



Issues in E-government Systems Research

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Research Themes

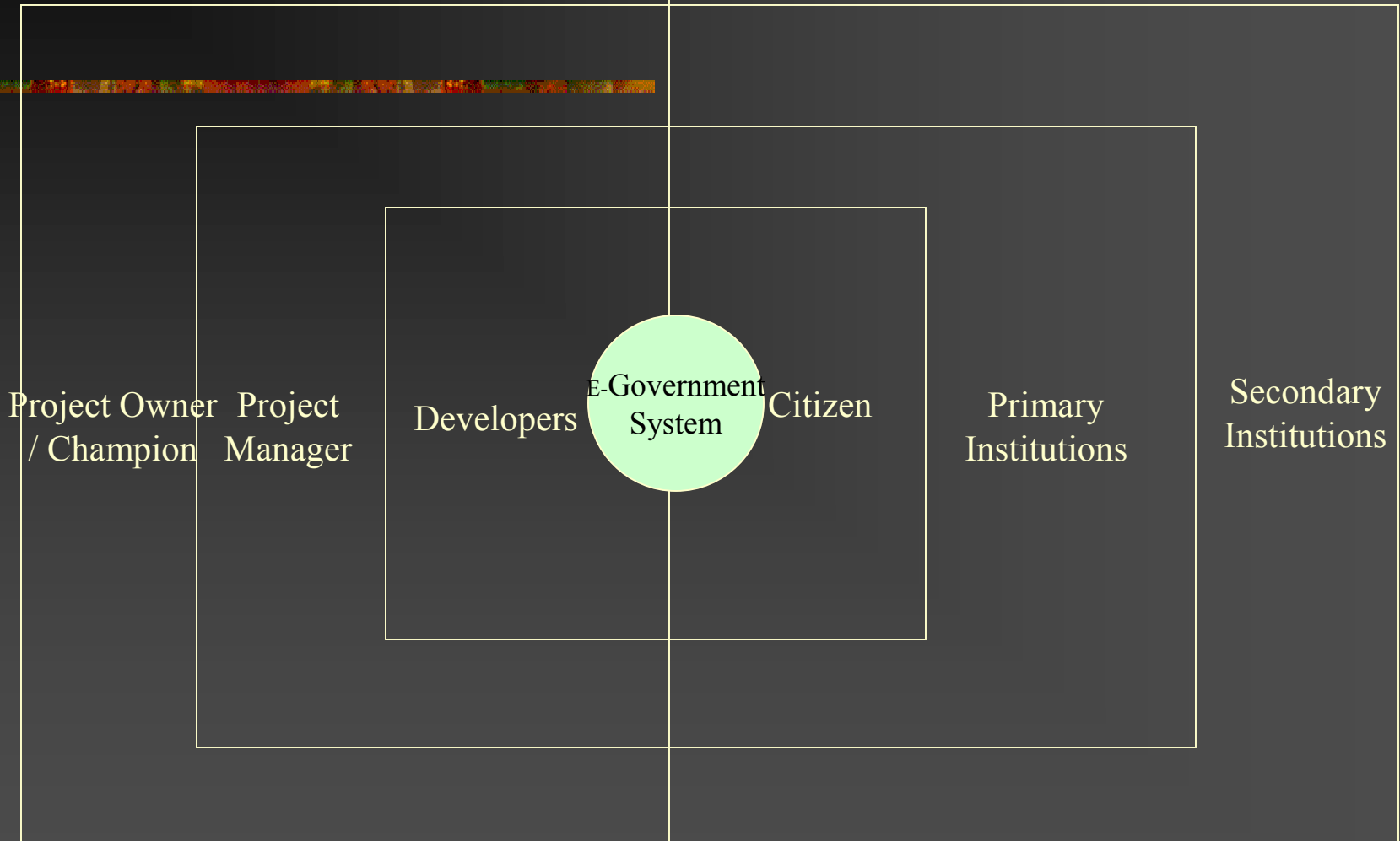
- Stakeholders
- First and Second Order Effects
- Technological Determinism
- Intermediation
- Incentives and Corruption

