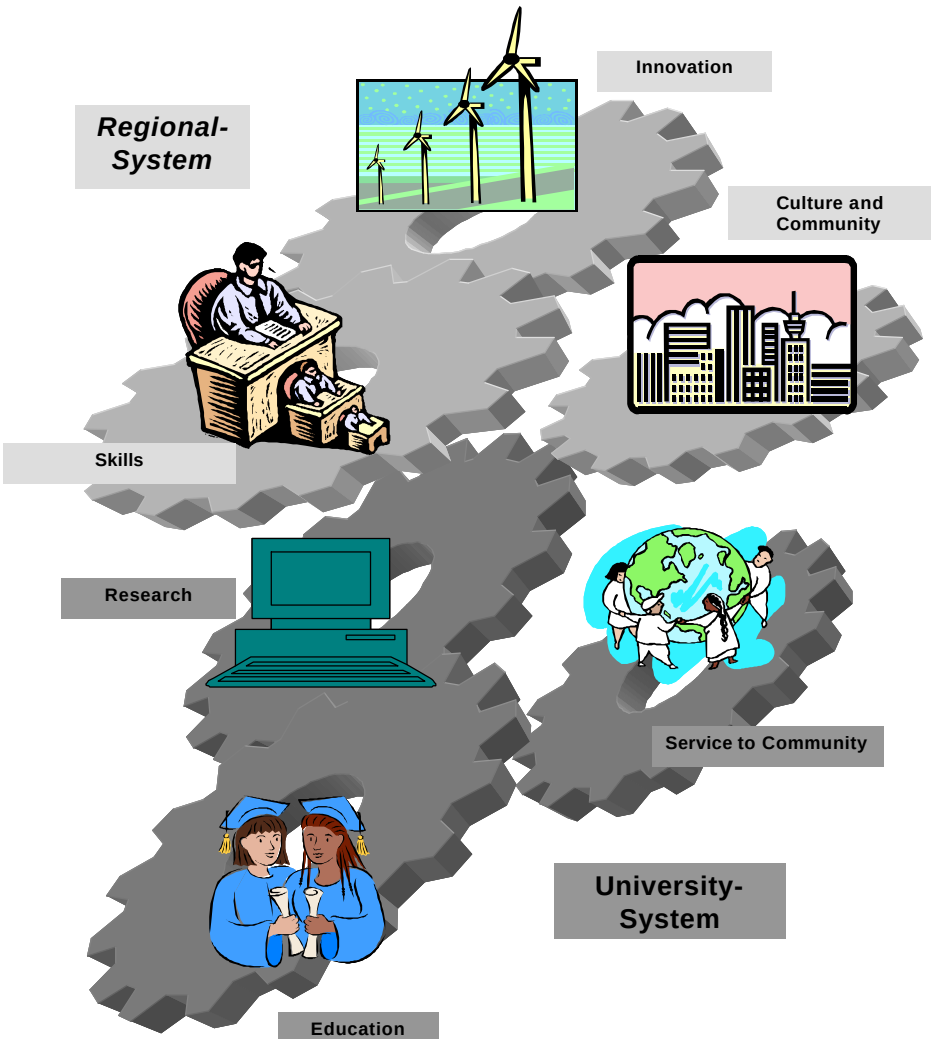
MANUSKRIPTE ZUR EMPIRISCHEN, THEORETISCHEN
UND ANGEWANDTEN REGIONALFORSCHUNG

FREIE UNIVERSITÄT BERLIN

Relations between City and University

Paper presented at
UNICA Conference
Brüssel, December 2000

Gerhard O. Braun



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Contents

Changing conditions and resulting profiles of cities

Rising complexities and uncertainties in the urban macro environment (politics, economy, society etc.) as well as in the urban micro environment (urban governance, urban housing, etc.) lead at present to various different development paths of urban regions and agglomerations. Cities and city regions pathways are faced by several processes (Carsten, 1999):

a. process of globalisation, i.e. growing competition between cities due to the aggravating situation to locate headquarters, new types of services (e.g. financial services), and to attract corresponding human capital as the panacea for future growth,

b. processes of de-regulation, i.e. the changing role of actors and activities within the urban system,

c. process of technology-logics and logistics, e.g. the process of accelerating diffusion of information and communication technologies (I&CT) leading to new types of business and services and highly diverse patterns at the intra- and inter-regional level,

d. processes of reframing change in economic organisations, i.e. organisational change is not conceptualised as an punctual but as an ongoing process embedded in a context of socio-economic complexity, and

e. process of ongoing regionalisation process on both the international level (e.g. NAFTA, EU, ASEAN etc.) as well as the national level (e.g. city regions, regional milieus and clusters).

Cities behave in this respect as catalysts in this post-fordistic restructuring process, resulting in cities of growth and those of decline (KRÄTKE, 1991). However, several cities and urban regions are currently standing at the bifurcation of both alternatives. Compared to the environment of the 1960s and 1970s when decision-makers had to deal with the proper economic environment for continuous economic growth, realistic scenarios today differ between chances that arise through I&CT due the parallel case of shrinking time patterns and risks that foresee the double polarisation of further peripherisation (BRAUN, 1991). It seems that these challenges and complexities can't be caught into certain future development patterns neither for cities in developed nor in less developed regions.

Empirical and theoretical investigations will indicate that the influential factors of the today and the future are faced by highly diverse effects of the globalisation and deregulation process, the prosperity of new information and communication technologies and the deconstruction of the former economic chain-hierarchy-structures which lead to the present financial weakness of communities, regions and nations. Thus, leading to an accelerating complex and dynamic environment of urban regions and their newly combined chain-network-structures.

