



Research and Knowledge management

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Competency Areas

- Training's Aims
 - Change of knowledge, skills and attitudes of the trainees
 - Learning very particular things offered
 - Not eating the fish, but learning to fish
 - Learn to work in groups
- Business skills (Learning to learn)
- Self Development
- Material Production



Three types of action

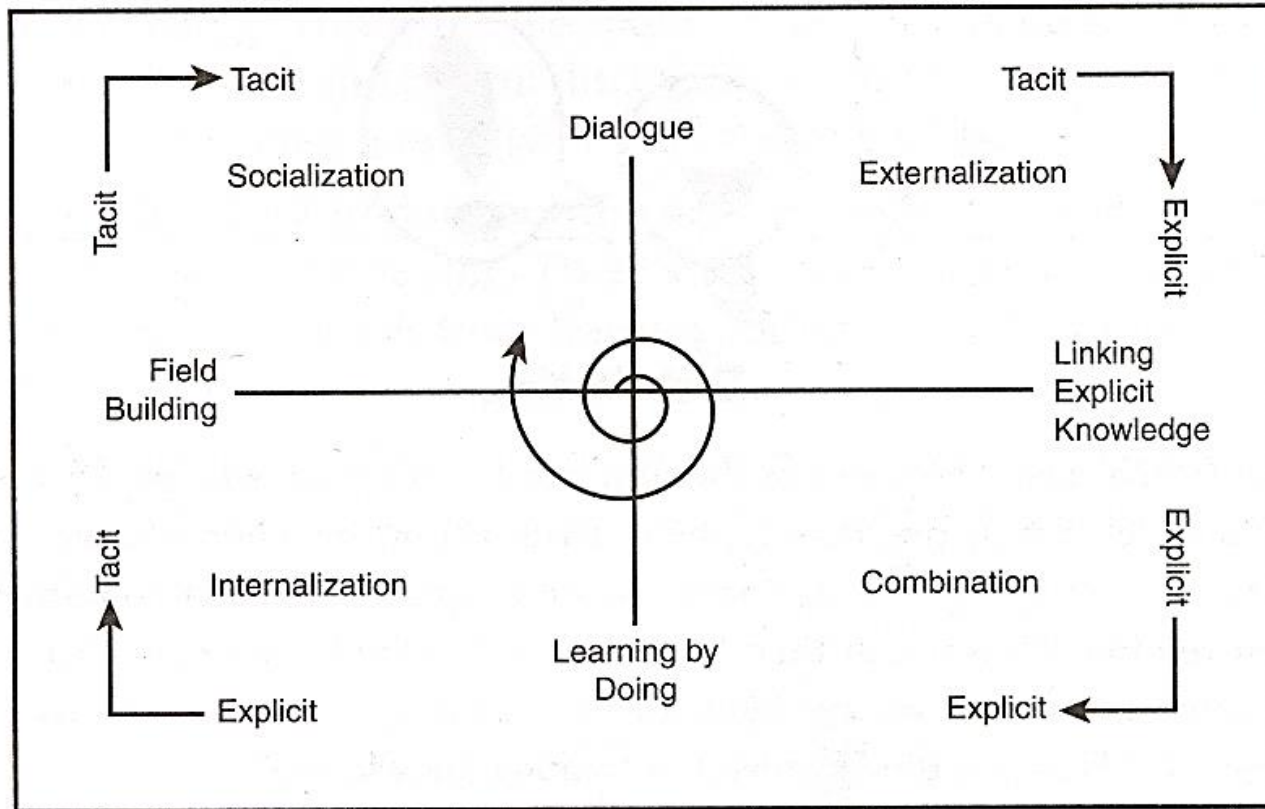
	Type of action		
	Thinking	Doing	Feeling
	Konwledge	Skills	Attitudes
	Head	Hand	Heart
Individual	1	2	3
Small group	4	5	6
Whole class	7	8	9



Research & Knowledge Management

- **Research Management (RM)** focuses mainly on abilities to prepare, execute, disseminate, evaluate and sustain research activities within a certain frame with different settings and strategies in higher education systems or in private sector.
- **Knowledge management (KM)** focuses on how an organization (either higher education system or private sector) identifies, creates, captures, acquires, shares and leverages knowledge.
- **Both consist of**
 - **To Get**
 - **To Use**
 - **To Learn**
 - **To Contribute**
 - **To build**
 - **To Assess**
 - **To Sustain**
 - **To divest**
- With more focus of **RM** (left) and **KM** (right)

Research and Knowledge Management



Framework for a learning organization

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Trust & Scientific Work

Socialization involves transferring tacit knowledge from one person to another (example: on-the-job-training)

Externalization makes tacit knowledge explicit (learning to contribute and make tacit knowledge understandable: example: a good researcher makes his tacit knowledge public)

Combination transfers explicit knowledge to explicit knowledge (Example: making knowledge usable via IT: customers and engineers)

Internalization is the transfer of explicit knowledge to tacit knowledge (example cooking from a new recipe, gaining latent abilities with a new quality)

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In this model there are two kinds of exchanges taking place between the acteurs:

Tangible exchanges which include all transactions, invoices, requests for proposals, confirmations and receipts