Stakeholders

- A stakeholder is a person or group who is able to have an impact on the eventual system in a practical sense (Coakes and Elliman, 1999)
- Demand-side stakeholders
- Supply-side stakeholders

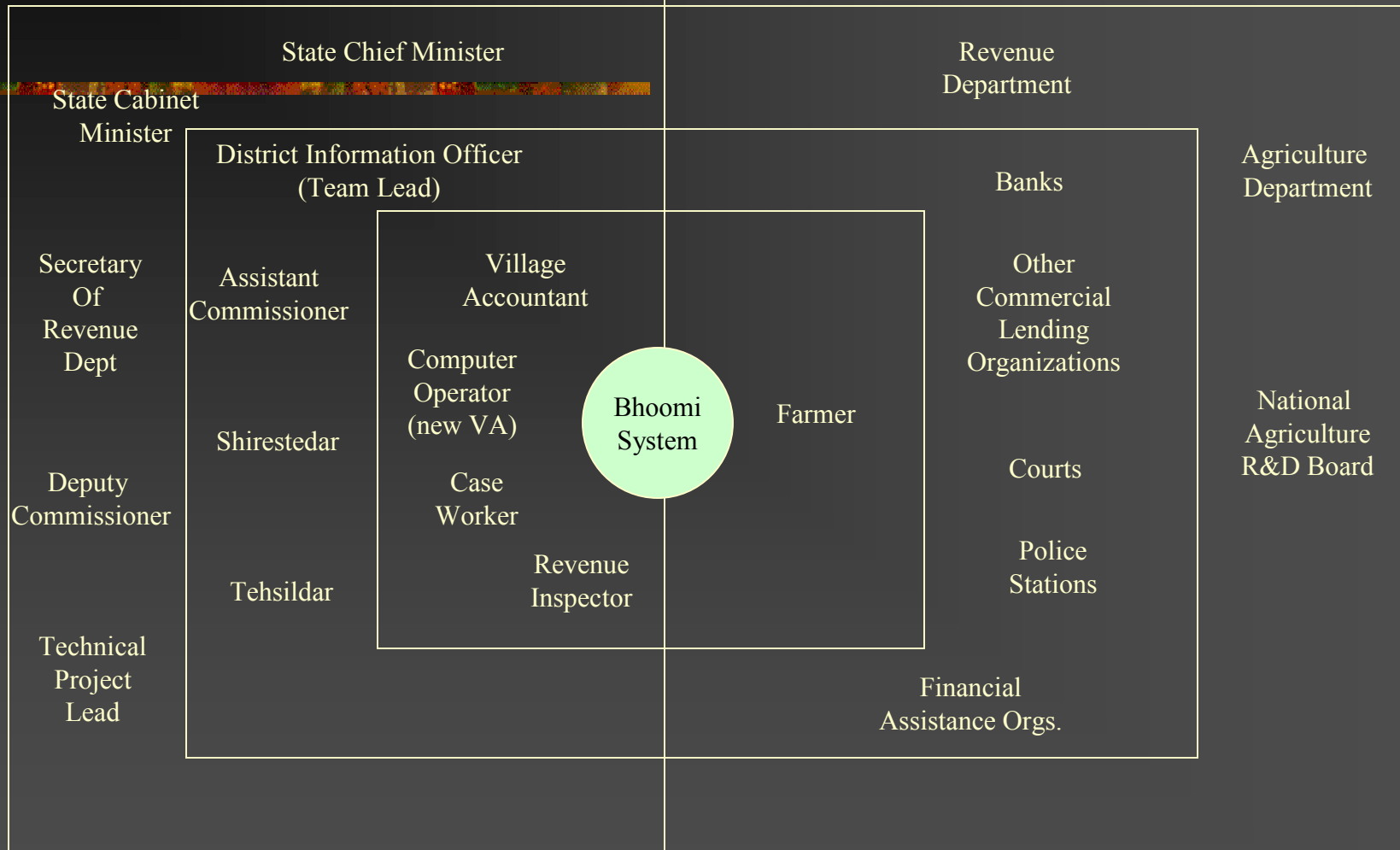
Supply-Side Stakeholders

Demand-Side Stakeholders



Supply-Side Stakeholders

Demand-Side Stakeholders



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Stakeholders

- Demand-side stakeholders are rarely (never) included in the initial requirements and planning phase of e-government projects
- Supply-side, top-down push for systems: eSeva, CARD, Bhoomi, Gyandoot

