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Risto Harisalo, University of Tampere

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## Introduction

There is a growing interest in innovative behavior of political organizations such as communes (Aiken-Alford 1974, Bingham 1976; Yin 1981). The reasons which lie behind this interest are many. Due to rapid change of the structure of the society, democratic institutions have difficulties to cope with new problems and circumstances. Some of the goals and policies of public government have proved to be unresponsive or even unsuccessful. Political power-holders are blamed, because they are not usually good at employing their power creatively in seeking new solutions and views. Public officials are not trained to create, develop and adopt novel services which meet the needs of citizens. There is a lack of concepts and a sound theory concerning innovative behavior of municipalities.

Innovative behavior is defined here as an ability of the commune to create, develop and adopt innovations. These three functions of the innovative behavior are distinct from others. For example, it could be noticed that the theory of the diffusion of innovations does not include creation and development of innovations (Rogers 1961; Rogers-Shoemaker 1971). Researchers are not unanimous as to whether communes have a trait, which is called innovative ability, or not. Some scholars think that it is a historical legacy of communes to innovate,

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whereas others argue that communes do not have the will, motive and resources to do that. It is reasonable to conclude that this controversy over innovativeness of communes depends on how the place and functions of communes (cities, boroughs, rural communes) in society are understood.

Two different approaches to the study of municipal administration can be separated. These are, in a way, ideal types characterizing the existence and meaning of communes. The first is called the administrative approach (Harisalo 1980b). According to that view, communes are agents of the state, which has created them to advance its own goals and purposes. Implementation of state plans as an essential job of communes is usually emphasized. The source of innovations for municipal administration is the state and politics at the national level, and if we want to understand innovation in municipal administration we have to direct our attention to the central government. For these reasons, the administrative approach recognizes at the municipal level only organizational, administrative and juridical elements and factors. This approach has been prevalent in Finland.

The historical-organic approach is the second way to study communes (Harisalo 1980b). According to that view, communes – and especially cities – have a very long historical tradition and have contributed in significant ways to progress and civilization (Sjöberg 1965; Sirjamaki 1964; Basham 1978; Schneider 1979). Schneider writes that the creation of the city is possibly the most revolutionary of all human revolutions, but in spite of that we have not yet learnt to use fully the potentials of cities to our advantage. This approach is organic, because communes have always been able to respond to problems and challenges over the centuries, often long before the state has participated. According to the historical-organic approach, every commune is an independent political system with its own area, resources and political decision-making mechanism. Political process, by which problems and conflicts are handled, is central to this approach. Rönkkö has made similar conclusions in his article about communes which he calls sovereign political actors (Rönkkö 1981). The historical-organic approach is accepted here, because it opens new avenues and possibilities to research on innovative behavior of the communes.

## A Theoretical Frame of Reference

Diffusion has been called by many names: lending, copying, emulating and even thieving. In this article, diffusion is defined as a process by which

an innovation spreads (Rogers 1961). Rogers separates four elements in diffusion: (1) the innovation, (2) its communication from one individual to another, (3) in a social system, (4) over time. Katz, Lewin and Hamilton (1963) separate seven elements: an innovation, diffusion channels, adopters, an adoption, time, a social system and its values. Here diffusion is divided into four elements which are an innovation, a social system, diffusion and time (Harisalo 1980a).

Each of these four elements can be divided further into factors. In innovation, three factors are taken into consideration: the type of the innovation, the characteristics of the innovation and the source of the innovation. In the social system, there are these factors: adopters and their relationships, adoption as decision-making, opinion leaders, change agents, channels for innovations and information and values. The diffusion consists of diffusion areas, a life-span of innovations and diffusion models. Time is understood from two different points of view: from that of an adopter (be it consumer, group, organization etc.) and from that of the social system.

*The Conceptualization of Innovation*

There are difficulties in defining innovation in a satisfactory way. Some definitions can be criticized as being too specific to the innovation and to the context under study. For example, in development research, innovations are defined as labor augmenting and as material augmenting (Brown 1980). Problems also arise because some authors see innovation as a process and others see it as an output of such a creative action. Sometimes, especially when highly complex technologies are studied, it may be difficult to separate which part of the technology is new and which is not. There is also a tendency to think of only some objects and practices as innovations and others as not. However, every idea has been an innovation sometime (Rogers-Shoemaker 1971), but in the passage of time their innovativeness has worn out. Finally, innovation is mainly understood in a positive sense: innovation is good, democratic, efficient etc. As a scientific concept, however, innovation should be neutral. Therefore innovations like forms of corruption, weapons, means of war, demonstrations and social movements have to be also studied and included in the theory of the diffusion of innovations.

Innovation is defined here according to two criteria: a hierarchy of innovation concepts and invariances of each hierarchy level (Harisalo 1977; 1980a). Three hierarchy levels are separated; the nature of innovations, the type of innovations and the decision-making of in-

novations. Invariances of these levels are supposed to differ from each other.