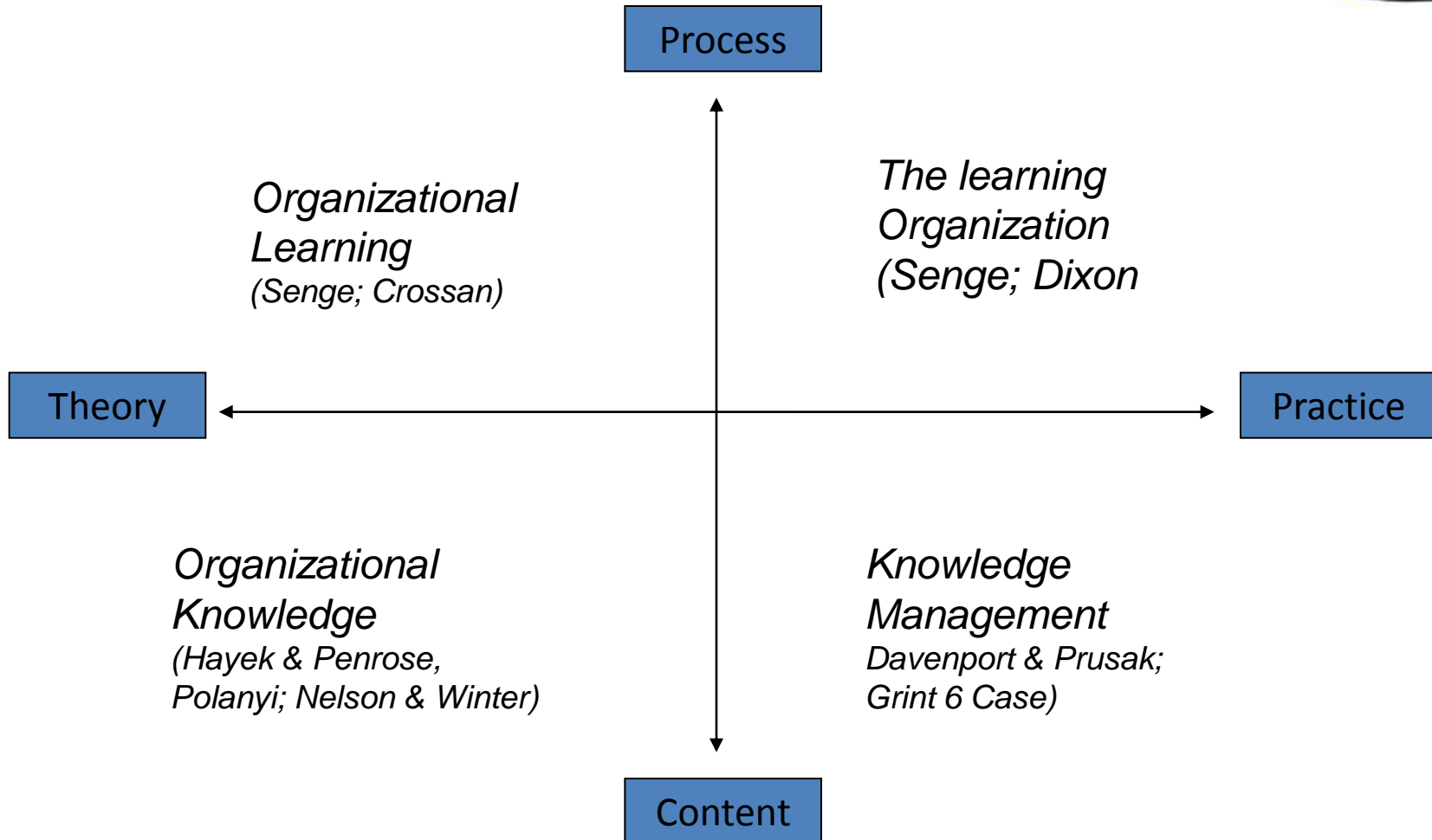
Intangible exchanges which include all interactions, learn effects, changes taking place in people, knowledge shared and intangible benefits:

Intangible benefits are advantages or favors that one person can offer to another: Supporting career planning, making critical introduction for someone, vouching for them socially as well as in business.

Don't forget that the IT is only one fourth of the whole system. Peoples' relation makes the three-quarter