First Order Effects

- Immediate effects of automation(if project is successful): faster processing, more volume, easier access, less corruption, more transparency, greater control
- Easily measurable effects
- Supply-side stakeholders only measure first order effects
- Proposition 1: For assessment of e-government systems, it is not sufficient to measure only first order effects.

First Order Effects - Examples

- Bhoomi:
 - Delivers RTCs faster (upto 30 days manual vs half day using automated system)
 - Easier to use
 - Requires less corruption money (66% paid bribes vs 3% with automated system)
 - Has fewer errors (64% in manual vs 8% in automated)
 - Reduces interaction with officials
- CARD system in Andhra Pradesh(Caseley, 2004):
 - Faster: from 8 days to 5 days
 - Cheaper: upto 23% reduction in bribes paid (everybody paid bribes)
 - requires about the same interaction with officials

First Order Effects - Examples

- Gyandoot (Jafri et al, 2002)
 - Faster access to government data
 - More voluminous access
 - Faster responses to complaints
- eSeva (Pardhasaradhi, 2003)
 - Faster: from $\frac{1}{2}$ - 2 hours to 5 – 15 mins
 - Wider access: bills can be paid from any location
 - Convenience: all utility bills may be paid at one location

Second Order Effects

- Benefits of information systems not obvious: the Productivity Paradox (Brynjolffson and Hitt, 1998)
- Productivity is “notoriously difficult to measure”
- Paradox of high IS investments but no productivity gains in private corporations

Second Order Effects

- G2C e-government systems are embedded in public spaces
- Long-term effects both intended and unintended
- Important to visualize and anticipate long-term effects at planning stage
- E-gov systems with no desirable or with only undesirable second order effects will (likely) fail
- Proposition 2: E-Government systems will be sustainable only if re-organizations are effected and inter-linkages created with other social systems.

Second Order Effects – Bhoomi Example

PAC Report Card Data

Purpose for which document was obtained.	Normal RTC(%)	Modified RTC(%)
Requesting corrections in the RTC	6.143079	14.09091
Applying for loan	39.89114	19.39394
Verifying the mutation	6.143079	22.87879
Verifying the ownership of the property	5.132193	8.787879
Verifying the details of adjoining property	5.365474	5.30303
Producing the document in the court	6.143079	3.560606
Only to Possess	17.88491	18.93939
Others	13.29705	7.045455

Rural Credit in Karnataka

- Three sources for obtaining loans in Karnataka:
 - Banks
 - Cooperatives (government and private)
 - Moneylenders
- Volume of credit
 - Banks and cooperatives: 30%
 - Moneylenders: 70%
- 10,000 out of 28,000 cooperatives in Karnataka are short of capital (bankrupt) (2003)

Second Order Effects – Bhoomi Example

- Bhoomi has had no significant impact on rural lending
 - Not Conclusive; too early to tell
- To obtain an agricultural loan, one needs:
 - Bhoomi RTC certificate (updated every year)
 - No due certificate from all banks in the taluk (takes 1 week to obtain)
 - Encumbrance certificate for last 13 years from sub-registrar's office
 - Surety from fellow farmer
- Loans take upto 5 months to process
- Loans often given out in installments
- Bank loan terms: 10% - 13% (per annum)

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Second Order Effects

- Bhoomi is a silo application:
 - Not integrated with cadastral maps
 - Agriculture dept does not use data
- CARD has no backward integration
- Gyandoot
 - No administrative inter-linkages outside district of Dhar
 - Matrimonial services, sale of goods
- eSeva: no linkages with BSNL, Electricity Dept, etc for payment schedules