By their nature, innovations are all either technological or social innovations. This is a distinction that many researchers use in their studies (Gabor 1970; Roger-Shoemaker 1971; Jungk 1976). There are two different groups of technological innovations. First, technological innovations are products which are invented, produced and marketed by firms. Second, technology in general such as space-technology, nuclear technology and weapon systems as an output of scientific-technical progress is also called technological innovation. These innovations are tangible or material, and for this reason they are different from social innovations which are by their nature intangible or non-material. Examples of social innovations are services, forms of participation in politics, behavioral patterns, organizational models, scientific theories and political ideologies. If we think only of services, we say that they are invented, developed and marketed mainly by public governments.

By their type, innovations are divided into two groups: a group of basic and improvement innovations and a group of product and process innovations. The distinction between basic and improvement innovations has been made by Gerhard Mensch (1972; 1979). The basic innovations are completely new technological and social concepts, require novel behavioral patterns and for them production methods and markets have to be created. They are also called major innovations (Chisnall 1975) and absolutely fundamental innovations (Warren-Rose-Bergunder 1974). The basic innovations are rare, but their effect is real and deep. They open new avenues and possibilities for human progress by shaping new reality. Improvement innovations are understood as a development of basic innovations quantitatively, qualitatively and functionally. Improvement innovations, as the output of developmental activities, have a life of their own and are independent entities to be adopted and studied. It is estimated that of all innovations about 90% are improvement innovations.

The second group of types of innovations consists of product and process innovations. Product innovations are products and services which are marketed to customers or to people in need of them. Process innovations are methods and means in production of product innovations. According to Bingham (1976), product innovations require adoption of physical change, and process innovations require a change in a method. He observed that diffusion of product innovation is different from that of process innovations.

The third level in the hierarchy of the innovation concepts is the level of

decision-making. In terms of decision-making, innovations are either actor innovations or authority innovations (Rogers-Shoemaker 1971). There is an actor innovation, when an adopting unit, be it an individual, a group or an organization, can freely adopt or reject an innovation. The question whether actor innovations are based on comprehensive or incremental decision-making is open to debate. We talk about authority innovations when adoption decisions are forced upon an adopter by someone in a superordinate power position (Rogers-Shoemaker 1971). Communes in Finland have been forced to adopt many authority innovations by the state.

*The Social System in the Theory of Diffusion of Innovations*

Potential adopters, their relationships, change agents and opinion leaders make up the social system. The social system can be a stable set of adopters, such as communes of a country, or it can be something else, depending on an innovation and its potential adopters. The social system is important, because it sets boundaries within which innovations diffuse. However, a decisive solution cannot be given to the question as to which factor of several possible ones – an innovation, adopters, or some other factor – has to be the main criterion in determining boundaries of the social system.

Innovative behavior of potential adopters is a central theme in diffusion research. Adopters are broken down into five categories according to their innovativeness: innovators, early adopters, early majority, late majority and laggards. Innovativeness is the degree to which a commune is relatively earlier in adopting innovations than other communes. However, when innovativeness is defined in this way, it does not take into consideration the ability of creation and development instead of adoption. Therefore we have to use the concept 'innovative ability', which points to natural and obtained characteristics of communes (Harisalo 1980a).

Creation and adoption are two important and different creative processes which express innovative ability of communes. Learning, uncertainty, radical change and collision between old and new values and expectations are typical for creation. It is often thought that these traits do not belong to adoption. However, it is reasonable to suppose that they are also present in adoption, but in different ways and differently weighted. This means that when we interpret results of diffusion studies, we have to remember that adoption is only one side of the coin: some communes may have chosen to create their own innovations.

*Diffusion in the Theory of Diffusion of Innovations*

From studies of the social system it is possible only indirectly and in a limited way to get information about regional aspects of diffusion of innovations. Therefore the focus has to be turned to diffusion, the third element in the diffusion theory. Political scientists, sociologists and economists have not studied diffusion sufficiently. Only geographers have studied diffusion, but they have in turn neglected other elements in the diffusion theory. Here we define diffusion as a regional process of innovations due to adoption decisions by adopters (Harisalo 1980a). Central to diffusion is how innovation movement as a regional process can be understood, what are the regional implications and consequences of that movement and how different regions affect adoption behavior of communes.

The social system can be divided into two or more regions. Many attempts have been made to define boundaries for regions (Sharkansky 1970; Rantala 1970). Sharkansky separates four different areas: a natural region, an economic region, a cultural region and an administrative region. It is supposed that communes within a certain region have the same kind of values and behavioral patterns and that they are willing to search for ideas, solutions and make comparisons within the region. Communes will also have discussions with each other about regional problems. Common problems and circumstances bind communes together.