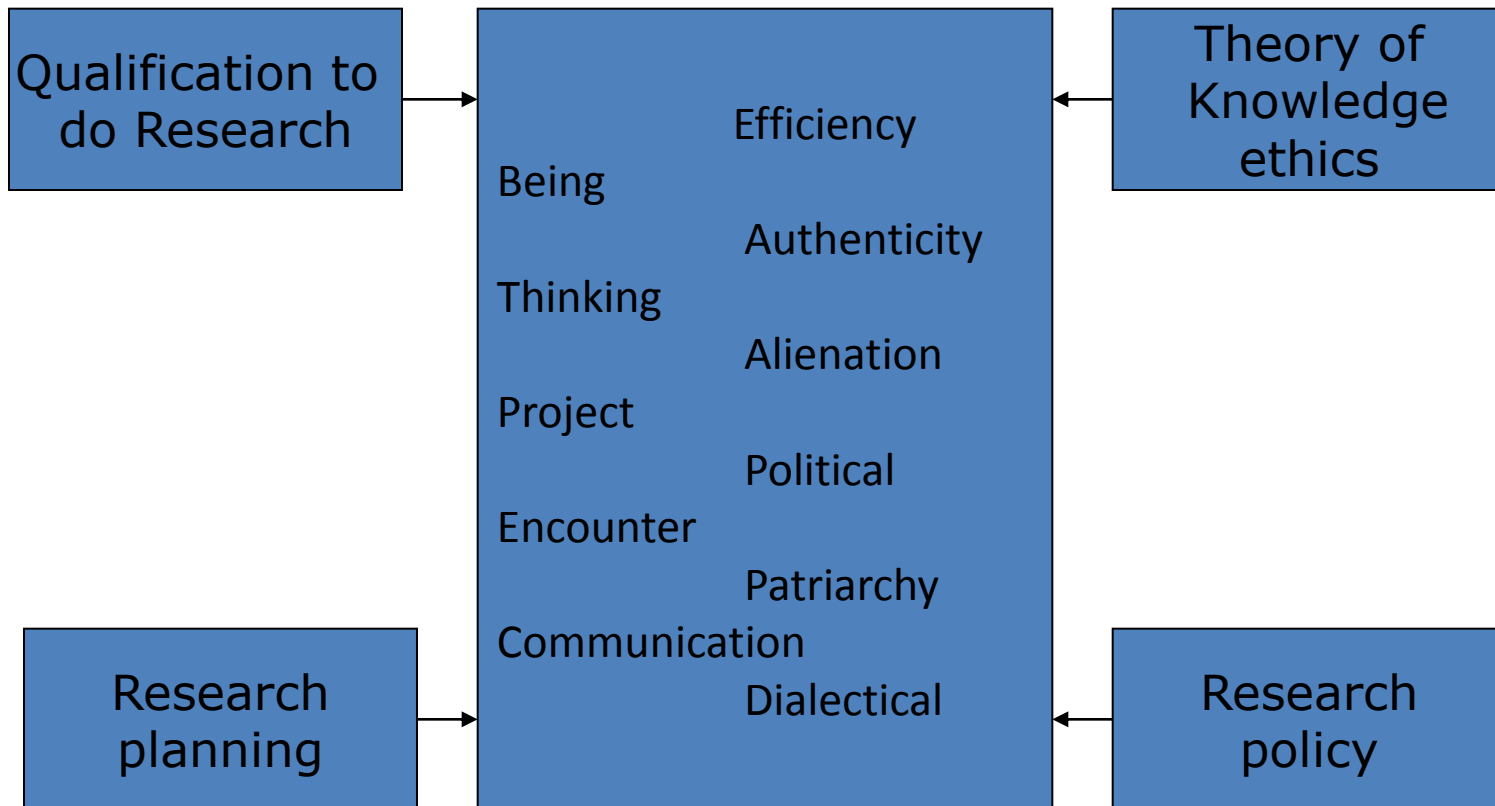
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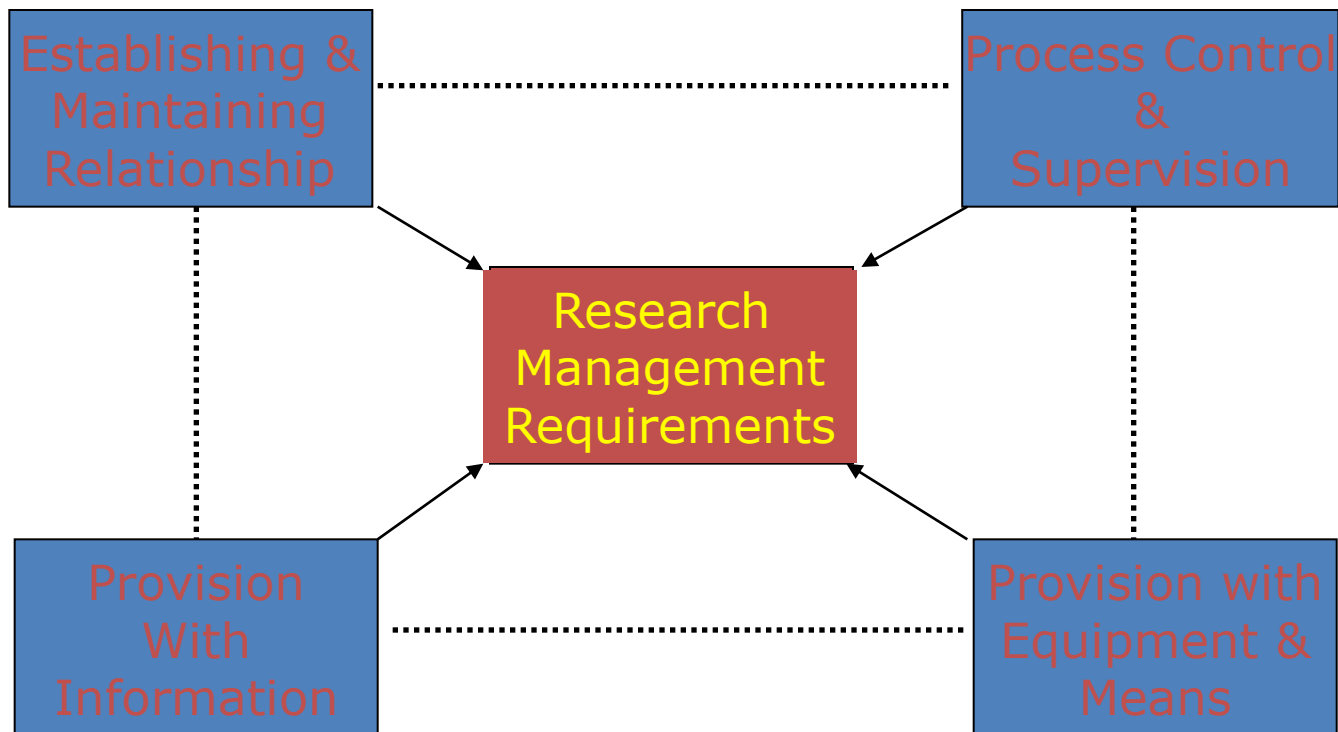
Scientific Work





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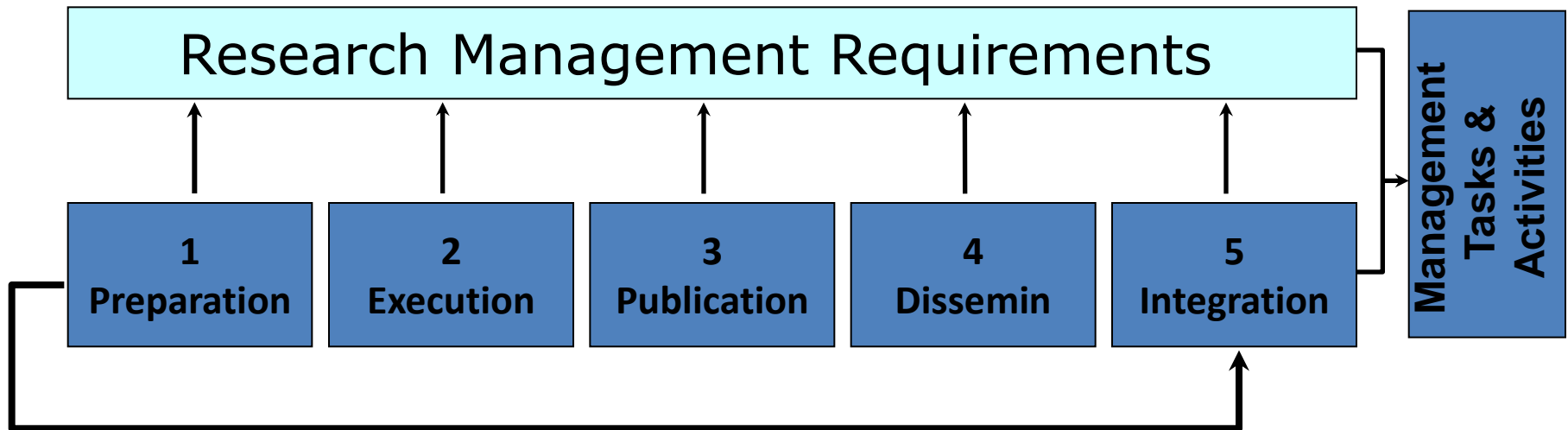
Scientific Work Requirements





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Trust & Scientific Work



Research Process



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Quality however stands for

Assessment: evaluating processes, outcomes and performance

Reviews: evaluating proposals and articles in Journals

Evaluation: Periodical and systematic analysis of processes (institutionally organized)

Accreditation: certification and legalization of programmes

Audit, etc.: and more termini for judgement



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An evaluation culture which is institutionally set has three facets:

Regularity: periodically evaluating the scientific processes, like publications, research budget, equipments etc.

