Innovation in Projects and Networks

NORSI PhD Seminar @ BI

Prof. Dr. Dr. h.c. Hans Georg Gemünden
1. Key individual roles in innovation networks


2. Network competence: the concept, its Antecedents and its Performance effects.


Overview Contents and Readings


The Informal Side of Innovation Networks – Key Innovation Roles

Prof. Dr. Dr. h.c. Hans Georg Gemünden
Mono-personal Concepts
The Champion: A Hero of Innovation?

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Definition of Champions

Donald Schon (1963), pp. 84:

"... a man willing to put himself on the line for an idea of doubtful success.

He is willing to fail.

But he is capable of using any and every means of informal sales and pressure in order to succeed."
Definition of Champions (2)

Jane Howell, Christine Shea and Christopher Higgins (2005), p. 644:

“Champions are defined as individuals who informally emerge in an organization and make a decisive contribution to the innovation by actively and enthusiastically promoting its progress through the critical organizational stages.”
Barriers: Organizational Resistance to Change

Power Source: Charismatic (Transformational) Leadership

Contributions:

1. Expresses Enthusiasm and Confidence
2. Persists under Adversity
3. Gets the Right People Involved
Championship Behaviors and Innovation Success: Walter et al. 2010

I always seek ideas for innovations.
I push change with innovative ideas.
I take innovative ideas directly to potential customers

I make use of my personal relationships.
I continually improve my network of personal relationships.
I cultivate my relationships with customers and other partners.

I am prepared to deal with consequences of failures.
I take responsibility for costs.
I take responsibility for products or services.

I create potentials to realize my goals.
I make use of all available means to solve arising problems.
I pursue my goals despite setbacks and obstacles.

Empirical Results: Walter et al. (2010)

## Results

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Sales Growth</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pursuing innovative ideas</td>
<td>-.08</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>Network building</td>
<td>.23*</td>
<td>.21*</td>
<td></td>
</tr>
<tr>
<td>Taking responsibility</td>
<td>.11</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td>Persisting under adversity</td>
<td>.12</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>Taking responsibility (squared)</td>
<td></td>
<td>-.28*</td>
<td></td>
</tr>
<tr>
<td>Persisting under adversity (squared)</td>
<td></td>
<td>-.30**</td>
<td></td>
</tr>
<tr>
<td>R² (adjusted R²)</td>
<td>.13 (.01)</td>
<td>.27 (.15)</td>
<td></td>
</tr>
<tr>
<td>Delta R²</td>
<td>-</td>
<td>.14***</td>
<td></td>
</tr>
</tbody>
</table>

Standardized regression coefficients shown; *** $p < 0.001$; ** $p < .01$; * $p < 0.05$ (two-sided). Tested on a sample of 123 University spin-offs. Control Variables (not shown): Industry Experience, Founder’s Age, Organizational tenure, Organizational size.


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Can there be only one innovator?

Desired Characteristics

- **Commitment**: The will to risk everything for the innovation
- **Imagination and creativity**: A vision of innovation
- **Leadership**: The ability to convince others towards innovation
- **Expertise**: The knowledge of all critical details
- **Analytical skills**: The ability to plan, control, and organize
- **Diplomatic skills**: The social competence to cope with conflicts
- **Good knowledge of the organization and its (hidden) rules**

Risks and Limits

- Unrealistic idealization of one hero
- Difficulty of an ex ante identification of the “right” champion
- Problems to motivate a potential champion for “his” task
- Dependency of the organization on a single person
- Limited management capacity of a single person
- Cooperation with other key persons is not defined
Multi-personal Concepts
Promotors – a Cooperation of Key Roles

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3.2 Witte's Two-Center Power Theory

Barriers Blocking an Innovation

initial state

Barriers of Will
- Investment
- Acceptance

Barriers of Capability
- Development
- Implementation

final state
Overcoming Barriers through Promotors

Promotors

- are persons, which actively and intensively support an innovation
- start an innovation process
- sustain a high activity level
- terminate the decision process

Promotors by hierarchical power (power promotors)

surmount barriers of will through their hierarchical potential

Promotors by know-how (expert promotors)

surmount barriers of capability through their expert knowledge
# Contributions of Promotors

