



## Business models for federated infrastructures

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# Overview



- What is a business model and why do we need them
- Mapping federation types
- Deriving business models
- Business models and costs

# What is a business model



- A business model defined:
  - *The content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities\**
- Value not be limited to economic
  - social, cultural or other forms of value may also be taken into account.
- Not just a financial structure
- Complex in federated environment
  - Limit ourselves to federator models

\* Amit, R., and Zott, C.,(2001), "Value creation in e-business," *Strategic Management Journal*, 22, pp. 493-520

- A business model should...
  - ...provide a clear **idea of the value that is created by a federator** in its specific federation context.
  - ...draw a clear picture of the **stakeholders involved** besides the federator; this shall include any types of relevant partners contributing to the value proposition as well as “consumers”.
  - ...highlight the **most important relationships** in the regarded federation context, i.e. relationships and dependencies between the involved parties.
  - ...cover information about **resources required to deliver value** as well as the (physical or logical) channels through which service and value is delivered.
- Any business model should be clearly defined in scope distinguished from other business models.

## Why is this helpful



- e-Infrastructures grew organically
  - Start in research groups
  - Grow through state funded projects
  - Only became cohesive landscape more recently
- Need to demonstrate sustainability
  - Set out clear roles, relationships, activities, benefits
  - Create sustainable governance structures
  - Define realistic management processes
  - Provide **cost estimates** allow for pricing or funding



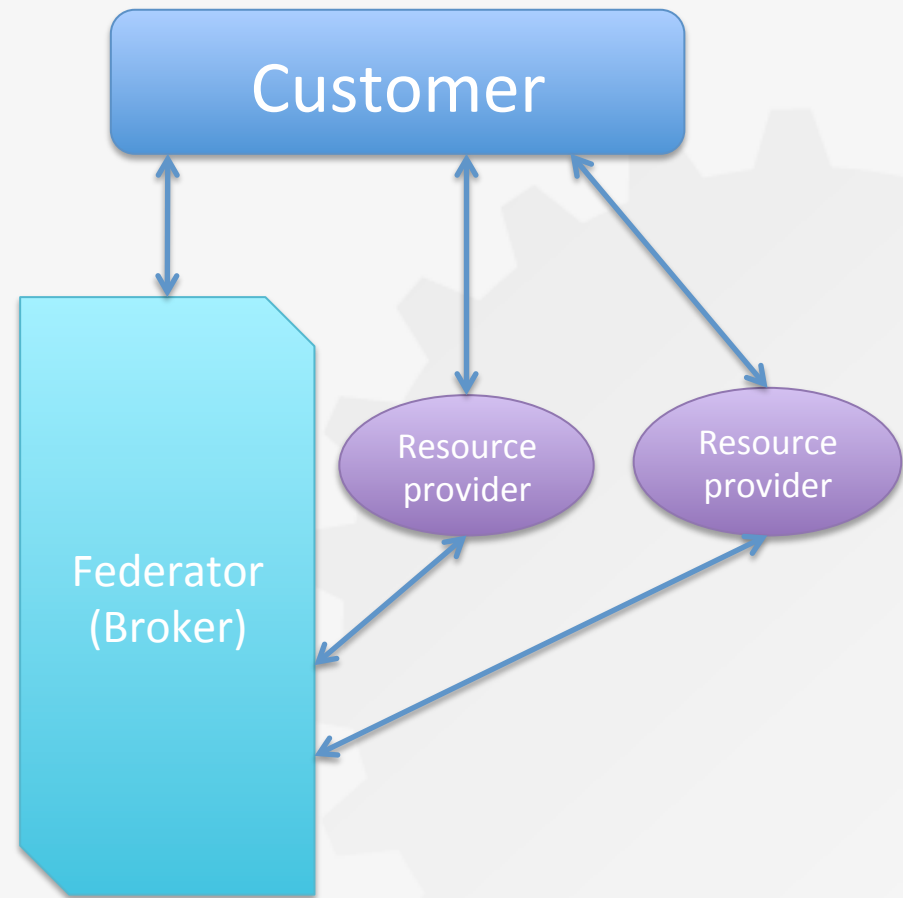
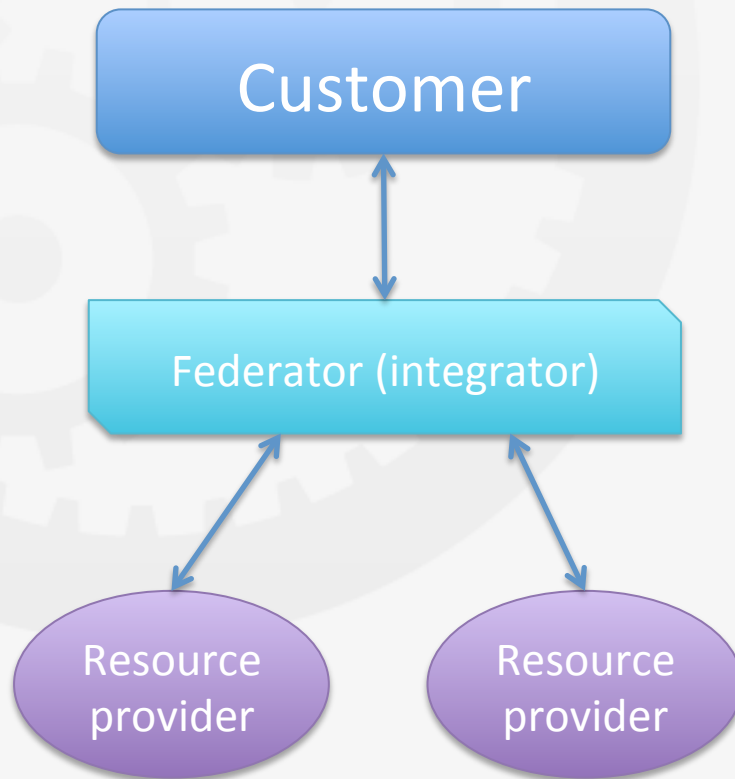
e-FISCAL

