Institutional Repository - Research Portal
Dépôt Institutionnel - Portail de la Recherche
researchportal.unamur.be
University of Namur

RESEARCH OUTPUTS / RÉSULTATS DE RECHERCHE

From policy literature review toward responsibility concept

Feltus, Christophe

Publication date:
2008

Document Version
Early version, also known as pre-print

Link to publication

Citation for pulished version (HARVARD):
Feltus, C 2008, *From policy literature review toward responsibility concept*..

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 20. Apr. 2024

From Policy Literature Review toward Responsibility Concept – Presentations

Christophe Feltus
Public Research Centre Henri Tudor
29, Rue John F. Kennedy
L-1855 Luxembourg
christophe.feltus@tudor.lu

Abstract

This paper introduces a preliminary review of the research currently performed in the field of Policy. This review aims to understand the approaches covered by main research streams in that area and to highlight the advantages of the essential and most renowned solutions. The review of the literature quickly provides a plethora of publications that presents innovative proposals on the matter of policy conceptual model, engineering methods, elicitation languages, as well as cases studies. It also brings out that the papers most often refer rather evasively to the organizational model layers when aligning and positioning their theory with organizational concepts. Consequently, it sounds useful to orient and improve our own developments in the purpose of ameliorate that issue.

Based on that overview's results, we are able to orient our researches more deeply by proposing an innovative approach that focuses in one hand on a policy model designed to take into account the responsibility of stakeholders and in the other hand on policy engineering method that takes care of business process while at the same time using requirement engineering (RE) principles. Responsibility is a notion that remains rarely addressed and that however embodies important and well-know concepts like accountability, capability and commitment. Moreover, responsibility constitutes a fundamental notion of management theory and is consequently identified as a meaningful bridge toward organizational artifacts. Exploiting process to define policy seems likewise to offer new research opportunities since process organizations become a more widely spread structured approach.

1. Introduction

From Policy Literature Review toward Responsibility Concept

Christophe Feltus

Public Research Centre Henri Tudor,
29, Rue John F. Kennedy
L-1855 Luxembourg

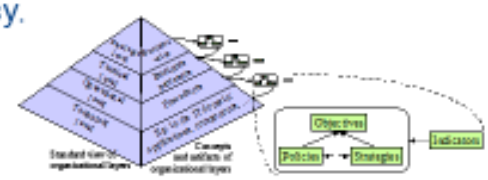
christophe.feltus@tudor.lu

Outline

- Objective of the paper
- Camerer's observations over research performed in the field of policy
- Model of responsibility
- Review of AC model
- Review of Engineering methods
- Conclusion and Future works

Objectives of the paper

- Constat: many representations of policy.

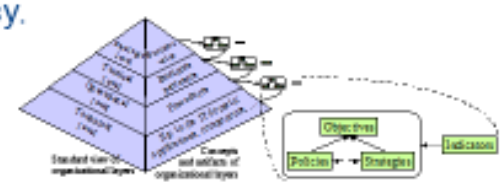


- What policy targets : Role, Capability (Access Right), Obligations.
- What policy doesn't target : Commitment.
- SIM Project, define policy based on business requirements.

- Paper objective : Review de litterature toward a innovative model

Objectives of the paper

- Constat: many representations of policy.



- What policy targets : Role, Capability (Access Right), Obligations.
- What policy doesn't target : Commitment.
- SIM Project, define policy based on business requirements.

- Paper objective : Review de litterature toward a innovative model

Camerer's observations

Warning :

There are at least three symptoms of the disease causing the queasy dissatisfaction with policy research:

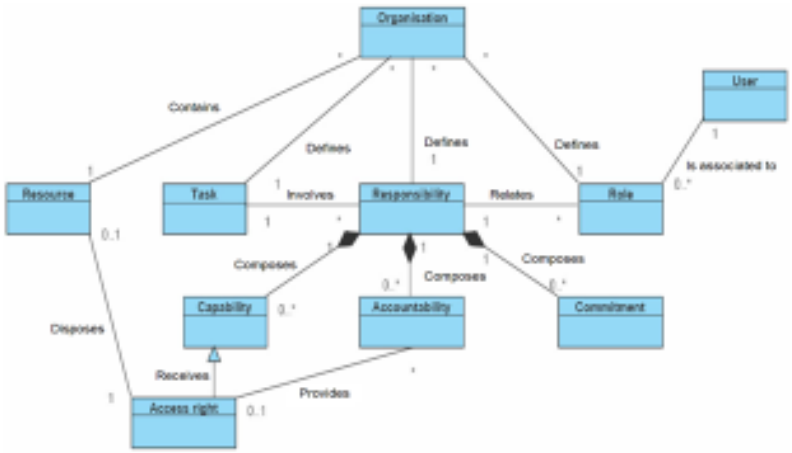
(1) Concepts are often ambiguous and their definitions are not agreed upon;

(2) Checklists or theories are rarely tested, and never tested directly against competing theories and

(3) Theories do not 'cumulate' or built upon previous theories as they should.