<table>
<thead>
<tr>
<th>Power Promotor</th>
<th>Expert Promotor</th>
</tr>
</thead>
<tbody>
<tr>
<td>● has access to material resources</td>
<td>● knows critical details</td>
</tr>
<tr>
<td>● acts as an investor</td>
<td>● develops alternatives</td>
</tr>
<tr>
<td>● legitimizes projects</td>
<td>● evaluates external solution proposals</td>
</tr>
<tr>
<td>● influences personnel decisions</td>
<td>● implements concepts</td>
</tr>
<tr>
<td>● blocks opposition</td>
<td>● tests prototypes</td>
</tr>
<tr>
<td>● protects expert promotors</td>
<td>● solves problems</td>
</tr>
<tr>
<td>● influences priorities and schedules</td>
<td></td>
</tr>
</tbody>
</table>
### Hypotheses for the Efficiency of Promotor Structures

<table>
<thead>
<tr>
<th>Promotor Structure</th>
<th>Postulated Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure without a promotor</td>
<td>Low success</td>
</tr>
<tr>
<td>Unilateral power structure</td>
<td>Low-medium success</td>
</tr>
<tr>
<td>Unilateral know-how structure</td>
<td>Low-medium success</td>
</tr>
<tr>
<td>Personal union structure</td>
<td>Medium success</td>
</tr>
<tr>
<td><strong>Tandem structure</strong></td>
<td><strong>High success</strong></td>
</tr>
</tbody>
</table>
Promotor Models are based on the following assumptions:

1. The innovation is confronted with different kinds of barriers
2. To surmount these barriers different kinds of power-bases are needed
3. In utilizing these power-bases, promotors provide valuable contributions to an innovation
4. Barriers, power-bases and contributions define a promoter role
Assumption of Promotor Models

Different persons may function within the same role.
One person may function within different roles.

Witte assumes that the different roles should be carried out by different persons. This implies

a) a *specialization* among different persons,
b) the *need for cooperation and coordination*
c) a *struggle for a power-balance* of different key persons involved in a coalition for the innovation.
Promotors Do Not Always Meet

Power Promotor

Internal organizational and administrative barriers

Expert Promotor
Concept of the Division of Labor

4 The Process Promotor
Role Model of the Process Promotor

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Power-Bases</th>
<th>Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- organizational</td>
<td>- positional power</td>
<td>- knows concerned people</td>
</tr>
<tr>
<td>resistance</td>
<td>- knowledge of the organization</td>
<td>- links sponsors and experts</td>
</tr>
<tr>
<td>- administrative</td>
<td>- social competence</td>
<td>- steers the process through all stages</td>
</tr>
<tr>
<td>resistance</td>
<td>- transformational leadership</td>
<td>- leads or moderates the innovation team</td>
</tr>
</tbody>
</table>

Another Promotor Structure:

The Troika = Process Promotor + Power Promotor + Expert Promotor
Dimensions of support

**concerning persons ...**

- connects with **decision-makers** and cares for their support
- searches, finds, motivates and supports **experts**
- advertises the innovation **internally**

**concerning processes ...**

- **is aware of** internal processes and restrictions
- provides the project’s progress
- **plans and controls** the relevant activities
Inter-Organizational Roles:
Relationship Promoters
Technological Gatekeepers

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Why do we need a Relationship Promotor?

1. There is no innovation without external cooperation partners.

2. The cooperation with external partners is hindered by inter-organizational barriers.

3. Relationship promotors help to surmount these barriers.
The Firm in its Innovation Network

**Public Administration**
- Subsidy, Infrastructure
- Political Support
- Mediation, Coordination
- Laws, De-Regulations

**Supplier**
- New Materials, Components
- New Means of Production
- New Systems

**Research & Education**
- Research, Technical Knowl.
- Training, Education
- Junior Employees

**Co-seller in Systems selling**
- Complimentary Know-how
- Solving Interface Problems

**Competitor**
- Sharing Information
- Joint Basic Research
- Establishing Standards
- Publicity Promotion

**Consultant**
- Innovative Concepts
- Organization of Innovation Processes
- Financial & Admin. Services

**Customer**
- Market Informant
- Defining new requirements
- Implementation partner
- Reference Appeal

**Trader, Distributor**
- New Trends in Demand
- Early Information about developments of competitors

The Firm
- Innovation Strategy
- Technical Competence
- Network-Competence
### RP’s Contributions to Surmount Inter-organizational Barriers