When innovations diffuse, they have a life-span or a life-cycle of their own. With this concept it is possible to describe how innovations come to the social system and how they will finally disappear. There are five stages in the life-span of innovations: introduction, growth, expansion, saturation and decline (Brown 1968; Robertsen 1971). The form of the life-span can vary from one innovation to another (Robertson 1971; Migdley 1977). This observation should be strategically important for the diffusion theory. However, diffusion models are needed to give a deeper picture of diffusion of innovations.

There are two main types of diffusion: relocation diffusion and expansion-hierarchical diffusion (Brown 1968; Mikkonen 1978). Relocation diffusion occurs when some members of a population at a time t change their location from time t to time t+1. Relocation diffusion is used for topics as migration, urban travel behavior and relocation of commercial establishments. According to Brown, there is an actual transfer in relocation diffusion.

Expansion diffusion occurs when innovation is diffused to new adopters

between time t and time t+1. It is typical to expansion diffusion that the probability of a new adoption is highest in the vicinity of the first adopters. Therefore expansion diffusion is compared with rings in the water. Expansion diffusion is characterized by associative transfer (Brown 1968). In hierarchical diffusion, innovations diffuse between adopters in hierarchical order. Communes are not necessary near each other as in expansion diffusion, and distances between communes in the highest hierarchical order can be very long. Innovations come from top to bottom in hierarchical diffusion. A hierarchy in the municipal administration is usually based on institutional differences between communes.

Expansion-hierarchical diffusion can be made more accurate by deriving from it three diffusion models. These are a pluralistic model, a feudal model and a center model. The concept pluralistic model is analogous to the pluralistic theory of politics, according to which many groups participate in the political arena. In a pluralistic model, different innovations are supposed to diffuse to communes in different orders. Hence, movements of innovations cannot be predicted when diffusion follows a pluralistic model. In a feudal model, diffusion of innovations always follows a certain order. Innovations diffuse first to communes that are thought of as castles, and only after that to vassals in the neighborhood. The third model developed by Koskinen and Lehtonen (1975) is a center model mediating between a pluralistic model and a feudal model. According to a center model, diffusion obeys to a certain degree a given order, but subsequently diffusion will approach a pluralistic model. This model may be a very realistic approach to describe diffusion in reality.

*Time in the Theory of Diffusion of Innovations*

Time is studied from two points of view. First, from the adopter's point of view it is the length of time required for an adopter to pass through adoption decision-process from awareness to adoption or rejection. Second, from the social system's point of view, time means how long it takes before all potential adopters in the social system have adopted an innovation. In addition, different periods can be separated in diffusion of innovations.

## An Empirical Study of Diffusion

We start with a main choice in terms of our theoretical conceptualization: the empirical research is limited to the diffusion part in the theory of diffusion of innovations (Figure 1).