These three deficiencies are a result of the way policy research is typically done.

Model of responsibility



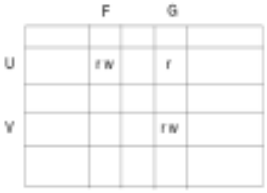
· *Capability: which describes the quality of having the requisite qualities or accesses to resources to achieve a task;*

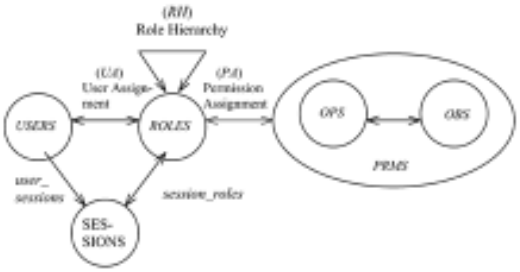
· *Accountability: which describes the state of being answerable about the achievement of a task;*

Commitment: which is the engagement of a stakeholder to fulfil a task and the assurance he will do it.

Review of AC model

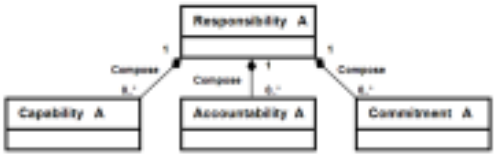
	MAC	DAC	RBAC	UCON
Subject	Yes	Yes	Yes	Yes
Object	Yes	Yes	Yes	Yes
Group	No	User Group	Role	Defined by objects and subject's attributes
Capability	Access Right	Access Right	Access Right	Access Right
Accountability (Obligation, Constraint)	No	No	Yes, static and dynamic separation of duty	Defined by objects and subject's attributes
Commitment	No	No	No	No





Conclusions and Future works

- Objective : Verifying the organizational structure and detecting policy problems and inconsistency
- We have review the literature to propose a new responsibility model that addresses the Commitment.
- Next step : towards a formal representation.
  - → User vs. enterprise responsibility
  - → Violable vs. inviolable constraints
  - → Deontic vs. predicate logic ?



- Camerer's warning has been taken into account
- Responsibility's concept linked to organizational processes → Development of a prototype

7. References

[1] Christophe Feltus, André Rifaut, An Ontology for Requirements Analysis of Managers' Policies in Financial Institutions, I-ESA2007, Madeira, Portugal.

[2] R. Sandhu, J. Park, Usage Control: A Vision for Next Generation Access Control, The Second International Workshop on Mathematical Methods, Models and Architectures for Computer Networks Security, 2003.

[3] Gustaf Neumann, Mark Strembeck, A Scenario-driven Role Engineering Process for Functional RBAC Roles, SACMAT'02, June 34, 2002, Monterey, California, USA.

[4] Coyne, E. J. 1996. Role engineering. First ACM Workshop on RBAC, Gaithersburg, Maryland, United States.

[5] N. Damianou, N. Dulay, E. Lupu, M. Sloman , The Ponder Policy Specification Language Workshop on Policies for Distributed Systems and Networks (Policy2001), HP Labs Bristol, 29-31. Springer-Verlag.

[6] Bertino, E., Mileo, A., and Provetti, A. 2005. PDL with Preferences. IEEE international Workshop on Policies For Distributed Systems and Networks, Policy 2005 – Vol. 00, IEEE Computer Society, Washington, DC, 213-222.

[7] Basile, C.; Lioy, A.; Perez, G. Martinez; C., F. J. Garcia; Skarmeta, A. F. Gomez, POSITIF: A Policy-Based Security Management SystemPolicies for Distributed Systems and Networks, 2007. POLICY'07, pp. 280 – 280.

[8] Lalana Kagal, Rei : A Policy Language for the Me-Centric Project, TechReport, HP Labs, September 2002.

[9] Colin Camerer, Redirecting Research in Business Policy and Strategy, Strategic Management Journal, Vol.6, No. 1. (Jan. – Mar., 1985), pp. 1-15.

[10] René Wies, Using a Classification of Management Policies for Policy Specification and Policy Transformation. In Proc. ISINM '95, Santa Barbara, California, May 1995.

[11] André Rifaut, Christophe Feltus, Improving Operational Risk Management Systems by Formalizing the Basel II Regulation with Goal Models and the ISO/IEC 15504 Approach, REMO2V'2006, Luxembourg.

