons, it is not possible to determine the number of companies within tourism.

By far the most Danish manufacturing companies are small in an international context. Most of them have less than 20 employees and only very few have over 500 employees. In the study area, the same applies.

The entrepreneur rate says something about the magnitude of new business activity in the areas (number of entrepreneurs pr. 1000 inhabitants aged 16-66) and thereby it reflects the degree of maturity of the stock of companies as a whole. Our study area had the lowest rate in the whole country, 2-3 % during 1994-1998, while the eastern part of Jutland, for example, had 4-5 % and most of Zealand more than 5 %¹⁴.

Competences and innovation

The area is lacking behind in terms of educational level. In 2003, for example, 2.2 % (Ringkøbing County) and 2.7 % (Viborg County) had a long-term further education. In Denmark as a whole, the figure was 4.9 %. Instead, many more have an educational background that to a higher degree matches the agricultural and industrial society. Especially many have no education above fundamental level and many have a professional secondary education, cf. Table 6.

Table 6. Educational level, 2003

Highest completed education (16-69 years):	Ringkøbing County	Viborg County	Denmark
Only primary school (%)	40.4	41.1	35.2
General secondary education (%)	6.4	5.9	8.8
Professional secondary education (%)	37.1	37.0	34.8
Short-term further education	3.6	3.3	3.9
Medium-term further education (%)	9.8	9.7	11.1
Bachelor (%)	0.5	0.4	1.1
Long-term further education (%)	2.2	2.7	4.9
Total (%)	100	100	100

Source: Danmarks Statistik (2004), www.statistikbanken.dk

¹³ Danmarks Statistik (2004), www.statistikbanken.dk

¹⁴ The lowest rates are found in the commuting regions Lemvig, Morsoe and Holstebro. Økonomi- og Erhvervsministeriet (2003:53).

Viborg and Ringkoebing Counties have a wide spectre of educational institutions on basic educational levels, e.g. primary and secondary education (high schools, technical schools) and short-term further and higher educations. The latter are concentrated around business and trade, the educational sector and the social and health sector.

However, there is a shortage of medium-term and especially long-term educations in both counties. Herning Institute of Business Administration and Technology in Ringkoebing is the most advanced educational institution in the business-related field. This institute offers only one education at MA level, whereas the rest are at BA level or less¹⁵. Neither county have a university.

An indication of the degree of innovation seen as knowledge-based activity in the two counties can be made by comparing figures for employment growth within the new economy from 1993-1998. This growth was 5 % in Ringkoebing County and 4.5 % in Viborg County, while the national average was 11.6 %¹⁶.

1.4 Agri-food industry

1.4.1 Agri-food industry in Denmark

Historically, the agricultural industry and the food industry have been of big importance in Denmark. However, during the last decades, the number of farmers has decreased radically due to rationalisation of operations. During the same period, the processing industry has increased in terms of economy and employment.

Until the beginning of 1960s the total number of farms in Denmark was quite stable at around 200.000 units. After this time, development in technology and size economy resulted in 2,500-3,000 farms being abandoned each year. During the last 20 years, the exodus from farming has been more than 3 % per year (and increasing). The remaining farms specialize and buy up more and more land. In 1970 there were 140,200 farms with an average size of 21 hectares. These figures had changed in 2002 to 48,800 farms with an average size of 55 hectares¹⁷. There has been an even more significant decline in number of livestock than in number of farms. This is due partly to the fact that the tendency of specialization has caused that mixed stocks with all three types of domestic animals quickly disappeared in favour of stocks with only one type of domestic animals per farm, and partly to the fact that a number of farms became pure plant growing farms¹⁸.

The food processing industry is an important industrial sector in Denmark and contributes by 16.9 % of the total gross value increase in the Danish

¹⁵ Herning Institute of Business Administration and Technology (2004), www.hih.dk

¹⁶ Nordstrand et al. (2001:67-69).

¹⁷ Landbrugsraadet (2003:3).

¹⁸ Hansen (2001:50).

manufacturing industry, equivalent to 29.6 million DKK. Exports are 22.3 % of the total Danish exports, equivalent to app. 90 billion DKK per year. In general, the food sector has app. 170,000 jobs or app. 7.7 % of the total employment rate in Denmark. This sector has the highest proportion of unskilled workers: 46.6 % and industry in general has 33 %, even though the share of unskilled workers has been declining for a long time¹⁹.

In 2002, there were 2092 workplaces in food, drink and tobacco industry in the whole country, of this 36 % were micro workplaces (with 1-9 employees) and 48 % small workplaces (10-49 employees), while only 15 % were medium-sized (7 % have between 50-99 employees) or big (over 50 employees)²⁰. Market wise, however, the picture is somewhat different, as the three biggest companies in each of the part-sectors in the food industry on average hold 37 % of the total turnover in 2001 and this share is increasing. So here the food industry differs significantly from the total Danish industry that to a much smaller extent is characterized by concentration of companies. In the manufacturing industry as a whole, 11 % of the turnover was divided among the biggest companies in the sectors²¹. By means of mergers and takeovers, the companies in the food industry have established synergy effects and economics of scale, which has given the sector much competitive power. In the branches of meat, dairy, sugar and ingredient industry the leading Danish companies are among the biggest in Europe.

By comparing with other countries, you find that the Danish agri-food sector plays an important economic role measured at national level, see table below.

Table 7. Economic importance of agri-food sector

	DK	EU-15	OECD
Agricultural exports in % (a)	20.0	8.5	7.6
Agricultural population (b)	4.1	4.7	8.3
Agricultural population (c)	4.1	4.7	8.7
Food industry (d)	28,2	12.0	10.8
Net exports/farmer (e)	280,000	-6,100	-2,000
Share of increase in value (f)	4.0	2.0	2.0
Food exports in % (g)	23.3	8.7	7.7

a) Agricultural products in total in % of all trade

b) Agricultural population in total (1998)

c) Economically active population (1998)

d) Turnover in food industry in % of all

e) Net = Total agricultural exports minus total agricultural imports, per economically active in agriculture. DKK (1998)

f) Increase in value in agriculture in % of all (1997)

g) 1997

Source: Hansen (2001:18).

¹⁹ Ibid. (p. 27-28).

²⁰ Danmarks Statistik (2004), www.statistikbanken.dk

²¹ Ministeriet for Fødevarer, Landbrug og Fiskeri (2003).

In the beginning of 2003, the Danish Ministry of Food, Agriculture and Fisheries had an analysis made in order to assess the growth potentials through innovation for the food sector in Denmark²². Here, it is summarized that:

- Structural adjustments and specializations within the Danish food sector results in an increased market concentration in all links in the value chain of the food sector
- The Danish food sector is characterized by its strong export orientation
- The sector is not specifically exposed to fluctuations of the market which makes it a big stable and central factor to Danish economy
- It is a big challenge to maintain the fine position of the Danish food sector in foreign markets
- Competitiveness in price and quality is an absolute prerequisite
- The sector faces new consumer demands and wishes, more and more related to production (in preference to the product, which it has been till now). The issues are now sustainability, environment, animal welfare and health

The analysis concludes that a continued competitiveness in the global market depends on a high degree of formalized innovation, and that this is not the case today:

” [...] the innovation efforts in the food industry are typically small when measured on traditional indicators. The number of employees occupied with product development is typically low and only in the big companies we find proper development departments. The funds allocated to development are small, typically less than 500,000 DKK per year.”²³

The big companies lie in the so-called innovative elite whereas the middle group consists of tradition-bound companies that have only to a small extent formalized the innovation efforts. At the bottom lie the vulnerable companies without any innovation efforts at all, which consequently leads to bad performance. Therefore, bigger efforts should be made to make the big ones share their experiences with the small ones²⁴. The analysis also points out the need for easier access to risk capital and a targeted and prioritized use of public research programmes for this purpose.

Characteristics of the selected agri-food sub-sectors

We have chosen to take a closer look at the brewery and beverages sector as well as the dairy sector at the supply chain.

In the Danish *brewery and beverages sector*, the number of breweries peaked a century ago. In 1904/05, more than 400 companies were registered (of which,

²² Ibid.

²³ Ibid. (p. 14). The amount equals approximately 75,000 Euro.

²⁴ Ibid. (p. 15).

384 were breweries producing a Danish type of household beer, low fermented and of medium gravity: “hvidtøl”). Since then, competition among breweries has been tough and the “hvidtøl” breweries gradually disappeared completely. Today, eight Bavarian beer breweries are left in Denmark. The three biggest ones have eight production facilities in total, and they produce 80-90 % of the total beer sales in Denmark. Thus, beer is produced in 13 places in Denmark. During the last few years, however, a number of micro breweries have appeared here and there in the country. Their production is very small, and it is normally directed at only direct sale in their own shops or restaurants.

Carlsberg has for a very long time now been the absolutely dominant company in the Danish beer market, both in retail trade, in the restaurant sector and in all types of beers.

Table 8. Market shares in the Danish beer market 1985-2002, %

	1985	1995	2002
Carlsberg (a)	70	71	71 (c)
Bryggerigruppen (b)	5	6	15-16
Other breweries	25	22	10-11
Import	0	1	2

a) Carlsberg has stated that their market share has declined in 2003.

b) Bryggerigruppen was originally called Jyske Bryggerier, which merged with Faxe in 1989. The company changed its name into Bryggerigruppen in 1992 and merged with Albani in 2000.

c) Carlsberg has stated that their market share was 67 % in 2003

Source: Konkurrencestyrelsen (2004:154)

As can be seen from Table 8, imported beer holds a very small share of the Danish market. This is partly due to the Danish deposit and duty system, which has made access to the Danish market difficult for foreign breweries. But cross-border shopping, where the Danes go to Germany in their own cars and buy beer to take home with them, is heavily increasing. The Danish Institute of Border Region Studies estimates that one out of three beers drunk in Denmark is bought in Germany²⁵.

The first co-operative *dairies* in Denmark were established in 1882. App. 50 years later, there were app. 1,400 co-operative dairies plus more than 200 private dairies. Today there are 42 dairies left, but the branch is totally dominated by one company namely Arla Foods. Arla Foods is still a co-operative dairy, but with more than 4,100 million kilos of milk weighed in per year we cannot easily compare it with the number of small dairies, weighing in between 10 and 50 million kilos a year. The second biggest dairy in Denmark weighs in 48 million kilo per year - 85 times less than Arla Foods²⁶. So there are still private dairies, but 97 % of the milk is delivered to the co-operative dairies (and here especially to the dairies owned by Arla).

²⁵ Bygvrå (2003).

²⁶ Mejeriforeningen (June, 2004), <http://www.mejeri.dk/>

Organization and important actors

Historically, Denmark has had many local and regional agricultural organizations. During the last century, more or less all of the organizations were merged so that there is only one important left today, namely Dansk Landbrug (Danish Agriculture). In this organization, app. 90 % of all Danish farmers is organized. The head office of Danish Agriculture is in Copenhagen, but the organization has regional and local organizations scattered in the whole country. Danish Agriculture has also set up an advisory system, where the national focus is Danish Agricultural Advisory Service, National Centre in Aarhus, which comprises approximately 60 independent local advisory centres.

Both the brewery and beverages sector and the dairy sector have their own branch organizations. Usually, the major companies are members. But as will be shown later, there are other actors relevant to development activities within the sector.

1.4.2. Agri-food industry in the Limfjord region

The Limfjord region is generally strong in the primary sector with many and very different farms, but still farms where the live stock, including milk production, play a big role. In the region, the manufacturing industry primarily deals with processing of meat, fish, and milk²⁷. There are processing plants in the whole region, but the biggest food processing plants are generally placed in the southern parts of the two counties.

During the latest years, the food industry of the region has been influenced by big centralizations like in the rest of the country. In the study area there are still six major slaughterhouses (with more than 100 employees), of which however only one is not a part of Danish Crown. The slaughterhouses are scattered in the whole study area, but there has been a concentration of the activities of Danish Crown in Holstebro. Holstebro is also the domicile for one of the big dairy complexes of Arla Foods with almost 600 employees, just like the bread-producing group of companies of Cerealia has a company in this town. However, another town in the area, Thisted, has a number of (small) private food companies: a slaughterhouse, an ice cream factory, a margarine factory, a brewery and a malt house.

Unlike both the dairies and the slaughterhouses the brewery sector has little connection to the local area when it comes to raw material. It is historical reasons that have decided the location of the breweries and the malt house. This has led to a number of logistic challenges, especially for the malt house, as almost the total production leaves the region and the country - here the export harbour in Aarhus is very central, as it is situated 148 kilometres away by the main road. The same picture applies for the bigger food company groups, which may be the reason for their location in Holstebro in the southern part of an otherwise strong raw material producing area. In general, the smaller private companies have more local/regional sale.

²⁷ Oxford Research A/S (2003b).

1.5 Tourism

1.5.1 Tourism in Denmark

- Danish Tourism has a turnover of approximately 45 billion DKK yearly and creates a total surplus of 27 billion DKK. This represented 4.2 % of the national GDP in 1999²⁸.
- The tourism industry employs approximately 70,000 on a full-time basis. The number is much higher during the high season. Employment in tourism represents 2.8 % of the total employment. Especially in sparsely populated areas, tourism has an essential importance for the employment, even though the earnings not necessarily are going into the local area.

Measuring the impact of tourism is a question of defining the sector. Since 1996, the Danish Tourist Board has operated with the so-called TØBBE measurement²⁹, divided in tourist nights and expenditure on national and regional level. These calculations will be used henceforward, if nothing else is stated.

- After a boom in the early 1990s, the number of tourist nights in Denmark reached 44.2 million in 1995³⁰. Since then the number has decreased to 41.4 million nights in 2001. Although there has been an increase in the number of nights to 42.4 million in 2002, the number is still under the level in the mid-1990s.

In 2002, the Danish Government published a political action plan on tourism and in continuation of this; an analysis in co-operation with the industry was to be completed. This resulted in a publication by the Ministry of Economics and Business Affairs (2004), a structural analysis of the tourism industry based on three individual reports³¹. It summarises the characteristics and challenges for Danish tourism:

- Compared to other North European countries, the amount of foreign nights in Denmark is quite high. The Danish tourism product, that consists of two kinds, coastal tourism and Copenhagen, is therefore relatively high in demand and competitive, especially the coastal product. However, the industry is exposed to an increasing international competition, which affects the earnings. The relatively high wages in the industry and in general high cost levels make the industry less attractive for international investments. Therefore it is important for the industry to

²⁸ Danmarks Turistråd (2002).

²⁹ Ibid, the TØBBE data contains two sets of database: 1) daily consumption 2) number of nights. Tourism expenditure by region is calculated as the product of the estimated average daily consumptions of tourists and the number of nights tourists spent in the regions of Denmark.

³⁰ Number of nights: 28 million in 1989, app. 44 million in 1995/1997.

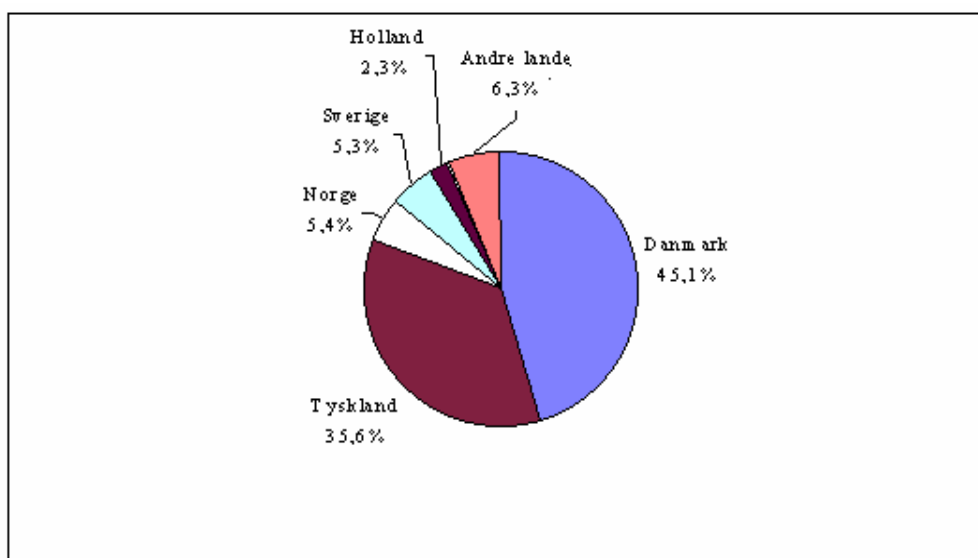
Økonomi og Erhvervsministeriet (2004).

³¹ Ibid.

focus on the strengths, which are to maintain the traditions and emphasize the uniqueness of the Danish product in the development and marketing of tourism³².

- Denmark belongs to the countries/regions in Northern Europe with most foreign nights. The foreign visitors represented in 1999; 24 million nights out of a total of 42 million nights. In comparison, foreign visitors represented only 21 million nights yearly in Norway, Sweden and Finland together. Most of the foreign tourists are Germans, but Norway and Sweden also contribute with many tourists.
- In general, the Danish product has a low level of complexity, which makes it difficult to increase its value. The strong dependency of few markets (especially Germany) increases the vulnerability. There is though an increased focus on new target groups within the neighbouring market and groups with more spending power (e.g. other Scandinavian countries). The product is also very seasonal compared to countries that have an interesting tourism product in the winter season (e.g. Austria, Switzerland and the neighbouring countries Norway and Sweden). This leads to problems with exploiting the capacity and seasonal unemployment.

Figure 1. The distribution of tourists



Source: Danmarks Turistråd (2004), www.danskturisme.dk

The decrease in the number of nights is especially caused by a decline in the number of nights from the main market, Germany³³. This has been labelled “The German Challenge”. An investigation shows that there is a need for further

³² A product that emphasizes closeness, including time spent together, safety, personality, individuality and intimacy.

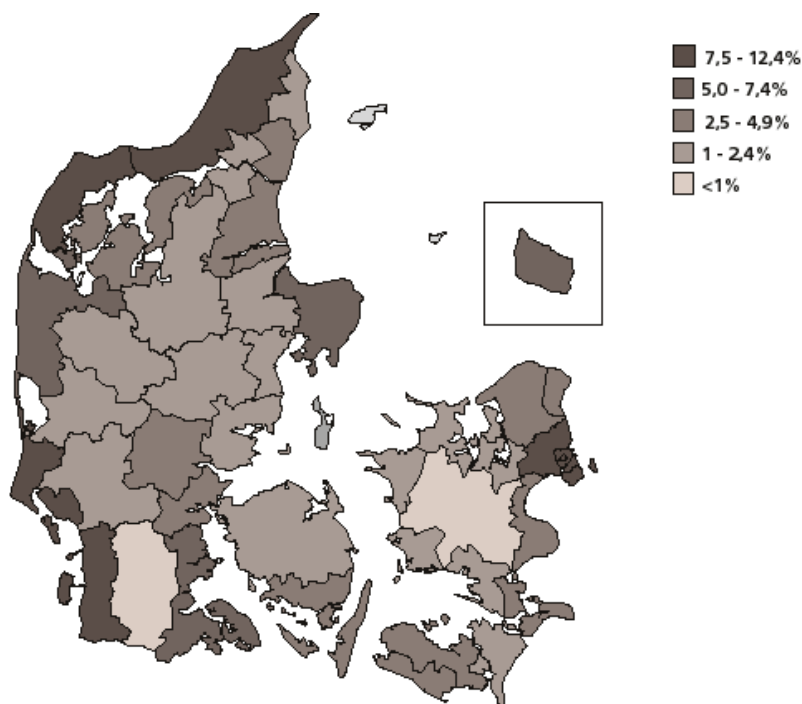
³³ Zhang (2001).

development of products, processes and organizations to be able to keep up the positive image Denmark holds in Germany as a holiday destination³⁴. On the other hand, the growth in domestic tourism has to a certain degree been able to compensate for the overall decline.

Regional development and tourism

Coastal tourism and other kinds of tourism affect the regions differently. According to Zhang (2001), tourism plays a different role in the different regions³⁵. There is also a large variation when it comes to tourism revenue received by the Danish regions. There is a tendency that tourism plays a more significant role in the more peripheral regions than in the metropolitan regions.

Map 5. Distribution of tourists in Denmark



Source: Holten-Andersen et al. (1998)

The industry is in general characterised by low-wage-jobs, seasonal occupation and having many people employed part time³⁶. Since relatively few jobs demand a high-qualified work force, the competence level is also low. For that reason, tourism is not always regarded as attractive to the local and regional labour market. Also many operators are not living in the tourism areas, and being taxed where you live means that tourism areas, in particular at the North Sea Coast with mass tourism, do not gain all revenue and taxes created in the areas.

³⁴ Den Tyske Udfordring

³⁵ Zhang (2001).

³⁶ Lundtorp (1997).

The nature of firms and innovation in Danish Tourism

A characteristic of the Danish tourism industry is the relatively low level of innovation compared to service industries in general. One explanatory factor might be the presence of many small/micro enterprises performing at a low level of expertise³⁷. Studies show that the tourism industry is characterized by having a relatively low level of professional management instruments, among these lesser-developed cooperative patterns and a systematic organisation than service industries in general³⁸. A seasonal variation also makes it difficult for the tourism industry to attract qualified employees and decreases the level of competence.

New evidence found in a report published recently by the Ministry of Economics and Business Affairs (2004) indicates that over 50 % of tourism operators within a period of two years actually have been innovative. The survey calls attention to the increasing competition within the industry the last years as an explanation of the increasing level of innovative tourism firms. This activity is especially found in the holiday centres, camping/caravan sites and amusements parks. What characterises innovation among the SMEs in Danish tourism is its level of closeness to the market. The innovation is based on the tourists' demand for new holiday experiences.

1.5.2 Main actors and support agents

External actors to the operators play an important role in tourism development in Denmark. These actors are a heterogeneous group consisting of public authorities, tourism trade organizations, research and development institutions and others.

National level

At national level, the *Danish Tourist Board* functions as an umbrella organization, with the main responsibility of developing and marketing Danish tourism. The industry is organized around the following areas: Coastal tourism, Active holidays, City tourism and Business tourism.