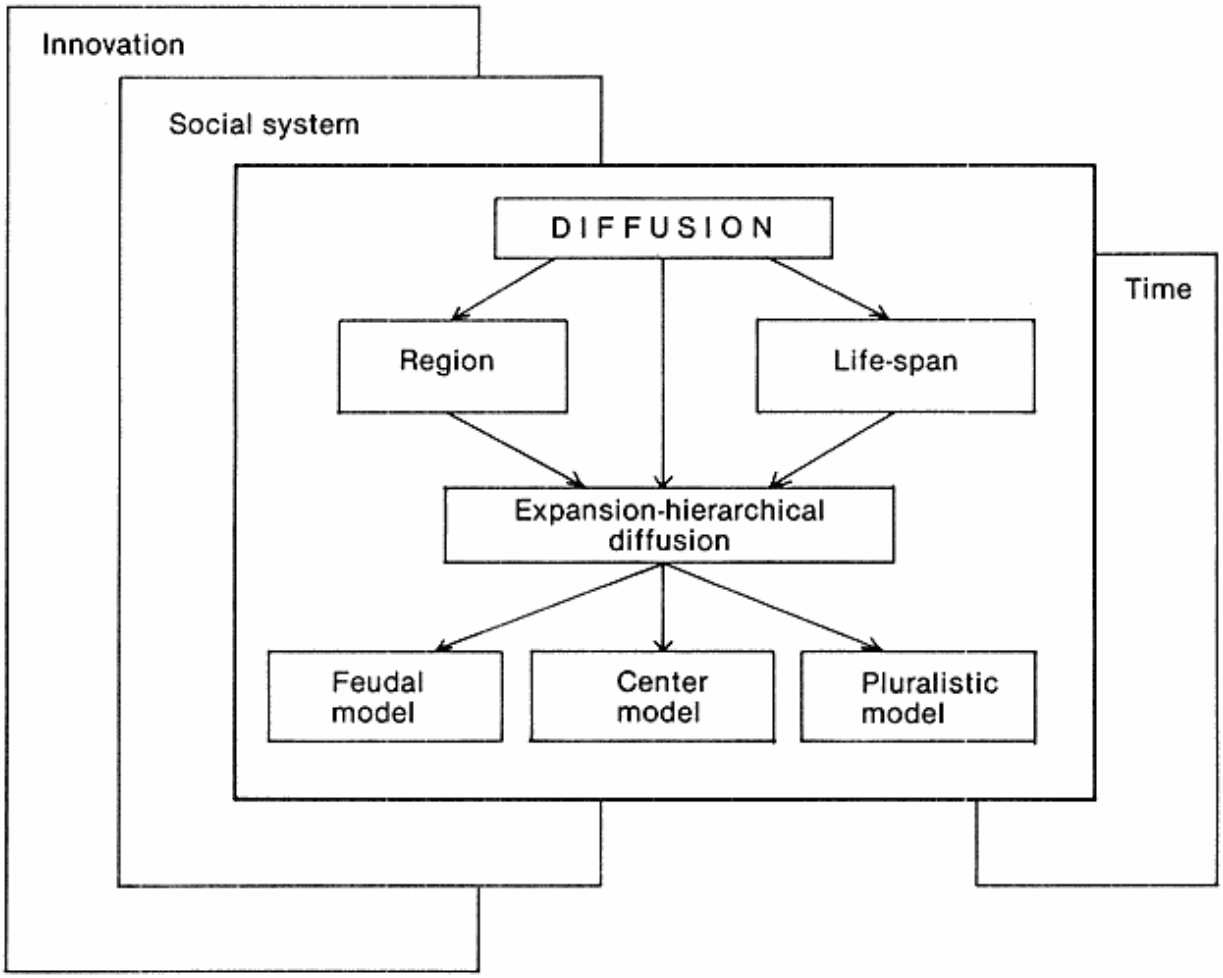



Figure 1. The diffusion part of the diffusion theory

*Selection of Innovations:*
Eight innovations were chosen for the study. They are all social innovations. The reason for the selection was that much less is known about diffusion of social innovations than of technological innovations. In USA, for example, most diffusion studies in local government are about technological innovations. The eight social innovations were also interpreted to be basic innovations. Further, they are called process innovations, because they are used as means to produce services for citizens. As process and product elements are so closely intertwined in the eight innovations, they are briefly called policies. These innovations are also actor innovations, i.e. communes have not been forced to adopt them. The innovations in chronological order are:

1. Public-library policy
2. Sports policy
3. Personnel administration policy
4. Household policy
5. Commercial policy
6. Traffic policy
7. Personnel initiative policy
8. Planning (activities and economy) policy

It is impossible here to give a complete description of the eight policies. The central governing bodies of the commune – the council, the board and the highest officials – have participated in adoption decisions. Therefore adoption of these policies expresses politics pursued by an adopting commune. The policies are now an essential part of contemporary municipal administration. Many of them are organized into committees which are rather independent policy-makers in their professional fields. The committees have their own administration, personnel, investments and budgets. When the policies began to diffuse, all of these consequences have not been anticipated.

Public libraries lend books, records and language tapes to citizens. Sports committees provide services such as ski centers, athletics fields, ice halls, and outdoor recreational facilities. Commercial policy committees advance, mainly indirectly, industrial and economic activities in their area. Traffic committees are responsible for traffic safety in streets. Through the policy of encouraging personnel initiative, communes try to advance and nurture creativity and imagination among officials and workers.

