Federated Information Management for virtual enterprises
Garita Rodriguez, C.O.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
3.2.3 Scenario Case 3 – Product Design Negotiation .......................... 61
3.2.4 Scenario Case 4 – VE Monitoring and Coordination ................. 62
3.3 Information Modeling Requirements for VEs .................................. 65
  3.3.1 Analysis of Information Focus Areas .................................. 66
  3.3.2 VE Information Categorization ......................................... 67
  3.3.3 VE Information Modeling Approach ................................... 69
3.4 Functional Requirements for VE Information Management .............. 72
  3.4.1 General Requirements for DIMS Functionalities ....................... 73
  3.4.2 Analysis of required DIMS query/update Functionalities ............. 74
  3.4.3 General Specification of DIMS Access Functionalities ............... 75
3.5 Federated Information Management for VEs ................................. 79
  3.5.1 Application of PEER Architecture for VE Support ..................... 81
  3.5.2 DIMS Federated Data Integration for VE Support ...................... 86
3.6 Conclusions .............................................................................. 89

4 Design and Implementation of the Federated Information Management System for VEs ........................................ 93
  4.1 Introduction ............................................................................. 93
  4.2 General Approach for the Design of the DIMS ............................ 95
    4.2.1 The DIMS Three-tier Architecture .................................... 95
    4.2.2 The Internal DIMS Reference Architecture ......................... 96
  4.3 Design of the DIMS VCL Integrated Schema ............................... 100
    4.3.1 General DIMS Federated Approach .................................. 101
    4.3.2 The DIMS VCL Integrated Database Schema ......................... 102
  4.4 Federated Export Schema Management ..................................... 105
    4.4.1 The Concept of VE Partner Roles .................................... 105
    4.4.2 Visibility Levels in VEs .................................................. 107
    4.4.3 DIMS Federated Export Schema Manager ............................ 109
  4.5 Federated Query Processing .................................................... 115
    4.5.1 Federated Query Processing Tasks .................................... 116
    4.5.2 Workflow Support for DIMS ............................................ 120
    4.5.3 FQP End-user Interface .................................................. 125
  4.6 DIMS Internal Kernel Implementation ...................................... 125
    4.6.1 The DIMS Server Agent .................................................. 126
    4.6.2 DIMS Implementation Environment and Tools ....................... 132
    4.6.3 Summary of DIMS Implemented Services ............................ 133
  4.7 Application of DIMS Approach in PRODNET ............................. 134
    4.7.1 DIMS Support for VE Coordination and Monitoring ............... 135
    4.7.2 DIMS FQP/ESMT Example Scenarios .................................. 139
  4.8 Extensions and Future Work .................................................. 144
    4.8.1 Export Schema Templates .............................................. 144
    4.8.2 Automatic Creation of Export Schemas ................................ 145
  4.9 Conclusions ......................................................................... 146
## 5 Extension and Application of the DIMS Federated Architecture to Support Service-oriented VEs

5.1 Introduction .................................................................................................................. 149
5.2 A Reference Infrastructure for Tourism VEs ................................................................. 150
  5.2.1 The VE Paradigm in Tourism .................................................................................. 150
  5.2.2 A Support Infrastructure for Tourism VEs ............................................................ 152
5.3 Federated Information Management Requirements for Tourism VEs .......................... 158
  5.3.1 Functional Information Management Requirements .................................................. 159
  5.3.2 Requirement Analysis for Information Modeling ...................................................... 164
5.4 Extension and Application of DIMS to Support Tourism VEs ...................................... 167
  5.4.1 Extending the DIMS Architecture .......................................................................... 167
  5.4.2 Design of Service Interface Definitions Catalogue .................................................. 173
  5.4.3 Application of Internet Technology for Extended DIMS Implementation .................. 178
5.5 Conclusions and Future Work ...................................................................................... 182

## 6 Conclusions and Future Work

6.1 Summary of General Approach .................................................................................... 185
6.2 Summary of Achievements ............................................................................................ 186
6.3 Extensions and Future Work .......................................................................................... 189
  6.3.1 Management of Multiple VE Integrated Schemas ..................................................... 189
  6.3.2 XML for VE Federated Information Management in VEs ........................................ 190
  6.3.3 Generic Federated Information Management for IDF s ........................................... 190
  6.3.4 Other Future Directions ......................................................................................... 191

## A Author’s Publications

## B Comparison of VE Information Management Infrastructures

## C Description of DIMS Implemented Services

  C.1 Support Services for LCM ......................................................................................... 203
  C.2 Support Services for DBPMS ...................................................................................... 203
  C.3 Support Services for PPC Module .............................................................................. 205
  C.4 Support Services for EDI Component ......................................................................... 206
  C.5 Support Services for STEP Component ...................................................................... 207
  C.6 Support Services for PCI ............................................................................................ 208
  C.7 Support Services for VE Configuration ......................................................................... 208

## Bibliography

## Samenvatting

## Acknowledgments