Other actors of importance at the national level are different tourism sector organizations and public authorities, e.g. *The Danish Forest and Nature Agency* and *The Danish Outdoor Council*.

Regional and local level

In 1996, eight regional tourism development organizations were established³⁹. The primary goals for these organizations are to coordinate and carry out/implement promotion activities and develop/maintain the market for regional tourism, geographically and seasonally. The organizations are also involved in product development.

³⁷ Similar to worldwide tendencies, it is estimated that 80 % of Danish tourism firms can be characterized as micro firms and small and medium sized firms. Erhvervsministeriet (2000).

³⁸ Jensen et al. (2001)

³⁹ The Tourist Group West Jutland (TGV) was established in 1991.

In 2004, a new construction was made when the four of these regional organizations in Jutland joined forces⁴⁰. The aim was to promote Jutland as one tourism destination, especially aimed at the Danish, German, Norwegian and Swedish market. The expected result of this is that the promotion is to become more clear-cut. There will be a reduction in the marketing tools, but on the other hand they are expected to become more effective and have more impact.

In the counties of Ringkoebing and Viborg, there are three levels when looking at tourism organizations. At the regional level, there are the two regional tourism development organizations covering the study area, *Turistgruppen Vestjylland* and *MidtNord Turisme*. At the local level, there are local tourism associations and tourism bureaus. At the level in between, some municipalities cooperate by running a tourism destination organization, e.g. *Destination Thy*, *Destination Skive* and *The 7 in the North West*. Public authorities, both at regional level (county councils) and at local level (municipalities), obviously play an important role in the development of the industry as well.

The operators/the attractions are also important actors. To a certain degree they are organised as co-operations. An example is “*Jutland’s Attractions*” which is a marketing co-operation between 14 of the major tourist attractions in Jutland. Within a smaller area, 16 attractions constitute *Western Jutland’s Attractions*.

1.5.3 Tourism in the western Limfjord area

The Danish West Coast constitutes a product that has lead to a form of mass tourism. The forms and level of tourism activity vary considerably in the two counties. While Ringkoebing County is one of the major coastal tourism areas, Viborg County is lagging behind. Viborg County is located between two strong counties for coastal oriented tourism, as mentioned Ringkoebing County and to the north the county of Northern Jutland. Although Ringkoebing is well visited in parts of the region, there are areas less visited, mainly inland areas, but also the northwestern part, which includes areas of the study region.

- In 2003, the number of tourist nights in Ringkoebing County reached a total number of 4.7 million. In a five-year period (1998-2003), there has been a 6 % increase in nights.
- In 2003, Viborg County reached a total number of 1.8 million nights. In the same period 1998-2003, Viborg experienced a decrease of 9 %.
- On country level, Denmark reached a total number of 43 billion nights in 2003. From 1998-2003, there has been an 0.7 % increase.

The dominant type of tourism in the study area is mainly family-oriented tourism based on accommodation in “summerhouses” located in areas facing the North

⁴⁰ The Tourist Group West Jutland, Mid-North Tourism, Region South East & Southern Jutland, and East Jutland Tourist Development Foundation.

Sea and Limfjorden. Ringkøbing County holds most summerhouse areas along the coastline of the two counties (mainly Holmsland Municipality, with Soendervig as the main destination). In Viborg County, a pilot investigation is about to be carried out for a National Park and Conservation Area. If carried out, the national park is expected to have positive effects on tourism in the area.

The major attraction in the study area is nature, especially associated with the closeness of water.

1.6 Manufacturing: Furniture Industry

The furniture sector in Denmark currently comprises approximately 400 companies, which all together in 2003 produced furniture to the value of DKK 18.9 billion with a direct employment of approximately 19,500 people. More than 84 % of the production is exported, making the furniture industry Denmark's sixth largest export industry. The sector employs approximately 10 % of the labour force related to manufacturing. It is very export oriented and has experienced a decade of growth and expansion during the 1990s, but is at present facing stagnation in growth.

Danish furniture manufacture is divided into three main segments:⁴¹

- Furniture for the home, e.g. furniture for children' and teenagers' rooms, bedrooms, dining rooms, home offices, etc. Furniture for self-assembly ("knock-down") and panel furniture are other areas of competency together with solid-wood products in beech, ash, teak and pine.
- Commercial and contract furniture in demand from professional architects, developers and operators all over the world for furnishing workplaces, institutions and public spaces.
- Designer furniture has been at the forefront of the international furniture scene since the 1950s with design classics by famous names in architecture and today a new generation of innovative furniture designers are active internationally.

⁴¹Foreningen Dansk Møbelindustri (2004), www.danishfurniture.dk

In addition, the Danish furniture industry incorporates a sizeable production of kitchen elements, and subcontract manufacture of furniture components is a significant facet of the industry.

Major challenges include:

- Increased competition from furniture producers abroad, especially in Eastern Europe
- Relatively low research and innovation rates and few new products ready for marketing
- Limited use of the competencies of the workforce and relatively weak level of education of management
- Change in demand patterns, with growth in cheap furniture and expensive quality furniture, while the middle-group of furniture producers lose markets⁴²

Furniture is described as a mature industry that has been relatively slow to restructure itself compared to e.g. the Danish textiles industry that today survives in Denmark as a trade business based on product innovation, product and logistics management⁴³. For furniture, the re-localisation of production to Eastern Europe, the Baltic Countries, South East Asia and China looks at present more and more attractive.

The markets for different types of furniture products have been developing in diverse ways in the last 5 years. Often the same company is producing different product types. In the last 5 years exports have grown to markets in Sweden and Norway, while the largest markets in Germany and UK have been more or less stable.

National actors and support agents

The Danish furniture industry is involved in the general business and technological service system in the country, where there are special departments for wood and furniture as well as process technologies. The main actor on this in Denmark is the Danish Technological Institute, Taastrup. The Institute has 6 premises throughout Denmark. It is an independent, not-profit institution. The Institute works with different fields: Building, Technology, Industry and Energy, Informatics, Materials, Productivity and Logistics, Industrial Development. Furniture relevant activities are placed in several of these units. Business services and technological information centres, e.g. TIC Viborg, who offers advice and consultancy, are often working closely together with the technological institute. The TICs (now Business Centres) are independent regional institutions with public support.

In the education and research area, the technical schools and business academies are important for the formal training of the work force, primarily Skive Technical School with a long tradition and national position as the institution for formal training of cabinetmakers and wood process technologists. Århus University and

⁴² Udviklingscenter for Møbler og Træ (2004), www.moebelcenter.dk

⁴³ Oxford Research (2002).

Royal Agricultural and Veterinarian University (Copenhagen) on tree materials, hardwoods etc., Aalborg University on production technology and process control etc. and the Architectural Schools (Aarhus and Copenhagen) and the Danish Design Centre (Copenhagen) all represent the highest level of formal knowledge of relevance to furniture production.

Employer organizations and guilds are also active players in the development of the industry, e.g. Danish Furniture Manufacturers Association, Træets Arbejdsgivere/DI, The Danish Furniture Makers' Quality Control, Skive Cabinet Makers Guild. The Development Centre for Furniture and Wood, Skive, established 2002, as a "Regional Growth Environment" with funding from Viborg County and the Ministry of Science, Technology and Development, is a new actor in this respect. The operation of the centre is organised as collaboration between Business Academy Mid-West, Danish Technological Institute, Technological Information Centre Viborg/Viborg County.

Finally, development councils, municipal business offices etc. must also be mentioned among the development actors, in the selected region, especially Salling Udviklingsråd who offers business counselling, experience-groups, business angels etc. for entrepreneurship across several municipalities in the area. This sub-regional organisation is co-funded by membership fees from adjoined local companies and Viborg County.

1.6.1 Furniture manufacturing in Viborg and Ringkoebing counties

We find a furniture cluster in the Salling-Mors area of Viborg County and a kitchen manufacturing and wood industry cluster around the city of Herning in the middle of Ringkoebing County with relatively high employment specialization compared to the national average for the furniture industry.

Table 9. Employment in the furniture industry, 2003

	Viborg County	Ringkoebing County	Denmark
Total	121,744	146,016	2,741,386
"Furniture and other industry" (a)	5,046	3,356	29,699
"Furniture and other industry" (% of total)	4.1	2.3	1.1

a) "Other industry" includes 9 different, small industries, e.g. manufacturing of coins and medals, music instruments, toys. For the whole country, the furniture industry made up 71.6 % of the total employment in the joint category.

Source: Danmarks Statistik (2004), www.statistikbanken.dk

Table 10. Distribution of enterprises in the "Furniture industry and other industry" by number of employees, 2002

Employees, number	Ringkoebing County		Viborg County		Denmark	
	Enterprises	%	Enterprises	%	Enterprises	%
	30	22 %	24	17 %	615	34 %
2-4	21	15 %	27	19 %	445	25 %
5-9	16	12 %	12	8 %	215	12 %
10-19	28	20 %	24	17 %	207	11 %
20-49	25	18 %	21	15 %	180	10 %
50-99	8	6 %	18	13 %	78	4 %
100+	10	7 %	18	13 %	61	3 %
Total	138	100 %	144	100 %	1801	100 %

Source: Danmarks Statistik (2004), www.statistikbanken.dk

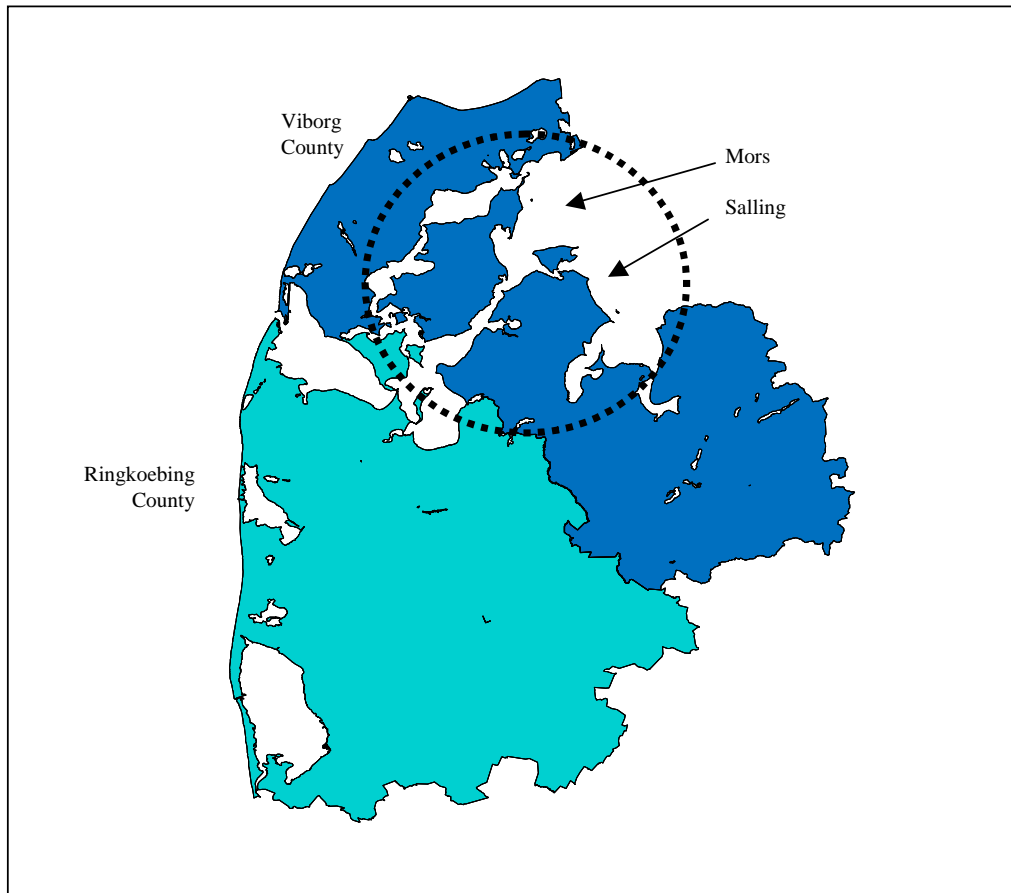
The size of the workplaces in the sector in terms of employment underlines the specialization in furniture in the 2 counties, where middle-sized and larger companies are much more present in the region than in the overall national size distribution.

1.6.2 Furniture manufacturing in the Salling-Mors region

In 2001, employment was estimated to 2,700 in the furniture industry of the Salling cluster in Viborg County. The area has experienced a growth by 50 % in the period 1984-1993. There have been recorded 100 companies in furniture industry and related industries in the Salling region with Salling as the centre with 38 furniture companies. The annual turnover is approximately 4 billion DKK with 3 billion for exports. A low estimate of 15 % of the annual turnover in Danish furniture industry was in 2001 coming from the Salling cluster⁴⁴.

⁴⁴ Oxford Research (2002).

Map 6. The furniture industry study area of Salling and Mors in Viborg County



The Salling area has a relatively higher share of medium and large workplaces within the sector measured by employment compared with workplaces in the industry in Denmark as a whole. The Skive Technical School with sector related education and the Development Centre for Furniture and Wood (Regional Growth Environment) are both located here.

2. Selected issues in policy and institutional initiatives

2.1 Innovation policy

Innovation policy can be formulated as a targeted effort directed towards the businesses community and the initiatives of firms and companies in this area. It can also be formulated as a policy that stimulates the surrounding factors, e.g. regional conditions. In Denmark, there are examples of both kinds. The government in office has formulated a number of initiatives and strategies with the aim of promoting growth in the country as a whole, called “Vækst med Vilje (Growth with Will). Among the priorities is innovation. But like in other initiatives, it is especially the framework conditions for innovation that are supported rather than the actual realisation, e.g. direct support to implementation of an innovation in a firm or company. There are a few exceptions, e.g. in connection with specially prioritized research themes and support schemes directed towards the food industry. Under all circumstances, there are hardly any regionally differentiated measures or priorities directed towards innovation, e.g. with special support for firms situated in peripheral areas.

Politically and administratively, innovation policy is mainly the responsibility of the Ministry of Science, Technology and Innovation. The ministry has a number of initiatives that especially aim at increasing research dealing with innovation. This, for example, expresses itself in incentives to strengthen the co-operation between universities and the business community. To this end, changes in the university legislation have been made, so that universities can be more open towards the business community and the promotion of business research (business PhDs, business innovators⁴⁵). Moreover, in order to increase the scale of activity and results, initiatives have been taken to concentrate the sector research in bigger and fewer units. Present strategic research programmes with state support are focussing on high technological research such as information and communication technology, nanotechnology, energy technology, biotechnology and space research. Also research in food quality and safety is a prioritised area. New institutional frameworks have been established such as the creation of innovation environments and a number of growth environments, see later. Likewise, new funds for promoting research and development have been established, e.g. a high technologies fund.

2.1.1 Regional innovation policy

For many years, there has not been a targeted and selective effort towards promoting the development of particular geographical areas. Rather on the contrary, the Danish welfare system has been used as a tool for equalising regional discrepancies. Lately, there has been some departure from this. In 2004, the

⁴⁵ Concrete economic support is given to firms that hire persons that are to work specifically with innovation in the firm (business innovators) and that hire PhD-students (working 50 % in firm and 50 % in university during study, called business PhDs after graduation).

Ministry of Science, Technology and Innovation launched an initiative called “Knowledge moves out” with the purpose of strengthening research and innovation in regions with relatively low activities in this field. The initiative has a budget of 130 million DKK and four priorities: research, technology and innovation has to be put on the regional agenda; a strong regional co-operation regarding research and innovation; a regional competence lift; and more entrepreneurs in the whole of the country⁴⁶. From the Ministry of Economics and Business Affairs, especially the National Agency for Enterprise and Construction, emanates a number of initiatives that more focus on the regional conditions for innovation or rather growth and development in general. In that the Danish Government wants all areas of the country to be attractive areas for development, these initiatives take in the distribution of financial grants from the EU (Regional Fund) and other measures to promote regional development. Among these is the creation of so-called Regional Growth Co-operations between ministries and parts of the country (in all 15 designated peripheral areas) that have the purpose of strengthening business development and settlement in the areas. Another measure is the establishment of regional business-political co-operations between the Ministry of Economics and Business Affairs and different regions regarding designing of strategies for development of the areas. Tourism policy and entrepreneur policy and a number of other business policies are also matter of importance for this field. A reconstruction of the state supported business counselling system has recently taken place, allegedly to secure quality and knowledge in the counselling. In this connection, a number of schemes and actors have been closed or put together, so now a so-called business service centre exists in each county.

It has to be added that the Government as a part of “Growth with Will” has drawn up an action plan for the tourism sector focussing on strategic alliances and realisation of new, innovative forefront projects.

As for innovation policy, there is no clear or direct regional policy stated at the state level, despite of the mentioned Regional Growth Co-operations. The attitude is still more and more, as in many other OECD countries, that regional policy should rather give incentives to regionally based activities than to subsidise directly. This has resulted in an ongoing debate about whether regional policy in Denmark and different business promotion schemes mostly benefit the strong and whether much more should be done for the development of peripheral areas than has been the case. Critiques point out the need for more resources and a conscious emphasis on a regional innovation policy combined with the promotion of entrepreneurship and development of competences.

⁴⁶ There are 8 measures in all: New principles for the co-operation between the ministry and the regions regarding research and innovation; strengthening of the regional engagement of knowledge institutions; improved regional information spread regarding the possibilities of knowledge co-operation; regional technology centres; strengthening of innovation consortia; regional knowledge projects; more business PhDs; strengthening of innovation environments. Ministeriet for Videnskab, Teknologi og Udvikling (2004), www.videnflytterud.dk

Table 11. The individual schemes and initiatives

<i>Ministry of Science, Technology and Innovation</i>	<i>Ministry of Economics and Business Affairs</i>	<i>Ministry of Food, Agriculture and Fisheries</i>
Research and education policy	Objective 2 under the Regional Fund, Interreg, among others	The Innovation Law
Strategic research programmes	Regional growth co-operations (in 15 designated peripheral areas)	Regional growth co-operation in areas dependent on fisheries
High Technologies Fund	Regional business-political co-operations	
Innovation environments	Business service centres (15 in all)	
Research parks	Promotion of entrepreneurs	
The recent initiative "Knowledge moves out"	Promotion of tourism	

The coming Structural Reform with its closing of the 14 existing counties, creation of bigger and thus fewer municipalities and its establishment of 5 regions can possibly pave the way for a new form of regional policy. Each region is to draw up regional development plans and establish a growth forum for each of the formulated strategies for growth and development, in which the development of peripheral and rural areas could be taken into consideration.

2.2 Rural development policy

Maybe parts of the things described above belong to rural development policy in other countries. The problem is that the dividing line is set in different places. In Denmark, the above-mentioned has not been perceived as rural policy. Generally, the question is what is meant by rural development policy in Denmark. It seems to consist of two kinds: the "official" policy where the responsible is the Ministry of the Interior and Health and what emanates from there. What is focussed on is typically village development, the survival of small communities, local democracy etc. The second kind is more focussed on agriculture and the development of the rural land, typically combined with EU support schemes. Here, we have mainly to do with the Ministry of Food, Agriculture and Fisheries at state level.

Thus, one clearly formulated rural development policy does not exist. The Ministry of the Interior and Health monitors the socioeconomic development of rural districts and it has the so-called Rural District Fund that offers support to

small local development projects. In the ministry's view, formulating rural district policy is primarily the task of the municipalities and counties. From the Ministry of Food, Agriculture and Fisheries emanates a number of other instruments, among others a programme for entry into the EU's support programmes. In connection with the policy from here, there is a close co-operation with especially the counties but also with other ad hoc organizations on the implementation of different schemes. The counties and other recipients of support funds (LEADER+) have also had to draw up a programme for their rural district development. Especially in the areas without a programme incorporating the EU programmes, there is considerable variation as to what is understood under the terms rural district and rural district policy.

One reason for the lack of clear rural district policies could be that the decentralised Danish Welfare State has managed a large number of tasks and functions, without which they would have appeared as "something special" in the most densely populated areas. In connection with the coming Structural Reform, it is possible that the rural district policy becomes clearer and that it will be seen in closer context with the term regional policy. Among other things, this will depend on what the coming regions put into the task.

2.2.1 Relevant support schemes

The Rural District Fund can support community development activities in all rural districts, with about EUR 2.7 million.

The Ministry of Food, Agriculture and Fisheries administers the LEADER+ programme, within the framework of the Rural District Programme. It is also from here that support to the fishing sector is informed (the FIUF programme). The LEADER+ programme includes activities that are equal to those of the Rural District Fund, but the LEADER+ programme is more directly oriented towards development of peripheral areas and holds instruments that promote citizen involvement. In each of the 12 designated areas, special action groups have been set up. In Denmark, the LEADER+ programme is not large in comparison to that of other countries. In economic size, it corresponds to that of the Rural District Fund.

The Rural District Programme, on the other hand, is much more comprehensive with many different sub schemes aiming at promoting the environment and nature interests, the development of agriculture and derived businesses. Article 33 in the programme is considered to lie closest to the other political schemes for rural districts. Its size corresponds to those of the Rural District Fund and the LEADER+ programme. Among other things, it can be used to support the marketing of new local quality products. Article 33 is administered in close co-operation with the counties. But under the Rural District Programme lies also for example the Structure Project Scheme that supports small and medium-sized enterprises in the food sector in connection with the reorganization of production processes.

Table 12. The individual relevant schemes

<i>Ministry of the Interior and Ministry of Food, Agriculture and Fisheries Health</i>	
Rural District Fund	Rural District Programme, incl. Article 33 and the Structure Project Scheme
	LEADER+ (administered in 12 designated areas)
	FIUF (fisheries support)

”Growth with Will” also holds other initiatives within the food sector. Here the aim is to focus more on innovation. The big food producing companies do a lot already, but more growth has to be created by making the many small and medium-sized enterprises in the sector more innovative. A part of this is the creation of the Innovation Law that gives support to innovation in food sector SME's.

