E-DEMOCRACY AND SOCIOPOLITICAL DIGITAL INTERACTIONS: ANALYSING CO-CREATION IN PUBLIC SECTOR INNOVATION

HERMAN RESENDE SANTOS
BRASÍLIA / 2015
Master's thesis – Public Administration
UFLA
Introduction

General objective
• To build an integrated background between e-democracy, sociopolitical digital interactions and public sector innovations.

Guiding question
• What connections can be established among the democratic process of sociopolitical digital interactions and the generation of public sector collaborative innovations?

Specific objectives
• a) To map e-democracy academic production;
• b) To propose a conceptual framework for analysis of the sociopolitical digital interactions (SDI);
• c) To verify the statistical validity of a theoretical model of the process of public sector collaborative innovation.
A Systematic Review of e-democracy
Possibilities and Limits of E-participation: A Systematic Review of E-democracy

Herman Resende Santos, Universidade Federal de Lavras, Lavras, Brazil
Dany Flávio Tonelli, Universidade Federal de Lavras, Lavras, Brazil
Sociopolitical Digital Interactions’ Maturity: Analyzing the Brazilian States

Herman Resende Santos, Universidade Federal de Lavras, Lavras, Brazil
Dany Flávio Tonelli, Universidade Federal de Lavras, Lavras, Brazil
Paulo Henrique de Souza Bermejo, Universidade Federal de Lavras, Lavras, Brazil

DOI: 10.4018/IJEGR.2014100104
ARTICLE 3

Collaborative Innovation in the Public Sector: A case of the Brazilian Federal Government

Herman Resende Santos, Universidade Federal de Lavras, Brazil
Kawaljeet Kapoor, Brunel University London
Dany Flávio Tonelli, Universidade Federal de Lavras, Brazil
Vishanth Weerakodi, Brunel University London
Dalton Sousa, Universidade Federal do Mato Grosso do Sul, Brazil
Paulo Henrique de Souza Bermejo, Universidade Federal de Lavras, Brazil
Research Model

Reframing CIPP model for evaluation of “programs, projects, personnel, products, institutions, and systems” (STUFFLEBEAM, 2003) composed by (Context, Inputs, Processes and Products); Denyer and Tranfield (2009) CIMO model (Context, Intervention, Mechanisms, and Outcome) which points out specific critical dimensions for investigation, it was developed, specifically to this research, the CAPR conceptual scheme.

The CAPR conceptual scheme was used as the main structure of this study guiding the integrative perspective among it’s constituents elements: i) Context, (ii) Actors, (iii) Processes and (iv) Results.
RESULT

Public Sector Innovation

PROCESS

SDI / Co-creation

ACTORS

State
Non-State

CONTEXT

Digital Environment

Conceptual Scheme of the study (CAPR)
Background
Complexity of State

States are complex organizations, composed by entangled political arrangements constituted by collective and personal interests that lead even to contradictory actions and plannings.

The conflicting nature of the orientations of the state, remits to a fundamental duality intrinsic to government actions:

- to defend the economic interests of the administrative elite and consequently maintain the political-economic status-quo or

- to promote the common good, the plural access to resources and the design of inclusive power relations

These antagonic and even complementary perspectives design the complexity of government-society power arrangements and networks.
A Systematic Review of e-democracy
Possibilities and Limits of E-participation: A Systematic Review of E-democracy

Herman Resende Santos, Universidade Federal de Lavras, Lavras, Brazil
Dany Flávio Tonelli, Universidade Federal de Lavras, Lavras, Brazil
E-democracy

- Kardan and Sadeghiani (2011) observed that there is no consensus on the definition and use of the term ‘e-democracy’.
- Digitalization of democratic processes (Technology)

Instrumental
- The conception of a virtual political space is related to the idea of digital platforms of multi-stakeholder democratic engagement.

Substantive
- Power relations
Web 2.0

Refers to further exploitation of the Web through a more interactive and collaborative dynamic. The inherent values of Web 2.0 are “citizen-created content,” “free flow of information,” and “freedom of expression” (Bonsón et al. 2012).

Government 2.0

Implies the adoption of pluralistic forms of government called “governance networks” (Tapscott et al. 2007).