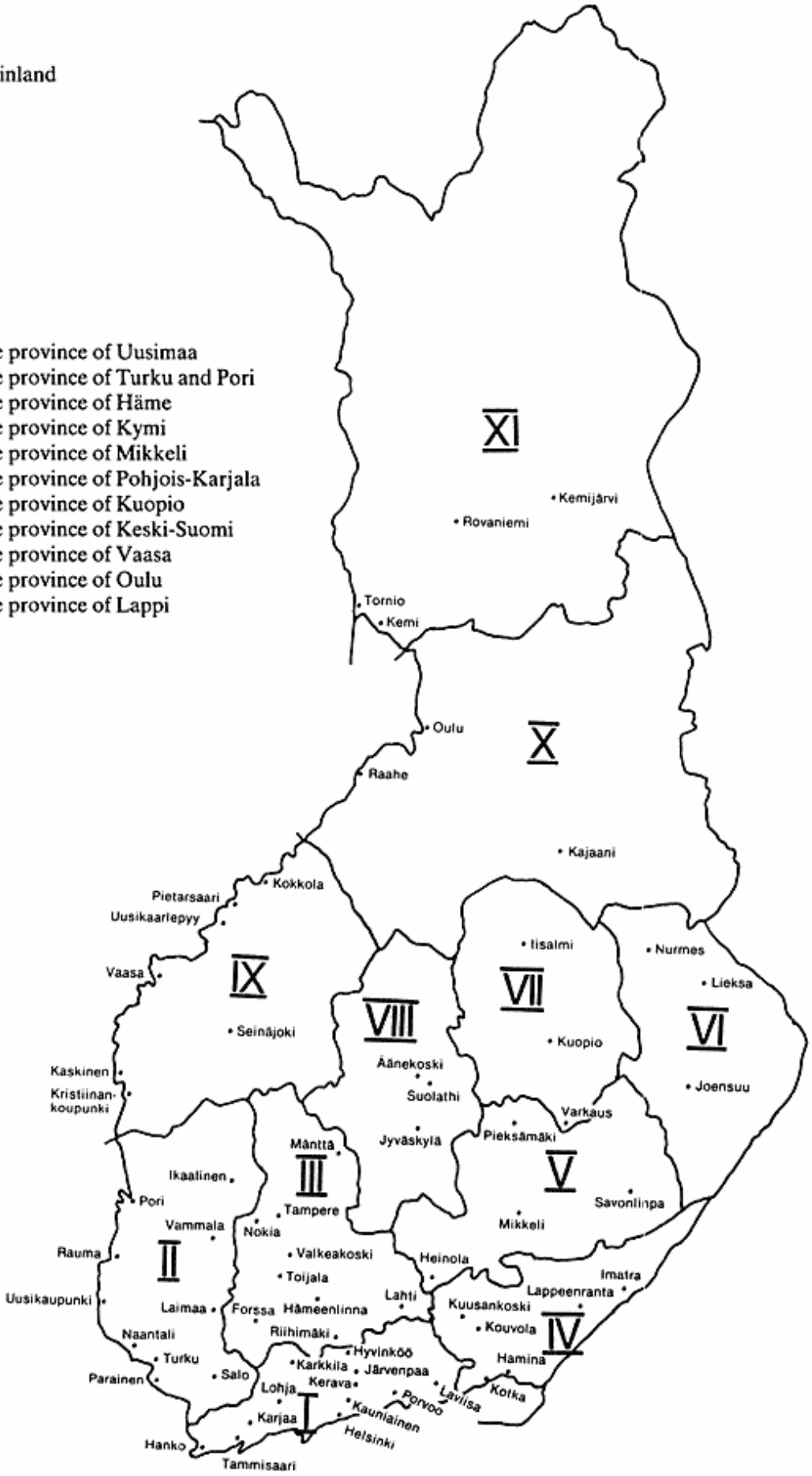
The question whether it is possible to get reliable results from diffusion of the eight innovations is essential. There is no satisfactory answer as to the number of innovations in a study (Karvonen 1981). In studies, the number of innovations ranges from one to about two hundred. In this study, we have to keep in mind that there are not many actor innovations left to choose, because many policies have been made compulsory for communes by the state. Therefore, it can be concluded that the eight policies are sufficient to give results about the innovative ability of communes.

*Selection of Communes*

As shown in the Map, there are 461 communes in Finland of which 84 are cities. There were three different forms of communes under the old

The map of Finland

I The province of Uusimaa
II The province of Turku and Pori
III The province of Häme
IV The province of Kymi
V The province of Mikkeli
VI The province of Pohjois-Karjala
VII The province of Kuopio
VIII The province of Keski-Suomi
IX The province of Vaasa
X The province of Oulu
XI The province of Lappi



municipal government act. The old act of 1948 was replaced by a new one in 1977, and the new act abolished differences between communes. Now there are 84 cities and 377 communes. In this study, communes were divided into three groups: cities, boroughs and rural communes. The number of cities is 34 and of boroughs 30. One city, Maarianhamina in Ahvenanmaa, and 19 boroughs were excluded from this study for institutional reasons. The total number of cities was then 64. In addition, 39 rural communes in the province of Häme were included as a comparative group.

In this study regions signify 11 provinces of the country. Provinces are regional state authorities for general administration, i.e. administrative regions in Sharkansky's terms. Map 1 shows the cities and the provinces.