2.2.2 Rural development policy in future

EU's coming Rural Development Policy will mean that the Danish rural district policy will have to be unified more. It is expected that the emphasis will be put on the connection between considerations for nature and environment on the one side and growth and development on the other side. With regard to the question of bigger regional responsibility and contribution to politics within regional innovation policy, the EU has spoken favourably of incorporating the LEADER+ method with e.g. partnerships and contract deals in the overall rural district policy in order to obtain higher dynamics and regional ownership. Then the question is what is going to happen with the purely national scheme and the organisation of those rural district activities that emanates from them.

2.3 Linkages between innovation policy and development policy

From the above-mentioned it is evident that there are no clear linkages between innovation policy and development policy, but a number of indirect overlaps. A number of measures are taken, e.g. via the state policy within each area, but also via the coming Structural Reform and EU's policies that point in the direction of more connection between the two. For example, more focus will be put on innovation and the building of innovation systems in areas where there might be a lack, yet potential.

2.4 Framework for business services and innovation facilitation in the region

For many years, municipalities and counties have voluntarily involved themselves in business promotion, all dependent on political prioritization. Ringkøbing County and Viborg County have chosen to invest a little bit more than what the counties have done on average both regarding business promotion and tourism⁴⁷.

In the following, the region's framework for business services and innovation will be examined by looking at:

- Policies at county level regarding business promotion and innovation
- The general business service system: Business Service Centres and local business offices
- Support schemes
- Growth environments and knowledge centres
- Other institutions related to innovation

2.4.1 Policies at county level

The counties have had a tradition of acting relatively offensive in the form of preparing and investing in strategies for the promotion of regional business development, where the term innovation appears to varying degrees, again dependant on the existing policy in the area. Both counties have chosen to put efforts into regional business development. Lately, both counties have taken a number of new and more cross-going initiatives, which will be outlined in the following.

Ringkøbing County has together with the Ringkøbing Inlet Co-operation (cross co-operation between four municipalities), the Business Counsel of North West Jutland and the Business Counsel Herning - Ikast - Brande - Aaskov recently established a Regional Business Development Counsel. This has been done to unite the actors in the area. The counsel has adopted three main focus areas:

- Research and education: The objective is to become known for research and education that can be exploited in local enterprises. In connection with a local research entity in the region in relation to the MA degree in business economics at Copenhagen Business School and Herning Institute of Business Administration and Technology, 10-15 new PhD scholarships will be established. Another MA business degree will be established. The engineer area has to be strengthened and more business PhDs shall be employed in the SMEs of the area.
- Knowledge centres and growth environments: The objective is to specialize the region with unique competencies within textile and clothing,

⁴⁷ Amtsrådsforeningen (2004), www.arf.dk

electronics, wind, wood and furniture, building elements, metal, food and tourism and a focus shall be put on energy. Research, development and education have to play together.

- Marketing the region: The region has to be marketed with its distinctive features.

Viborg County has described its business and employment policies in an overall programme, called EVA 4. In comparison to other counties, the impression is that greater resources are set aside for the work, e.g. in connection with attracting and administering resources from the EU and national initiatives as the Business Co-operation between Jutland and Funen⁴⁸. In the programme, you find the following focus areas:

- Good business conditions: This is especially seen in a large engagement in different business promotion institutions.
- Development of knowledge and competences: The county has set up a Competence Counsel that carries out analysis and seminars for the promotion of the knowledge level in the region. Presently, it is developing a so-called competence cluster project which focuses on enterprises in the food industry, the iron and metal industry and the cluster that already exists, the wood and furniture industry. The focus area holds a number of other education initiatives.
- Increased employment possibilities: Here the focus is on possibilities for job creation, technical advice service, a broad labour market and initiatives for the green areas, e.g. nature care. Normally, employment policy is the responsibility of the Unemployment Agency and the Regional Labour Market Counsels, but in Viborg County there has been a tradition for a co-operation.
- Regional development and innovation

As regards regional development and innovation, the county has been one of the main originators of a special food development project called Dynamo. Tourism is also focussed on, e.g. a number of initiatives have been carried out by Mid-North Tourism⁴⁹. At the same time, other initiatives on tourism development in the Limfjord area via Network Limfjorden have been taken, e.g. together with Ringkøbing County, see later. Under the heading, you also find IT-Centre Viborg that manages a number of IT development projects for and together with enterprises. IKT-Smil has a special initiative directed towards manufacturing enterprises in the nine northern municipalities, where the county, the business service centre and the local business offices work together. A special initiative is

⁴⁸ This co-operation consists of the 8 counties, 173 municipalities and the Ministry of Economics and Business Affairs.

⁴⁹ Mid-North Tourism is a non-profit, regional marketing and development society with the aim of promoting tourism in the area.

made in relation to the Hanstholm harbour. A project on aquaculture in Limfjorden has been initiated. Participation in the work of the North Sea Commission, where the county is the secretariat, is a part of it all. International transport co-operation and other international co-operation activities also belong to this.

The two counties together have recently proposed an “Innoversitet” in Mid and Western Jutland – an institution of higher education where the core competence is innovation and close co-operation with regional enterprises. The proposal combines the best from the activities from the Centres for Higher Education, the traditional universities and the business promotion sector.

2.4.2 The business service system

The general business service in the region is offered via the business service centres and local business service offices.

In connection with the reorientation of the state support to business service, the two counties have set up each their so-called business service centre. Both service centres have the purpose of assisting entrepreneurs and enterprises with less than 50 employees with advice on starting and operating an enterprise, establishing networks, innovation and product development. The Business Service Centre in Ringkøbing County resides in the business park Novem Park and is financed by two thirds from the county and one third from the state. There are 6 employees. The goal is to transfer 5-10 innovative entrepreneurs to HIH Development, which is an innovation environment with venture capital, see later. The Business Service Centre in Viborg County is solely financed by the county and has in all 21 employees.

By far the most municipalities have individually or together chosen to set up a local business office, many also a tourist office or a mix. This is also the case in our study area, where you find several local business offices, tourist offices, but also cross-municipal initiatives. They usually work as service centres for either the local business community or for the tourists in the area in general and act upon requests in particular. They can also have specialities, e.g. offering advice to entrepreneurs.

2.4.3 Different support schemes

In both Ringkøbing County and Viborg County, there is access to a number of support schemes that target regional development and innovation to varying degrees. This applies to:

- The Objective 2 programme
- Interreg
- Article 33 of the Rural District Programme
- LEADER+

The Objective 2 programme can support business innovation and competence development in designated areas. A number of schemes and initiatives are found within rural district development, e.g. Article 33, LEADER+.

Support schemes that are not regionally oriented have been mentioned earlier.

Our study area is well covered in terms of support schemes.

2.4.4 Growth environments

Three growth environments have been created in the study area:

- Knowledge Centre for Food Development (KCFD): KCFD has the purpose of supporting, promoting and marketing sustainable and healthy quality products. This is done primarily through education efforts. Involved parties: a number of local and national institutions of education and interest organizations. The centre resides in Holstebro.
- Development Centre for Wood and Furniture: The long-term mission of the centre is to enhance the competence base in the furniture and wood industry by developing new lines of educations and securing education as catalyst for innovation in the industry. Involved parties: Institute of Technology, the business service centre in Viborg County, Business Counsel Mid-West, Skive Technical School and Viborg County. It resides in Skive
- Knowledge and Competence Centre for the Wind Energy Sector: The centre is to work as a co-ordinating growth centre that is to bring the education and research institutions and the wind energy sector together with a view to spotting and examining relevant issues within the sector. Involved parties: Research Centre Risoe, University of Aalborg, Skjern Technical School and HIH Development. It resides in Holstebro.

2.4.5 Other institutions involved with innovation facilitation

Both counties run a number of institutions of education and are active in the creation of Centres for Higher Education that have special profiles in relation to the already existing institutions offering short-term and medium-term education in the areas.

In *Ringkøbing County*, you find the following institutions:

- NOVEM Business Park situated in Holstebro, run by a number of municipalities in the area. A number of the employees are to render service and assist enterprises that chose tenancy in the park. These are especially active in knowledge-based service trades. KCFD also resides in the park.

- HIIH Development is one of the state approved innovation environments with the possibility of delivering invested capital in new innovative enterprises.
- Herning Institute of Business Administration and Technology offers various types of educations and runs different types of business-oriented research activities, e.g. in co-operation with the Centre of Applied Management Studies at Copenhagen Business School.
- Business Academy Mid Jutland Innovation is to assist in connection with concrete problem-oriented question from SMEs in the area and strengthen the practise-oriented competences in the education environment of the Business Academy Mid Jutland. Its residence is in Herning.
- TEKO Centre: This institution is specialized in covering educational needs in the clothing and textile sector in Denmark. It resides in Herning.

In *Viborg County*, one can especially point to the following institutions:

- OEM (Original Equipment Manufacturer) is a competence network of sub-contractors that delivers significant input to a customer's end product. It takes part in a larger national innovation project called Innolink, with state support.
- Danish Shellfish Centre is a development centre that has the purpose of developing methods for sustainable breeding of shellfish and assisting enterprises in the sector. It has close co-operation with research institutions. It resides in Nykoebing.
- Agro Business Park is a state-approved research park situated outside Viborg.
- Network Limfjorden works with further developing the "The Liquor Trail" (Snapseruten), which is a tourist promotion project with ingredients of travelling by boat and foot, experiencing nature and gastronomy.
- Growth co-operation for Morsoe-Sallingsund – co-operation between municipalities and the Ministry of Economics and Business Affairs – planning of broadband network for all in the region, pilot project regarding the Limfjord House in Glyngoere (inlet-related tourism), business development strategy for the growth co-operation.
- Public Centre in North West Jutland for Renewable Energy.
- Danish Institute of Agricultural Sciences (institute under the Ministry of Food, Agriculture and Fisheries). One of more branches of the institute resides in the study area, in Foulum.

Table 13. Relevant schemes and institutions in the study area

<i>Innovation</i>	<i>Regional policy</i>	<i>Rural district policy</i>	<i>Tourism promotion, specific</i>	<i>Food promotion, specific</i>	<i>Promotion of the wood and furniture industry, specific</i>
NOVEM Business Park	Objective 2, Interreg and others.	Art. 33	Limfjorden Network, "The Liquor Trail"	Danish Shellfish Centre	Development Centre for Wood and Furniture
Agro Business Park	Business service centres Local business offices	LEADER+		Knowledge Centre for Food Development	
Public Centre in North West Jutland for Renewable Energy	Growth Co-operation Morsoe-Sallingsund			Dynamo Project	

3. Findings from the study of the agri-food industry

3.1 Background information

3.1.1 Number of interviews and categories of interviewees

Fifteen actors were interviewed: 4 farmers, 5 processing companies, and 6 supporting agents. See Appendix 2 for a description of interviewees.

3.1.2 Characteristics of interviewees and the entities they represent

The selected two branches within the agri-food industry, breweries and dairies, guided the choice of interviewees. The two branches' value chains were followed:

- Brewery ← malt house ← feeding stuff company ← malt producer
- Dairy ← milk producer

All elements of the value chains are present in the chosen study area. When selecting which of the companies in the region that should be contacted, focus was on the local/regional perspective. Bigger companies that only had local branches in the region were excluded, while locally based companies were preferred. As there are no local feeding stuff company left in Denmark, this link in the product chain had to be covered by a local branch of a bigger company.

The two selected branches also guided the choice of supporting agents, but generally the group of supporting agents has a more general interest in agriculture and food production than merely breweries and dairies. Specialists only working with one of these branches as e.g. branch associations are not situated in the region.

Of the four farmers, two are plant producers of malt barley, while the other two were milk producers with 65 and 90 cows. Three farmers are organic. None of the farmers had permanent employees, but two of the farmers' wives were working full time at the farm as well.

As for the processing companies, two small local breweries were interviewed, as well as a malt house, a local organic dairy and a local branch of a large national feeding stuff company.

The six supporting agents consist of three schools, one development agency, one farmers' association and one public authority.

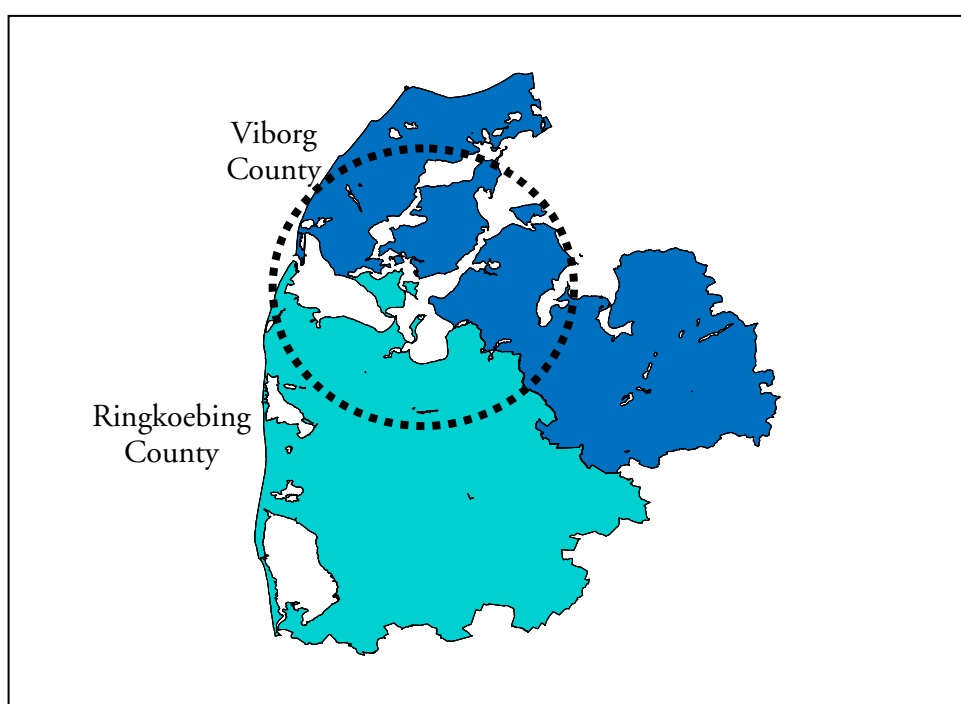
The three schools have very different profiles. Northwest Jutland Education Centre (NVU Thisted) was contacted because the school's development department has prompted several regional projects on learning and competence development in the region's business life. The agricultural school and the technical

school manage a 2-year course in process technology for skilled workers in the food industry.

The interviewed development agency, Knowledge Centre for Food Development, is very new (established in 2003), while the farmers' association will celebrate its 150 years anniversary in 2006.

Finally, the interviewed public authority was the development agency at the business and labour market department in Viborg County. Compared to similar departments in other counties, this is an unusual big department on these matters initiating many different initiatives on regional development.

Map 7. The agri-food industry study area



3.2 Knowledge and Competence base

All respondents draw up a general picture of a low education level in the food sector. All supporting agents deliver different kinds of knowledge-input to farmers and companies. Several of them point to the fact that the regional food sector is characterised by small companies with a real entrepreneur as owner. The typical owner does not have much more education than primary and lower secondary school, but he/she has many ideas, is skilled, is good at talking with people and makes good deals. This background is seen as a barrier by the supporting agents in relation to the company owners' own learning, but also in relation to the education of employees and especially in relation to the employment of academics.

The supporting agents thus call for employees with a higher education at least among the managers of the companies. This could provide stronger basis for new thinking and education of the employees. On the other hand, the respondents from the companies draw up a picture where the leader of the company has a university degree (as the only one). This difference could probably be explained by the fact that in the two studied branches (dairies and breweries), university educations traditionally form the background for the ownership or management profile. This is not the case in all other branches in the agri-food industry.

According to statements from the supporting agents the education level is most up-to-date in the bigger/big companies. Likewise, the SMEs generally show a lesser interest in getting their staff further educated. Nevertheless, the supporting agents point out that this lesser interest might be due to the fact that the SMEs are more dependent on their key employees, that is, in contrast to the big companies they are not to the same degree able to take out a man of the production line. The interviewed companies, where the big/bigger companies work most actively with organizational and staff-related development, while this work is almost absent in some of the smallest companies, also reflect this tendency. Only one company had a management that worked actively with, and earmarked working hours for, development of the organisation, the staff and the management. In the other companies, this was an aspect where resources were willingly spent, but the work was not formalised to the same degree.

In the companies, the present technical skills are generally promoted via trainee arrangements, where the apprentice follows a work colleague for a week or two and in that way learns all the working processes that are related to a special job function. To a certain degree, the companies also utilize courses lasting one or two weeks to become updated professionally.

The interviewed companies point to following concrete knowledge demands:

- Flexibility of the staff
- A higher degree of technical specialization
- More knowledge on sales and marketing

The farmers demand:

- More IT-knowledge
- General courses e.g. folk high school courses

The supporting agents point to the following demands:

- Good export sales persons
- Some masters in business and finance in the management offices
- The idea of upgrading people who serve in jobs in which they are not educated
- Farmers have a great demand to meet others and get some professional discussions and inputs
- Farmers should be challenged by new ideas. Regarding the introduction of new products it is about knowledge on market analysis as a tool, about organization and sale.

Regarding the efforts and interests in sustaining or expanding the knowledge and competence base, both companies and supporting agents point to internal company learning supplemented by courses in the local schools (technical schools, commercial schools etc.). None of the companies or the farmers gives the impression that they miss certain educational possibilities for themselves or for the staff. Rather than employing a person with a higher education, the companies seem to prefer to find new employees that have the right combination of competence and qualifications that are able to fill in the all-round functions that are often expected by managers in small companies.

Box 3.1 The all-round generalist at the brewery “Thisted Bryghus A/S”

The informant is assistant director/sales manager (depending on the circumstances). When he was employed, the informant was directed to develop the brewery: to introduce ‘something new’. It was a condition for the job that the informant would make the brewery a success. If he succeeds, the intention is to make him managing director. The informant is not university-trained; he is an accountant and has a lot of practical experience with production control from his former employment. Furthermore, the informant has a large and broad professional network and he grew up in a (local) grocer’s family.

When employing new managers, several companies ask for an element of new thinking in combination with already acquired knowledge from former jobs or the like.

The respondents from the course in process technology at Holstebro Technical School point to the demand for construction of competence within hygiene, traceability and product development especially for ‘high convenience products’. Several supporting agents incidentally point to the general lack of academics in the management offices as a problem when it comes to making companies identify and overcome competence related barriers internally. A regional analysis on competence clusters in Viborg County points to the same common denominator of competence as having a major influence on the food sector in the region⁵⁰.

⁵⁰ Oxford Research A/S (2003a)

About 31 % of the asked companies in the competence cluster analysis say that it is to some degree difficult to obtain qualified manpower. A demand for upgrading of unskilled workers in the food sector will arise, because the group of unskilled workers should be able to fill out the place of a skilled worker in the production line. In that connection, no problems of recruitment are expected, because the companies themselves handle the upgrading of these groups that are often already a member of the staff⁵¹. This corresponds to the findings of the ISP-study that are referred below.

The interviewed companies in the ISP-study say that the amount and quality of local and regional offers on education, courses and advice and consultancy assistance is sufficient, almost abundant. Some state that the amount of information materials from the education is too much. On the one hand, it implies that one always knows where to turn, but on the other hand, it has the consequence that much of the material is thrown out unread. TIC (Technological Information Centre) in Viborg is accentuated as a good place to seek information. Among the supporting agents several point to the new VIFU as the place that could take over the food related questions from TIC.

Box 3.2 VIFU, an example of a new innovative co-operation

VIFU (Knowledge Centre for Food Development) is established under the Jutlandic and Funen Trades and Industry Co-operation. The task of VIFU is to be bridge builder between food sciences and the food trade and industry. VIFU has a consortium with 11 parties concerned: Northwest Jutland Education Centre, Holstebro Technical School, The Royal Veterinary and Agricultural University, Technical University of Denmark-BioCentrum, Danish Technological Institute, Bioneer, CVU-VITA (Centre of Higher Education) Holstebro, MAPP (Centre for research on customer relations in the food sector), NOVEM (Science- and Business Park), Farmers' Association Holstebro-Struer, and Province Centre Middle-West.

VIFU points to the mismatch between the fact that a large part of the Danish food production takes place in western Jutland, while all knowledge institutions in the sector are placed in the eastern parts of Denmark. To rectify this imbalance and create an innovative environment for food companies placed far away from the knowledge centres, a special effort is demanded.

The Danish farming sector is thoroughly organized also when it comes to learning and courses that are carefully adjusted and target oriented towards the possibilities and demands of the farmers. As the number of farmers is still declining it is said that there are two advisers employed for each active farmer. The fact is that there is a great demand to get the farmers to use the many existing offers on advice, courses and knowledge development. The agricultural schools are e.g. each other's worst enemies as they -together with all other knowledge suppliers – compete to convince the relatively small group of young people to go the agricultural way and compete to attract the still smaller group of farmers searching for in-service

⁵¹ Oxford Research A/S (2003b: 77)

(A Pilot study on employment in three selected clusters: Furniture and wood; Food, Metallic industries). Here, it is noted that the number of companies answering 'do not know' increases from 7 % for unskilled workers to 55 % for longer educations. This is assumed to be due to the smaller companies having very little experience with recruitment of persons with a longer education, and thus not being able to assess whether it is difficult.

training. This implies that every imaginable corner of the farmer's daily life is uncovered to reveal places where a course could make the difference. At the same time, there is a long tradition in agriculture to follow courses during wintertime. Hundred years ago, courses were held at the folk high schools, today they are held by professional course providers.

3.3 Innovation activity

Some of the work in the Jutland-Funen Business Co-operation is about uncovering the differences in the innovation activities between the different parts of Denmark⁵². The Jutland-Funen business report points to the food sector as a very important resource area for the region. The innovation activity in the Jutland-Funen food companies does not differ much from the average among companies on Jutland-Funen in general or from the food companies in the metropolitan region. While the part of innovative companies in the food sector is 51 % in Jutland-Funen, it is 59 % in the metropolitan region. Innovative companies are in this connection defined as companies that have stated to develop new products or production methods in the periods of observation⁵³.

In the food sector in this region, but also in the rest of Denmark, workmanship is abandoned in favour of an automated, industry based production type. In itself this change gives a higher degree of innovation in the sector.