Generalization: Performance analysis of the scientific progress as a whole and not only certain positive or negative experiences

Systematization: relative to criteria, standards, etc.



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Quality is embedded in the social context:

Internal and external importance: Impact on science and society at large

Specific and general aims and criteria: Not only fitness for purpose, but holistic general aims and objectives

Reflection and control: Improvement and change for resources' distribution



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Authors	Journal	ICC-Coefficient	Range
Marsh & Ball 89	Psychological Journals	0.27	-1.0 to + 1.0
McPhail & Simon 87	American Sociological Review	0.16	-1.0 to + 1.0
Hargens & Herting 90	American Sociological Journal	0.28	-1.0 to + 1.0
Lampert/ Hargens & Herting 90	Law & Society Review	0.17	-1.0 to + 1.0
Ciccetti 91	England Journal of Medicine	0.26	-1.0 to + 1.0



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Measuring R & D Performance

	Evaluative	Explantory
Objective	Measure Performance	Predict performance
Inquiry	Retroactive	Proactive
Time line	Past/Present	Future
Observation focus	Output	Input
Indicators	Consequential	Causal
Rationale	Accountability/Ranking	Productivity improvement
Ontology	Rational choice	Human relations



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Performance evaluative factors

Factor	Indictor	Reference
Reputation	Rank in reputational poll	Carter,1966, Roose and Anderson 1970
	Honors/awards	Jauch & Glueck, 1975
	Positions held journal/Ass.	Jauch & Glueck, 1975
	Invitation to present papers	Jauch & Glueck, 1975
	No. Postgraduate Students	Jauch & Glueck, 1975



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Performance evaluative factors

Yield	Total publication (books, conf.)	Carter,1966, Roose and Anderson 1970
	Publications (journals)	Cox and Catt,1977, Stahl, Leap, Wie, 1988; Gordon 6 Smith, 1989
	Character yield No. Pages	Niemi, 1988; Malhorta 6 Kher,1996
	Publication yield/capita	Howard/Cole & Maxwell, 1987
	Publication adjusted to the co-authors	Coe & Weinstock, 1984; Vocino & Elliott 1984
Influence	Citation counts (SSCI/SCI)	Sharplin/Mabry, 1985; Garfield, 1978
	Text book citation count	Perlmann, 1984
	Cited manuscripts	Cole & Cole, 1967



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Performance explanatory factors

Factor	Indictor	References
Demographic	Age	Levin & Stephan, 1991
	Gender	Astin, 1978; Cole 1979
	Marital status	Astin & bayer, 1979; Cole & Zuckermann, 1983
Experience	Career age	Rebne, 1990; Goodwin & Sauer, 1995
	Past performance record	Allison & Long, 1990
	Methodology knowledge	Jones & Preusz, 1993
	Education/training quality	Rebne, 1990
	Doctoral school prestige rating	Long, 1978
	Initial placement prestige rating	Long, 1978

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Performance explanatory factors

Factor	Indicator	Reference
Personality	Self-efficacy	Taylor, et al., 1984
	Goal driven	Locke, et al., 1994
	Multiple project Managem. skills	Taylor, et al., 1984
	Time Managem. skills	Hancock, et al., 1994; Harries and Kaine, 1994
	Decent	Scott, 1981; Rebne, 1990
	Institutional	Visiblity research consequences
Time spent on research		Hoyt & Spangler, 1976; Fox, 1992
Time allocation		Hoyt & Spangler, 1976; Fox, 1992
Size of institution		Rebne, 1990



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Performance explanatory factors

Factor	Indicator	Reference
Financial	Research grant awards	Boyer, 1990; Gillett, 1991
	Direct expenditure	Jones, Lindzey, & Coggeshall, 1982
Collaborative	Contact with peers	Jones & Preusz, 1993; Zambaripa, 1995
	Consulting projects	Nancock, et. Al., 1992; Rebne, 1990
	Supervision G. students	Hncock, et.al., 1992
	Doctoral Programmes	Pettigrew & Nicholls, 1984



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Indicators Components of Research Performance

- Organizational knowledge
- Innovation
- Organizational learning
- R & D personnel
- Technology transfer
- Contract services
- Research project time
- R & D facilitations
- Technology implicit transfer
- Customers' satisfaction
- Job satisfaction
- Information



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Trust & Scientific Work

Criterion required for an egalitarian cooperation:

Understanding research as part of the job-description or business

Quality of Research: Articles published in international refereed journals; scientific books by internationally well-known publishers; citations

Research Activity: Minimum quality standard; reports in national journals; working papers; conference proceedings; conference presentation

Impact of Research: citation by other researchers; invited and plenary presentations; number of foreign co-authors

Activity in Educating young scientists: doctoral degree produced; number of doctoral students supervised

Activity in scientific community: membership in editorial boards; edited books and special issues of journals; services as an expert; scientific conferences organized, memberships in program committees



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Decision-making Process and Structure Locus of decision-making by Level

- Institutional Governance
- Institutional executive
- Faculty/Department/ research Centre
- Level of separate research activities
- Committees



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Establishing research management struc

- Establishing an environment conducive to research (research culture)
- Fostering flexibility (external environment)
- Setting and maintaining quality standards
- Attracting to the university

The task

- Capacity of the central research office, staffing and authority
- Size of discretionary funding
- Incentives and disincetives for encouraging participation
- Inteface between research management and the academic structure
- Students` educational career interests and research



Requirements for exercising managerial position

- Entrepreneurship
- Ability and willingness
- Administrative and organizational skills
- Strategic thinking
- Networking skills
- Resourcefulness
- Understanding research process
- Research leadership capacity
- Communication skills



Critical Components for Governance

- *Owing the right assets*: knowledge; rights (IPR); human resources; financial resources; facilities; organizational capital; evaluation
- *Providing the right skills*: adapting to change; anticipating change; generating change
- *Enhancing the right capabilities*: relationship, networks

Contzen, 2003



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Key Questions for Institutions for Establishing and developing Institutional Research Plan