## Establish context

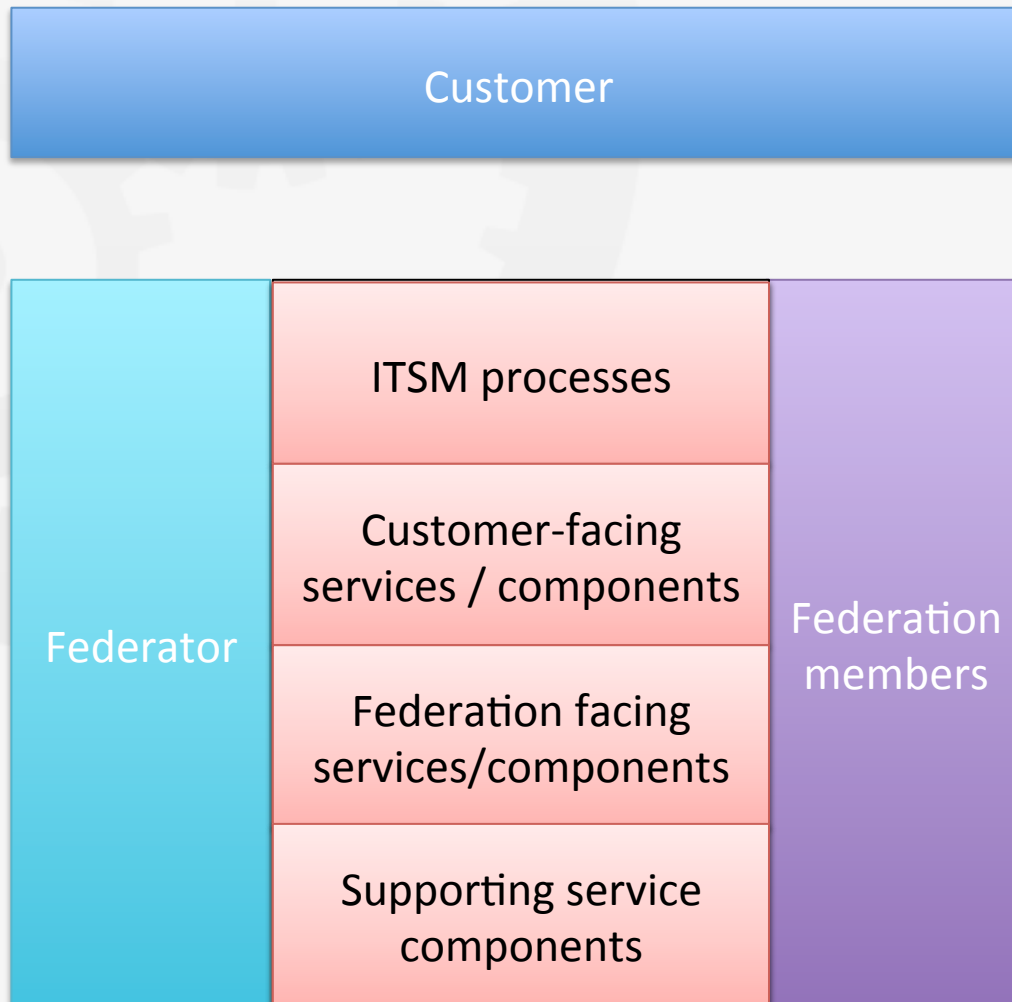


- Can't jump directly to business models
  - BM dependent on structure of federation, *many* options
  - Can create broad 'types' of federation and look at resultant BMs
- Need a structure for showing different federations
  - Show relationships
  - Show activities
  - Show locations of IT Service Management responsibility

# Federation types



# Federation Responsibility model



- Design & transition of new or changed services
- Service Level management (SLAs, OLAs)
- Service reporting
- Service continuity & availability

Technical components that support the overall service.

- Central AAI system from federator
- Portal provided by one federation member to the whole federation

management

- Problem management
- Configuration management
- Change management
- Release & deployment management
- Continual service improvement



**Consumer**  
[consumer of main service type federation offers]



<b>Federator</b> "Matchmaker"  (Coordinated action)	<b>Service Management processes</b> (for main federation service type)	<b>Federation members</b>  (Uncoordinated action)		
	Design & transition of new or changed services			
	Service Level management (SLAs, OLAs)			
	Service reporting			
	Service continuity & availability management			
	Financial management (budgeting, accounting, charging) for services			
	Capacity management			
	Information security management			
	Incident & service request management			
	Problem management			
	Configuration management			
	Change management			
	Release & deployment management			
	Continual service improvement			
	<b>Consumer-facing services/components</b>			
	Provision of main technical service			
	Advice			
	Assignment of resources			
	Legal contracts			
	Billing and payments			
	Platform for using service			
	<b>Federation-member facing services/components</b>			
	Internal communication			
	Collective bargaining			
	Internal mediation			
	Promotion			
	Validation			
	Facilitate technical interoperation			
<b>Supporting service components (technical)</b>				
General split of support components:				
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Comparison platform				