The respondents have stated a wealth of different development processes and innovation related projects. The supporting agents point to the following projects that they have been or are involved in:

- A project on stable cleaning (chicken)
- A project on securing quality in the broiler production
- A project on network building among companies and development of contact to knowledge institutions
- Three cluster projects (metal, wood and food industry) regarding competence development for the low-educated part of the employees
- A network project for small food producers
- A development of the training place course for pupils from agricultural schools
- A new and shorter education in agriculture and gardening
- A project on agriculture as the generator (dynamo) for a sustainable development in the rural districts (the Dynamo project)
- The establishment of a smell laboratory. The laboratory mainly deals with problems related to slurry
- Support for the establishment of a regional development agency with focus on food development (VIFU – see Box 3.2)
- Support for the establishment of “Klejns Food Market” in Thisted

⁵² Jysk Fynsk Erhvervsredegørelse (Sept. 2004), <http://www.jylland-fyn.dk/wml>

⁵³ Erhvervsministeriet et al. (2000:97-99).

- To help farmers finding the production type that fits their situation of life and other wishes
- Development of a new type of advisory service “binding advising” – an interdisciplinary model for advising containing both short-term goals and a long-term plan of action
- Lemvig Market and Cattle Show

The latest innovations stated by the farmers were:

- New building of a cattle stable
- Renovation of a stable for young livestock
- New clamp silo
- New concentration on grass fields (because of changes in the CAP) demands new investment in machinery
- Investment in a second milk tank on demand from the dairy
- Continuous investments in the newest machinery (latest a sowing machine)
- Development of a sideline with hiring out vintage cars with driver for weddings and the like
- The tender start of a co-operation between local organic plant producers to promote marketing
- Active work with new strains and crop types
- Continuous development of own machinery (latest a special hoeing machine for the field with wheat)

Among innovations stated by the companies were:

- An integrated system for quality and food security that gives the opportunity to become ISO 9001 and HACCP certified
- Reorganisation of the sales work has released manpower for new (export oriented) tasks
- Development of a new product that showed the need to focus on quality not on price
- Opening the company towards a new group of customers via a new shop concept
- Investment in new machinery to raise product safety and to relieve the work for the staff
- Launching of a new product to raise the quality image and the profile of the company
- Constant launching of new products – product development is a business concept
- Reorganization with more responsibility on the floor relieves manpower for new thinking and learning among managers

The two small local breweries have experimented with introducing quality beers as a supplement to their normal, regional beer. Both have been successful in doing so, and therefore they contemplate to offer quality beer of various kinds more

permanently in future. In the little dairy, they continue the creative product development track, which has been successful during the latest 10 years.

Among the farmers, in the malt house and in the feeding stuff company, competition is intensifying and in some cases there are clear signals of crisis. The solutions that the company owners have chosen are very different, as it is shown in the list above. Some choose just to let things be as they are and hope to manage anyway. Others follow up the external demands by introducing rationalisations, offering courses and/or working on the attitude among the staff. In this way, they try to follow the demands of the market through a slow adjustment. Others again start up a proactive development by enlarging their production and go up-front with the newest news but without compromising their ideals.

Box 3.3 An example of an offensive approach to development

Organic milk producer: "Last year we increased production by 1/3 (both land and cattle), we changed the rotation of crops, we built a new cow house with a feeding system which enables us to feed only once a week, and we had a milking robot installed. It is still a smallholding – and so it will remain. I consider it difficult to combine an active summer grazing with real big herds like for instance the herd of 250 cows and four milking robots, which my organic neighbor has."

The supporting agents also draw up different pictures. Several suggest that the bigger companies probably are a little quicker to engage in innovative development processes. On the other hand, they also point to the fact that many of the big companies have disappeared from the region in the latest years. Now it is more up to the remaining companies to make sure that business development takes place in the region and that this fact is reflected in the greater conscience in the population on the demand for new ideas and the back up of entrepreneurs.

The supporting agents point to economy and public regulations as the two most important motivation factors for changes in the companies. In this connection, one of the supporting agents states:

"It is our impression that especially the soft qualification ought to be developed. But nevertheless we have many who look at hardcore data; does this machine process more fish? That is, the interest in upgrading the soft qualifications depends on whether the invested time etc. is returned again in the other end. That part can be a bit hard to prove".
(Interview NVU Thisted)

That the economy, the bottom line, and the public regulation are important drivers to innovation is generally confirmed by the company owners - even if especially the part about regulations, bureaucracy and paper by one respondent is pointed to as having very negative consequences for the development of the company. Here, the "*administrative bother*" is only seen as a strain that demands first priority.

Supporting agents, farmers and company owners also point to other innovation factors, e.g. demands from customers, the problems of emigration from Western Jutland (and the companies' responsibility in that connection), the company

owners' and managers' personal circumstances (inclination, curiosity, health, family considerations etc.).

Among the supporting agents, there are many different views on companies' interest in engaging in innovation and development projects. Some have the opinion that the companies are interested, but that they lack time. Others point to the knife-edge competition in the food sector that in a too high degree leaves the initiatives to diverse project oriented consultants. In the farmers' association, "*the inclination to do something that the neighbour has not done*" is seen as an innovation driver for the individual farmer. From the association's side, it is just noted that some have the money to follow their ideas without problems while others have to arrange themselves with a poor economy in order to do the same.

When it comes to the identification of key actors in the development process, an interesting difference between the study's respondents can be traced. In the locally anchored companies, there is no doubt about who is driving the development, namely a person from the management team, possibly in combination with some of the practical guys of the company.

Box 3.4 The central actors at the brewery of 'Hancock A/S'

The informant (who is the son of the enterprise owner): "we attend a fair in Germany once a year and see all the news related to this line of business. It is me, my father, the metalworker and the electrician who go. We make it a real 'Gentlemen tour' [...] when we get back with a good idea, we take a look at the money. This is where we have to ask Jørgen [the chief accountant], if he has a million for this and that."

In the interviewed feeding stuff company, which is only a tiny branch of a very big group, all developmental initiatives start centrally. The local actors do not have a deeper knowledge on who is carrying them and why they come. The line of command is unequivocally top-down. A motion the opposite way, where an idea starts locally and is presented to the central parts of the organisation, is seemingly not very used.

The company owner or manager is the leading actor both pointed to by the supporting agents and by the companies themselves. It is also indicated that the manager can function as a barrier for development when he is against an idea. One of the company respondents, however, thoroughly explains about his perennial work to broaden the remaining management's opinion on development and how big a difference it made when they went along after having been against it in the beginning. The supporting agents describe the company owners' entrepreneurial gene both positively and negatively. One emphasizes the urge for independence and instinct of self-preservation as the motor that drives the company manager to continue the daily work and involvement. Another one emphasizes that exactly this type of company owner at the same time is a barrier for learning and competence development (both towards himself, the management group and the staff), because he uses his own, often insufficient, education to disprove the need of learning.

The companies show up a very big difference in the number of unsuccessful attempts. On the product development oriented dairy, they estimate that about

half of the initiatives are unsuccessful and that this is very expensive. Nevertheless, this is seen as a necessary cost in a production that is so developmental. The respondent emphasizes that it is more important to be up-front in a development process than to reckon all the good ideas to pieces: *"If we had begun calculating, we had never got started"*. The opposite opinion is also represented. For example, one respondent says that their company does not have the money for unsuccessful attempts. That is why this respondent has chosen to be awaiting, cautious and take care thoroughly to investigate all imaginable parameters before investing in something new, launching a new product or what so ever.

However, unsuccessful attempts are not necessarily connected to launching new products. For instance, one company has tried to professionalize the board partly by proposing another composition of the board and by introducing a number of possibilities for competence developments for the existing board members. Even if this attempt did not succeed in the first round, the respondent has not given up and will try again with more power, once a row of practical problems in the daily work of the company are solved.

Among the company respondents and the farmers, the technical and building related conditions for the production are generally emphasized as an internal barrier. Some cannot extend the buildings of the company because of surrounding urban area; others have to get the best out of either very old equipment or rather new equipment that has already become outdated. A few respondents point to human factors such as fear towards innovations, reluctance to change and lacking interest in long-term investments. The lacking time or surplus to 'think big' and strategic is by others emphasized as a problem.

Almost all respondents from farming and food companies can point to innovations that go beyond the individual enterprise. In several cases, such news are related to organics, e.g. Thisted Bryghus launching the first organic beer in Denmark in the mid-90s. In the remaining cases, the innovation is about development of machinery or technology that is later taken up by others in the sector. Some farmers, company respondents and supporting agents point to the different cooperating structures and networks that are established between the producers as being very innovative.

In the near future, all companies and farmers will work with many different novelties. It is about introduction of IT in the production, about systems for food quality and safety, about product news and new machinery. On the slightly longer term, the tendency by all respondents is that they imagine that the present structural development both in farming and business will continue in a way that will force the single units either to become bigger/more effective or that the single company will find their own special niche. In this connection, Thise Dairy visualises a both/and, meaning that their perspective for the next 5 and 10 years is to become a much bigger dairy that still *"makes the things that others cannot make or do not bother to make"*.

3.4 Co-operation and networks

Generally, the answers from farmers and industry indicated that the ones with networks and many contacts were the most innovative ones (or the most innovative ones had the most contacts. In the company with a parent company, all central contacts are made by the parent company while the local branch primarily have contacts to customers and other local actors.

Suppliers, competitors and other companies, public authorities and financial institutions are the actors that are marked most often by the respondents as co-operation partners in relation to innovation activities; see Appendix 1, Table A1.1. But co-operation can be understood in many ways. Some companies actively and constructively interact in wanted co-operation arrangement with e.g. authorities, while others are forced into a sequence of events where the authorities set up all efforts and targets. Where co-operation is forced on to the company the contact is not positive – here the company rather tries to find ways to avoid further contact.

Box 3.5 Of the case companies, the organic ‘Thise Dairy’ has the largest network

Thise Dairy describes itself as a developmental dairy where innovation is the only constant. The inspiration for the continuous process and product development is inspired by and rooted in a network including all the mentioned parties in the questionnaire (except for developing agencies and consultants, which Thise have chosen to do without, as they: “do not want to be a part of that pudding”). Instead, Thise is e.g. represented in several governmental and scientific councils, boards and committees whereby the dairy gets hold of the latest developments in politics, science and management.

Looking at the frequency of contact, competitors/other companies range highest with suppliers graded second. Many of the respondents, especially the farmers and the small companies, also point to the contact with neighbours as important in everyday life. Regarding the location of the networks, the groups of farmers are the most locally minded of all respondents. The supporting agents work on a regional and/or national arena, while the interviewed companies present the most international contacts and the most fragmented picture of all three groups. Nevertheless, there is a clear relation between the level of export and the company’s international contacts.

The picture of important and tight contacts to suppliers and competitors/other companies is confirmed by the analysis on innovation made by the Danish Ministry of Food, Agriculture and Fisheries; here 127 companies in Denmark answered the question about where they were acquiring the necessary knowledge on product and process development⁵⁴. 37 % pointed to suppliers while 34 % pointed to competitors/other companies. But in that analysis, the companies’ customers were the ones that ranged highest with a score of 58 %. Compared to this, three of the five companies interviewed for ISP stated that they were co-operating with customers on innovation activities. In the analysis of innovation, it is particularly emphasized that information from nearby sources are essential for the food industry, while the companies to a lesser degree communicate with private or public research institutions⁵⁵.

⁵⁴ Ministeriet for Fødevarer, Landbrug og Fiskeri (2003:72).

⁵⁵ Ibid (p. 72).

A large national research institution on agriculture is placed in the south eastern part of Viborg County⁵⁶. All interviewed farmers emphasize this research institution as an institution they know and to which they have relations. One of the companies and two of the supporting agents mention this research institution as well. The small group of interviewed farmers had a strong bias as we intentionally compounded the group of farmers with two very innovative and knowledge seeking farmers and two farmers who were just doing business as usual. But nevertheless, when comparing companies and especially supporting agents with farmers the farmers' group was generally the one with fewest contacts, while the supporting agents had the most numerous and heterogeneous contacts.

Regarding the level and range of contacts of the supporting agents, a very dispersed picture is emerging. As expected, the only interviewed administrative unit, the county, can display the most both formal and informal contacts of all respondents, see Appendix 1, Table A1.2. Other supporting agents that are subordinated a parent organisation have much lesser especially formal contacts. Generally, the age and size of the organization seems to have a lesser significance for the number and quality of contacts than has the organisation's purpose and work style. The supporting agents that work on a project basis generally have a large network, but do not use the entire network all the time. They work ad hoc and use the network in the same way. This is very different from the farmers and the companies that generally have build up their networks through years and have many considerations if they for some reason should be forced e.g. to find a new veterinary surgeon or supplier of packing materials.

Half of the interviewed supporting agents had difficulties in distinguishing between formal and informal contacts because the respondents had both formal and informal contacts with the same parties.

Box 3.6 An example of the mix of formal and informal contacts

At the Technical School in Holstebro, formal meetings are held 3-4 times a year between student advisers and education executives from all the other further and higher educations in Ringkoebing and Viborg counties. The official purpose is to arrange 'Study-Saturdays' to attract new students, but it is the informal talk that is seen as most important by the participants.

The other half of the supporting agents could part formal and informal contacts and did so. As an example, the farmers' association could be mentioned. Here, all formal contacts go through the parent organisation, while the local branch that was interviewed for this study named a large number of various and often used informal contacts.

No respondents mentioned new future contacts. Most respondents envisaged that they would continue with their existing contacts possibly in an extended version, while others thought that they would find and build up relations to all the contacts they needed if they should be confronted with new and yet unknown problems in their future production.

⁵⁶ Danmarks Jordbrugsforskning (October 2004), <http://www.agrsci.org/>

3.5 Innovation conditions

All the interviewed farmers know and utilize relevant support programmes and they are very aware of the coming reforms of EU's common agricultural policy. They all try to accommodate their production to expected short-term and long-term changes. They mention the following types of support:

- Support for conversion (from conventional to organic farming)
- EU's hectare support programme
- Organic support programme
- Environment determined support
- Support from the animal welfare law
- Support for particular sensitive agricultural areas

The companies do not show up the same common picture as the farmers. The companies seem to know less about public policy and support regarding their field of business than the farmers. Two companies draw up the scene by being complete contrasts. As already mentioned, the development dairy Thise is working actively to get political influence nationally and locally through representation in various councils, boards and committees, while another respondent rejects almost every public support approach. While Thise is very aware of, and utilizes, all relevant support programmes, the other company considers the work connected to get out money from the programmes to be too comprehensive and not worthwhile. The remaining companies are placed in between these two opposites.

The following quotation is included to illustrate Thise's involvement and broad knowledge of the field:

"The present government took away the support for the food industry from the rural programme. That impressed us in a very low degree. The government says: "Denmark in balance". They do not wish any balance, they just wish to get votes where there are votes to be gotten in the Triangle Area, in Aarhus and in Copenhagen. The rest of us can go and jump in the lake. [...] It is simply a lie that we have an industrial policy that basically gives the same education possibilities; the same cultural offers etc. to everybody. And when they then additionally take away these parts of the EU-programme, then it is simply too much. That was the second time in my career that I obtained an audience with the food committee of the Parliament. [...] The building society would rather lent out money to a food producer that is placed 200 meters from E45 than to us up here. That is why it is very necessary to have support programmes to equalize the rural disadvantages we have by not being placed where infrastructural investments are placed, especially when they say that they want a "Denmark in balance". (Interview Thise Dairy).

A daily task for some of the supporting agents is to relate directly to the current political situation nationally, regionally and locally. This, combined with the fact

that most of the supporting agents have some kind of advisory role in project development for primary producers and companies, creates a picture where the supporting agents are very aware of political initiatives and the political development on the whole. They have a very good knowledge of the different support programmes in the sector and can point to shortcomings in the programmes or at sectors and initiatives that are difficult to cover with the existing programmes. But after all, two of the supporting agents say that if they find an idea really good they could always find a programme supporting it.

Box 3.7 An example of a new administrative practice to raise regional development

Viborg County has chosen to revise the normal way to consider applications for funding. Instead of having closing dates for applications, case officers assessing each case, subsequent sorting the cases into two piles for approved and rejected, the county has introduced a new system. Here there are no closing dates for application and the applicants are urged just to hand in rough outlines with their ideas. Then these ideas undergo a preliminary assessment, where some get the message that their ideas do not have the potential. Conversely, the good ideas are caught up early, making it possible for the administration to work proactively with the idea together with the applicant almost from the start. Coming so far that an application form has to be written and assessed to get the idea financed and realised, another case officer than the one sitting with the case every day would complete a normal treatment of the case.

The respondents point to different external barriers for innovation or other hindering factors. The organic farmers have met special problems related to organic farming; one talk about being a subject of conversation while converting the farm; another is annoyed that he has to *“come crawling on my knees to offer my splendid organic produce for sale on lousy conditions because there is no demand from the market”*.

The companies reiterate some of the same barriers and hindering factors that they already mentioned as internal barriers, as e.g. the problems related to the placement of the production in the middle of housing areas that hinder enlargements of almost every kind. One respondent in particular sees public regulation as a major barrier. As he puts it, *“public rules, the taxes and duties are all intentionally invented to bother private companies that just try to get peace to make some business”*. One of the companies exports most of the production and imports the raw materials as well. This company points at the very disadvantageous location of the production in a corner of the country without motorways and international harbours. Other companies point to more production related factors as e.g. to be able to get the adequate amount of raw materials for the production or to the importance of finding the right collaborators that are committed and willing to make quick deliverances of small amounts of e.g. packing in the agreed quality.

Both companies and farmers point to the national level when asked for facilitating factors. There is only mentioned one factor below this level, it is mentioned by one of the milk producers who emphasize the importance of success for the little local dairy: *“when it goes well for the dairy it goes well for us – we stand shoulder to shoulder”*. The other factors mentioned are partly connected to political decisions on a whole and partly to support programmes and other programmes. Generally the respondents emphasize that external requirements at first look like huge

barriers, but that they can be conducive to exceed limits that would not have been perceived and exceeded without this external 'push'.

The perception of the general attitude towards innovation in the region is very outspoken by farmers and companies, while the supporting agents are more cautious in their way to express the matter. Among farmers and companies the opinion on the matter is bipartite. On the one hand they point to the regional population as being reticent towards news - they are not the ones standing in the first row. On the other hand they sketch up the growing understanding of the importance of maintaining jobs in the region. This growing understanding opens up for a more positive attitude towards entrepreneurs with unconventional ideas and other initiatives e.g. from the public administration that can help to pull development in the right direction. More respondents point out that people generally hold self-employed in big respect.

Box 3.8 Example of a new semi-public initiative to raise local business development

One of the farmers was just invited to join a local think tank. It has been initiated and is lead by the leader of the museum in the municipality. 26 selected persons from the municipality were asked to join - nobody refused. The aim of the think tank is to strengthen the area through new ideas on tourism and business and to think in options that are also relevant and interesting for the residents in the municipality. One of the tools that the think tank will use proactively is storytelling. Here the connection to the museum is invaluable.

The supporting agents once again point to the food industry as cumbersome and slow as regards competence development and education at all levels. But at the same time, they state that the sector is progressing and catching up. The entrepreneurs are good at implementing new ideas, but they very seldom work beyond their own factory e.g. for the region in general. Everything stops once the ideas are realised in a production line.

4. Findings from the tourism case study

4.1 Background information

4.1.1 Number of interviews and categories of the interviewees

In total, 13 were interviewed. Five represented tourism operators, three firms offering services to the operators, and five supporting agents. See Appendix 2 for a description of interviewees.

4.1.2 Characteristics of interviewees and the entities they represent

All the operators represent micro enterprises. They are located in areas not traditionally associated with the main segments of the large scale Danish North Sea tourism. Two are operating as agents offering chartered sailing/fishing trips/excursions. Another two are offering products that can be connected to “farm tourism” in a broad sense. The last operator chosen runs an aquarium and has also taken the lease of coastal experience centre located nearby.

Three companies were chosen as the intermediary firms, meaning that they in some sense offer services to the tourism industry. One is a local newspaper that publishes a tourist newspaper during the high season. Another is a multi media company that also offers a special tourist paper, in addition to services like construction of homepages, portals and technical computer support. The third company operates in the transport business, running a coach company with local transport routes and coach travel, both inland and internationally.

Of the five supporting agents, two are public authority representatives. From the Regional Development Department in Ringkoebing County, the informant was involved as a project manager for a LEADER+ tourism project⁵⁷. The informant from the Development Agency at the Business and Labour Market Department in Viborg County is involved as a regional tourism consultant.

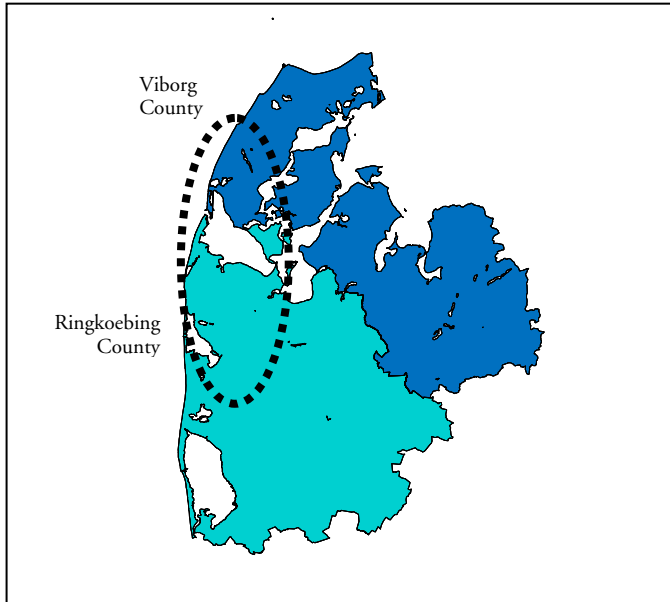
Another important supporting agent in relation to the tourism industry in the region is the regional tourism organization, responsible for marketing and development of tourism. On the level below, the regional organization there are also a number of Destination companies in the study region. Two informants represented Turistgruppen Vestjylland (TGV) and Destination Thy, respectively. There are no educational institutes specializing in tourism in the study region⁵⁸. Therefore, the educational institute Nova Media, of a regional television channel (TV Midt Vest) is selected. The main reason is that this institute is responsible for “Web Tourist”, a part time multimedia course (2003-2005) that targets

⁵⁷ LEADER+ Danmark, www.leaderplus.dk

⁵⁸ After the field work for this study was finished, a Hotel and Restaurant School (EUC Midt) has been established in Skive (August 2004).

candidates from the tourist industry. The informant is the course project manager. “Web Tourist” is developed in co-operation with the regional tourism organization.