The tendency toward citizen-centered government is due to technological influences, especially the Web 2.0 technologies (Eggers 2007).
Adapted from Tranfield et al. (2003); Colicchia and Strozzi (2012)
### Ideological Discourse Placements (IDP)

<table>
<thead>
<tr>
<th>PARADIGM</th>
<th>CITIZEN VISION</th>
<th>GOVERNMENT MODEL</th>
<th>GOVERNMENT STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neoliberal globalization</td>
<td>The State as enemy</td>
<td>Market-Centric Government</td>
<td>Social apoliticization</td>
</tr>
<tr>
<td>Sustainability</td>
<td>The State as potential ally</td>
<td>Citizen-Centric Government</td>
<td>Civic empowerment</td>
</tr>
</tbody>
</table>
e-Democracy Core Elements
CONCLUSION

If rethought of as a means of promoting social access to resources, e-democracy may have great potential in terms of the ‘de and re-construction of social and political structures’ (Kallio and Käkönen, 2002, p. 3).

• In general, it is observed that e-participation channels are limited to information publicity instead of constituting a means of dialogical communication and government-citizen collaboration.

• Citizens’ empowerment are seen as the only option to promote effective connections between citizens’ e-participation and the real processes underlying public policies and that it may lead to important improvements of practices of public value generation, understood as a core objective for public organizations’ activities.

• ICTs’ can only enable the promotion of democratic maturity if political and civic culture converge with the need for transformation of governmental actions through public administration reforms.
ARTICLE 2

Sociopolitical Digital Interactions’ Maturity: Analyzing the Brazilian States

INTERNATIONAL JOURNAL OF ELECTRONIC GOVERNMENT RESEARCH, 10(4), 76-93, OCTOBER-DECEMBER 2014

Herman Resende Santos, Universidade Federal de Lavras, Lavras, Brazil
Dany Flávio Tonelli, Universidade Federal de Lavras, Lavras, Brazil
Paulo Henrique de Souza Bermejo, Universidade Federal de Lavras. Lavras. Brazil

DOI: 10.4018/IJEGR.2014100104
Gaps

• Importance of analysis of government actions in the digital environment (Bonsón et al., 2012)
• ICT’s impact on government-citizen relations. (Cegarra-Navarro et al., 2012)

Guiding Questions

• (1) How can the sociopolitical digital interactions’ maturity levels be classified?
• (2) What is the current developmental stage of digital sociopolitical interactions in Brazilian states’ governmental websites?

Objectives

• To propose a conceptual framework of understanding the levels of sociopolitical digital interactions’ maturity (SDIM).
• Assess sociopolitical interactions currently observed in Brazilian states' websites.
Sociopolitical Digital Interactions

The bottom-up and top-down dynamics of a government-citizen democratic relationship instrumentalized by the information and communication technologies (ICTs).
CONCEPTUAL FRAMEWORK

Sociopolitical Digital Interactions’ Maturity (SDIM)

- I - Maturity levels
- II - Information flow dynamics
- III - Digital interactive tools
Information flow dynamics