- Articulation of strategic decision-making at the institutional level vs individual or team activities
- Formulate research priorities which built upon strength and engage environment (metropolitan, provincial or rural)
- Balance competing pressures: basic vs more oriented; maintaining breadth vs concentrating on limited areas; supporting existing activities vs responding to emerging possibilities; tried and tested vs high risk undertakings etc.
- Ensuring the exclusiveness and representativity of priorities: balance between university governance and management
- The increasingly onerous impact of reporting demands in the model of central steering



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Nurturing the research career Motivational Aspect

- Intellectual Challenge
- Recognition by the peer group
- Recognition by academic institutions
- Recognition by institutions outside academia

Managerial tasks

- Attracting high calibre research staff
- Retaining research staff
- Research education
- Supporting early career researchers



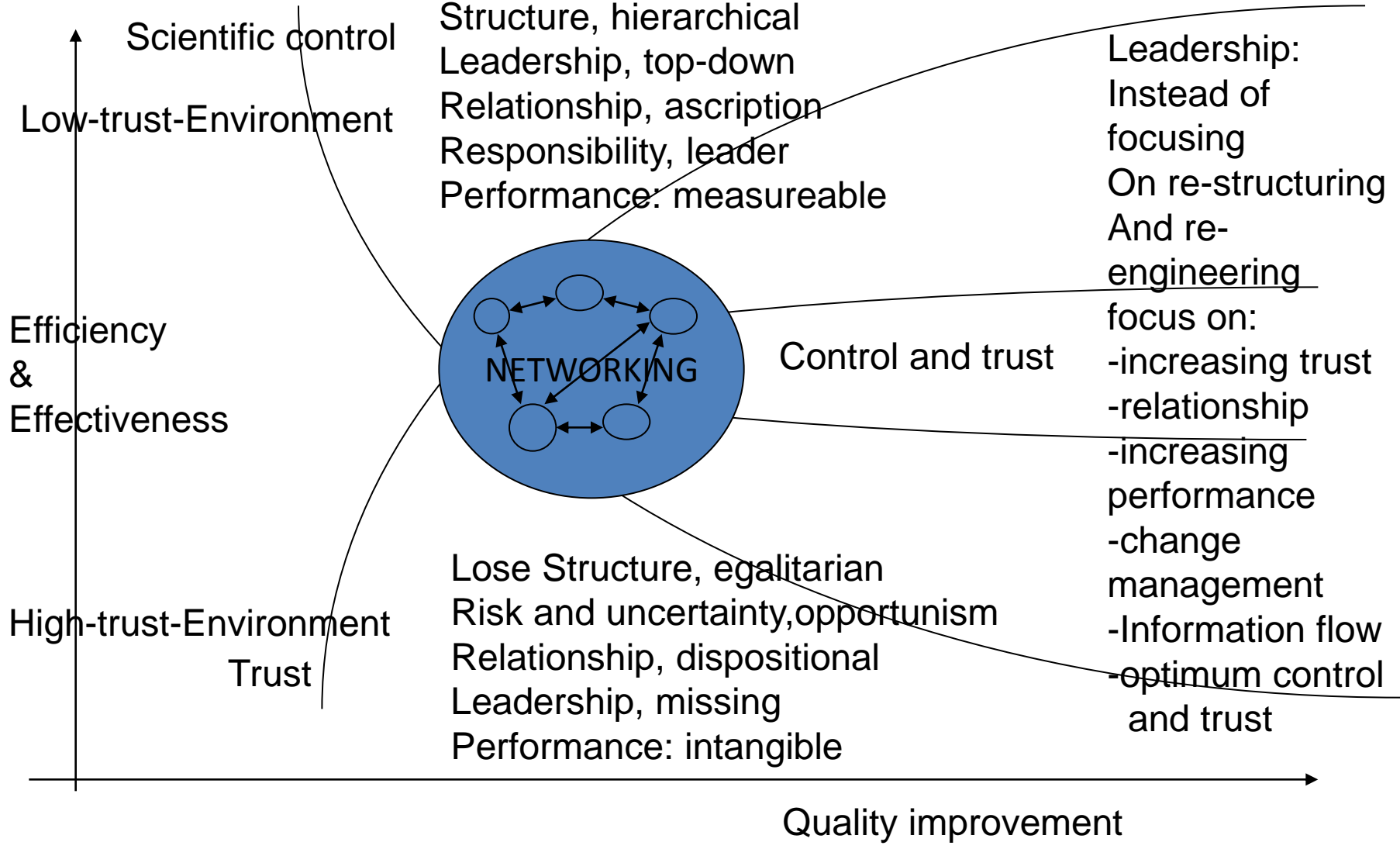
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Theses concerning scientific cooperation (A. Mehler, U.Engel)

1. German government policy is becoming more aware of its international responsibilities
2. Social sciences dealing with developing countries are increasingly being marginalised in German university education, in systematic disciplines as well as in the so-called regional studies
3. Developing countries-oriented basic research lacks the funds for ongoing internationally competitive and politically relevant research
4. Critical and systematic political consultancy and evaluation capacities are scarce