Technological Determinism

- The idea that technology is the basis of development and progress
- An *a priori* and deeply internalized notion
- Assumes that people must inevitably adapt to whatever the technology demands (Bannon, 1996, Ireland)
- “... [a]n idea that we should embrace the opportunities that technology offers” (Saarenpaa, 2001, University of Lapland)

Technological Determinism

- Proposition 3: E-government systems are motivated, by supply-side stakeholders, by the reasoned insularity of technological determinism.

Technological Determinism - Examples

- Problems with land records in Karnataka (as stated by Bhoomi owners):
 - The VAs were not easily available
 - Bribes were extracted and since the records were not open for public scrutiny, there was scope for manipulations
 - Instances of even government land being mutated in the name of individuals had come to notice
- Problems with land records in AP (as stated by Satyanarayana of CARD):
 - Cumbersome procedures (necessitating middlemen)
 - Corruption

Technological Determinism - Examples

- Problems with land records in Karnataka, as stated by commentators:
 - the state government has not bothered to tackle fraudulent land records that went online in the Bhoomi project
 - "The administration has just hurried this through and India has lost an opportunity to replicate Bhoomi as *an instrument of equity*"
 - (Acharya, 2003) (emphasis mine)
- Stated benefits of Gyandoot by officials:
 - Taking information technology to the masses