Map 8. The tourism study area



The firms are not chosen on the basis of their involvement in the same networks. They are distributed throughout the region, all being locally based. Three of the supporting agents are physically placed slightly outside the area encircled, due to administrative structures, but operate in the study area region.

4.1.3 Innovation in tourism

Before presenting the primary data, the attention should be drawn to the concept of innovation and tourism⁵⁹. The concept of innovation has its origin in the producing industry, and it is clear that the production of goods and the production of services involve slightly different processes. When referring to innovation in tourism the following types have to be recognized:

1. Product innovation (new tourism products or services).
2. Organizational innovation (new organizations and management styles).
3. Process innovation (new ways of communicating the tourism experiences).
4. Logistical innovation (new ways of delivering products and services to the customer).
5. Market innovation (new types of marketing and consumer behaviour).

The service industries are characterised by a relatively informal innovation process, and many of the innovations are non-technical. The fact that many of the service

⁵⁹ Tetzschner et al. (2002) and Jensen et al. (2001/2002).

innovations are small improvements of existing products or processes makes it difficult to measure them. The innovation mentality is unknown to many firms in the service industries, including the tourism businesses, even though innovation is actually taking place⁶⁰.

As we find in this study, it is difficult to categorize and isolate something as innovations within tourism, both for the operators, supporting agents and the researchers. In chapter 4.3, there is an attempt to classify some of the major novelties that the operators and supporting agents in the study region are engaged in.

4.2 Knowledge and Competence base (K&C base)

Danish tourism is characterised as a sector with relatively low wages and very seasonal employment. These are factors that work against attracting well-educated employees in the long run (although many students work part time during the summer seasons). Still, there are examples of operators with high education levels in the case study. These are typically involved in tourism as lifestyle entrepreneurs (see below).

Generally the supporting agents also see the (formal) education level to be low in the region's tourist industry. This is also the fact on national level, where a survey shows that tourism as a sector has fewer positive preconditions for innovation than other service industries, including the lack of a well educated workforce⁶¹.

When characterising the operators there are different motivations for being involved in tourism⁶². There are those living out their dreams, and with the motivation to be independent and do something special (lifestyle entrepreneurs). Another group is those to whom employment in tourism is the only possibility (necessity entrepreneurs). Finally, there are operators mainly interested in doing something for their locality, and thus have a collective motivation. This collective motivation is made visible in the amount of volunteers that are involved in local projects. Differences like this will obviously have an effect on the motivation for acquiring knowledge and competence, and the willingness to participate in new projects.

The firms chosen for this study represent different levels of education, with the majority of the employees having a vocational background. Depending on the nature of the firm, you will find that both informal as well as the more formalised manner of obtaining new competence are visible. This is typically ranging from searching for information on the Internet to attending courses arranged by educational institutes (i.e. construction of homepages, marketing, upgrading of earlier education, technical skills). An example is the "Web Tourist" course

⁶⁰ Jensen et al. (2001)

⁶¹ Erhvervsministeriet (2000).

⁶² Different motivations can be combined in the same operator, e.g. living out their dreams and doing something for their locality.

provided by Nova Media where we find participant from both operators and intermediary firms. See Box 4.1.

We also find an example of a competence development project, aimed at tourism directors in two counties, arranged by Mid-North Tourism⁶³. The programme was completed in 2003 after 2 ½ years with ten modules covering a diverse range of topics. Measuring success or competence that was developed is not an easy and straightforward task, but as the informant from Viborg County observes, participants have expressed satisfaction with the programme. One distinguishable success is the improved networks and the co-operation that has come out of it. See Box 4.7.

Another important form of acquiring knowledge and competence is the “learning by doing” process found in the small firms. It is necessary to have multiple skills, which usually are acquired through practical experience. Being able to handle very diverse forms of challenges is obviously the most economic solution for smaller firms/family firms. A relevant way of upgrading the competence is the process of learning from each other. As emphasized by several firms the daily exchanging of information between the employees is the most important way of upgrading the knowledge level.

Since the chosen companies are all smaller firms, it is not possible to distinguish if the size of the firm matters for the K&C base. However, when speaking of the industry in general terms, the supporting agents have an impression of larger firms having a more developed level of knowledge and competence (at least the “formal”).

What the operators are lacking when it comes to K&C is by the supporting agents mentioned as the following:

- K&C about how to upgrade their existing product basis
- The ability to see new possibilities and be able to break the natural scepticism.
- K&C about service, having the ability to see what their customers want
- General upgrading of language skills and ICT skills, both technical and promotion wise.
- Knowledge of how to approach the media, how to make a good press release.

In general, some supporting agents also find that some operators lack a broad overview or understanding of the mechanisms and magnitude of the sector, and that they do not spend much time on defining the role of their businesses in this context. The main strength of the tourism operators is that they inhabit knowledge of the local and of their market. This is a competence they have developed over the years by experience, not so much by formal education, and represent a form of tacit knowledge.

⁶³ Mid-North Tourism, the regional tourism organization covering the counties of North Jutland and Viborg.

According to supporting agents, there are operators that always see new possibilities and some that do not. The last group feels that they do not need any “external” inspiration (K&C). They tend to close their eyes for new possibilities; their scepticism prevents them from improving their businesses in the long run. The positive thinkers, those who see the possibilities to acquire new K and C and to further develop their businesses, can also be restricted by barriers like lack of finances and time.

Another categorization is the one of “frontrunners” and “followers”⁶⁴. The “frontrunners” will typically look abroad and towards the competitors. The “followers” look towards the “frontrunners”, their branch associations and regional tourism associations.

Depending on the operator, what is missing is very diverse, from technical skills to a broader understanding of tourism. According to the operators, these skills and competencies need to be developed further:

- Computer skills, i.e. construction of homepages
- Knowledge about making strategic business plans
- Marketing and promotion, written and visual
- Understanding of the market
- New visions/creativity

The informant from TGV emphasises that attending courses is not necessarily of main importance for the operators to upgrade their businesses. You either have the right attitude, interest and commitment or you do not.

“Some people have a drive, and that is not about education. In this region (Western Jutland) there are many examples of this where being a good “merchant” is the most important factor for success. The good “merchants” are those who have the right stock of goods on the shelves at the right time”. (Interview TGV)

The most important factor for success is the ability to be flexible and listen to what the market wants and being able to borrow money so it is possible to implement the ideas. According to a supporting agent, some of the operators have these characteristics, while others again have financial problems that prevent them from further development. Another group is those who are going to close their business in a few years time, and who therefore are not interested in further investment.

It is the common understanding among both the supporting agents and the firms that access to K&C in itself is not a problem. Although when it comes to more specialized courses or education, the larger cities are too far away from parts of the

⁶⁴ “Frontrunners” is a characteristic of those that always are open for new ideas and are in constant development. Often “used” by the supporting agents to introduce new projects/activities/new ways of working and cooperating to “followers”.

region, and one supporting agent mentions this as a problem. They thus experience the remoteness as a physical barrier to gain new knowledge.

Among the supporting agents, there is an expressed concern about the relatively low level of interest in attending courses; especially the actual attendance is low due to different barriers. One of the main reasons for this is obviously the size of the firms. In small firms, there is no extra time or a lack of time to participate. It is also a question of economy and the distance they are willing to travel to attend the courses. When operators actually attend courses, the supporting agents experience that there is a very strong commitment. It is reasonable to believe that a “push” in the right direction seems very much needed.

Box 4.1 web-turist.dk - homepage marketing

Nova Media is a part of a regional TV station in the midwestern part of Denmark. In 2003, the company offered a complete course package to upgrade the competence in the area of promotion via the Internet. This was done in co-operation with the regional tourism group, a multimedia company and with support from the EU Regional fund for Innovative actions. (The course is also offered on locations in Jutland, South and North and on Funen). The concept is new in Denmark when it comes to targeting the tourism industry specifically.

The target groups are the tourism operators and people working with the promotion of tourism in the region.

During the planning and the promotion of the course there was a great interest and demand for the product. Trying to get people to sign up was a little bit harder though, due to barriers like time and money for the small-scale operators. At the moment, there are about 45 participants in the course in the region, representing a very diverse group. The strength of the product according to the organizers is the way it leads the participants individually during constructing and developing the homepage to a promotional tool, presenting the attraction visually using video clips. Included is technical support at home and language assistance (translations). The main aim is to make the participants able to handle all parts of promotion via their homepages.

NOVA Media Holstebro (2004), www.novamedia.dk

Educational institutions are not widely used when searching for new knowledge. The impression is that both the operators and the supporting agents feel that the distance between theory and what occurs in reality is too large. When supporting agents use educational institutions they are most likely to gain insights in macro trends and this information can be used when planning visions for the future.

The vocational education institutes contribute by producing and offering an educated work force. However, it does not seem like there is an active co-operation between firms involved in tourism and these kinds of educational institutes.

4.3 Innovation activity

As introduced in chapter 4.1.3, innovation within the service industry, including tourism, takes on another character than the processes we find within production industry. A study shows that tourism related firms are the least innovative among service firms when it comes to introducing new services/products⁶⁵. On the other

⁶⁵ Erhvervsministeriet (2000).

hand, the innovations that are taking place in tourism are more original on average than the other firms represented in the survey. Tourism operators also suffer from organizational limitations when it comes to developing new services. The study also finds the limited size of the individual firms to be a barrier.

In our study, it is possible to find some similar aspects. The general impression of the supporting agents is that limited size to a certain level works as a barrier, and being short of time and finances can influence the ability to have the energy to engage in new development/innovative activities.

The operators mention to different degrees to be limited by either time or finances. This does not, however, imply that they are non-innovative; they have plenty of ideas and are engaged in activities⁶⁶. In a majority of the firms, we find people with an “entrepreneurial spirit”, meaning that their personnel involvement has the ability to “overshadow” fixed negative preconditions (to a certain point). This includes working long hours for “nothing” because they are living out their dreams. One operator also emphasises the fact that they do not want to expand. By being a private and smaller firm instead of a larger independent institution, one can always be in control/make own decisions. In this operator’s opinion, expanding can in “worst case” be a limitation of own (good) ideas.

Working in networks can be positive for some, since e.g. sharing expenses and being able to work “large scale” will be helpful in financial terms. They are also able to reach a larger market at the same expenses, and the possibilities for increasing the earnings are present. Still one has to consider the “negative effects” of networking and co-operation. Networking can also be time consuming and the feeling of not getting own ideas through can be frustrating. In most cases, there is a balance, and in the long term both partners are able to see that they benefit from it.

Box 4.2 Targeting a new consumer group - the Disability Project

An example of an innovative project on an international (European) level is the “Disability” project initiated by TGV (Tourist Group West Jutland). The project is innovative from the beginning and throughout the implementation, both when it comes to target group and products. It covers not only disability friendly accommodation, but also access to attractions and outdoor activities. The region’s aim is to become the area in Europe where this special segment group goes on holiday. The overall motivation to target this group is to increase the region’s income, the number of visitors regardless of season (school holidays) and increase the length of the season.

The supporting agents interfere typically at an early stage in the development process, according to themselves. Also, the common conception among the agents is that they and their institutions are the initiators of innovation. Some of the operators are seen as entrepreneurs that can be used as gate-openers to the remaining group.

According to one supporting agent, the problem is not really to involve the operators in new projects. When introducing a project from their side, a certain amount of financial support is usually involved. The problem evolves when the

⁶⁶ See chapter 4.3.1

project is to develop independently from the supporting programmes and survive without the public financial support.

Box 4.3 A Regional Fund Objective 2 project surviving and expanding

“Træfpunkt”/“Meeting Places” is a family activity programme initiated with support from the EU programme Objective 2. Based on the ideas from the children clubs known from the charter travel industry, and adjusted to fit the conditions of the Danish coastal holiday.

Started in traditional coastal resort areas, and is now spreading outwards, also to less visited areas. An example of a project that survived the critical phase where the finances ceased to exist, and managed to expand in the period afterwards.

The supporting agent from the regional tourism organisation emphasizes the public sector as the actor that has the least problems with new ideas, contradictory to the image of the public sector as being very slow in adjusting to market changes. The agent claims that a natural reason for this is the degree of closeness to the industry. The public authorities are not depending on making profits, whereas for the operator it is a prerequisite to survive. This means that it is easier for them to join in on alternative ideas or have the energy to work with the idea.

Box 4.4 Culture voyages on the Limfjord and the North Sea

Public authorities as an initiator of exploring nature and culture in the northwestern part of Ringkøbing County.

In 2003, Ringkøbing County arranged a cultural festival “Mærk Vinden”(Feel the Wind). One of the events/attractions involved was the culture voyage with a sailing ship on the Limfjord and cutters on the North Sea. The project is being supported for 2 years. The project originates from North West Jutland Development Net, the local action group administrating the LEADER+ programme.

The main goal of the project is to build bridges between the promotion of nature /culture and the tourist industry, and in this way promote/develop tourism in the larger rural district.

Kultursejlads, www.kultursejlads.dk

The impression from TGV is that the activity level among the operators has risen. One of the reasons for this could be that the projects initiated have been successful.

“If you create positive circles it is easier to get them (the operators) involved in upcoming projects. They can see that something actually comes out of it. Then it becomes easier and easier...it is all about trust and reliability... and it takes years to build up these relations”
(Interview TGV)

The main motivation for getting involved in new projects is the ability to gain from it financially:

“It is necessary to have a “carrot”, and it should preferably be one of the “golden” ones... but there are not so many with sprinkles and sugar on here...” (Interview Viborg County).

Viborg County participates in the Mid-North tourism region. One destination company “Toppen af Danmark” is dominating, covering the county of Northern Jutland and thus representing the area that has the majority of the visitors.

Participating in a co-operation where one destination is much more developed than the other has a positive influence on the region lagging behind.

The informant from Viborg County emphasizes the importance of learning and gaining a more diverse competence and knowledge base from the more experienced part.

We find that in views of the supporting agents the ideas of new projects develop as a result of the possibilities to receive public financial support. The Regional Funds, The Rural Development Programmes, and the EU based LEADER+ programme are to a large degree used as a source of inspiration.

“The level of activity is very dependent on the financial possibilities. When the companies (attractions) reach a certain size (e.g. the Flowerpark Jesperhus), they constantly develop (and innovate). The same is visible at the larger holiday centres. Problems with being innovative are mostly found in the companies that have a critical size when it comes to their economy. There are many of those; the majority is very small companies. Are they active or not? The answer is both yes and no. The ones that have to survive on it, they have to realize that they have to be active”. (Interview Viborg County)

A general feeling among the supporting agents is that operators are slow. However, it is though a form of “natural slowness”, due to two main obstacles: lack of time and money. Expressions like this are not just aimed negatively and uniformly at the operators, but represent more of an acceptance of the general characteristics of the branch.

4.3.1 Examples of major products/projects represented in the region

Below is a presentation of some of the major activities in the region. There are representatives from both the supporting agents and the tourist operators.

- “Disability Project” (TGV). A total tourism product for the disabled, including adjusted accommodation, access to natural and cultural sights etc.
- “Træfpunkt” Meeting Point. Activities for children at all ages at different locations along the West Coast.
- “The Liquor Trail” - A product consisting of 9 public houses/pubs and 16 points of attractions/activities. Developed as a broad co-operation between public and private partners in the Limfjord Area (Network Limfjorden, counties, operators) The trail is offering accommodation, culinary experiences, liquor based on local seasoning/spice. This is combined with nature and cultural experiences, activities like golf, hiking, cycling and so on.
- “The Limfjord Cycle Route”
- “The Limfjord Route-around the inlet in 80 different ways”. Connecting different activities and locations around the inlet.

- “Nortrail, the North Sea Coastal Path”, part of the INTERREG North Sea Programme. A project working with promoting sustainable cultural tourism through regenerating a number of walking trails along the North Sea Coast. Activities include development of information, services and infrastructure. Primary outcome; new networks.
- “National Park in Thy”- preparing a pilot project for a proposed national park
- “Mærk Vinden” (Feel the Wind). A cultural voyage at sea, arranged as sailing trips focusing on experiencing the locale nature/culture. Co-operation between public/private sectors.
- “Web Tourist”. A complete Internet course for the tourism industry, provided by Nova Media education

Within the firms (tourist operators/intermediary firms) there is a variety of new activities/products mentioned:

- Recipe book for sale, “gentlemen’s lunch”, table of cakes.
- Expanding a kitchen to be able to have more guests, in the long run a B&B in connection to the establishment.
- A children’s book with CD-ROM, about sheep/sheep herding/traditional craft
- Tourist sailing on Ringkoebing Fjord and charter trips on Limfjorden, package solutions. Some including food and local music.
- The “Barfuss Fahrt”, a touch/feel experience of the local nature that consists of walking barefoot on a trail inside the Coastal Experience Centre in Thyboroen.
- A month long participation at a German travel fair, Hamburger Dom, participating with a 500 m² stand.
- Working with new target groups, including activities/attractions for young children and elderly people.
- “ThyWeb” a local homepage covering 25 villages and towns presenting news, culture activities etc. using a personal and local approach.
- Tourist newspapers.

We find that most of the innovations take the form of new products or services, but other forms of innovations are also present. For example, the network building between public and private partners, e.g. “The Liquor Trail”, can also represent organizational innovation in addition to the trail being a product innovation.

Box 4.5 Inspiration from abroad adjusted to fit a coastal Danish product

A concept very much used in Germany in the attraction/leisure market is the “touch/feel /smell/taste” approach. One specific product is the “Barfuss Fahrt”, where the idea is walking on bare feet to feel different settings and environments.

The Coastal Experience Centre in Thyboroen adopted the product and introduced it 2004 as an indoor activity. Here you can walk through a variety of natural environments and get a sense of how it feels to walk on sand, in water, among crabs and seaweed etc.

One of the facilitating factors for innovation among the firms is that they have an extensive knowledge of the local environment. There is also creativity and a personal drive present, which are assets that will help many of the firms to survive. The overall weakness of the product in parts of the region is, as emphasized by supporting agents, the relatively low level of quality. There is an increasing competition, both nationally and internationally, and to be able to fulfil the requirements from a more diverse, critical and demanding consumer group, there has to be a constant upgrading of the product on offer.

Box 4.6 Treasure hunt in Thy - getting to know the region via local quality products

In 2004, the local tourist association in Southern Thy created in co-operation with local artists the concept "The Dragon Egg - the hunt for the treasure". It takes the form of an illustrated book with stories, verses and poems that form the tasks. That is to stimulate all senses, and to find the treasure, a piece of jewellery produced by a local artist. The visitor is to be guided through the region while solving puzzles etc. The task typically takes a couple of days to complete while exploring the area.

The treasure hunt was the first of its kind when it started in June 2004. The hunt was completed in October 2004 where the winner was picked in a draw. The activity has been a success and will carry on the next season with a different story.

Destination Thy, www.thy.dk

4.4 Co-operation and networks

Networks represent for some of the informants a relatively constant group. Others have varying networks, e.g. ad hoc contacts for different projects. When describing the level of networking, one has to consider that there are different perceptions of what a network is, and how the network is used.

In general, this study shows that supporting agents all have extensive networks, while the firms are a more differentiated group. What sorts of activities the firms are operating with will also influence the level of diversity in the networks. It is possible to see, however, that the most active or innovative respondents have more contacts than those that have a lower activity level.

Among the firms, both operators and intermediary firms, there are two groups of co-operation partners that are distinguishable. The majority mention the public regulatory authorities and neighbours/personal networks as partners they are in regular contact with. Interest groups and public sphere movements are also mentioned as important for some of the firms. The connection that is least visible is the one with the R/D (research and development) sector.

The firms form extensive local networks, with municipalities, local business groups and more personal networks. In a small municipality, networking takes the form of an everyday life contact. The director of one of the firms is also the chairman for the local business and tourist organization and obviously has a very wide network.

Firms that engage in activities that are not so common in the region depend on national/international networks. These are often professional networks and are typically used for catching up with the latest news within the particular sector and to seek help and information when experiencing problems with daily operations.

As an example, the privately owned aquarium in Thyboroen uses contacts at the national Zoo or other aquariums nationwide. In these entities, they have a more specific expertise, like marine biologist. Likewise, there is a formal contact network between the aquariums in Scandinavia.

One firm uses actively the personal and professional contacts and networks from their life before starting in the tourism industry. These contacts were used from the beginning, where research and seeking information was done in another region of the country, and it is also used introducing new activities in the firm at present.

Since the supporting agents have extensive networks and many being specifically to individual projects (ad hoc basis), it was difficult to list and categorize different partners and the frequency of the interaction, and also to differentiate between formal and non-formal contacts. Most agents operate locally, regionally and nationally. This is the case for the counties and the regional tourism organization, which also have international partners for individual projects (e.g. Viborg and Ringkoebing County participating in INTERREG North Sea Programme, the North Sea Coastal Path, Nave Nortrail).

Similar to what we find among the firms, there is no relevant connection between the supporting agents and commercial labs and R&D enterprises. This pattern is expected since R&D in general is not relevant for the sector. We find that the supporting agents to a certain extent cooperate with universities. This is typically used to gain ideas and inspiration. One example is when the regional tourism organisation uses research from Aalborg University that concerns the German family holiday makers, motivations, perceptions and views on Denmark as a holiday destination. By gaining knowledge about the latest analysis and trends, they can identify which niches one should concentrate on in different regions.

There is also a strong connection *between* the supporting agents in this study. An example is the co-operation between the regional tourism organizations and the counties, which can be characterized as a close synergetic relationship. The regional tourism companies are responsible for marketing the region and developing the product basis, while the counties are responsible for the more general developmental approach to the industry, related e.g. to competence building and infrastructure. The establishment of the regional tourism companies in 1996 was also a means of doing something with the fragmentation of Danish tourism and they provide a structure for increasing the level of co-operation.