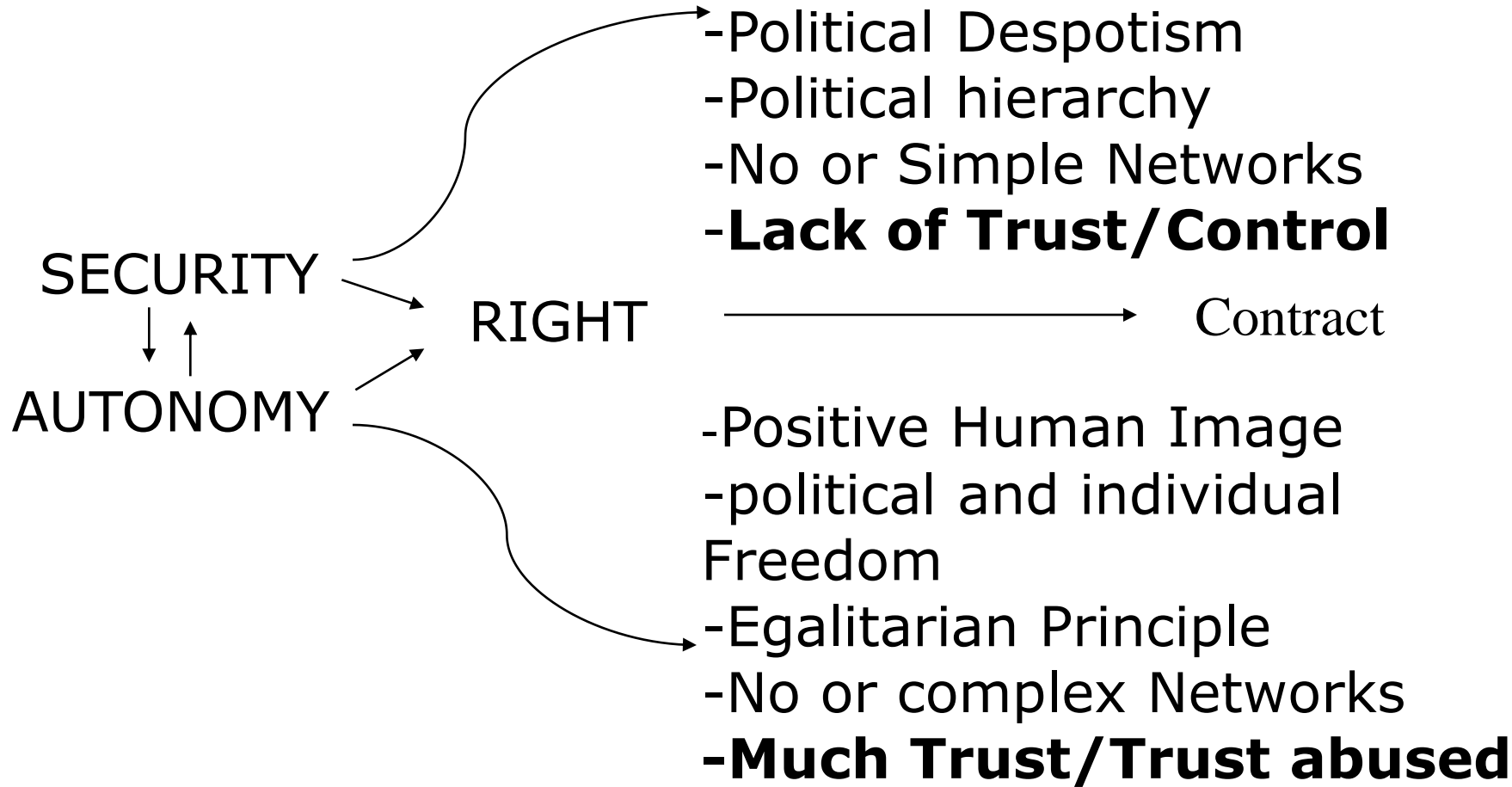
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Trust in Social Order Social Network and Trust

Historical view

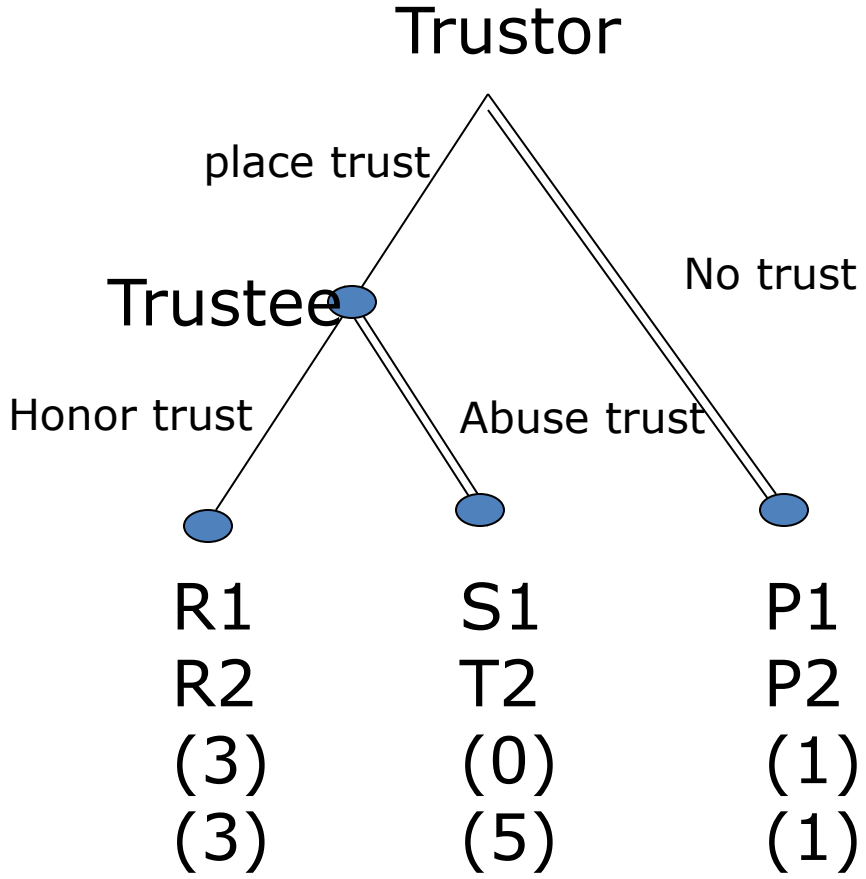




Placing TRUST Definitions:

- Placing Trust
- Trustor
- Trustee
- Honor Trust
- Abuse Trust
- Obtaining Payoff
- Receiving Payoff

