Agri-Food Supply Chain Networks (AFSCN), Newfoundland and Labrador.

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Agenda

• Driving factors in Agri-food business
• Multi-dimensional Agri-Food Supply Chain Networks (AFSCN)
• Relationship Agri-Food Business and Government
• Problem definition by example for pesticide application
• Information Integration Framework
• Problem definition by example for pesticide application
• Current situation: many points-to-points
• Vision for the future – design spec’s
• Keys for development
• Living Lab Information Management in Agri-Food
• Business development 1 and 2 filling in the Gaps
• Main challenges
Driving factors in agri-food business

• Sector-specific characteristics include:
  – Fresh products
  – Seasonable production
  – Many SMEs, particularly at farm level and also at secondary processor level

• Main challenges
  – ‘license to produce’
    • consumers & society
    • food safety and transparency
  – Global competition (EU, WTO)
  – Demand-driven
  – Innovation: knowledge-based production

• Operate in multi-dimensional, dynamic networks
multi-dimensional Agri-Food Supply Chain Networks (AFSCN)

- information sharing for process control and communication
- ICT plays a crucial role
Relationship Agri-Food Business and Government

- Law and regulation
- Public objectives

Common themes:
- Security
- Quality
- Sustainability
- Innovation
- Statistics

Agri-Food Business

Information sharing

Government

Common objectives

Business

Communication

Control
Problem definition by example for pesticide application

**government/society**
- environmental impact
  - [usage(ai)/ha]
- reduce environmental impact

**food processor → consumer**
- residues
  - [usage/kg product]
  - [time applied]
- reduce residues

**farmer**
- pest reduction
  - [costs/ha]
  - [app/10m²]
- reduce pests
- reduce costs
- apply site-specific

**business processes are driving!**
Information Integration Framework

Adapted from Giachetti 2004
Current situation: many points-to-points

- **Data suppliers**: weather, cultivars, etc.
- **Research institute**: knowledge
- **Advisory service**: advice
- **Input supplier**: fertilizers, pesticides, etc.
- **Farm management system**: operations
- **Regulations**: registration
- **Government**: regulations
- **Markets**: information
- **Transporter/collector**: products
- **Processing industry**: restrictions
- **Processing industry**: products
- **Processing industry**: product information
- **Processing industry**: information
- **Processing industry**: regulations
Vision for the future – design spec’s

• **Business processes** must be leading
  – Rapid re-configuration approach using dynamic modelling and component repositories
  – Based on Business Process Management (BPM) and Service Oriented Architecture (SOA)
  – Alignment of and interdependency between all integration types and levels
• **Business** in the lead and responsible!
  – Human and organizational change
  – Commitment and vision at both ‘CEO-level’ and ‘workers level’
  – Co-operation and co-ordination in all dimensions of AFSCNs (as much as possible)
• **Sector-specific, open models and standards**
  – Based on cross-industry models/standards
  – Standards organizations
Keys for development

keys:
• business processes are leading
• involves several actors → platform independent approach
• many processes/web services
  • need for architecture/reference information models
  • need for central co-ordination on:
    • standards
    • ownership
    • quality, availability, etc.
• Software as a Service (SaaS)
Living Lab Information Management in Agri-Food

ICT business

(existing) solutions

research & education

(existing) knowledge

agri-food business

problems

innovations

new knowledge

new solutions
Business development I filling in the Gaps

Identify Market Need

Other Potential Markets

Current Market Solutions

Technology Components needed in Market Solution

Assess Market Size

Potential Applications

Is it big Enough?

What advantages Can we offer?

Proposed Market Solution

What is needed In the solution?
Business development I I Filling in the Gaps

What do we do?

Technology Components Needed in Market Solution

Missing Capabilities

Missing technologies

Where can we Get the rest?

Partnerships, Sale or License

Development to Market needs

Scale-up

Internal Resources, Technologies and Capabilities

What can we have?

Regulatory Approvals

Delivery to The market

Further Innovation
Main challenges

- How to construct sector-specific SOA-architectures based on reference information models, adopting existing, worldwide cross-industry standards?
- How to use business process management (BPM) concepts, including ‘best practice’ models, to allow flexible configuration of specific processes integrations?
- How to organize broad commitment (including the end of the chain!), to embed developments in sustainable institutional arrangements, and to let it grow organically? (Living Labs!)

Concerted Action is needed for coordination and knowledge exchange in different sectors and in different countries at the international level.
research & education, Scientific inputs, IPR applications

policy makers, Regulatory approvals

Interaction / Co-ordination

Agri-Foods & ICT business, Successful pre-commercialization, Trademarks and copy rights applications
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