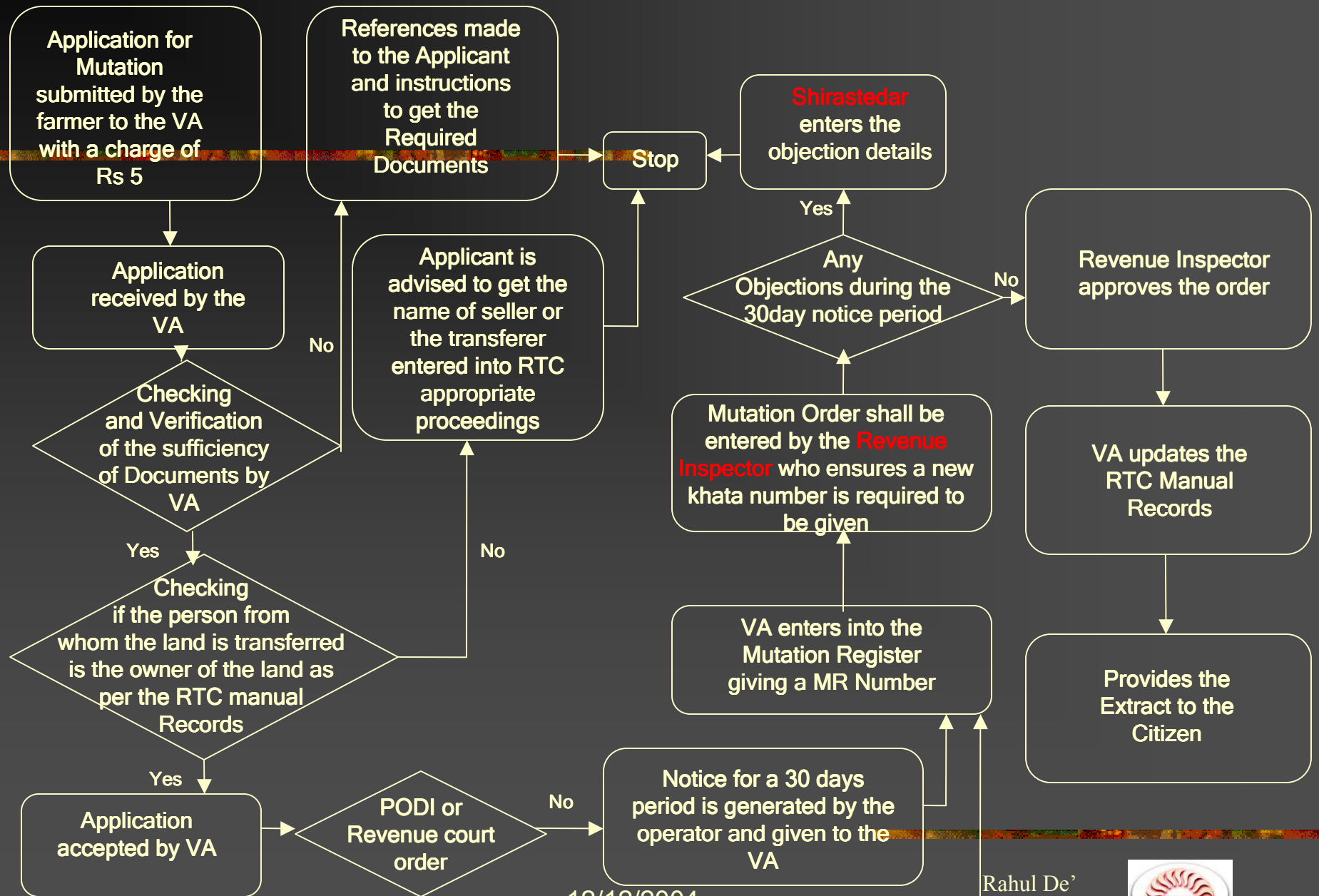
Technological Determinism

- Reductionist mode of analysis and synthesis
- An implied ontological commitment to 'progress via technology'
- Commentators and researchers around the world display this commitment in papers, articles, reports: Australia(Clark, 2003); Canada(Marche & McNiven, 2003); European Union(Strejcek & Theil, 2002); Bhoomi (Bhatnagar, 2003); Andhra Pradesh (Eischen, 2003)

Intermediation

- Dis-intermediation or re-intermediation: removal or introduction of agents in the institutional hierarchy for delivering services of e-government systems
- Implicit agreement amongst stakeholders: dis-intermediation in e-governments systems is desirable
 - Improves transparency of procedures
 - Reduces corruption
- Proposition 4: In the Indian context, supply-side stakeholders prefer dis-intermediation at the lowest levels of the institutional hierarchy, with re-intermediation at the higher levels (or status quo).