A) multilateral, B) bilateral, and C) unilateral
### SDIM Conceptual framework

#### Sociopolitical Digital Interactions’ Maturity

<table>
<thead>
<tr>
<th>Maturity Levels</th>
<th>Description</th>
<th>Information Flow Dynamics</th>
<th>Digital Interactive Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO-CREATION</td>
<td>Consultation; Collaboration; Participative Construction; Collective Intelligence.</td>
<td>Multilateral Flow</td>
<td>e-vote; e-petitions; opinion polls; challenges; wikis; discussion forums; applications; open channel for suggestions; open data</td>
</tr>
<tr>
<td>Level 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONNECTION</td>
<td>Communicative Exchanges Dialogue; Discussion and Sharing.</td>
<td>Bilateral Flow</td>
<td>social networks; professional networks; chat; contact forms / e-mail; multimedia sharing services; comment box</td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFORMATION</td>
<td>Production; Dissemination and Access</td>
<td>Unilateral Flow</td>
<td>blogs; microblogs; RSS feed; newsletter; downloading information availability; search engine</td>
</tr>
<tr>
<td>Level 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research universe
Digital interactive tools quantities by category
<table>
<thead>
<tr>
<th>Ranking</th>
<th>State</th>
<th>SDIM</th>
<th>Tool Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 º</td>
<td>Rio Grande do Sul</td>
<td>4.4.4</td>
<td>12</td>
</tr>
<tr>
<td>2 º</td>
<td>São Paulo</td>
<td>1.4.5</td>
<td>10</td>
</tr>
<tr>
<td>3 º</td>
<td>Pernambuco</td>
<td>1.3.5</td>
<td>9</td>
</tr>
<tr>
<td>4 º</td>
<td>Maranhão</td>
<td>1.3.4</td>
<td>8</td>
</tr>
<tr>
<td>5 º</td>
<td>Espírito Santo</td>
<td>1.3.3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Roraima</td>
<td>1.3.3</td>
<td>7</td>
</tr>
<tr>
<td>6 º</td>
<td>Rio de Janeiro</td>
<td>1.2.4</td>
<td>7</td>
</tr>
<tr>
<td>7 º</td>
<td>Ceará</td>
<td>1.1.4</td>
<td>6</td>
</tr>
<tr>
<td>8 º</td>
<td>Minas Gerais</td>
<td>0.3.5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Mato Grosso</td>
<td>0.3.5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Rio Grande do Norte</td>
<td>0.3.5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Piauí</td>
<td>0.3.5</td>
<td>8</td>
</tr>
<tr>
<td>9 º</td>
<td>Distrito Federal</td>
<td>0.3.4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ranking</th>
<th>State</th>
<th>SDIM</th>
<th>Tool Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 º</td>
<td>Paraná</td>
<td>0.3.4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Goiás</td>
<td>0.3.4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Amazonas</td>
<td>0.3.4</td>
<td>7</td>
</tr>
<tr>
<td>11 º</td>
<td>Santa Catarina</td>
<td>0.3.3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Amapá</td>
<td>0.3.3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Paraíba</td>
<td>0.3.3</td>
<td>6</td>
</tr>
<tr>
<td>12 º</td>
<td>Mato Grosso do Sul</td>
<td>0.2.3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Acre</td>
<td>0.2.3</td>
<td>5</td>
</tr>
<tr>
<td>13 º</td>
<td>Pará</td>
<td>0.2.2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Rondônia</td>
<td>0.2.1</td>
<td>3</td>
</tr>
<tr>
<td>14 º</td>
<td>Tocantins</td>
<td>0.1.3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Sergipe</td>
<td>0.1.3</td>
<td>4</td>
</tr>
<tr>
<td>15 º</td>
<td>Bahia</td>
<td>0.1.1</td>
<td>2</td>
</tr>
<tr>
<td>16 º</td>
<td>Alagoas</td>
<td>0.0.2</td>
<td>2</td>
</tr>
</tbody>
</table>

Ranking the 27 Brazilian Federation’s states’ government websites
The concept of **collaborative platforms** applied to the governmental context refers to the **growing challenges** (technical, political, and ideological) faced by states.

Open government **data** and open **discussion channels** between the society and the government are a fundamental requirement for promoting sociopolitical **collaboration**.
(Observing the case of Maranhão) It was established that it is not possible to infer the level of institutional democratic development of the state governments by checking the SDIM of a government’s website.

• The presence of Digital interactive tools on governmental websites does not imply on it’s effectiveness concerning processes of democratic participation or it’s potential in influencing the decision making processes inherent the public policies.
The perception of the paucity of digital instrumental level 3 (multilateral flows) denotes traces of political centralization that makes difficult the adoption and the establishment of:

- citizen-centered government model
- governmental openness to a co-creative and collaborative public policy model
- environment for collaborative culture

SDIM is likely to be used as a guide for

- designing,
- analysing and
- improving government-society digital interactions on government websites.
ARTICLE 3

Collaborative Innovation in the Public Sector: A case of the Brazilian Federal Government

Herman Resende Santos, Universidade Federal de Lavras, Brazil
Kawaljeet Kapoor, Brunel University London
Dany Flávio Tonelli, Universidade Federal de Lavras, Brazil
Vishanth Weerakodi, Brunel University London
Dalton Sousa, Universidade Federal do Mato Grosso do Sul, Brazil
Paulo Henrique de Souza Bermejo, Universidade Federal de Lavras, Brazil
Gap

- Sørensen and Torfing (2011) observe that there is no “commonly accepted theoretical framework for analyzing collaborative innovation in the public sector” (p.17).
- According to Chathoth et al. (2013) “research should explore the process of co-production and co-creation from a strategic perspective” (p.19).

Guiding question

- Which theoretical model can explain the process of collaborative public sector innovations?