**Consumer**  
[consumer of main service type federation offers]



<b>Federator</b> "One stop shop"  (Coordinated action)	Service Management processes (for main federation service type)	<b>Federation members</b>  (Uncoordinated action)
	Design & transition of new or changed services	
	Service Level management (SLAs, OLAs)	
	Service reporting	
	Service continuity & availability management	
	Financial management (budgeting, accounting, charging) for services	
	Capacity management	
	Information security management	
	Incident & service request management	
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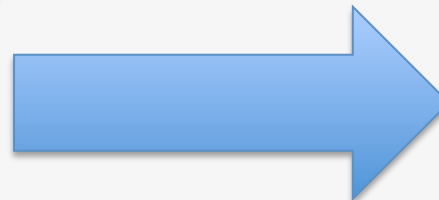
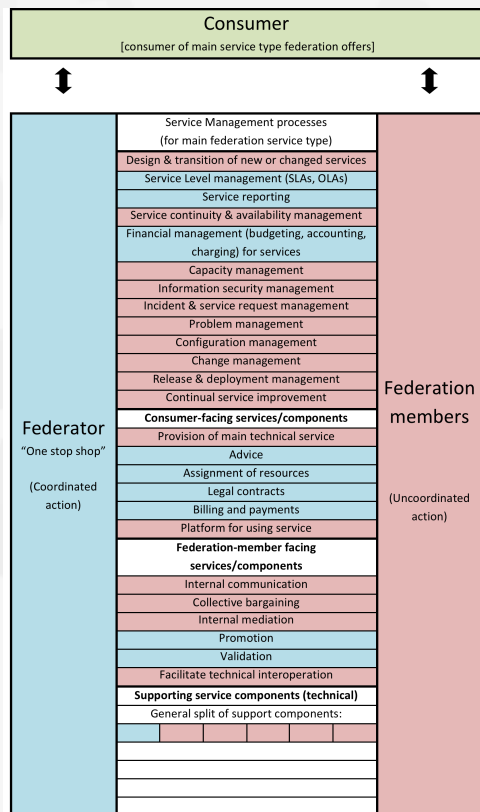


**Consumer**  
[consumer of main service type federation offers]



<b>Federator</b> Integrator  (Coordinated action)	Service Management processes (for main federation service type)	<b>Federation members</b>  (Uncoordinated action)
	Design & transition of new or changed services	
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	Facilitate technical interoperation	
	<b>Supporting service components (technical)</b>	
	General split of support components:	

# From responsibilities to business models



Federation Model: One stop shop				
<b>Key partners (Input)</b> <small>[Who do you work with, who supplies you with what you need to provide your service, what do they provide]</small>  Resource owners (provide the thing which is federated)  Providers of software and services that support the federation of resources.	<b>Key activities</b> <small>[What key activities do you need in order to provide the service]</small>  -Managing platform for users -Agreement/contract development and monitoring -Financial agreements and transactions -Marketing	<b>Value proposition to customer (what do you offer)</b> <small>[What value do you deliver to the customer? What problems do you solve? What needs are you satisfying? What bundles are you offering]</small>  Single point of contact to understand your needs, see opportunities to fulfil them, understand cost and contracts, and make agreements. Does not provide the service directly but the service support goes through the federator/goes to the person supplying the service).  Easy access to customers to consume your resources and generate more income or show greater impact of those resources. Minimise overhead to attract and manage agreements with customers.	<b>Consumer relationships</b> <small>[What relationship do you have with your user communities – both current and expected future relationships]</small>  Transition from personal assistance to automated service over lifetime (Dedicated) personal assistance, supported by automated service  <b>Channels</b> <small>[How do you reach your customers? How effective and costly are they?]</small>  Face to face contact (both direct and via conferences etc) Web portal Technical interfaces (APIs etc) Face to face contact (both direct and via conferences etc) Web portal Technical interfaces (APIs etc), personal contact to support staff.	<b>Consumer segments (Output)</b> <small>[Who do we create value for? What kind of group are they (mass, niche, etc)]</small>  Research communities  Resource owners (thing that is federated)
<b>Cost and resource use models</b> <small>[What costs do you have to provide the service (real financial or effort, use of existing hardware etc)? How predictable are they? Do your models scale?]</small>  Staff costs (including support or not) External costs for software and services to support federation Potential centralised platform for customer interaction (s/w, h/w, network etc.)		<b>Support (revenue streams or other support)</b> <small>[How do you fund the provision of this service (direct usage fee, state support)? How will this change in future? Who will provide funding? How do you demonstrate value for national/EU funding?]</small>  -Public funding, to provide national/EU added value (impact shown through researcher performance, opportunities)		

# Business model canvas












## The Business Model Canvas

Designed for:

Designed by:

On:     
Iteration:

<p><b>Key Partners</b> </p> <p>Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p><small>Identify all key partners Identify all key suppliers Identify all key resources Identify all key activities</small></p>	<p><b>Key Activities</b> </p> <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?</p> <p><small>Identify all key activities Identify all distribution channels Identify all customer relationships Identify all revenue streams</small></p>	<p><b>Value Propositions</b> </p> <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve?</p> <p><b>To each customer type</b></p>	<p><b>Customer Relationships</b> </p> <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p><small>Identify all customer relationships Identify all customer segments Identify all revenue streams Identify all key activities</small></p>	<p><b>Customer Segments</b> </p> <p>For whom are we creating value? Who are our most important customers?</p> <p><small>Identify all customer segments Identify all revenue streams Identify all key activities</small></p>
<p><b>Key Resources</b> </p> <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Identify all key resources Identify all distribution channels Identify all customer relationships Identify all revenue streams</small></p>	<p><b>Channels</b> </p> <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p><small>Identify all channels Identify all customer segments Identify all revenue streams Identify all key activities</small></p>			
<p><b>Cost and resource use models</b> </p> <p><small>Identify all key resources Identify all key activities Identify all distribution channels Identify all customer relationships Identify all revenue streams</small></p>		<p><b>Support (revenue streams and other support)</b> </p> <p><small>Identify all revenue streams Identify all key activities Identify all distribution channels Identify all customer relationships Identify all key resources</small></p>		

## Federation Model: One stop shop

<p><b>Key partners (Input)</b> <i>[Who do you work with, who supplies you with what you need to provide your service, what do they provide]</i></p> <p>Resource owners (provide the thing which is federated)</p> <p>Providers of software and services that support the federation of resources.</p>	<p><b>Key activities</b> <i>[What key activities do you need in order to provide the service]</i></p> <ul style="list-style-type: none"> <li>-Managing platform for users</li> <li>-Agreement/contract development and monitoring</li> <li>-Financial agreements and transactions</li> <li>-Marketing</li> </ul>	<p><b>Value proposition to customer (what do you offer)</b> <i>[What value do you deliver to the customer? What problems do you solve? What needs are you satisfying? What bundles are you offering]</i></p> <p>Single point of contact to understand your needs, see opportunities to fulfil them, understand cost and contracts, and make agreements.</p> <p>Does not provide the service directly but the service support {goes through the federator/goes to the person supplying the service}.</p> <p>Easy access to customers to consume your resources and generate more income or show greater impact of those resources. Minimise overhead to attract and manage agreements with customers.</p>	<p><b>Consumer relationships</b> <i>[What relationship do you have with your user communities – both current and expected future relationships]</i></p> <p>Transition from personal assistance to automated service over lifetime (Dedicated) personal assistance, supported by automated service</p> <p><b>Channels</b> <i>[How do you reach your customers? How effective and costly are they?]</i></p> <p>Face to face contact (both direct and via conferences etc) Web portal Technical interfaces (APIs etc) Face to face contact (both direct and via conferences etc) Web portal Technical interfaces (APIs etc), personal contact to support staff.</p>	<p><b>Consumer segments (Output)</b> <i>[Who do we create value for? What kind of group are they (mass, niche, etc)]</i></p> <p>Research communities</p> <p>Resource owners (thing that is federated)</p>
<p><b>Cost and resource use models</b> <i>[What costs do you have to provide the service (real financial or effort, use of existing hardware etc)? How predictable are they? Do your models scale?]</i></p> <p>Staff costs {including support or not}</p> <p>External costs for software and services to support federation</p> <p>Potential centralised platform for customer interaction (s/w, h/w, network etc.)</p>		<p><b>Support (revenue streams or other support)</b> <i>[How do you fund the provision of this service (direct usage fee, state support)? How will this change in future? Who will provide funding? How do you demonstrate value for national/EU funding?]</i></p> <p>-Public funding, to provide national/EU added value (impact shown through researcher performance, opportunities)</p> <p>- Commission on money from researchers / subscription from resource owners</p> <p>- In-kind contributions from resource owners</p>		

# Conclusions



- Business models are needed in the progress toward sustainability
  - First need to decide what you do!
- A model to understand federation types helps with many areas
  - Define activities, relationships, simplify structures
  - Allow description of Business models, management processes and procedures
- From this we can understand business models, e.g. via a business model canvas
  - Business models will vary widely

Thanks for listening!



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