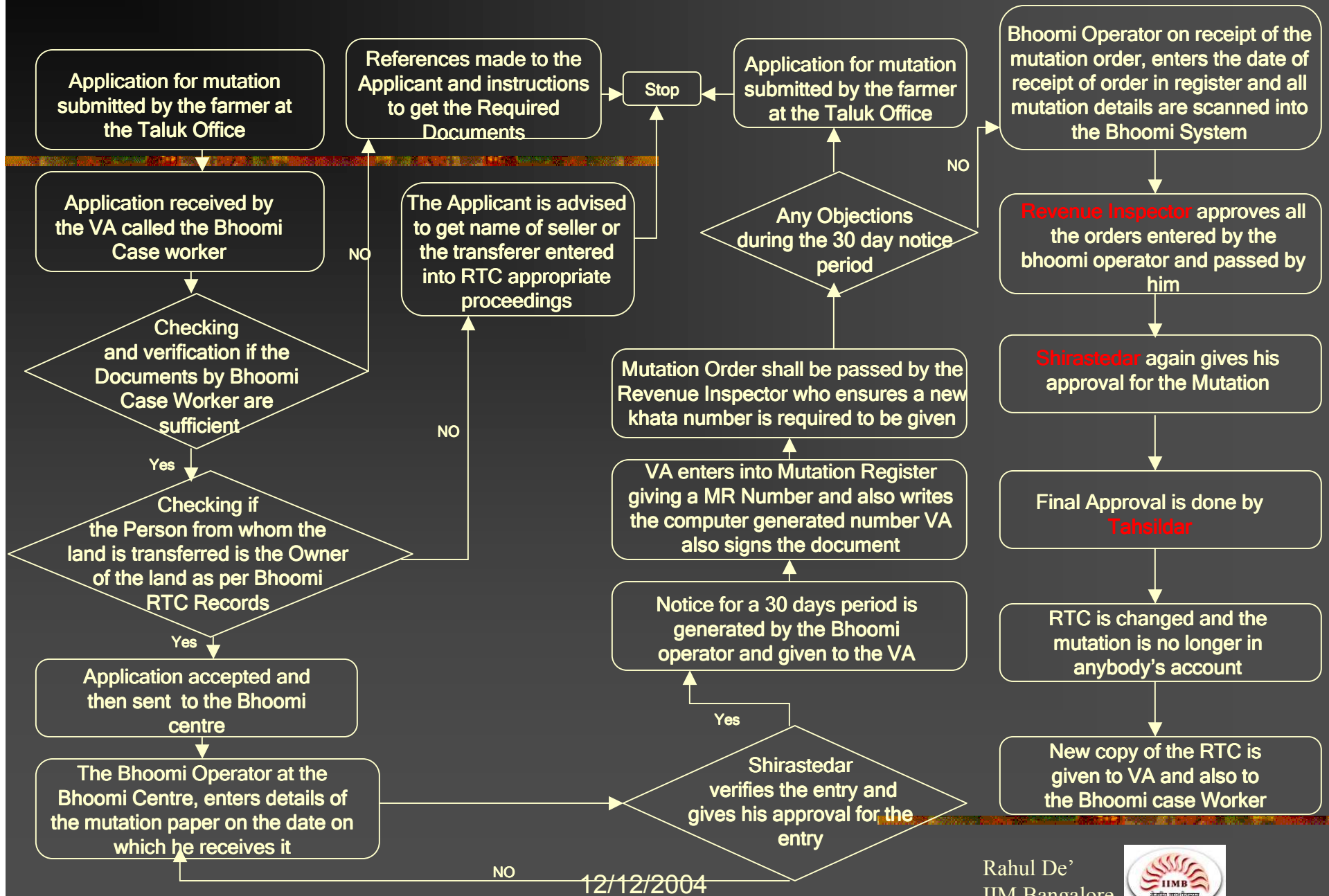
Mutation Process(Manual System)



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Mutation Process in Bhoomi system



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Intermediation

- Bhoomi: Tahsildar introduced to reduce corruption (Chawla, 2003); checks the pendency reports produced by the system
- CARD: No intermediation effected
- Gyandoot: Dis-intermediation at lower levels of government departments

Corruption

- Stated objective of many e-government systems is to reduce corruption through
 - Transparency of processes
 - Dis-intermediation
 - Two theories of corruption:
 - “Efficiency-grease hypothesis”: bribes speed up processing under price and supply control by bureaucrats of government services
 - Bureaucrats create red-tape and delays to extract bribes
- (Banerjee, 1997)

Corruption

- Proposition 5: Using e-government systems to introduce transparency will not reduce corruption, unless the problem of incentives is addressed.