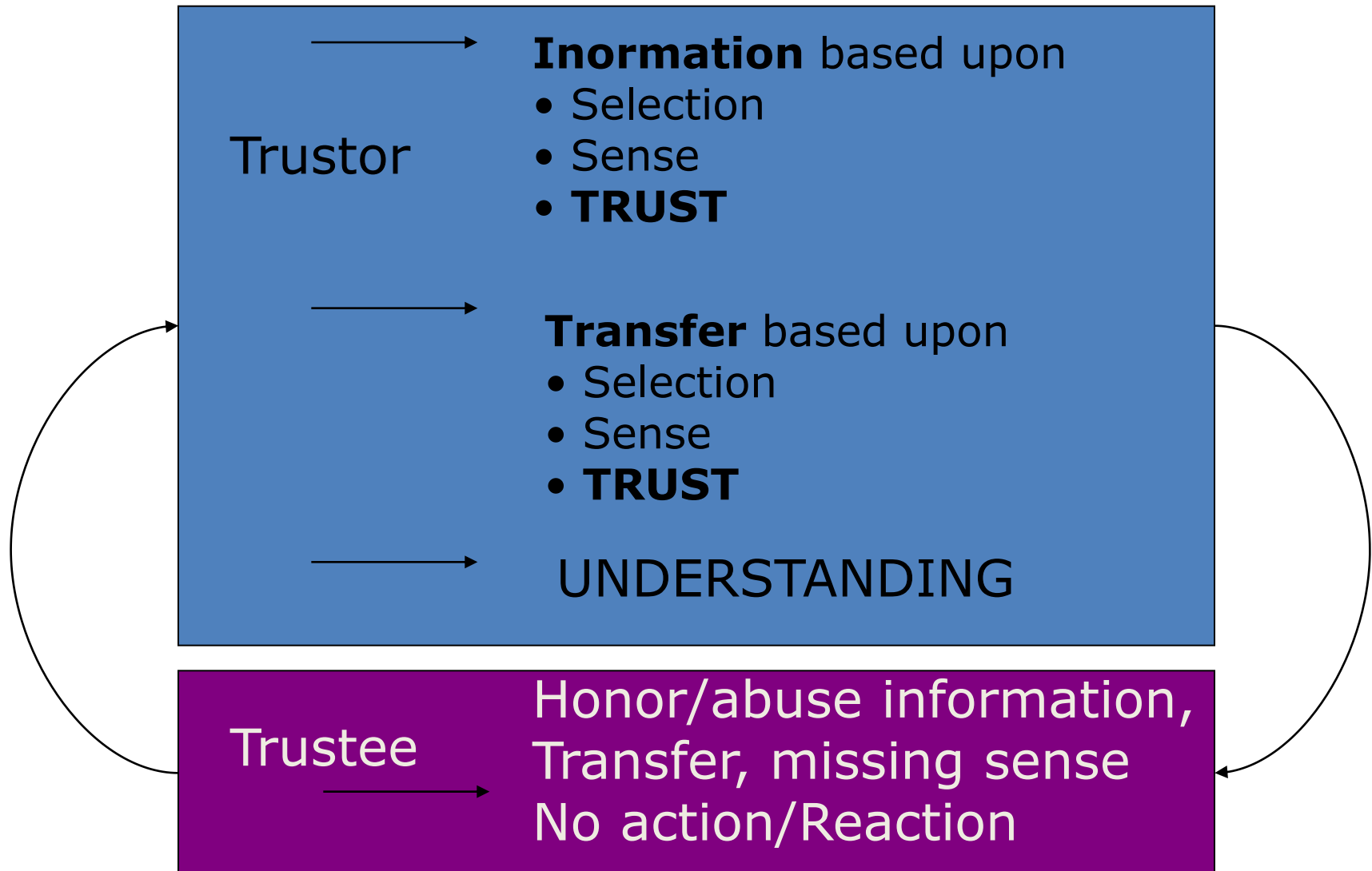
Social Network and Trust





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Trust, Autopoiesis and Communication in a Complex Social Order





Trust in Social Networks

Social Networks are necessary settings in complex social systems

To improve socially **learning** and to improve economically **control**

Empirical Evidence

- **Larson 92**: Relation between organizations starts with small transactions in order to increase trust after a „trial period“
- **Uzzi, 96/7**: failure rates are lower the stronger the partners are integrated in Networks-“comparative advantage of trust in strong relationships
- **Gulati, 95**: Interorganization ties between advertizing agencies and their clients have smaller probability of being dissolved –“Network properties, experiences in alliances“



Empirical Evidence Social Network and Trust

- **Lyon, 94:** The probability for arranging relationship with a formal contract decreases with the number of years. „subcontractors have been trading with their most important consumers“
- **Kollock, 94:** Experiment with sellers and buyers show that dens networks were extrem opinion about trustworthiness. „Learning through networks about others experiences“

Conclusively:

- (1) Dens information in networks do not necessarily lead to more trust, but the content of the information
- (2) Dense network improves trust, but distrust is often disregarded
- (3) Network increases the control of behaviour of trustees due to experiences and risks shared



Social Network and Trust

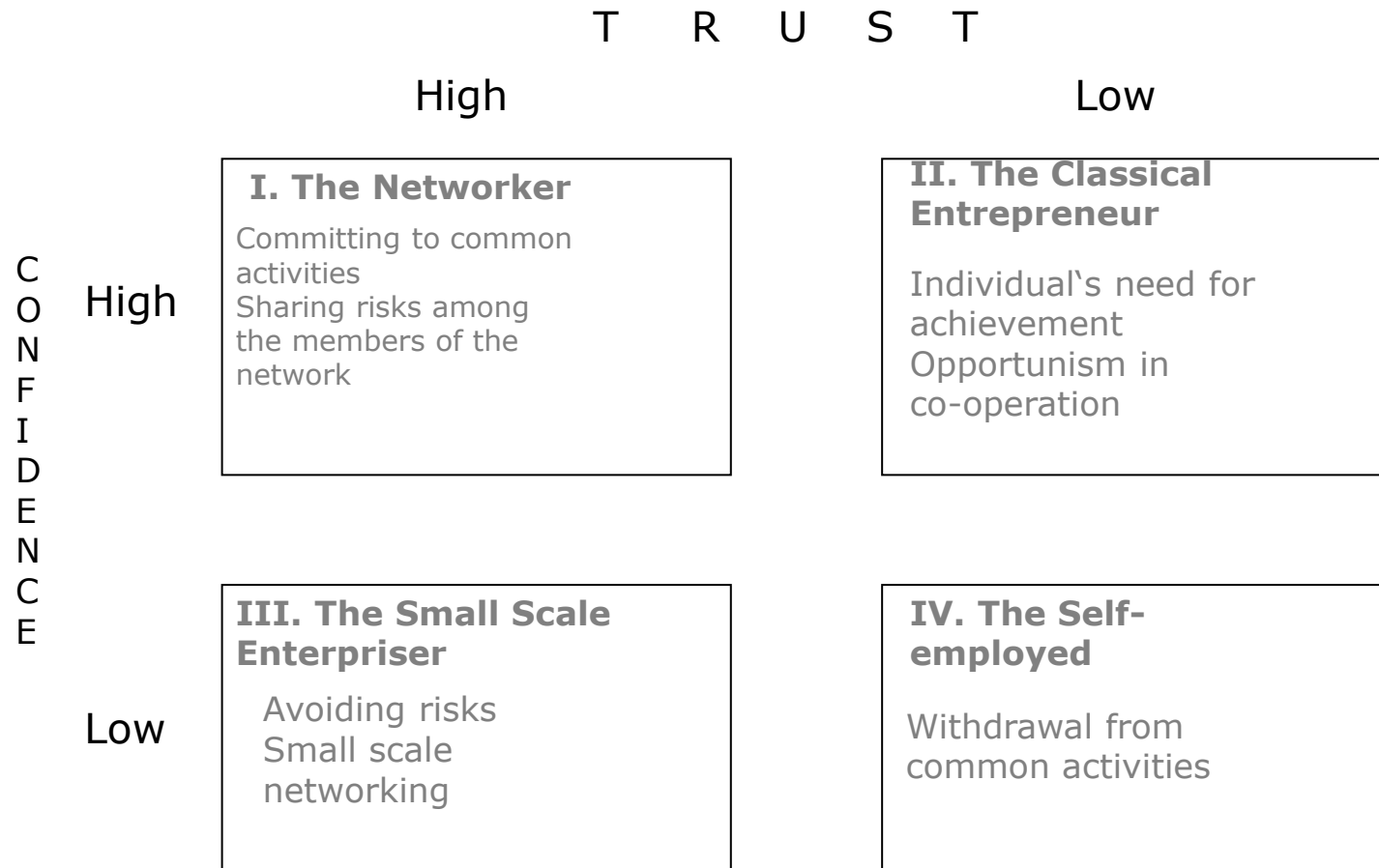
Trusters who are better embedded in social networks will learn faster from other trustors and are in a better position to control the trustee because they receive more information and transmit information faster through the network