## Empirical Results of the Study

*General*

As Table 1 shows, most innovations are very old. The first public library was adopted in 1851 by a rural commune in Häme and a sports policy in 1899 by the city of Heinola. Three policies started to diffuse just after the Second World War and only planning policy began to emulate in the 1950's. This evidence seems to support the view that there are two main bursts of basic innovations in the municipal administration: one which occurred around the turn of the century, and another just after the war. Diffusion times for the policies seem to be long, too. Therefore we may say that modern municipal administration has been in the making for a

| Innovations | A year of first adoption | | A year of last adoption | | % of which have adopted | |
|---|---|---|---|---|---|---|
| | cities | r. communes | cities | r. communes | cities | r. communes |
| Public library | 1860 | 1851 | 1951 | 1954 | 100 | 100 |
| Sports policy | 1899 | 1929 | 1969 | 1972 | 100 | 100 |
| Personnel adm. policy | 1916 | 1955 | 1978 | 1977 | 97 | 56 |
| Household policy | 1920 | 1919 | 1973 | 1956 | 58 | 10 |
| Commercial policy | 1946 | 1950 | 1978 | 1978 | 88 | 100 |
| Traffic policy | 1947 | 1954 | 1978 | 1975 | 84 | 87 |
| Pers. initiative pol. | 1949 | 1952 | 1974 | 1978 | 17 | 13 |
| Planning policy | 1964 | 1955 | 1978 | 1978 | 98 | 100 |

Table 1. The overview of the diffusion of the eight innovations

long time. However, an average diffusion time is shorter for newer innovations than for older ones. Cities have been slightly more active adopters of policies than rural communes in Häme.

*Direction of the Diffusion*

The state can be roughly divided into a center and a perifery. The center is more urbanized, industrialized and concentrated than the perifery, but exact boundaries between them cannot be drawn. It is supposed that diffusion of innovations begins in the center and continues from there towards Eastern and Northern Finland (the provinces of Pohjois-Karjala, Oulu and Lappi). Diffusion has begun in the center as supposed. However, two main directions of diffusion of innovations instead of one were found. The last adopters of older policies were located in the provinces of Pohjois-Karjala and Oulu: the cities of Lappi were not laggards but rather innovative units. The second route for innovations was that they went first to the perifery and after that came back to the center. In fact, especially newer innovations were adopted last by cities which are located in the center and it is rather curious to observe this. These last adopters are located mainly in the three provinces: Uusimaa, Vaasa and Turku and Pori.

*Regions in the Diffusion*

Looking at regions, it is possible to see that they differ from each other in innovativeness. The cities of the provinces were scored according to the speed with which they adopted innovations in the following way. Cities in the introductory stage were given 1 point, cities in growth stage 2 points, cities in expansion stage 3 points, cities in saturation stage 4 points and cities in decline stage 5 points. Cities with no adoption at all were given 7 points. When these scores were added together and divided by the total number of the cities in the province, we can get an adoption index for each region. Hence, a small adoption index means high innovativeness and a big adoption index means low innovativeness. The results are shown in Table 2. It could be mentioned that the operationalization of the life-span of innovations was identical to that of adopters' continuum as suggested by Rogers (1961).

There are two regions which are clearly more innovative than other regions in the country. The first innovative region is called the innovative coast and the second is the province of Häme. The innovative coast gets its score only from the diffusion of the public library, but the result is assuring: nearly all innovators and early adopters and first cities of early

| | The province of Uusimaa | The province of Turku and Pori | The province of Häme | The province of Kymi | The province of Mikkeli | The province of Pohjois-Karjala | The province of Kuopio | The province of Keski-Suomi | The province of Vaasa | The province of Oulu | The province of Lappi |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Public library | 3,7 | 2,8 | 3,9 | 4,0 | 3,0 | 4,3 | 3,3 | 4,0 | 3,1 | 2,7 | 3,5 |
| Sport policy | 3,5 | 3,4 | 3,2 | 3,5 | 2,7 | 4,3 | 2,7 | 3,7 | 3,9 | 3,3 | 3,2 |
| Personnel adm. pol. | 4,0 | 3,4 | 2,9 | 3,0 | 3,2 | 3,8 | 3,8 | 3,3 | 4,1 | 4,0 | 3,0 |
| Household policy | 5,6 | 5,8 | 2,2 | 4,2 | 4,2 | 4,7 | 4,3 | 4,3 | 5,9 | 2,3 | 5,0 |
| Commercial policy | 4,4 | 3,9 | 3,7 | 3,0 | 3,7 | 3,7 | 4,7 | 3,3 | 2,3 | 4,7 | 3,5 |
| Traffic policy | 3,9 | 4,7 | 2,5 | 4,8 | 3,3 | 4,0 | 3,3 | 2,7 | 3,7 | 5,7 | 3,0 |
| Pers. initiative pol. | 5,7 | 6,1 | 4,4 | 5,3 | 7,0 | 5,3 | 7,0 | 7,0 | 6,4 | 5,7 | 5,5 |
| Planning policy | 3,8 | 3,5 | 2,4 | 2,8 | 3,0 | 3,3 | 3,3 | 3,0 | 4,7 | 2,3 | 4,3 |

Table 2. Adoption indexes for the provinces.