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Problems</th>
<th>Contributions Made by Relationship Promotors</th>
</tr>
</thead>
<tbody>
<tr>
<td>No knowledge of appropriate partners</td>
<td>matching-problem</td>
<td>finds, evaluates and contacts qualified partners</td>
</tr>
<tr>
<td>No will to cooperate</td>
<td>trust &amp; commitment problem</td>
<td>bridges, translates, organizes, moderates</td>
</tr>
<tr>
<td>No ability to cooperate</td>
<td>understanding problem</td>
<td>stimulates interest, enhances understanding, creates trust and commitment</td>
</tr>
<tr>
<td>No permission to cooperate</td>
<td>third-party problem</td>
<td>mediates or helps to bypass third party</td>
</tr>
</tbody>
</table>
The Relationship Promotor

**Inter-O rganizational Barriers**

- No knowledge of appropriate partners
- No will to cooperate
- No ability to cooperate
- No permission to cooperate

⇒ Relationship Promoters help to surmount these *inter-organizational barriers*

**Definition of the Relationship Promotor**

A person
- who actively and intensively
- advances inter-organizational exchange processes

- through good personal relationships to key actors who dispose of critical resources

**Power Sources of the Relationship Promotor**

- Social competence,
- Knowledge of networks and
- A portfolio of relationships

**Bridging Boundaries**
Division of Labor in Cooperations

- Power Promotor
- Process-promotor
- Relationship Promotor
- Expert Promotor
- customers
- suppliers
- competition
- Co-Suppliers
- research
- consultants
- Public Offices
- ...
## Contributions of Process and Relationship Promotor

<table>
<thead>
<tr>
<th>Process Promotor</th>
<th>Relationship Promotor</th>
</tr>
</thead>
<tbody>
<tr>
<td>• has hierarchical influence</td>
<td>• has market-based influence</td>
</tr>
<tr>
<td>• knows processes, rules, values</td>
<td>• knows players and rules of a market</td>
</tr>
<tr>
<td>• has social competence, and good internal networks</td>
<td>• has social competence, and good external networks</td>
</tr>
<tr>
<td>• searches and promotes people with ideas and initiative</td>
<td>• finds adequate cooperation-partners and promotes them</td>
</tr>
<tr>
<td>• gives contacts to senior management</td>
<td>• gives contact to internal promotors</td>
</tr>
<tr>
<td>• plans, controls, moderates change processes, supports flow of information</td>
<td>• plans, controls, moderates exchange processes, supports flow of information</td>
</tr>
<tr>
<td>• builds trust, solves conflicts, supports common goals within the firm</td>
<td>• builds trust, solves conflicts, supports common goals between firms</td>
</tr>
</tbody>
</table>
5 The Relationship Promotor

Walter-Study: The Impact of RP on European Business Relationships

Influence of Relationship Promotor on the Supplier Side

Perceived Trust of the Buyer Firm

Buyer-Specific Adaptations of the Supplier Firm

Perceived Commitment of the Buyer Firm

Relationship Success of the Supplier
Walter-Study: Influence of Supplier’s RP on Sales Success

R² = 14%
R² = 36%
R² = 37%
R² = 57%

η₁
Sales Success

η₂
Perceived Commitment of the Buyer Firm
R² = 36%

η₃
Perceived Trust of the Buyer Firm
R² = 37%

η₄
Buyer-Specific Adaptations of the Supplier Firm
R² = 14%

ξ₁
Influence of Relationship Promotor on the Supplier Side

Path Coeff. (t-value)

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## Walter-Study: Influence of RPs in International Business Relations