[12] Davrondhon Gafurov, Kirsi Helkala, Nils Kalstad Svendsen, Security models for electronic medical record, Telektronikk 1.2005.

[13] D. F. Ferraiolo, R. Sandhu, S. Gavrila, D. R.Kuhn and R. Chandramouli, Proposed NIST Standard for Role-Based Access Control, ACM Transactions on Information and System Security, Vol. 4, No. 3, August 2001, Pages 224-274.

[14] C. Bettini, S. Jajodia, X. S. Wang, and D. Wijesekera, Provisions and Obligations in Policy Management and Security Applications, 28th VLDB conference, China, 2002.

[15] Robert Crook, Darrel Ince, Bashar Nuseibeh, Modelling access policies using roles in requirements engineering, Information and Software Technology 45 (2003) 979-991.

[16] C. B. Haley, R. C. Laney, J. D. Moffett, B. Nuseibeh, Using Trust Assumptions with Security Requirements, Requirements Engineering Journal, vol. 11 no. 2,

[17] Robert Crook, Darrel Ince, Bashar Nuseibeh, On Modelling access policies: Relating Roles to their Organisational Context, RE 2005, Paris.

[18] Pete A. Epstein, Engineering of Role/Permission Assignement, PhD thesis.

[19] R. Crook, D. Ince, B. Nuseibeh, Using i* to Model Access Policies: Relating Roles to their Organisational Context, Social Modelling for RE, Giorgini, MIT Press, 2006.

[20] P.J. Fontaine, Goal-Oriented Elaboration of Security Requirements. M.S. Thesis, Dept. Computing Science, University of Louvain, June 2001.

[21] Yu, E. S. and Liu, L. 2001. Modelling Trust for System Design Using the i* Strategic Actors Framework. Workshop on Deception, Fraud, and Trust in Agent Societies Held During the Autonomous, Eds. Lecture Notes In Computer Science, vol. 2246. Springer-Verlag, London, 175-194.

[22] L. Liu, E. Yu, J. Mylopoulos, Analyzing Security Requirements as Relationships Among Strategic Actors, SREIS'02, Raleigh, North Carolina, 2002.

[23] A. Antón, Goal-Based Requirements Analysi,. Second ICRE'96, Colorado Springs, USA, 1996.

[24] Robert Crook, Darrel Ince, Bashar Nuseibeh, Towards an Analytical Role Modelling Framework for Security Requirements, Security Requirements Group, Departement of Computing, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.

[25] Henry Mintzberg, Structure in Fives: Designing Effective Organisations, Englewood Cliffs, NJ: Prentice-Hall, 1983. pp. 312

[26] Qingfeng He, Annies I. Antón, A Framework for Privacy-Enhanced Access Control Analysis in Requirements Engineering, REFSQ'03, Austria, June 2003.

[27] E. B. Fernandez and J. C. Hawkins, Determining Role Rights from Use Cases, ACM Workshop on RBAC, 1997.

[28] Roeckle, H., Schimpf, G., and Weidinger, R. 2000. Process-oriented approach for role-finding to implement role-based security administration in a large industrial organization. RBAC '00. ACM, New York, NY, 103-110.

[29] Chandramouli, R. 2001. A Framework for Multiple Authorization Types in a Healthcare Application System. 17th Annual Computer Security Applications Conference, 2001. ACSAC. IEEE Computer Society, Washington, DC, 137.

[30] D. J. Thomsen, Richard C. O'Brien and C. Payne, Napoleon: Network Application Policy Environment, ACM Workshop on RBAC, 1999, pp. 145-152.

C. Feltus, Preliminary Literature Review of Policy Engineering Methods - Toward Responsibility Concept, International

Conference on Information & Communication Technologies: from Theory to Applications (IEEE ICTTA2008), 7-11/4/2008, Damascus, Syria.

C. Feltus, M. Petit, G. Ataya, Definition and Validation of a Business IT Alignment Method for Enterprise Governance Improvement in the Context of Processes Based Organizations, 2008 Corporate Governance of IT International Conference, 1-2/12/2008,Wellington, New Zealand. Ed. Dr Brian Cusack, ISBN 978-1-877314-73-5.

C. Feltus, M. Petit, Building a Responsibility Model Including Accountability, Capability and Commitment, Fourth International Conference on Availability, Reliability and Security ("ARES 2009 – The International Dependability Conference") IEEE, 16-19/3/2009, Fukuoka, Japan.