Specific objectives

- to propose a theoretical model that describes the elements of public sector collaborative innovations.
- to check the validity of the proposed model through statistical method of structural equation modeling (SEM).
Public Sector Innovations

Concrete government policies that “create the conditions for economic prosperity, civility in social relationships, and the advancement of justice” (Moore and Benington 2011, p. 257), what implies in increasing trust on government and the advance of public Interest.
## Operational definitions of constructs

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Operational definitions</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Co-creation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC 1. Access and openness of transparent public information</td>
<td>Prahalad and Ramaswamy (2004); Santos, Tonelli e Bermejo (2014)</td>
<td></td>
</tr>
<tr>
<td>CC 2. Continuous dialogical communication</td>
<td>Prahalad and Ramaswamy (2004); Santos, Tonelli e Bermejo (2014)</td>
<td></td>
</tr>
<tr>
<td>CC 3. Collaborative creation</td>
<td>Bason (2010); Santos, Tonelli e Bermejo (2014)</td>
<td></td>
</tr>
<tr>
<td>CC 4. Engagement experience</td>
<td>Ramaswamy e Gouillart (2010)</td>
<td></td>
</tr>
<tr>
<td><strong>Public Sector Innovation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI 1. New ideas/designs implementation</td>
<td>Koch e Hauknes (2005); Mulgan (2007); Windrum (2008); Bason (2010)</td>
<td></td>
</tr>
<tr>
<td><strong>Innovation ecosystem</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IE 1. Communities for new co-creation experiences</td>
<td>Nambisan (2013); Estrin (2008)</td>
<td></td>
</tr>
<tr>
<td>IE 2. Shared worldview</td>
<td>Nambisan (2013)</td>
<td></td>
</tr>
</tbody>
</table>
Co-creation

CC 1. Access and openness of transparent public information
CC 2. Continuous dialogical communication
CC 3. Collaborative creation
CC 4. Engagement experience

Public Sector Innovation

PSI 1. New ideas/designs Implementation;
PSI 2. Public Value Generation
PSI 3. Social distribution and appropriation of the generated public value

Innovation Ecosystem

IE 1. Communities for new co-creation experiences
IE 2. Shared worldview
IE 3. Architecture of participation

The conceptual model of the study
• Through Structural Equations Model (SEM) technique it was analyzed the nature of the relationship between the constructs which structure the research model.

• The Structural Equations Model, consist on a technique of multivariate analysis. According to Debata et al., (2015, p. 27) “SEM depicts a diagram or a pictorial representation of a model that is transformed into a set of equations. The set of equations are solved simultaneously to test model fit and estimate parameters”.

• The empirical data were analyzed using SEM technique of AMOS 22.0.
Questionnaire, samples and data collection

• 10 questions, structured on propositions, each one related to an observable variable of the constructs that compose the research model were used as a measurement instrument.

• For data extraction it was used a Likert 5-point scale (ranging from 1 = strongly disagree; to 5 = strongly agree). To conduct this research it was used non-probabilistic and convenience sampling, based on the availability of respondents for filling out the survey.

• The sampling set for the study consisted of representatives of the Brazilian federal government. Questionnaires were sent through Survey Monkey web platform to public servers e-mail found in the websites of the Executive, Legislative and Judiciary; totalling 3582 emails. The questionnaires were first sent at 22 December 2014 and its collection was ended on 20 January 2015.

• It was verified a total of 231 answers. From this total 170 were complete, 24 did not answer 1 question, in 4 were observed repetitive patterns, 33 missed more than 2 answers and were considered incomplete. It was opted for using the set of results for all 194 cases (170 complete questionnaires plus the 24 which missed one question). The missing values were substituted by the rounding off of the result’s simple average.
Results and discussion

• The number of distinct parameters to be estimated in the proposed model is 21. Thus, there is an average of 9.23 respondents for parameter value and the sample is within the recommended range.

• The model showed adequate fit to the data. As the ensemble of the adjustment measures showed acceptable values which suited to the reference values.