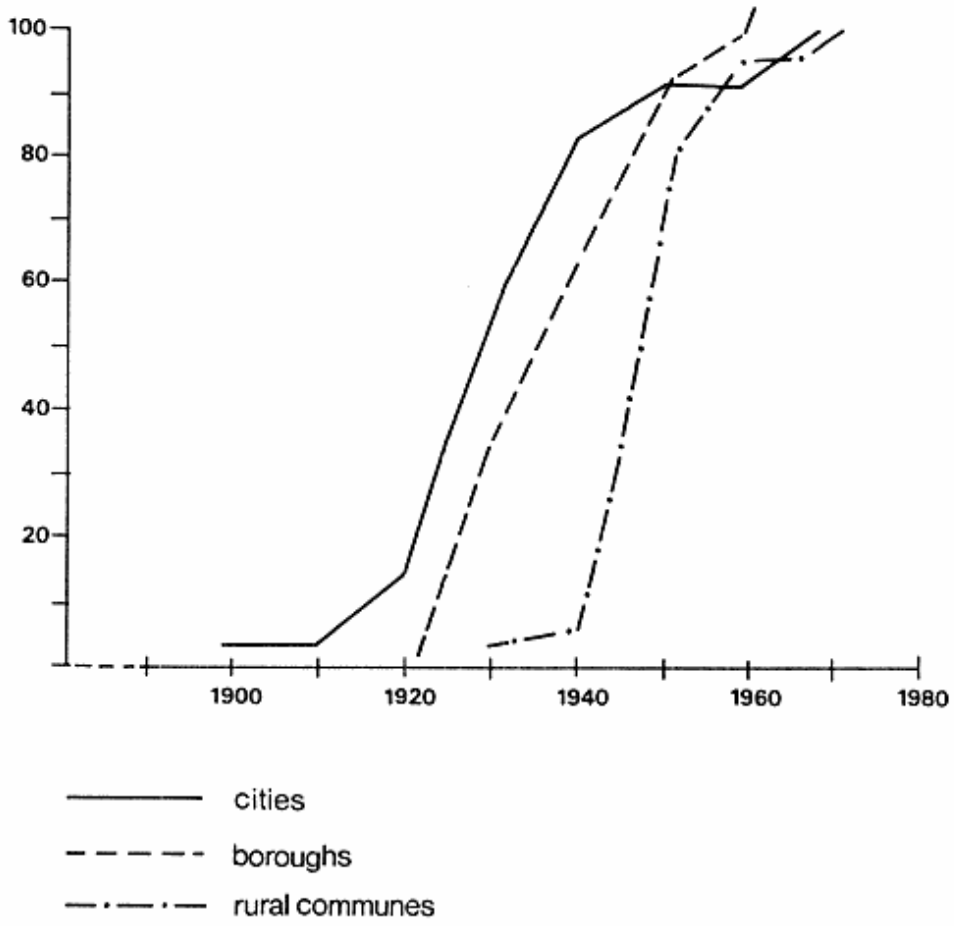



Figure 2. Diffusion of the sports policy

majority are located on the coast. Three provinces – that of Oulu, Vaasa and Turku and Pori – and only coastal cities (but not inland cities) of the province of Uusimaa made up the innovative coast. This region is like a glimmering string of pearls which is becoming thinner on the way from north down to south. The coast was an innovative region in the years 1860–1900, but probably the coast had been innovative a longer time than that period. However, in the beginning of the new century, the tide was turning: the innovative coast was losing its position gradually to the new region, the province of Häme and its nine cities. Since then, the innovativeness of the province of Häme has remained quite stable during decades.

Transfer of innovativeness and, once set down, stability of innovativeness is an astonishing and conspicuous phenomenon in the municipal administration. The question why a bunch of cities should act together in a progressive way in a certain region, cannot be answered here.