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Social Network and Trust

Categories of Trust and Confidence



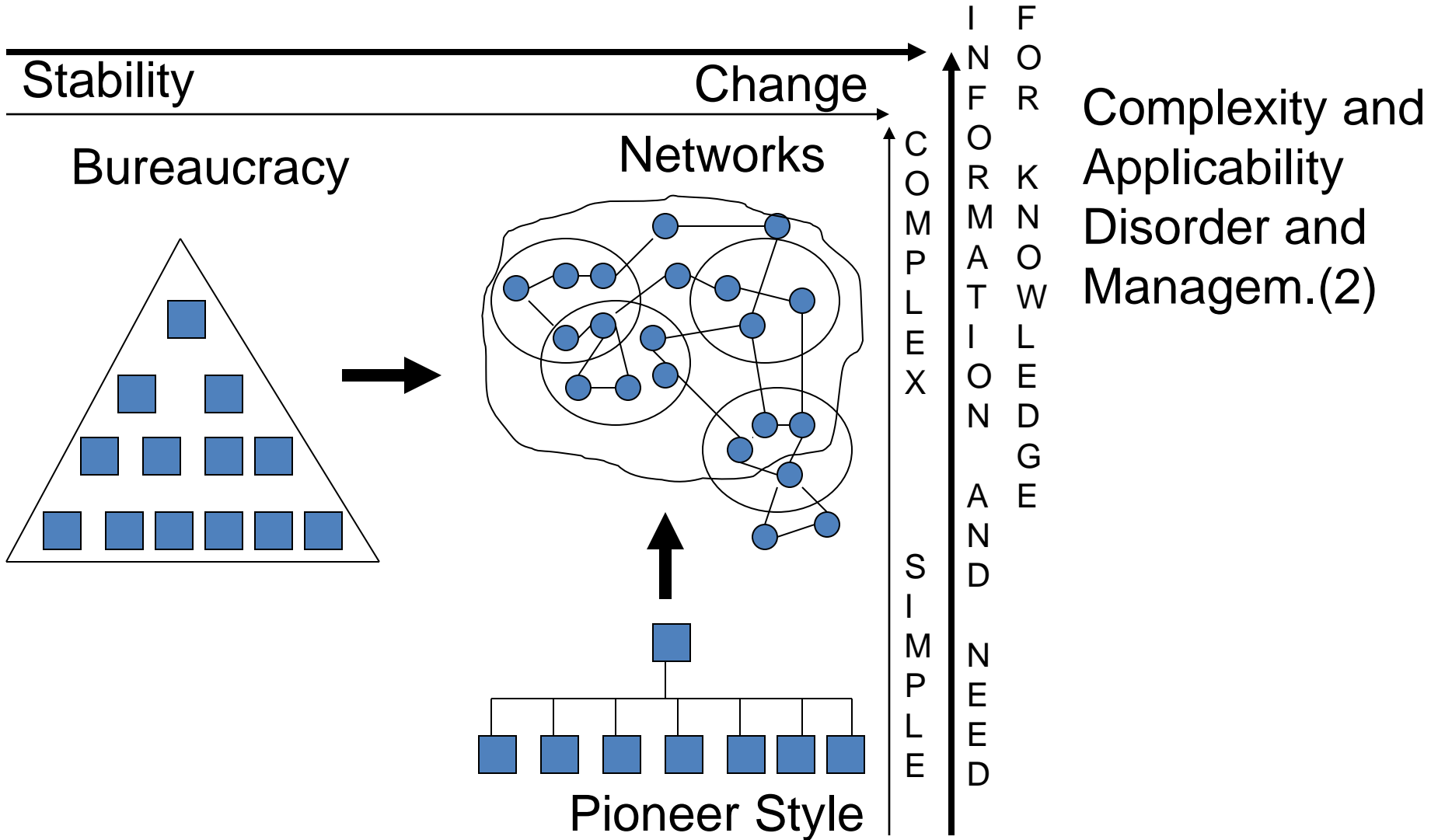


Trust and Confidence

1. Becoming self-employed entrepreneur is buying one's own autonomy
2. Confidence about being one's own master
3. Independent of timetable and controls imposed by supervision
4. Decide, who are the customers, what are the products, how is production technically executed
5. Understanding uncertainty and risk
6. Understanding irregular income



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Conclusions:

- 1. Proposal Writing is not only a skill; it is a managerial activity at the same time**
- 2. The context in which the proposal writing skills are realized is the most important aspect**
- 3. Research activity is the most public activity and is controlled by the scientific community**
- 4. Research is according to the evolutionary theory of epistemology a critical selection among variants**
- 5. Quality and relevance are measured by peer reviewing**
- 6. International research needs basic consideration of co-operation patterns**