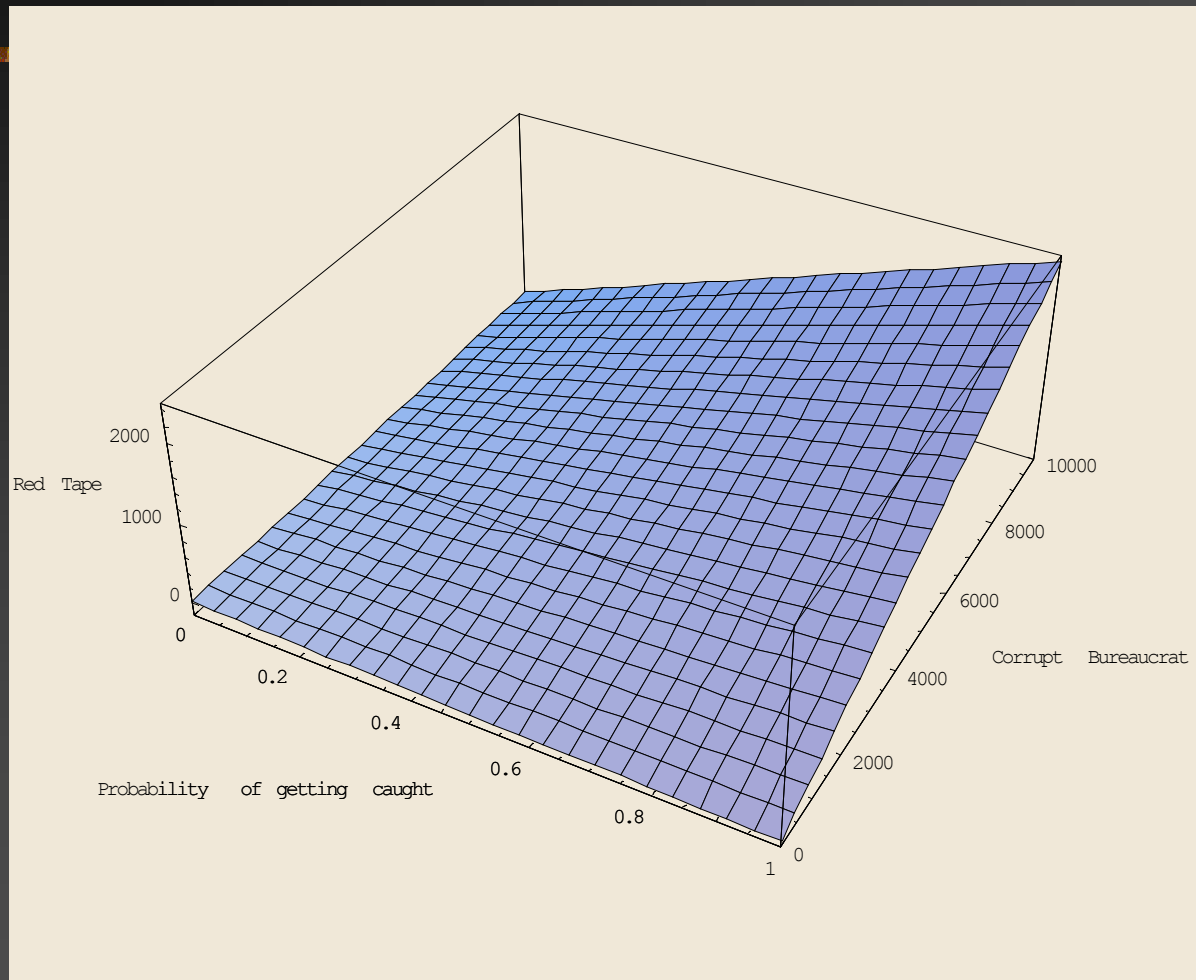
Corruption Theory

- The government asks bureaucrats to sell “slots” or government services to citizens. Parameters of model include (Banerjee, 1997)
 - The utility citizens derive from slots (H, L)
 - The fractions of high and low utility citizens (N_H, N_L)
 - The ability of citizens to pay (y)
 - The cost and volume of red tape for bureaucrats and citizens
 - The probability of getting caught (for bureaucrat) (p)
 - The utility of the bureaucrat (if caught) (B)
- Structural Conditions:
 - The government is welfare-minded
 - The bureaucrats are profit-minded

Corruption Theory

- Red Tape: purely wasteful activity devised by bureaucrats (cost incurred by citizens)

$$\text{Red Tape} = f(L, N, p, B, y, N_L)$$



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Corruption

- With monitoring systems in place, corrupt bureaucrats will try to increase red tape
- Bhoomi: mounting anecdotes of increased corruption (3% paid bribes in 2002 study)
- CARD: corruption remained at earlier levels as monitoring was not attempted

Conclusions

- Grounded theory in Information Systems, Institutional Theory and Economics has much that research in e-government systems may build upon
- Two characteristics of e-government systems are pertinent
 - G2C systems are embedded in public spaces
 - The government is welfare-minded
- Future work: extend each theme