• The reliability of the factors was verified by Cronbach's Alpha and the three factors presented values above the acceptable minimum (0.7), as pointed out by Hair Jr. et al (2005).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Cronbach's Alpha (CC)</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-creation</td>
<td>0.772</td>
<td>3</td>
</tr>
<tr>
<td>Innovation Ecosystem</td>
<td>0.813</td>
<td>3</td>
</tr>
<tr>
<td>Public sector innovation</td>
<td>0.816</td>
<td>3</td>
</tr>
</tbody>
</table>

Co-creation construct was initially composed of four variables. However, at the reliability analysis, the Cronbach's alpha showed higher value by removing the variable cc1.
Regression weights

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>$\beta$</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>InovaSP &lt;--- Cocria</td>
<td>0.588</td>
<td>0.534</td>
<td>0.105</td>
<td>5.598</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>Ecosis &lt;--- InovaSP</td>
<td>0.512</td>
<td>0.497</td>
<td>0.094</td>
<td>5.470</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>Ecosis &lt;--- Cocria</td>
<td>0.521</td>
<td>0.459</td>
<td>0.103</td>
<td>5.039</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>cc4 &lt;--- Cocria</td>
<td>1.000</td>
<td>0.776</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cc3 &lt;--- Cocria</td>
<td>1.033</td>
<td>0.760</td>
<td>0.113</td>
<td>9.132</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>cc2 &lt;--- Cocria</td>
<td>0.872</td>
<td>0.641</td>
<td>0.109</td>
<td>8.010</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>ie3 &lt;--- Ecosis</td>
<td>0.896</td>
<td>0.680</td>
<td>0.097</td>
<td>9.272</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>ie2 &lt;--- Ecosis</td>
<td>1.031</td>
<td>0.855</td>
<td>0.089</td>
<td>11.524</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>ie1 &lt;--- Ecosis</td>
<td>1.000</td>
<td>0.776</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psi1 &lt;--- InovaSP</td>
<td>1.000</td>
<td>0.757</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psi2 &lt;--- InovaSP</td>
<td>1.034</td>
<td>0.788</td>
<td>0.104</td>
<td>9.972</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>psi3 &lt;--- InovaSP</td>
<td>0.991</td>
<td>0.767</td>
<td>0.101</td>
<td>9.778</td>
<td>***</td>
<td></td>
</tr>
</tbody>
</table>

Research model
Conclusions

- (a) Brazilian Federal Government representatives perceive co-creation as a process capable of generating public sector innovation, which leads to the development of innovation ecosystem. Analysis of survey responses confirmed that co-creation has a positive influence on innovation ecosystem.

- (b) Co-creation is a key asset to the formulation of answers to complex challenges and to the improvement of the processes generating public values in non-linear and unpredictable environments.

- (c) The validated theoretical model may be a useful tool for understanding, analysing, improving and designing digital collaborative public sector innovations directly related to the development of innovation ecosystem.

- (d) The capacity to generate public sector innovations through co-creative processes showcases the importance of policy planning by combining government intelligence and democratic participation.

- (e) This design of public policies that incorporates government intelligence and democratic participation may offer a key directive for achieving strategic advantage in generating new public values and social politicization.
General conclusion

• Even if there is an incipient digital instrumentalization of co-creative processes on states government web-sites; at federal level, the processes of sociopolitical collaboration are seen as important sources of generation of public sector innovations.

• Open government data and open discussion channels - the induction of social empowerment implies in reviewing ideological positioning and the promotion of changes in the power structure and political culture.

• Participative architectures based on processes of sharing decision-making power may lead to important sociopolitical interaction improvements, based on the political and civic culture convergence with the need for transformation of political actions through public administration reforms.
Market-centric-government

From the market-centric perspective, collaborative processes are seen as tools, capable to involve people in superficial games of cooperation that deviate the public attention from the possibility to challenge the power relations, moving, at the same time, the state’s responsibility over private-actors.

Inside these neoliberal projects it may be observed as proeminent trends the depoliticization of society; the creation of a illusion of democracy and superficial citizens’ empowerment, that instrumentalize the strategy of “making power inequalities invisible” (ROY, 2015, p.61).
Citizen-centric-government

• Collaborative processes have the potential to improve democracy and public management processes; to empower people on the defense of public interests; to increase the capacity to mobilize and contestate, to foster democratic engagement through the promotion of civic culture, political education, social participation and society politicization.

• Based on the alignment among social, political, economic and environmental issues and education is considered the cornerstone of strategic advantages on the promotion of sustainable development.
If the democratic processes are rethought as a means of promoting social access to public values, the sociopolitical digital interactions, specifically the co-creation, may represent an important tool for the generation of public sector innovations, governmental strategic advantages and sustainable development.
E-DEMOCRACY AND SOCIOPOLITICAL DIGITAL INTERACTIONS: ANALYSING CO-CREATION IN PUBLIC SECTOR INNOVATION

Muito obrigado!

HERMAN RESENDE SANTOS
herman.r.santos@gmail.com
Abril, 2015