<table>
<thead>
<tr>
<th></th>
<th>National Business Relations</th>
<th>International Business Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation Development Success</td>
<td>.31**</td>
<td>.65***</td>
</tr>
<tr>
<td>Sales Success</td>
<td>.34***</td>
<td>.63***</td>
</tr>
<tr>
<td>Market Access Success</td>
<td>.33***</td>
<td>.54***</td>
</tr>
<tr>
<td>Revenue Growth (2 years)</td>
<td>.30**</td>
<td>.44***</td>
</tr>
<tr>
<td>Proportion of Customer’s Procurement</td>
<td>.18*</td>
<td>.44***</td>
</tr>
</tbody>
</table>

***p<.001; **p<.01; *p<.05
Technological Gatekeepers are key persons in innovation-related communication processes who supply scientists and engineers in the industrial R&D divisions informally with relevant information through external sources.

Source: Gerpott/Fleischer/Domsch, 1987, p. 703

„individuals who maintain consistent, ongoing contact outside their organizations, who know the way in which outsiders differ in their perspective from their own organizational colleagues, and who are able to translate between the two systems.“

Source: Allen/Tushman/Lee, 1987, p. 703

„those key individuals who are both strongly connected to internal colleagues and strongly linked to external domains.“

Source: Tushmann/Katz, 1980, p. 1071
Contributions of Technological Gatekeeper

Technological Gatekeeper

- Expert Knowledge, particularly from outside the organization
- Good Position in Knowledge Networks („Research Communities“ and/or „Communities of Practice“)
- Social Competence and Personal Credibility → Opinion Leader
- Search for technical information; funnelling, assessment, consolidation and storage of information
- Selection of technical information; translation, preparation, interpretation and dissemination of information
- Promotion of socialization processes within the work group
- Helps to develop personal contact to external information partners
The Cooperation of Innovator Roles in Case of Radical Innovations

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Innovation Compass – An Empirical Study on Radical Innovation

Central Variable: Degree of Innovativeness

- Bluetooth
- Wearable computing
- Voice control
- Hydrogen propulsion
- UMTS
- Human GPS
- 3D laser
- Ceramic brakes
- Machine vision
- Marketplace software
- 30 m braking distance
- Rewritable DVD
- Radical Innovations
Innovativeness Is a Matter of Degree and More Than Markets and Technology

- **Degree of Innovativeness**
  - **Technology**
    - new functionality
    - quantum leap in performance
    - new technological principle
    - new architecture, materials, compon.
  - **Market Drivers**
    - critical new customer benefits
    - reduction of customer’s cost
    - # new customers
    - growth dynamics of new market
  - **Market Barriers**
    - attitudinal & behavioral change
    - high learning effort necessary
    - change in value chain
    - change customers’ regulations
  - **Organization**
    - re-orientation of strategy
    - new structures & processes
    - new knowledge bases & networks
    - change in culture
  - **Environment**
    - new infrastructure
    - change in regulation / laws
    - change in society
    - new institutions

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Key Persons in Innovation Processes

- **Expert Promotor**
- **Technological Gatekeeper**
- **Process Promotor**
- **Relationship Promotor**
- **Power Promotor**

Diagram showing relationships between these key persons in the innovation process.
Main Effects of Innovator Roles on Success of Radical NPD Projects

- Project Leader Experience
- Relationship Promotor
- Technological Gatekeeper
- Power Promotor
- Process Promotor
- Expert Promotor

Partial Regression Coefficient of Role Intensity

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Interaction Effects of Innovator Roles on Success of Radical NPD Projects

Partial Regression Coefficient of Role Intensity* Technological Innovativeness

- Time
- Quality
- Budget
Implications (1)

• With a growing degree of technological innovativeness the

  inward-looking roles of expert-, process- and relationship-promotor show growing negative effects

  outward-looking roles of technological gatekeeper, relationship-promotor and project leader show growing positive effects.

• With a new technology not only the technological knowledge of the innovating company changes, but also of their competitors, customers, suppliers and research partners.

That is why the company also has to keep up with this newly arising external knowledge and its new applications.
8 Role Models for Radical Innovation

Open Innovation Funnel

- Internal technology base
- External technology insourcing
- Licence, spin out, divest
- Internal/external venture handling
- Our new market
- Other firm’s market
- Our current market

Stolen with pride from Prof. Henry Chesbrough UC Berkeley, Open Innovation: Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004