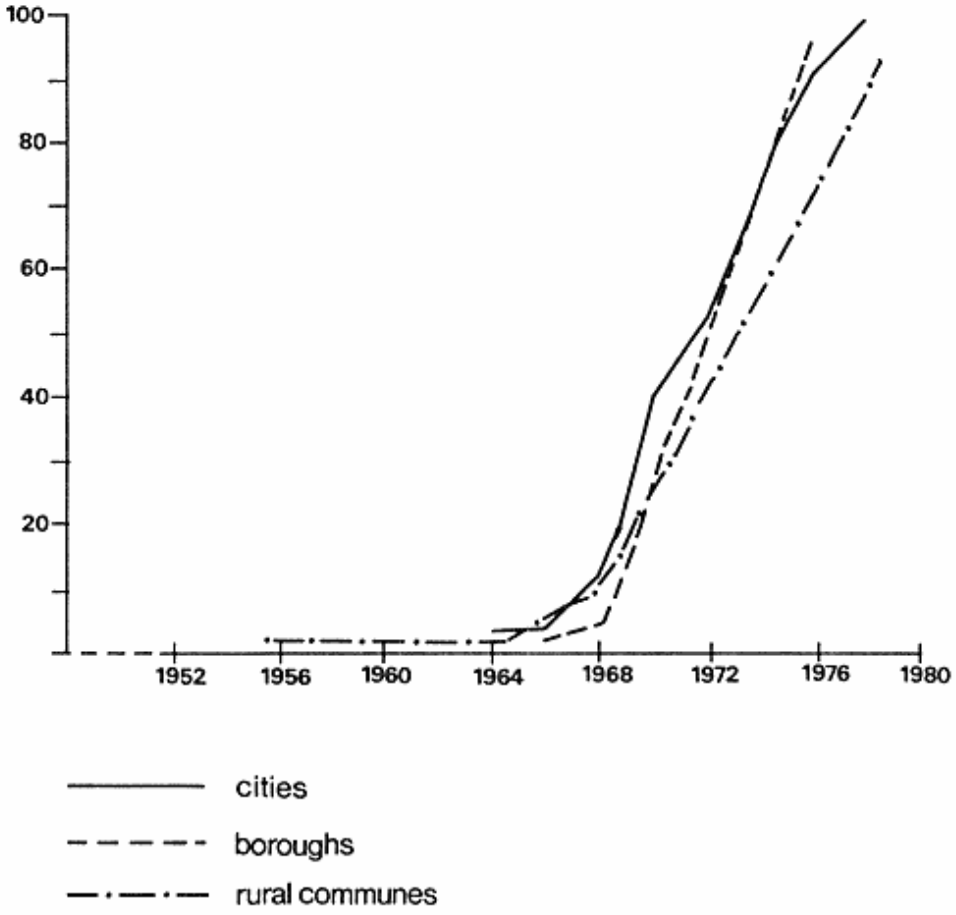



Figure 3. Diffusion of the planning policy

Equivalent observations are rare (Mensch 1973). It can be supposed that the general significance of innovative regions is that they make a base for socio-economic development and open new possibilities and opportunities for citizens, groups, corporations and so on.

*Expansion-Hierarchical Diffusion*

When expansion diffusion was first checked, the next conclusion which could be made was that there is no expansion diffusion at work. However, if we hypothesize that diffusion could be expansive in the beginning, i.e. in the introduction and growth stages of the life-span of innovations, we can get a different picture. Diffusion is really expansive in the beginning and this is due to the existence of the innovative regions. Therefore we can speak of a partially expansive diffusion of innovations.

Next, a possibility for hierarchical diffusion was studied. The criteria for a hierarchy were institutional forms of communes: there are first cities,

then boroughs and last rural communes. To each three groups of communes eight diffusion curves based on adoption of the innovations were established. The oldest policies – public library, sports policy, personnel administration policy and household policy – have diffused according to hierarchical diffusion (see Figure 2). After that, diffusion of the newer innovations seems to be losing its hierarchical character (see Figure 3), i.e. diffusion is no longer so clearly hierarchical as before.

*Diffusion Models*

Pluralistic, feudal and center models are tested by arranging cities according to the adoption order for each innovation. Then the adoption orders are compared with each other. Diffusion does not follow the pluralistic model, because innovative behavior of cities seems to be rather stable over time. However, there is variation to a degree that diffusion does not follow the feudal model either. So we can conclude that diffusion in the municipal administration follows the center model, i.e. innovative behavior of some cities is more stable than that of other cities, whose position in the adoption order change from one innovation to another. This observation leads us to the question of which are the cities with stable position in the adoption order.

*Centers in the diffusion*

There are two kinds of centers in the diffusion: national centers for innovations or shortly national innovators and local innovators which are provincial centers for innovation. National innovators are usually first to adopt innovations and after that local innovators are first adopters in their provinces. Three cities are national innovators: Helsinki, Tampere and Vaasa. Walker (1968) has made similar observations when studying states as adopters of innovations. According to him, New York, California and Michigan are more ready than others to adopt innovations. Local innovators as first adopters in the provinces legitimize the innovation so that other cities will adopt it too. Usually local innovators are capitals of their provinces. Naturally Helsinki, Tampere and Vaasa are also local innovators in their provinces.

## Conclusions

This study has been an effort to see how innovations have diffused in the Finnish municipal administration. It was done from the point of view of the diffusion of innovations. The study was explorative in character and it

raised, quite obviously, more questions than it was able to answer. Also other parts of the diffusion theory were not touched upon. The project about diffusion of innovations in the municipal administration is still continuing. In the next phase of the project, efforts will aim to unravel which factors explain innovative behavior of communes and which are differences between innovative and non-innovative communes.

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raised, quite obviously, more questions than it was able to answer. Also other parts of the diffusion theory were not touched upon. The project about diffusion of innovations in the municipal administration is still continuing. In the next phase of the project, efforts will aim to unravel which factors explain innovative behavior of communes and which are differences between innovative and non-innovative communes.

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