4.4.1 Partners in future

In most cases, the interviewees emphasized the already existing networks, and improving those relations instead of mentioning new partners. This is natural since many already have a wide network.

The informant from Nova Media sees the business opportunities in working with the Danish Tourist board:

“We have to cooperate with the industry since they have the contacts. There will be an increasing focus on the Internet. The consumer (tourists) approaches the product directly, without many intermediary actors. Because of this it is very important that the product/the service from the operator is of a good quality.” (Interview Nova Media)

The regional tourism organisation, TGV, emphasizes the public sector, in this case the municipalities and the counties as very relevant partners for future innovation activities. Here, synergy effects are expected in that the public sector has a different form of knowledge and canals for influence than the private sector. Since this sector obviously has a major influence on planning in general and on the use of natural resources in particular, it is already a key partner, but the partnership is seen as very valuable and can with advantage be exploited further. The co-operation seems to be beneficial for both partners. There are examples that illustrate the rewarding and profitable relationship between public authorities (the counties) and the regional tourism organizations. It shows how it evolves into new networks and products based on local and “unknown” resources that later can survive and generate new tourism products.

Box 4.7 Network Limfjorden, developing a product based on authentic and local culture/nature

Network Limfjorden, a supported co-operation introduced in the 1990s, aiming towards developing a common marketing strategy for the Limfjord area, from Hals to Harborø.

The three Limfjord counties Viborg, North Jutland and Ringkøbing are involved, as well as two regional tourism organizations, The Tourist Group West Jutland and Mid-North Tourism, the latter being responsible for the secretary function. Other partners are municipalities, local tourist bureaus and destination companies.

Pilot project: (“Snapseruten”) was developed by the network and introduced in 1998. Since then, it has experienced a solid success. “The Liquor Trail” became an independent organization in 2004.

A new project for the network is “Around the Limfjord in 80 ways”, which was introduced in 2004, and the main effort is to be initiated in 2005. The project is developed around a common plan for product development and marketing in the area. The aim is to place the relatively unexplored area on the Danish tourism map.

Another example of “good practice” when it comes to networking is what we find in 4 municipalities defined as a LEADER+ area in Ringkøbing County. The network set up is an example of how working in a public/private partnership gives positive effects on tourism.

Research shows that co-operation with other firms and other actors promotes the level of innovation activity⁶⁷. A survey shows that the majority of those that can be characterised as innovative take part in permanent alliances, where the opposite is the case for the firms that have a limited innovation degree⁶⁸. Due to the limited selection in our case study and also the fact that some firms are atypical, it is not possible to confirm this. It is of relevance, however, to mention that it has an

⁶⁷ Jensen et al. (2001).

⁶⁸ Erhvervsministeriet (2000).

influence on the activity level when the operators themselves are actively involved in their surroundings.

4.5 Innovation conditions

The awareness of the system is obviously high among the supporting agents, especially in the case of the public authorities, but also at the regional tourism association and the local destination company. Since this is very much a part of their work, they are aware of the policies. More important seems to be the knowledge of the different rural support programmes. Programmes like the Regional Fund Objective 2, LEADER+ and the Rural District Programme Article 33 are widely mentioned, both by the supporting agents and the operators. As expressed by one supporting agent, *“These programmes are earmarked for these purposes (development in rural areas) and they are also usable in “the real world”.* (Interview TGV)

A typical barrier in the external environment is the low level or the lack of funding in the tourism industry. Businesses suffer from the image of the sector as low status and find it hard to acclaim sufficient financial support, which again makes it difficult to make investments on a long-term basis. On national level, the State supports tourism by funding the national tourist board that is responsible for marketing Denmark as a tourist destination in general. This will not necessarily affect the peripheral areas, according to one supporting agent:

“Tourism is one of the few growth areas in peripheral areas, where there is a potential. Peripheral areas are typically found along the coast. Who does one give the money to? To the Danish Tourist board that is responsible for tourism nationally and to Copenhagen (the capital region). If you *really* want to do something for the peripheral areas and the development of tourism, it is not enough with small funds of 5 millions yearly. There is a need for large-scale investments, to make the product less reliable of main season and climate. The Danish Tourist board has a duty to promote Denmark in general, and this does not necessarily create growth in the peripheral areas. It is rather far from it”. (Interview TGV)

In more general terms, one of the intermediary agents finds that there is a lack of support possibilities for private firms. They characterize it as very negative that the state support for establishers/entrepreneurs has ceased to exist. For the company in question, it has been hard to convince the financial institutes that there is value in their activities, in this case IT.

The challenges that owners and managers want to work with in the future are typically concrete and financial. However, visions for the longer run also seem important. Some of the operators find it very hard to exist despite their positive visions for the future, because the day-to-day problems take up too much of the time. Supporting agents recognize this pattern, e.g. when working with the operators and introducing a new project. It can be a very time consuming process

to convince the operators to invest their time and resources in something that does not give an effect in the short term. Tourism is an industry with low status, and the financial situations for the firms are tight. In some circumstances, one supporting agent feels that they really need to put pressure on the operators to engage in new projects, “follow” them through, and make it as convenient as possible and if possible help with the funding.

When working with introducing new projects, one has to take into consideration the general slackness. Another characteristic is that the many partners that are typically involved when it comes to larger projects are on various levels. Instead of waiting for the entire group to catch up, one begins with those who are already “up front” and ready for new ideas, “frontrunners”. The “frontrunners” stand out as good examples (positive role model). The supporting agent is deliberately using these operators to facilitate development among those that are lagging behind.

One of the firms mentions the local environment to be restrictive in some ways, especially for newcomers. It can be hard to co-operate and become accepted in the local society due to some being envious. This does not represent the majority though.

The supporting agents themselves are very active and are helpful in creating support systems for the individual firms. One of their tasks is to inform individual firms about the possibilities found in the support programmes. There are several examples in the region of projects that have evolved from these support programmes and that will be able to survive on its own afterwards⁶⁹. They are often built on public/private partnerships, a relationship that seems to be favourable for making projects viable.

Working in networks across sectoral borders seems to have had a very positive effect. Both Network Limfjorden and North West Development Networks have created new projects that are economically sustainable. Creating an environment for co-operation and combining areas that traditionally have not been working together has given results in forms of small-scale activities operating on a larger scale.

In more general terms, when talking about tourism development, the discussion about the increased amount of leisure time in the population is mentioned. Those operating on the West Coast have noticed over the last years an increase in (Danish) families on the “third” vacation, especially from Eastern Denmark and Zealand. This has been more visible since the bridges between the regions were established.

Generally speaking, both the operators themselves and the supporting agents indicate money (earnings) as the most common factor of motivation for getting involved in new projects. But also the more “developmental” approach is visible. One operator mentions that attracting more tourists to the village was the overall

⁶⁹ For example, “Meeting Places”, a family activity programme receiving support from Regional Fund Objective 2 support programme, and “Feel the Wind” and “Small Food Producers Network”, receiving funds from LEADER+.

objective for getting engaged in a sailing project. The possibility for actually being able to witness changes and new (positive) developments in their local area is a great motivation for many.

The general attitude towards innovation and entrepreneurship in the region is overall positive, although there is a certain level of slackness. Whereas the majority of the supporting agents find that this tendency has a negative influence, one finds that this is just another factor that has to be taken into consideration when working with this sector.

Parts of the study area have traditionally had a high proportion of the population engaged as fishermen and farmers, so there is a distinct independency business culture. One operator emphasises that there are many people in the local area that are very interested in starting for themselves, and many are real entrepreneurs, coming up with new ideas. The local trade and industry director plays an important part in backing up the entrepreneurs. Local culture and a good public support system thus have a major influence on the ability and desire to be innovative.

When summarizing the case study of tourism, there are some identifiable factors that seems to influence the innovative capacity of the tourism industry in peripheral areas:

- Coordinative networks
- Sufficient funding and support
- Upgrading of quality
- Knowledge of market

This can make possible a product based on unique local characteristics, and thereby integrate the element of authenticity that is documented to be in demand. The importance of high quality products is vital. By working together, a number of small scale products can go “large” and in the long term become more economically viable. Knowing the market will be helpful in establishing a niche and increasing the ability to reach the proper customers.

5. Findings from the study on furniture industry

5.1 Background information

10 have been interviewed: 6 companies and 4 local support agents to the sector in the area of Salling-Mors in Viborg County.

The chosen companies in the furniture manufacturing case sector have been selected so as to be locally owned and operated and together to have reference to the sectors as a whole as a typical and well-representative sample of the different types of well-established companies in the area of Salling-Mors, which all together are known as the Salling furniture cluster. The varied group of furniture and wood companies chosen represent different types of main products and display diverse competition and innovation strategies according to this. They are locally anchored medium and large companies operating in highly competitive international markets.

The support agents selected represent different major players for the furniture sector in the area. The group includes the educational sector, a non-profit consultancy and network centre for the sector, a local development agency and a local employers' association (cabinet maker guild) for the sector, see Appendix 2 for description of interviewees.

5.2 Knowledge and Competence base

Like the educational profile of the workforce in the area of Viborg and Ringkoebing counties, the employees of the companies in question are for the majority formally unskilled, though highly experienced via long-lasting employment relations within the sector and the company and the obtained on-the-job-training. The companies express that generally the workforce is well motivated and flexible concerning implementation of changes in production.

For many years, the technical school and business academy of the area has been the leading institution for formal education of workers within the wood and furniture industry. The school has students from all over Denmark and during the years, many have stayed in the area either as independent entrepreneurs or as employees in the existing furniture cluster of companies. In this sense, the knowledge and competence base of the furniture and wood sector in the area is outstanding in a national comparison.

The companies are generally active in sustaining and expanding the knowledge and competence base. They take an interest in the education of new generations of cabinetmakers and give space for apprenticeships etc. They are also all positive towards the local technical school and activities created for the business centre.

There has not been registered any laboratories or research or design departments etc. in connection with the companies or the sector in general, though employees

are working with design issues as well as adaptation of products and processes on a continual basis. The technical school has offered “open workshop” for company employees (on a voluntary basis), but with little success in terms of participation.

New initiatives on knowledge and competence building have been taken on design strategies and knowledge-building in manufacturing and education. “Innovator” is a 2-year study programme with specializations in design/product development, trend/marketing and process/logistics, respectively, and is for students at high-school level of education. “Innovation-designer” is a 1½-year course programme with modules in the idea phase, the constructions phase and the pre-production phase of innovation for employees in the furniture industry with some years of experience. Participants in these initiatives at Skive Technical School/Business Academy Mid-West are the Development Centre for Furniture and Wood, Wood Manufacturers Employers Union and private companies in the area. The initiatives build on resources and external support from Viborg County, Ministry of Business and Housing, Technological Institute, Aarhus School of Architecture and Design all together with private technical and business consultants. The education projects are all new initiatives with the aim of enhancing the knowledge base in the sector in the region and are carried out in collaboration with/participation of local furniture manufacturers.

Another type of example of recent development of the employee competences is found in the Bodilsen furniture company, see Box 5.1.

Box 5.1 Knowing Bodilsen

“Bliv klog på Bodilsen” (“Knowing Bodilsen”) - a course project for all company employees running 2003-2004 and 2005 (2 groups of 18/week) with replacement by unemployed unskilled workers in the area. The course focus is on delegation, flexibility, working in teams and new wage systems.

The employee-education project is done in collaboration with Nordvestjysk Handelsgymnasium (Business Academy Mid-West), Nykøbing Mors, The company invests app. DKK 6 million in the project.

A new course on employee collaboration and team work is being planned together with the same partner.

From a company viewpoint, needs for new knowledge and competences go in the direction of marketing and market trends internationally. One company also mentions language skills as a weak point. No one expresses needs for knowledge or competences in materials or technologies, though the pine wood specialized manufacturers have an interest in knowledge about new materials and other types of wood. Design knowledge and skills are also in high value, though there is not found any expressions of direct needs in this regard. The support agent point of view is all together in good accordance with this impression. The companies seem to be very efficient in technological terms and more vulnerable concerning information on consumer trends and fashion, why an upgrading of design competences is regarded as a viable strategy for the sector.

Quite similar, the question of barriers for access to knowledge is answered negative. The companies use the technical information service system, the schools and professional networks, journals and fairs etc. as sources for information and knowledge. The relatively low level of management staff with higher education

may explain the low interaction and use of research institutes and universities in this regard, which have been recorded.

5.3 Innovation activity

Among the companies of the furniture cluster in question, innovation appears continuously and in all dimensions of product development, process development and organizational change and new markets. The companies are very active, though they follow different competitive strategies and, hence, engage in different innovation processes. Some of the larger companies have hundreds of different products and variants to be combined in numerous ways and are constantly renewing this inventory according to market trends.

We find process innovations in the very classical sense of investment in new production equipment to increase production capacity to meet price competition on standardized bedroom furniture, investment leading to productivity growth e.g. via project groups on bottlenecks on the materials flow and implementation of ISO 9001 securing standardized quality and reducing waste products. The companies all work for cost reductions via robotics, teamwork, outsourcing of tasks and changing the suppliers of the wood. See Box 5.2. for a successful example.

Box 5.2 “Baltic Supplier-building” - The annual Skive Cabinet Makers Guild Tour

One of the member activities of the guild organisation is a joint tour abroad to visit foreign companies in machinery, wood and finished furniture, furniture fairs and exhibitions etc. It works as a mix of a social event and a professional network activity.

10 years ago, the trip went to the Baltic countries and it resulted in making commercial contacts and establishment of supplier relations in the Baltics on wood and furniture prefabrications for several of the Salling furniture cluster companies.

The Ingabo furniture company in Oddense have used these supplier relations in a restructuring of the enterprise from a large manufacturing company to a sales company with minor activities in fabrication and design. Ingabo has in this way taken a lead in outsourcing of the manufacturing activities and hereby stayed competitive in the market after a reconstruction in 2002.

Innovation processes seem to develop in 2 ways, either in interaction with clients and customers, who place an order at the company after negotiation of designs etc. or the company engage with professional furniture designers to develop a new piece of furniture or collection of furniture, which is then promoted and marketed – sometimes internationally via national export promotion activities, trade representations abroad etc.

In both ways of generating product (and the accompanied process) innovations, you can succeed or fail. You may in the first instance miss the specifications and quality required by a fixed client or you might miss the taste of the final consumer. All companies report on product failures and losses as a normal part of the business. With high quality designer furniture you may have a longer time

horizon and smaller production volume, while the cheaper mass-produced furniture has a lower tolerance in these respects.

Innovation parameters are price, fashion (designs, surfaces and colours, materials), collections of furniture components, functionality of furniture, quality and durability. Quality and durability can be developed and communicated via a voluntary control system and a quality control label for furniture, see Box 5.3.

Box 5.3 Magnus Olesen and Danish Furnituremakers' Quality Control

The Danish Furnituremakers' Quality Control was established in 1959 with the aim to work for the manufacturing of high quality furniture in Denmark and is the world's first control organization for furniture. The members (26 by mid-2004) are manufacturers of high quality furniture. Magnus Olesen was among the founders and the company is today still a leading member of the organization.

High quality is ensured through factory control visits combined with a set of requirements on materials, production methods, and products, the "Technical Specifications" in accordance with - and disseminated into - European Standards (EN standards) for furniture.

Factory control visits at the member factories are carried out at least twice per year (in 2003, 3 times) by leading Danish experts in furniture materials, furniture manufacturing and product requirements and testing, experts within wood and wood based materials, plastics, metals, furniture production methods, glues, surface finishes, furniture testing, CE-labelling, GS-labelling and environmental requirements. The experts do not only act as "controllers" but also as advisers for the members, thus encouraging and helping the member companies with new materials, new manufacturing methods, trouble shooting etc.

Dansk Møbelkontrol (Danish Furnituremakers' Quality Control), www.dansk-mobelkontrol.dk

The companies in the case have not indicated less-tangible qualities like environmental profile, social and ethical aspects of production etc. or services, product guarantees, delivery time and other "external" logistics or marketing issues as important innovation parameters. Some of these may be considered as a natural part of the business to consider in production and product development. One company finds environmentally friendly paints and lacquers in conflict with demands for high durability. Another assumes sustainable grown hardwood (and seals) as a commonplace but without much real value due to lack of international control of the suppliers.

The wood trader company has together with the Danish Union of Wood Traders (TUN) implemented a project on a standardized open electronic information system for wood and building materials ("Byggebasen"), which should have made it easier for the suppliers to deliver the demanded items, especially to the construction sector.

With regard to product innovation activities, all companies express, that they in the future will continue along the same lines of high development activity. Some express an interest in new wood sorts and materials. Regarding process innovation, several companies express an interest in outsourcing parts of production to the East-European countries and South-East Asia and China as a way to lower labour costs, while others invest in increased production capacity and/or optimization of existing facilities, internal logistics and employee training and education.

It is clear that new generations of educated people within the sector will add new innovation potentials to the sector. To the supply of embodied knowledge and competences can also be added new innovation facilitating initiatives such as fairs and competitions, see Box 5.4.

Box 5.4 "Furniture Cup" - Centre for Development of Furniture and Wood, Skive

An annual competition among furniture manufacturers on new furniture and product innovation with integrated innovation education programme for participant teams. For manufacturing firms who take part and/or sponsor consortia of developers.

5.4 Co-operation and networks

The co-operation arrangements and utilization of services provided by company-external parties and support agents in relation to implementing novelties and innovation activities have been recorded according to a common typology of innovation systems research⁷⁰. In the furniture case, it must be noted that the answers given by the company representatives gives a systematic bias because of a common tendency to answer strategically to questions on this aspect of innovation. This means that the collaboration partners indicated by the companies should be regarded as a minimum of the formal and informal contacts and partnerships actually in place and use for innovation. It is, furthermore, difficult to clearly separate collaborative relations in general from special relations with regard to a specific innovation project.

Clients and customers are together with suppliers of equipment, materials, components and software the 2 dominant types of collaboration partners with regard to implementation of innovations. Almost all companies in the furniture case use both groups. Relations with customers are more regular via meetings and communication with agents and sales representatives, while suppliers are used on a case-by-case basis depending on tasks and problems arising in the innovation process. Relations with customers are considered most important in general, but are mostly indirect. It is customer representatives, sales agents and clients, market analysts etc., who transmit and communicate on consumer preferences, taste and fashion etc. The companies also try themselves to interpret customer needs and preferences via visits abroad to furniture exhibitions and fairs. They also exhibit new designs and collections themselves at international furniture fairs (Italy, Germany, Denmark).

There has here been a clear division of the companies into "in house" designer furniture manufacturers (contracted designers) and furniture suppliers to large retailers with their own design specifications. The borders are today disappearing and the furniture suppliers are taken interest and experimenting more with designs themselves.

⁷⁰ Lindegaard (1997).

The second most important external partners in innovation are educational institutions and public regulatory authorities, in this case the technical school and business academy and the municipalities and county, respectively. They are involved in different aspects of training and transmitting new knowledge in general in the education case and taking part in different aspects of approval and control of production facilities and applications for funds etc. While the relations to the technical schools are on a regular basis with student exchange and training, the relation with the public authorities are on a case-by-case basis in relation with specific project activities. Relations are both formal and informal in all cases.

Students at the Skive technical school not only collaborate on process and product design projects with local companies, but also have started to put design projects at display at the Danish furniture fair in Copenhagen. Here, there is a dilemma between personally motivated interests and formal incentives for the employees of the public educational sector in relation with participation in development activities and innovation networks. The present salary system leaves no room for engagements in international networking and development activities.

Other collaborative relations in connection with innovation activities the last couple of years have been to industry associations and/or professional networks, development agencies, Government or private non-profit research institutes, competitors and other firms from the same industry sector, parent company or other enterprises within the enterprise group. See Appendix 1, Table A1.5.

The companies have indicated, that their preference for partners for future innovation activities are the same as they know now, which could be a signal of a barriers for co-operation and a lack of sources of information in the direction of unknown partners and types of support agents.

Concerning the collaboration partners for the support agents themselves, we here have strategic answers that may provide us with a maximum indication of partners involved in collaborative activities in some cases. See Appendix 1, Table A1.6. The mapping gives ideas of collaborative patterns and resource agents in the sector. It must be noted, that the support agents included in the study in no way constitute the complete group of relevant and important agents for the companies and the sector.

5.5 Innovation Conditions

Regional and national policy and the current public support services are not playing any important role for the development activities of the companies in question. Instead, they find the county council very active in business development services and several companies have made use of some public support schemes either via the county and the European Union schemes or via national support schemes for e.g. disadvantages groups on the labour market. Some companies would like a scheme of tax reduction for research and development expenditures introduced in Danish government policy.

As a facilitating factor for innovation (external environment of the companies), the “Udviklingscenter for møbler og træ” in Skive (Development Centre for Furniture and Wood) is a good example of a recent initiative to enhance and promote innovation in the furniture sector. It was established with the aim of strengthening the collaboration with knowledge and educational institutions and to raise the competences and level of education of the companies in the sector through improved education, courses etc. Participants in the centre include Skive Technical School/Business Academy Mid-West, Danish Technological Institute, Technological Information Centre/Business Centre Viborg, Viborg County. The centre is supported by the Danish “Regional Growth Environments” policy initiative, which is new in the combined focus on knowledge dissemination and education, on building on existing competences and specializations in a geographical area and in the ambition to help build long lasting relations between knowledge and education institutions and the private sector.

The perception of and general attitudes towards innovation and entrepreneurship in the local area is regarded as very positive. This can be explained by a long cultural tradition in the region of entrepreneurship and craftsmanship.⁷¹ The Salling Development Council is explicitly addressing these issues in its activities. Though the localised learning and trust among the companies of the Salling furniture cluster may not be what it was in the 1990’s period of growth and expansion, the entrepreneurial spirit seems intact today, where we see a concentration in the sector and a division of strategies and markets, not collaboration and sub-contracting locally.

⁷¹ Lorenzen (1998) and Maskell (1998).