C. Feltus, M. Petit, Building a Responsibility Model using Modal Logic - Towards Accountability, Capability and Commitment Concepts, The seventh ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-09) IEEE, 10-13/5/2009, Rabat, Morocco.

C. Feltus, M. Petit, F. Vernadat, Enhancement of CIMOSA with Responsibility Concept to Conform to Principles of Corporate Governance of IT, 13th IFAC Symposium on Information Control Problems in Manufacturing, 3-5/6/2009, Moscow, Russia.

C. Bonhomme, C. Feltus, D. Khadraoui, A Multi-Agent based Decision Mechanism for Incident Reaction in Telecommunication Network, The eighth ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-10), IEEE, 16-19/5/2010, Hammamet, Tunisia. Poster. (SCOPUS)

C. Feltus, D. Khadraoui, C. Bonhomme, Electric Blackout Prevention: Toward a Computer-Mediated Weather Alert Broadcasting Solution, International Conference on Society and Information Technologies: ICSIT 2010, collocated with The 16th International Conference on Information Systems Analysis and Synthesis: ISAS 2010 and The 8th International Conference on Computing, Communications and Control Technologies: CCCT 2010, 6-9/4/2010, Orlando, Florida, USA.

C. Feltus, Conceptual Trusted Incident-Reaction Architecture, The 6th International Network Conference 2010 (INC2010), 6-8/6/2010, Heidelberg, Germany.

C. Feltus, M. Petit, M. Sloman, Enhancement of Business IT Alignment by Including Responsibility Components in RBAC, 5th International Workshop on Business/IT Alignment and Interoperability (BUSITAL 2010), an International Workshop of the 22th Conference on Advanced Information Systems Engineering (CAISE2010), 7-11/6/2010, Hammamet, Tunisia.

G. Guemkam, C. Feltus, C. Bonhomme, P. Schmitt, B. Gâteau, D. Khadraoui, Z. Guessoum, Financial Critical Infrastructure: A MAS Trusted Architecture for Alert Detection and Authenticated Transactions, Sixth IEEE Conference on Network Architecture and Information System Security (IEEE SAR/SSI2011), 18-21/5/2011, La Rochelle, France.

C. Bonhomme, C. Feltus, M. Petit, Dynamic Responsibilities Assignment in Critical Electronic Institutions - A Context-Aware Solution for in Crisis Access Right Management, Sixth International Conference on Availability, Reliability and Security ("ARES 2011 – The International Dependability Conference") IEEE 22-26/8/2011, Vienna, Austria.

G. Guemkam, C. Feltus, C. Bonhomme, P. Schmitt, D. Khadraoui, Z. Guessoum, Reputation based Dynamic Responsibility to Agent for Critical Infrastructure, IEEE/WIC/ACM International Conference on Intelligent Agent Technology, 22-27/8/2011, Lyon, France.

J. Blangenois, G. Guemkam, C. Feltus, D. Khadraoui, Organizational Security Architecture for Critical Infrastructure, 8th International Workshop on Frontiers in Availability, Reliability and Security (FARES 2013), an International Workshop of the eight International Conference on Availability, Reliability and Security ("ARES 2013 – The International Dependability Conference") IEEE, 2-6/9/2013, Regensburg, Germany.

D. Khadraoui, C. Feltus, Critical Infrastructures Governance - Exploring SCADA Cybernetics through Architectured Policy Semantic, IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2013), 13-16/10/2013, Manchester, United Kingdom.

C. Feltus, Industry Program Panel, The 6th ACM International Conference on Security of Information and Networks (ACM SIN 2013), 26-28/11/2013, Aksaray, Turkey.

G. Guemkam, J. Blangenois, C. Feltus, D. Khadraoui, Metamodel for Reputation based Agents System - Case Study for Electrical Distribution SCADA Design, The 6th ACM International Conference on Security of Information and Networks (ACM SIN 2013), 26-28/11/2013, Aksaray, Turkey. ISBN 978-1-4503-2498-4 http://dx.doi.org/10.1145/2523514.2523543

C. Feltus, D. Khadraoui, On Designing Automatic Reaction Strategy for Critical Infrastructure SCADA System, 6th ACM International Conference on Security of Information and Networks (ACM SIN 2013), 26-28/11/2013, Aksaray, Turkey. Poster. http://dx.doi.org/10.1145/2523514.2523583

C. Feltus, D. Khadraoui, Conviction Model Insight for Incident Reaction Architecture Monitoring based on Automatic Sensors Alert Detection, The 6th ACM International Conference on Security of Information and Networks (ACM SIN 2013), 26-28/11/2013, Aksaray, Turkey. ISBN 978-1-4503-2498-4 http://dx.doi.org/10.1145/2523514.2523523