6. Conclusions

With the *ISP* project (*Innovation Systems and the Periphery*), focus and methods are directed towards marginal areas to look for innovation systems, their well being and functioning in traditional sectors far from university cities and so-called high-technology with a view to examining the needs and possibilities for enhancement of applicable knowledge and competences and thereby the business environment for innovation in the periphery.

6.1 Collaboration on product innovation

There are, of course, a big variety of examples of business development – also in peripheral areas. In the case studies we have also found good examples of innovation and business development by peripherally located companies and their collaborative networks.

The chosen companies in the 3 case sectors have been selected so as to be locally owned and operated and together to have reference to the sectors as a whole, either as atypical or typical for the area.

- In the agri-food industry, the diverse group of small and medium sized companies includes companies with successful product development within sub-sectors dominated by a single international company as well as a daughter company and a small exporter. Together they are representative types of locally anchored food processing companies in the peripheral region.
- In the tourism sector, the diverse group of micro and small companies includes operators of new types of service products in a market dominated by one single type of tourist industry, the west-coast summerhouse accommodation services. The chosen companies represent all together alternative and complementary product types and are locally anchored in the peripheral region.
- In the furniture industry, the varied group of case companies chosen represents different types of products and display diverse competition and innovation strategies according to this. They are locally anchored medium and large companies operating in highly competitive international markets.

The Danish ISP study shows that Danish companies in peripheral areas in various ways find relevant knowledge and competence for innovation and development of new products. They find it together with actors that are both geographically close and distant.

Market relations with suppliers and customers are the most frequently used channels for collaboration on innovation projects across all sectors. In addition,

we find that institutional sources are frequently used both in the tourism and food sector. Different types of support agents and actors play a varied role from one sector to another and for one company to the other, within a sector as well. There are similarities as well within and across the sectors. Some types of support agents are not or very seldom involved in collaborative projects of the companies studied. This may partly be due to the physical characteristics of the marginal area in terms of distance to larger cities and infrastructure in a broad sense. It may also be due to common characteristics of sectors and the business community as a whole in terms of culture, tradition and competencies. See Table 14 for a general overview.

Table 14. Innovation and collaboration- a profile of 3 case sectors in the Viborg-Ringkøbing region of Denmark

Agri-food case Small and medium-sized enterprises	Tourism case Micro and small enterprises	Furniture case Small and medium sized and larger enterprises
Innovation strategies: Products, processes, markets Participants: Suppliers (knowledge intensive agricultural sector), customers and support agents (universities/education, non-profit research, commercial laboratories/R&D enterprises, public regulatory authorities, business consultants, industry associations and/or professional networks, interest groups and/or public sphere movements, financial institutions-/actors, neighbours or other personal networks) Knowledge and competencies: Practical skills and handicraft, raw materials, process technology, markets, flexibility Markets: Local-regional and national Geography of innovation system: Local, regional-national (international)	Innovation strategies: Products, processes, markets Participants: Suppliers, customers and support agents (universities or education, public regulatory authorities, business consultants/experts, industry associations and/or professional networks, interest groups and/or public sphere movements, financial institutions/actors, neighbours or other personal networks) Knowledge and competencies: Local knowledge and practical skills, culture, nature, language, coordination Markets: National, international Geography of innovation system: Local, regional, (national-international)	Innovation strategies: Products, processes, markets Participants: Suppliers and customers and support agents (education, non-profit research, public regulatory authorities, industry associations/professional networks) Knowledge and competencies: Practical skills and handicraft, process technology, markets, design Markets: International Geography of innovation system: Regional, national, international

Based on interviews with 10-15 enterprises and support agents from each sector, in the period June-September 2004.

Among the local actors, it is possible to count customers and suppliers of the companies, but the location of the most important markets seems to determine the geography of collaboration on innovation, especially in the furniture and food

sectors. The export oriented companies like the furniture manufacturers are mostly orientated towards close foreign markets in Germany and UK with supplies from Finland, Sweden, the Baltic countries, Germany and Italy. The food processing companies have local-regional and national markets, with influence on who are the main drivers of their innovation and development. In the tourism sector, we find a different pattern, where the support agents or supportive schemes enhance many innovative activities and developments. The market is national/international whereas the collaborations the operators typically engage in are on the regional level.

Other more local and regional determined collaborations focus on education, business services, marketing as well as technical aspects of product development and production processes. Public authorities - locally and regionally (and nationally) - are also mentioned as collaborative partners in connection with specific innovation projects. This interaction between the development actors provides a local-regional basis for innovation systems' development of knowledge and competences.

Agri-food industry

We find a highly developed food industry in Denmark but moving away from rural areas. Globalization, outsourcing and new "high tech" technology development is not benefiting the rural and peripheral areas in terms of jobs and income generation. There are big differences between large and small actors. Small actors have a difficult time staying in the market with lack of resources for innovation: Funding, competences (management, marketing), and distribution.

Innovation systems around the agri-food industry in the periphery

Company specific: Market suppliers, Customers, Companies, and Neighbours within a geography varying from local to regional, national (international).

Sector specific: Education, R&D, Universities within a geography varying from regional to national.

Study area: Authorities, Technical Information Centres/Business Centres, "Regional Growth Environment"

Tourism industry

Tourism can be viewed as a problem sector due to it being a last resort for many of the entrepreneurs with low wages, seasonal work, no generation of qualifications. The challenge is to raise the level of complexity and increase the product value.

In product development it can be important for the sector to keep the traditions and emphasize the uniqueness of the Danish product in the development and marketing of tourism as well as to strike a balance between mass-tourism and the environment.

Innovation systems of local tourism operators in the periphery

Company specific: Customers, Companies, Support agents within a geography varying from local, regional, national to international.

Sector specific: Education, Business Associations within a geography varying from regional to national.

Study area: Development agencies, Authorities

Furniture industry

The sector is facing increased competition from furniture producers abroad, especially in Eastern Europe, relatively low research and innovation rates and few new products ready for marketing, limited use of the competencies of the workforce and relatively weak level of education of management. The industry lacks resources for innovation, especially funds and competences in design and marketing etc.

Innovation systems of local furniture producers in the periphery

Company specific: Market suppliers, Customers, Companies within a geography varying from regional to international.

Sector specific: Education, “Growth Environment” centre, R&D, Industry Associations within a geography varying from regional to national.

Study area: Technical Information Centres/Business Centres, Development Council, “Regional Growth Environment”.

6.2 Lessons for policy

Some general policy recommendations across the sectors can be made. Generally we find little co-operation between educational and research institutions on innovation because of the weak presence of these institutions in the peripheral area, the traditional low-tech sectors without tradition for research and few formally educated employees, and low education/research interest/abilities and funds.

- The very well experienced and practically skilled (though low formally educated) workforce in the sectors and areas is an important asset for the companies. There is a need for experimentation with new learning methods in the educational sector in order to capture and build on the competences.
- A stronger focus on the incentive and support system for innovation activities in firms (tax reduction, financial support, soft loans, etc.) also seems to be needed, especially for the small (and micro) companies.
- Also, more communication and a dialogue-based bottom-up approach to policy initiatives will benefit the outcomes and results of the company development activities.

The Danish “Regional Growth Environment” initiative is an example of a bottom-up approach. This is set up by local actors that can agree on establishing collaboration with local support and funding and then apply for government funding, aiming at supporting knowledge dissemination and education activities

targeting innovation within a specific sector. The initiative, however, is also an example of the dominant way of thinking in business development, where initiatives are confined to a single sector, a so-called “strength position” clustering in an area. This may leave companies and knowledge institutions of the same sector in other parts of the country out because of physical distance etc. Another problem can also turn out to be the segmentation of competence building and innovation within the limits and among the well-established actors of existing sectors, thereby leaving actors and ideas from other sectors out. Even if we e.g. have found examples of tourism innovation initiatives related to farming activities, the general trend as also found in our study may be a warning - and a challenge for both tourism and agriculture to join each other in innovation.

- The lock-in into sectoral thinking, raises a need for a complementary territorial approach to cross-sectoral interaction and co-operation: Locally and regionally coordinated cross-sectoral innovation support policy supported by local innovation facilitators connecting local firms with knowledge producers in and outside the region.
- Support to the support agents, who display many external relations with each other within each sector, while the cross-sectoral communication and interaction seems weak and underexploited (see Appendix 1, Tables A1.2, A1.4, and A1.6). There is also a need for support-to-support agents to link better into and out of the region.

We have also recorded disparities between companies’ and supportive agents’ perception of knowledge and competence needs and support programmes etc. Missing business opportunities and innovation options in the sectors can be the result.

The innovative companies themselves are in different degrees able to make use of national and international partners. It is a good question, whether this is determined solely by the location of the most important markets for the companies, whether it is determined by their role as supplier or contractors with limited control over their network engagements or whether it is caused by weaknesses in the geographically close knowledge networks, which the companies seek compensation for with more distant actors. We may at the same time ask: Are the Danish companies in peripheral areas able to use their local knowledge and networks to an extent and in ways that can have international impacts e.g. on the sales of their products on foreign markets? The problems and possible solutions may be found both among the companies and among the support agents of the innovation systems in the periphery.

Innovation policy focuses on strengthening the framework conditions for business competitiveness and innovation. In regional and rural development policies for business development the focus on innovation will play a larger and larger role. This will influence the future education of the work force and the internal dynamics of the companies as well as the external framework and knowledge networks, which can inspire and support development activities – and select among the good ideas.

7. ISP Denmark Summary

The Danish ISP study shows that Danish companies of the traditional sectors of agri-food, furniture and tourism in peripheral areas find and utilize relevant knowledge and competences for innovation and development of new products in networks with both geographically close and distant actors.

- In the agri-food industry, a diverse group of selected small and medium-sized companies includes companies with successful product development within sub-sectors dominated by a single international company as well as a daughter company and a small exporter. Together they are representative types of locally anchored agri-food industry in the peripheral region. In contrast to the general trend in the sector, we find lively independent and innovative companies.
- In the tourism sector, a diverse group of micro and small companies includes operators of new types of service products in a market dominated by one single type of tourist industry, the west-coast summerhouse accommodation services. The companies represent all together alternative and complementary product types and are locally anchored in the peripheral region. In contrast to the general picture of the sector, we find new and innovative small operators working together to up-grade their products.
- In the furniture industry, a varied group of selected companies represent different types of products and display diverse competition and innovation strategies according to this. They are locally anchored medium and large companies operating in highly competitive international markets. Contrary to the general picture of the sector, we find highly innovative companies experimenting with design and new markets.
- In the furniture industry, market relations with suppliers and customers are the most frequently used channels for collaboration on innovation projects across companies. These channels are also used in the other case sectors, but to a lesser extent. Different types of support agents and actors play a role varying from one company to the other within the sectors. There are similarities as well within and across the sectors. Public authorities and technological and business service providers – locally and regionally – are also working as collaborative partners in connection with specific innovation projects. This interaction provides a local-regional basis for innovation systems' development of knowledge and competences.
- Across all sectors, we find a lot of potential in the use of the competences of the workforce and upgrading the relatively weak level of (formal) education of the employees - including the management. We also find an explicit need for support to the funding of innovation and research and development activities, especially among the smaller companies. We find,

furthermore, a need for support to the support agents themselves, in order to enhance their own room for development and their knowledge and competence-building activities in the region.

- Several types of possible support agents are not or very seldom involved in collaborative projects by the companies studied. This may partly be due to the physical characteristics of the marginal area in terms of distance to larger cities and infrastructure in a broad sense. It may also be due to common characteristics of whole sectors and the business community as a whole in terms of culture, tradition and competencies, which acts as barriers for collaboration and knowledge-building with untraditional innovation partners.
- Concerning policy conclusions, the Danish ISP study points towards a stronger emphasis on the “Regional Growth Environment” initiative of competence-building, but with a local-regional perspective added rather than a sector-specific, in order to enhance cross-sector interaction and innovation in the peripheral areas.
- It is also important to strengthen the educational sector and link vocational training and education stronger to research environments and technological institutes etc. as well as closer to the business sector of a region in order to develop relevant and attractive activities for the well-experienced but formally low educated workforce.
- The Danish ISP study has found a high awareness as well as activity on innovation in the sectors. The companies develop their products, improve their processes and organizations and they find new customers and markets. Though, all in all, these innovation activities may be considered as minor and very incremental in scope and effect. Their mere existence and the awareness on change and development, the activities creates, serve as a good basis for the future for the companies within the sectors studied within the peripheral area of Viborg and Ringkøbing counties. It is important to disseminate this experience to all companies within the sectors and to other sectors in peripheral areas.

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Turistgruppen Vest Jylland (Regional tourism development company) (2004), www.tgv.dk

ThyWeb (local web portal, Thy) (2004), www.thyweb.dk

Udviklingscenter for Møbler og Træ (Development Centre for Furniture and Wood) (October 2004), www.moebelcenter.dk

Viborg Amt (Viborg County) (2004), www.vibamt.dk

Appendix 1. Tables on innovation networks

A1.1 Agri-food industry

Table A1.1. Operators in the agri-food industry: Did the firm have any co-operation arrangements with, or utilize any of the services provided by, the following parties, in relation to implementing novelties (innovation activities), in the last 24 months? Number of yes-answers shown

Type of partner	Number of companies (n=5)	Number of farmers (n=4)
Internal:		
- Parent company or other enterprises within your enterprise group	1	0
Market:		
- Suppliers of equipment, materials, components or software	5	4
- Clients or customers	3	2
- Competitors and other firms from the same industry sector	5	2
Education and R&D:		
- Universities or other education institutes	5	1
- Government or private non-profit research institutes	2	2
- Commercial laboratories /R&D enterprises	5	0
Other institutional sources:		
- Public regulatory authorities	5	3
- Development agencies	1	0
- Business consultants/experts	3	1
- Industry associations and/or professional networks	4	4
- Interest groups and/or public sphere movements	4	0
- Financial institutions/actors	4	4
- Neighbours or other personal networks	3	3
- Others	0	0

Table A1.2. Supporting agents in the agri-food industry: Does your organization currently have any formal or informal partnership or co-operation with any organizations of the following categories?

Type of partner	Viborg County	VIFU	Agri- cultural School	Process Tech- nology	NVU Thisted	Farmers' Asso- ciation
Universities or other education institutes	F & I	F	F	F & I	F	-
Government or private non-profit institutes	F & I	I	I	F	F	F & I
Commercial laboratories / R&D enterprises	F & I	F	-	F	I	I
Public regulatory authorities	F & I	F	F	F	F	I
Development agencies	F & I	F	F	F	F	I
Business consultants / experts	-	I	I	-	I	-
Industry associations and/or professional networks	F & I	F	F	F	F	-
Interest groups and/or public sphere movements	F & I	F	F	F	I	I
Financial institutions/actors	F	F	F	F	F	I

Note:

F = Formal partnership

I = Informal partnership

A1.2 Tourism industry

Table A1.3. Operators in the tourism sector: Did the firm have any co-operation arrangements with, or utilize any of the services provided by, the following parties, in relation to implementing novelties (innovation activities), in the last 24 months? Number of yes-answers shown

Type of partner	Number of companies (n=5)
Internal:	
- Parent company or other enterprises within your enterprise group	1
Market:	
- Suppliers of equipment, materials, components or software	4
- Clients or customers	3
- Competitors and other firms from the same industry sector	3
Education and R&D:	
- Universities or other education institutes	3
- Government or private non-profit research institutes	1
- Commercial laboratories /R&D enterprises	0
Other institutional sources:	
- Public regulatory authorities	5
- Development agencies	3
- Business consultants/experts	0
- Industry associations and/or professional networks	2
- Interest groups and/or public sphere movements	3
- Financial institutions/actors	1
- Neighbours or other personal networks	5
- Others	0

Table A1.4. Supporting agents in the tourism sector: Does your organization currently have any formal or informal partnership or co-operation with any organizations of the following categories?

Type of partner	Viborg County	Ringkoebing County	Regional Tourism Organisation	Destination company	Nova Media*
Universities or other education institutes	F & I	F & I	F & I	-	F & I
Government or private non- profit institutes	F & I	F & I	F & I	F & I	F & I
Commercial laboratories / R&D enterprises	-	-	-	-	I
Public regulatory authorities	F & I	F & I	F & I	F & I	F & I
Development agencies	F & I	F & I	F & I	F & I	F & I
Business consultants / experts	-	F & I	F & I	F & I	F & I
Industry associations and/or professional networks	F & I	F & I	F & I	F & I	F & I
Interest groups and/or public sphere movements	F & I	F & I	F & I	F & I	F & I
Financial institutions/actors	F	F	-	F	F

Note:

* Agent offering education.

F = Formal partnership

I = Informal partnership

A1.3 Furniture industry

Table A1.5. Operators in the furniture industry: Did the firm have any co-operation arrangements with, or utilize any of the services provided by, the following parties, in relation to implementing novelties (innovation activities), in the last 24 months? Number of yes-answers shown

Type of partner	Number of companies (n=6)
Internal:	
- Parent company or other enterprises within your enterprise group	2
Market:	
- Suppliers of equipment, materials, components or software	5
- Clients or customers	6
- Competitors and other firms from the same industry sector	1
Education and R&D:	
- Universities or other education institutes	4
- Government or private non-profit research institutes	2
- Commercial laboratories /R&D enterprises	0
Other institutional sources:	
- Public regulatory authorities	3
- Development agencies	1
- Business consultants/experts	1
- Industry associations and/or professional networks	2
- Interest groups and/or public sphere movements	0
- Financial institutions/actors	0
- Neighbours or other personal networks	0
- Others	0

Table A1.6. Supporting agents in the furniture industry: Does your organization currently have any formal or informal partnership or co-operation with any organizations of the following categories?

Type of partner	Skive Carpenters' Guild	Development Centre for Wood and Furniture	Salling Development Council	Skive Technical School
Universities or other education institutes	F	F & I	F & I	F
Government or private non-profit institutes	-	F	I	-
Commercial laboratories / R&D enterprises	-	F & I	I	-
Public regulatory authorities	-	F & I	F & I	-
Development agencies	F & I	F & I	F & I	-
Business consultants / experts	I	F & I	F & I	F & I
Industry associations and/or professional networks	F & I	F & I	F & I	F
Interest groups and/or public sphere movements	-	-	F	-
Financial institutions/actors	F	F & I	F & I	-

Note:

F = Formal partnership

I = Informal partnership

Appendix 2. Key informants (interviewees)

A2.1 Agri-Food industry

Farmers

Bagge, Preben. Organic milk producer (est. 1984). Turnover: DKK 1.9 million (stable). Only temporary employment, wife is working off-farm.

Dalsgaard, Søren. Organic plant producer (est. 1989). Turnover: DKK 650,000 (increase is expected). No employees, wife is working on the farm.

Kristensen, Tage. Conventional plant producer (est. 1959). Turnover: app. DKK 1 million (stable). No employees, wife is working on the farm.

Noe, Arne. Organic milk producer (est. 1984). Turnover: DKK 1.3 million (increase is expected). No employees, wife is working on the farm.

Companies

Geisler, Mette. Production manager. Malt house: Dragsbæk Maltfabrik A/S (est. 1873). Turnover: about DKK 200 million (stable). 34 employees.

Grud, Kjeld. Production manager for plant production. Feeding stuff company: DLG Limfjord (a local branch). Turnover (locally): DKK 280 million (stable). 18 employees (locally).

Larsen, Ole. Assistant director/sales manager. Brewery: Thisted Bryghus A/S (est. 1902). Turnover: about DKK 22 million (excl. VAT and taxes) (increase is expected). 30 employees.

Nielsen, Peter Strange. Son of the owner and manager. Brewery: Hancock Bryggerierne A/S (est. 1876). Turnover: about DKK 30 million (excl. VAT and taxes) (stable). 35 employees.

Pedersen, Poul. Dairy manager. Dairy: Thise Mejeri (est. 1988). Turnover: DKK 120 million (increase is expected). 60 employees

Supporting agents

Bro, Bolette van Ingen. Director. Videnscenter for FødevareUdvikling - VIFU (Knowledge Centre for Food Development) (est. 2003), Holstebro.

Brynning, Gunhild and Britt Munkebæk. Double interview with student advisor (GB) and head of department (BM). Process technology education (est. 1989) at Holstebro Tekniske Skole (Holstebro Technical School), Holstebro.

Damgren, Henrik. Head of centre. Lemvigegnens Landboforening (the Farmers' Association of the Lemvig area) (est. 1856), Lemvig.

Larsen, Lotte Møller. Headmistress. Det grønne uddannelsescenter Lægaard (The Green Education Centre Lægaard) (est. 1952), Holstebro Technical School, Holstebro.

Mortensen, Lauritz. Project manager. Nordvestjysk Uddannelsescenter – NVU (Northwest Jutland Education Centre) (est. 2001), Thisted.

Stensig, Torkil. Development employee. The development agency (est. 2001) at the business and labour market department in Viborg County, Viborg.

A2.2 Tourism Industry

Tourism operators

Kjeldsgaard, Maj-Britt. Owner of Fjand Gårdbutik (shop/gallery/café) (est. 1996, current owner 2003). Turnover: DKK 2.0 million (increasing). Husband co-owner, employed at the establishment. Two other family members working part time, one employee app. full time and two employees part time.

Kiilerich, Berit. Owner of Lystbækgaard (alternative sheep and wool centre) (est. 1999). Turnover not available (stable). The owner is the only employee. An association is established, and members do voluntary work.

Åkerstrøm, Jegvan. Owner of SAGA (sail schooner, arranging chartered trips.) (Est. 2000) Turnover DKK 1.2 million (SAGA, DKK 800.000 of this). Firm consists of husband and wife, full time employed.

Juhler, Finn. Manager of A/S Mindboen (cutter, charter boat for anglers/tourist) (est. 1999) Turnover: DKK 300.000 (stable). Two employees, sponsorship group consists of 40 members, some working on a voluntarily basis (e.g. in charge of reservation and bookings).

Madsen, Michael. Manager of an aquarium/coastal experience centre (est. 1999). Turnover DKK 2.5 million, and increasing, expected DKK 3 million in 2004. Four employees. (The operator has also taken the lease of the Coastal Experience Centre. Turnover DKK 3.0 million, four full time employees).

Intermediary firms

Erichsen, Knud. Director at Thylands Avis, a local weekly paper covering two municipalities, South Thy and Thyholm (est. 1912). Part of a larger newspaper company, with regional headquarters in western Jutland. Turnover (N.A). Five employees.

Svendsen, Poul. Owner of SydThy Rute og Turistfart, a coach company with local transport routes and coach travel, both inland and internationally. Turnover (N.A) Wife co-owner full time employed, in addition four full time employees.

Tangsig, Torben. Thy Medie. A Multimedia company responsible for creating "ThyWeb". Offers services like construction of homepages, portals and technical support (computers). Drew up a local/regional tourist paper in 2004. Turnover (tourism) paper 1.0 million DKK. Five employees.

Supporting Agents

Sørensen, Carlo. Project coordinator. Department of Regional Development, Ringkoebing County, Ringkoebing. Consist of 8 employees working with different aspects of regional development, e.g. tourism, rural development, EU programmes.

Brandsgaard, Sven Henrik. Tourism consultant. The Development Agency (est. 2001) at the business and labour market department in Viborg County, Viborg.

Hornum, Anni. Director, Tourist Group West Jutland (TGV), Nørre Nebel (regional tourism organisation) (est. 1991). Organisation responsible for marketing and developing tourism on the Danish West Coast, Ribe, Ringkoebing and parts of Southern Jutland and Viborg County. 8 employees, some working on a project basis.

Nielsen, Carsten. Director Destination Thy (Southern Thy). Covers an area of three municipalities in the northwestern part of the study region working with a common marketing strategy. The informant is also the tourist director locally in Southern Thy. Three employees.

Lørup, Karl Erik. Project coordinator, NOVA Media/TV Midt Vest (Educational Department at a Regional TV company). Offering a course covering marketing via the Internet, construction of homepages, directed at the tourist industry.

A2.3 The Furniture Industry

Companies

Thuesen, Thue. Managing Director, Thuka Furniture, Nykoebing Mors. Founded 1949. Annual turnover app. DKK 400 million. App. 160 employees, more than ½ skilled. Children and teenage bedroom furniture in solid pine wood.

Jørgensen, Flemming E. Production Director, Bodilsen Furniture, Nykøbing Mors. Founded 1973. Annual turnover app. DKK 1,113 billion. App. 1,430 employees (app. 900 in DK) at 10 factories in Denmark, one in Estonia and one in UK, 3/4 unskilled. Broad range of mainly pine wood furniture for large international customers.

Christensen, Per Chr. Managing Director, Ingabo Furniture, Oddense, Salling. Founded 1968, reconstructed 2002. Annual turnover app. DKK 25 million. App. 10 employees, 1/2 unskilled. Broad range of pine wood furniture for private homes.

Olesen, Kjeld. President & Chairman, Magnus Olesen Furniture, Durup, Salling. Founded 1937. Annual turnover app. DKK 40 mill. App. 40 employees, 2/3 unskilled. Office and conference furniture in varied/mixed materials for public and private customers.

Østergaard, Henrik. Production Director, Aage Østergaard Furniture, Roslev, Salling. Founded 1964. Annual turnover app. DKK 260 million. App. 250 employees in Denmark, UK, Germany and France, 7/8 unskilled in production. Broad range of pine wood furniture for private homes.

Hansen, Jørgen S. Managing Director, Roslev Træløst, Skive. Founded 1900. Annual turnover app. DKK 350 million. App. 100 employees most with shorter formal education in sales. Importers and suppliers of wood and construction materials.

Supporting agents

Schrøder, Thomas. Head of Division, Skive Teknisk Skole/Erhvervsakademi MidtVest (Skive Technical School/Business Academy Mid-West), Skive. (www.skivets.dk, www.eamv.dk). Established in the 1870s. Annual budget app. DKK 85 million. App. 160 employees and 660 students annually. Offers education programmes for machine technologist, wood technicians, process technologists and more.

Østergaard, Morten. Business Director, Salling Udviklingsråd (Salling Development Council), Balling, Salling. Established 1994. App. DKK 2.1 million in annual budget. 4 employees. Develops and offers business services and education activities for local companies and entrepreneurs.

Andersen, Ove. Director, Udviklingscenter for Møbler og Træ (Development Centre for Furniture and Wood), Skive. (www.moebelcenter.dk). Established 2001. Supported with DKK 15 million over 5 years with 50/50 self-finance of activities. App. 10-12 part time employees. Develops and offers new training and education activities together with local companies.

Christensen, Per Chr. Chairman, Skive Snedkerlaug (Skive Cabinetmakers Guild), Oddense, Salling. Established 1894. Annual budget app. DKK 150.000. App. 65 members. Offers 5-6 arrangements on relevant issues for the furniture industry, company visits etc. for the members.

Appendix 3: Study Area and Case Sector Context

General profile of the study area			
Name of study area/region	Ringkoebing County and Viborg County		
Size of study area/region (km ²)	8.976 km ²		
Main districts or no. of municipalities	35 municipalities in all (18 in Ringkoebing County and 17 in Viborg County)		
Current population number	509489 inhabitants		
Recent development of population number, since 1980 (%)	3.1% increase (1.1.1998-1.1.2004)		
% of population living in rural settings	As of 1.1.2004: 62% of the population was living in municipalities with less than 100 inhabitants pr. km ² . (55 % and 70 % in Ringkoebing C. and Viborg C., respectively).		
Main urban centers and their population number	Biggest towns in Ringkoebing C.: Holstebro (31.808 inhabitants), Herning (29.945). Viborg C: Viborg (33.192) Skive (20.676)		
Employment by economic sectors	2003: 7 % in primary production, 34 % in industry, 59 % in services. Building and construction (7 %) is entered under industry. In services (59 %), strict service trades account for 29% and the remaining 30% mainly consists of public services (e.g. schools and care homes etc.).		
The area's "economic background"	Higher share of primary production and manufacturing than the rest of Denmark.		
Coverage of innovation and entrepreneurship in key policy documents: <i>Supranational level</i> <i>National level</i> <i>Regional/local level</i>	<u>No. of documents</u> few/some/many some some some	<u>Extent of covering</u> deep/mod./shallow shallow moderate moderate	<u>Focus</u> broad/sectoral broad broad-sectoral broad-sectoral

Agri-food production in the study area (the branches chosen)	
Branches that the study focused on	Dairies and beer breweries
Main products produced in the region within the branches chosen	Dairy products. Beer (and possibly also soft drinks).
Structure of the value chain, which links are operating in the region?	Suppliers, farmers, processing firms, distributors and marketing bodies are all operation in the region.
<i>Primary production (farming)</i>	
Number of farms and recent development of it	Total number of farms in Viborg and Ringkoebing counties: 10.236 (2003), 16.133 (1993). Decline 1993-2003: 37 %.
Average size of farms and recent development of it	Average size of farms in Viborg and Ringkoebing counties: 54 hectares (2003), 35 hectares (1993). Growth 1993-2003: 54 %.
Production quantities and recent development of it	1. Production of grain (wheat, barley, rye, oats) in two counties: 1598 million kg (2003), 1347 million kg (1993). Growth 1993-2003: 19 %. 2. Stock of milking cows in two countries: 163.020 (2003), 192.143 (1993). Decline 93-03: 15 %. Caused by rationalisation, milk production unchanged in same period.
Proportional share of the area in national production	1. Production of grain in the two counties in percentage of national production: 18 % (2003), 16 % (1993). 2. Stock of milking cows in the two countries in percentage of national stock: 27 % (2003), 27 % (1993).
<i>Processing, distribution and marketing</i>	
Number of processing operations/firms	5 within brewery industry (4 breweries, 1 malt factory), 13 operations/firms within dairy industry (2004).
Most common size of firms (man years)	Brewery industry: 2 microbreweries, the rest have 25-35 employees. Dairy industry: mostly more than 100 employees.
Total turnover of the chosen industry branches	Not available.
Recent trends within the industry branches (scale)	Two directions: Scale and niche.
Markets, where are products primarily sold?	Local, regional, national, international.

Presence in the region, and official role of the following, in innovation facilitation in the chosen branches	<u>Presence</u> Weak/moderate/strong	<u>Official role</u> Weak/moderate/strong
<i>Universities or other education institutes</i>	W	----
<i>Government or private non-profit research institutes</i>	M	----
<i>Commercial laboratories /R&D enterprises</i>	W	----
<i>Public regulatory authorities</i>	M	----
<i>Development agencies and business consultants/experts</i>	M	----
<i>Industry associations and/or professional networks</i>	W	----
<i>Interest groups and/or public sphere movements</i>	M	----
<i>Financial institutions/actors</i>		

Tourism in the study area		
Number of firms (all / those offering recreational services)	Xx / xx Not readily available.	
Number of overnight stays in the year 2003 and recent development of it	Ringkoebing County: 4.7 million (2003). Development 1998-2003: 6 % increase. Viborg County: 1.8 million (2003). Development 1998-2003: 9 % decrease.	
Proportional share in overnight stays in the country as a whole (2003)	15 % (Denmark has a total of app. 43 million overnight stays in 2003.)	
Most common service (product) types	Coastal tourism: Family-oriented summer houses	
Most common size of firms (man years)	Micro enterprises: less than 10 employees.	
Market/clients (division between domestic and foreign visitors)	2003, overnight stays Ringkoebing C.: 4735724 in all, 3705419 foreigners (78 %) Viborg C.: 1793363 in all, 806736 foreigners (45 %) Total percentage in study area: 69%	
Characteristics of service and marketing systems: which links exist within the region?	All links exist, e.g. service operations, sales, marketing, etc.	
Presence and official role of the following in innovation facilitation	<u>Presence</u> Weak/moderate/strong	<u>Official role</u> Weak/moderate/strong
<i>Universities or other education institutes</i>	W	----
<i>Government or private non-profit research institutes</i>	M	----
<i>Commercial laboratories /R&D enterprises</i>	W	----
<i>Public regulatory authorities</i>	M	----
<i>Development agencies and business consultants/experts</i>	M	----
<i>Industry associations and/or professional networks</i>	M	----
<i>Interest groups and/or public sphere movements</i>	M	----
<i>Financial institutions/actors</i>	M	----

Manufacturing in the study area (the branches chosen)		
Branches that the study focused on	Furniture industry	
Main products produced in the region within the branches chosen	Varied end products: knockdown and designer furniture.	
Structure of the value chain, which links are operating in the region?	Mainly production firms.	
Number of operations/firms	100 companies and related industries in the Salling region with Salling area as the centre with 38 companies.	
Total turnover of the industry	Annual turnover app. 4 billion for exports (2001)	
Proportional share of the area in the national production within the chosen branches	Low estimate, 15 % of the annual turnover in Danish furniture industry (2001)	
Recent trends within the chosen industry branches (scale)	Employment 2700 persons (2001), growth by 50 % 1984-1993. Now, the mature cluster faces stagnation.	
Markets, where are products primarily sold?	Germany, England, Sweden, Norway, US.	
Presence and official role of the following in innovation facilitation in the chosen branches	<u>Presence</u> Weak/moderate/strong	<u>Official role</u> Weak/moderate/strong
<i>Universities or other education institutes</i>	M	-----
<i>Government or private non-profit research institutes</i>	M	-----
<i>Commercial laboratories /R&D enterprises</i>	W	-----
<i>Public regulatory authorities</i>	M	-----
<i>Development agencies and business consultants/experts</i>	M	-----
<i>Industry associations and/or professional networks</i>	M	-----
<i>Interest groups and/or public sphere movements</i>	W	-----
<i>Financial institutions/actors</i>	W/M	-----

Appendix 4. “Good Practices”, Danish Examples

Thise Dairy Innovation activities

Key description: Thise is a local village dairy working as a successful product development company with innovation of organic products as the only constant.

The operation: A group of organic farmers and a young dairy manager established Thise dairy in 1988. The manager took over business after his parents. He is just as local as the dairy. He and his knowledge on product and process development was the driving force behind the establishment of the organic dairy. The farmers delivering to Thise have since then been very loyal towards the dairy and the production concept of the dairy.

Today the name Thise is recognized by 47 % of all consumers (enquiry made in 2002), it has 60 employees and an increasing turn over of 120 million DKK. Locally the success of the dairy has had a very positive influence, the Thise village e.g. became the Danish village of the year in 1998 and is all in all a very living village with a large self-assurance. Nationally the manager is very active in very different kinds of political, scientific and administrative boards and councils. That is, Thise is well oriented on new support programmes and the like e.g. on innovation and they do not hesitate to apply for them/make use of them and this with great success.

Innovative elements: Three examples of Thise’s development of new organic products:

“Jersey 0.5 %”. The milk is made of non-homogenized milk from jersey cows and has a more full-bodied taste than typical low-fat milk. The milk was launched in 2001 (three weeks before Arla launched their ‘mini-milk’) through Irma and became a big success that could now be bought in many other supermarkets as well. The concept of making low-fat milks has been followed by two other products: a 0.7 % and a 0.05 %.

“Natura semi-skimmed milk” was launched as a regional product in May 2004. The milk is guaranteed to originate from four named farmers in Lemvig municipality (the farmers and their farms are presented on the homepage). In the marketing of the milk the dairy liked to tell the story of the milk being just as local as wines carrying the label: Appellation origin contrôlée. Again Irma played a major role in the marketing process.

“Bjørnsholm Gårdmælk”. Inspired by the regional product “Natura semi-skimmed milk” and pushed by Arla’s announcement of their wish to launch a not-standardised milk Thise started producing a not-standardised milk from one farm (Bjørnsholm) in July 2004 (again some weeks before Arla). This time the product is marketed as a ‘chateau-bottling’. With it Thise distanced their not-standardised milk far above the milk that Arla is capable to produce. The milk was launched in Irma.

Impact: Thise has created its own niche for special organic quality products, which has filled out the holes that Arla Foods leaves behind when delivering organic milk and cheeses for the masses. Especially the idea introduced in 1992-1993 of dividing the milk after breed of cattle has shown to be very fruitful in the niche strategy of Thise. Thise products have become one of the strategic products for a shorter quality supermarket chain (Irma) in the eastern part of Denmark. The relation between this supermarket chain and Thise has been decisive for the survival of the dairy.

Design and Innovation in Danish Furniture Manufacturing - The Knowledge and Competence Base

Key description: Innovation-based knowledge and competence building in the Salling furniture industry; focussing on new and revised education programs and company competitions on design.

The operation: The Salling area furniture cluster of manufacturing firms employs more than 1100 people and has an annual turnover of approximately 4 billion DKK, mostly for exports to the European market. Educational projects are carried out in a co-operation between local furniture manufacturers and a number of local and national education and governmental institutions, including Skive Technical School/Business Academy Mid-West, Development Centre for Furniture and Wood, Manufacturing firms, Wood Manufacturers Employers Union. Project resources and external support from Viborg County, Ministry of Business and Housing, Technological Institute, Aarhus School of Architecture and Design, Private technical and business consultants.

Innovative element: The education projects are all new initiatives with the aim of enhancing innovation and the knowledge base in the sector in the region. New educational initiatives:

“Innovator” - a 2-year study with specializations in design/product development, trend/marketing, process/logistics, offered to students at high-school level of education.

“Innovation-designer” - a 1½-year course with modules in the idea phase, the constructions phase and the pre-production phase of innovation, offered to employees in the furniture industry with some years of experience.

“Furniture Cup” - an annual competition among furniture manufacturers on new furniture and product innovation with integrated innovation education programme for participant teams. For manufacturing firms, who takes part and/or sponsors consortia of developers.

Impact: The innovation-based educational initiatives in the furniture industry in Salling are expected to improve the competitiveness of the industry.

Cross-Sectoral Approach to Tourism - Cooperation and Networks

Key description: How working with tourism across sectors has created a range of alternative tourism activities in a peripheral area in North Western Jutland.

The operation: The area in question inhabits a rich natural and cultural heritage; but is in need of improved economic development. A priority is that the natural and cultural assets should be used and developed as valuables on the market; they should be made visible for the tourists and also for the newcomers to the area. The overall goal is to develop an authentic tourism product for the larger rural district, which will attract visitors and also function as an alternative development strategy (new know-how and employment). The following areas of particular tourism development potential have been identified; 1) Arts and Crafts, 2) The Flavours of Western Jutland (Local/Regional Quality Food), 3) Experience the nature, 4) Sailings and life at the harbour and 5) Package solutions.

Examples of initiatives developed:

“Network of Small Food producers”. Competence building in SMEs, helping each other with product development and marketing. This has resulted in the establishment of a common marketplace for regional quality food producers. The visitors get the possibility to experience the flavours of local products. In a two-year period (2002-2004), the project has received DKK 395.000 in EU support.

“Arts and Crafts Network”. The mobilisation of the areas many arts and craftsmen to cooperate towards common goals instead of acting as individuals, and create new activities, i.e. the establishment of a regional exhibition at the Bovbjerg Lighthouse. Project in pilot phase.

“The Cultural Voyage”. Building bridges between the promotion of nature /culture and the tourist industry. During the summer months the schooner SAGA sails fjord safaris and evening cruises on the western Limfjord. The fishing cutters M/S Mindboen and M/S Emma-Line take visitors on trips to explore the Northern Sea departing from the fishing villages Thorsminde and Thyborøn. The tours are based on the active participation of the tourists and there are also activities in the harbour towns, like fishing auctions, fishing days, “Open harbour”, guided tours and so on. In a two-year period (2002-2004), the project has received DKK 737.000 in EU support.

Innovative element: A strong partner is the Local Action Group (EU LEADER+) who is responsible for developing the “North West Jutland Network”. This construction works with establishing networks within 5 different areas; ICT, regional foods, nature and cultural tourism, human resources and production and service industries). Within the field of developing tourism the following partners are involved: public authorities (the county and local municipalities), cultural institutions (museums/exhibitions), local tourist associations, and a wide range of tourist operators. These networks have since they started in 2003 initiated a remarkable level of activity and regional/local mobilisation. Projects (see above) are typically initiated with public finances, and after a period of learning and building knowledge the aim is for them to become financially self-sustainable and with a decentralised coordinative function.

Impact: In North West Jutland a wide range of partners are working together to create “small scale” activities that nonetheless have large-scale impacts. Experiences from a broad spectrum of activities and projects show that it pays off to cooperate and work across sectors when working with developing tourism in a peripheral setting.

Innovation conditions - "Regional Growth Environments"

Key description: The support framework "Regional growth environments" stimulates bridge building between companies and knowledge institutions while building on existing competences and specialisations in regions.

The operation: Government support is granted to research and educational institutions working with knowledge and technology dissemination. The funding cannot exceed 60% of the total budget. Support is granted for a 3 years period with possibility for 2 years extension. The "growth environment" is expected to develop into a self-financed institution.

Two of the specific initiatives in operation in Viborg-Ringkøbing counties are related to the food sector and the furniture sector: The Knowledge Centre for Food Development (VIFU), Holstebro, has the purpose of building bridge between knowledge institutions and food producers and processors with the aim of enhancing collaboration and competences of the sector. Themes are: Logistics, sales and production, product development, education, consumer awareness. The Development Centre for Furniture and Wood, Skive, aims at strengthening the collaboration with knowledge and educational institutions and to raise the competences and level of education of the companies in the sector through improved education, courses etc.

Innovative element: A new support framework for stimulating partnership building between companies, research and educational institutions and knowledge disseminators with regional knowledge and innovation centre projects all-over Denmark in the areas of: fishery, food, suppliers, steel, offshore, transport, aluminium, robot technology, entertainment, finance, seeds, furniture and wood, wind energy, IT, biotechnology, manufacturing, market gardening.

Impact: The "Regional Growth Environment" initiatives have had success with bringing relevant actors from the private sector and public education together and develop specific projects of knowledge and competence-building and innovation within many sectors. The initiative is based on local participation and co-funding, it builds on existing specialisations and is active with products in all regions of Denmark.

Center for Forskning og Udvikling i Landdistrikter (CFUL) har udgivet følgende Skriftserier

- Busck, A. G.; Jensen, M. V.; Svendsen, G. L. H. & Tanvig, H. W. (2004): *Ligestilling i dansk landdistriktspolitik er ikke lige meget*. Skriftserie 9/04, CFUL, Esbjerg
- Busck, Anne Gravsholt; Stoye, Monica; Just, Flemming & Svendsen, Søren V. (2003): *Samarbejdsmodeller inden for forvaltning af natur og landskab i landbrugslandet. Casestudie fra Holland, Tyskland og Danmark*. Arbejdspapir 8/03, CFUL, Esbjerg
- Thuesen, Annette Aagaard (2003): *"Det handler om at få en plan til at virke..."*. Undersøgelse af de danske Lokale Aktionsgrupper i LEADER+. Arbejdspapir 7/03, CFUL, Esbjerg
- Johansen, Pia Heike (2003): *Erhvervsudvikling, lokal viden og lokale naturressourcer i landdistrikter. Et casestudie af tanginnovationsprojekt*. Arbejdspapir 6/03, CFUL, Esbjerg
- Svendsen, Gunnar L. H. (2003): *Vi hilser da på hinanden... De nye tilflyttere i Ravnsborg Kommune: Problemer og muligheder*. Arbejdspapir 5/03, CFUL, Esbjerg
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- Nielsen, Marianne Bay & Thuesen, Annette Aagaard (2002): *Foreningslivets betydning i en landkommune - Helle Kommune*. Arbejdspapir 2/02, CFUL, Esbjerg
- Tanvig, Hanne W. ed. (2002): *Rurality, Rural Policy and Politics in a Nordic-Scottish Perspective*. Working Paper 1/02, CFUL, Esbjerg

Debatbøger

- Tanvig, H.W. (red.) (2005): *At være eller ikke at være - landdistrikter i bevægelse*. Debatbog 2, CFUL, Esbjerg
- Tanvig, H. W.(red.) (2003): *Landdistrikter i Danmark - i nye tider*. Debatbog 1, CFUL, Esbjerg

Eksemplarer kan bestilles via www.cful.dk, eller ved henvendelse til Conny Callesen, tlf. 65 50 41 46