These norms and values, in general lasted during the last three historical cycles of urbanity. At the edge of the 21. Century, however, the present characteristics of urban development paths anticipate a general change of urbanity and spatial organisation. This fundamental restructuring of cities can be seen in:

- spatial and structural shifts in the national and global urban system hierarchies,
- the de-nationalisation based on economic competition,
- the restricted ability of urban governance.

These processes create a massive potential of structural differentiation and the urban agglomerations will follow divergent, polyvalent future developments and will reveal divergent structural phenotypes.

Changing role of universities in a knowledge society

Within this changing conditions and resulting profiles of urban regions it is a new challenging task which now confronts universities. At present, societies became fragile not because of globalisation or the economisation of societal conditions, it is the loss of power because of the changing role of knowledge (STEHR, 2000). Knowledge creates a new ability of activities and potential of action. Its extraordinary role has not its roots in the fact, that research based knowledge is relevant for economic activities or induces activities. In this respect there is no difference as to knowledge based on common sense or even religious knowledge. The specific role of science or technology based knowledge does not even more result from the fact that research knowledge or findings are more truthful, objective, real, or significant. By contrast, the new specific role of knowledge results from the fact that this form of scientific knowledge permanently creates more than all other forms new possibilities of activities (STEHR, 2000).

These new possibilities – and this is most important - can be acquired by everybody, individuals, enterprises and governments. Because of its specific quality, scientific and technological knowledge is basis and engine of all changing societal activities. However, knowledge is always contentious; this can result in the loss of its practical relevance. But the ability to act is one side and the need of a story where knowledge is related to applications and reality is the other side of the same medal. Or to be more precise: the ability to act presupposes the performance of a final interpretation and transfer of what can be done with knowledge and its inherent potential (STEHR, 2000).

These transfer-functions have been taken over by experts all over the time. However, it is not the existence of science based work, it is at present the wide spectrum of occupation which depends on or results from science based knowledge. By contrast, there is a tremendous decline of jobs and job-offers which do not demand cognitive skills. Both effects of the polarisation of the job market leads to declining job-life-cycles, that is continuing at present just 12 years. It is the general transformation on the economic and job market which rises the economic productivity and in consequence improves the international competitiveness of regions.

However, it is not the high investment in information and communication technologies which causes higher productivity and creates knowledge regions; it is the so-called productivity-paradox that describes - because of intensive investment - the discrepancy between economic expectations and countable progress in productivity. Reasons for this discrepancy can be found either in time lag effects and/ or in the transformation of basic technologies into innovative creativity of products and services and the transformation of these products in existing markets (STEHR, 2000).

However, this process does not explain, why the number of qualified employees is increasing. The answer, that new technologies induce a high demand on skilled workers, seems to be

superficial. The opposite answer can be also true, i.e. that the increasing number of skilled people shapes the character of modern societies. Like in a self-inducing process, it seems to be that not the demand on skilled employees makes the working world increasingly knowledge intensive but the supply. This is the reason why in otherwise high structural persistence the today knowledge society changes with unusual high speed. Consequently, in times of rapid changes this hypothesis would force universities not to educate for a supply model market but to train students in abilities, competences and key-qualifications under the sign of uncertainty and vagueness of the content of the respective curricula (STEHR, 2000). Under these conditions, the best strategy for enterprises would be to attract and occupy excellently skilled young students respectively workers as future potential to be able to adjust even to new processes and new products to come. This tendency also explains the rising polarisation of the job market. The productivity paradox, therefore, describes that an immense investment in I&C-technologies does not directly correspond to an increase in productivity. An increase in productivity rather results from the growing qualifications of students who push their way in the job market. Therefore, the decisive characteristics of a modern job market are the uncertainties and the missing predictability to determine the required qualifications for the working world (STEHR, 2000). These are at the same time the challenging objectives and targets universities should aim at.

Transformational Problems: persistence of perception and behaviour

Both institutions, cities as actors, catalysts and locations in this post-fordistic economic and social restructuring process and universities as the producers of knowledge and providers of content are interdependently linked. The way, they behave in this general process, results in growth and decline of both cities and universities. Both are currently standing at the bifurcation of both alternatives, where monetary investment does not play the only decisive role but political responsibility towards this process. At present, it seems that weaker regions are rather able to learn easier this lesson while stronger ones try to resist because of their hitherto successful fordistic and sometimes ossified behaviour. The more especially big cities use their present power based on concentration and specialisation of traditional functions as an argument for the persistence of their previous course, they will fail. The future competitiveness of cities doesn't any more exclusively depend on size and traditional power, the hierarchy of cities and locations will become flat and regionally discrete in a network pattern. Even the political decision not to keep track with continuing and strategic investment into soft location factors like universities, culture and transportation systems - especially when cities are short of budgets, in general their future development of regional and structural competitiveness is endangered.

It is not necessary to elaborate examples since the Freie Universität Berlin represents best this situation in the year of foundation and at present. In the years of foundation people gifted in strategic thinking understood the signs of the time; at present it is hard to believe in the same insight. It is hard to convince people to change their behaviour as long as there I s no formal need to do so – a situation like in the MALTHUSian dispute. The satirist STAECK caricatured the situation in his typical way (fig. 1): A society, cheering its boxing champions, soccer players, tennis heroes, formula I pilots, is easily able to do without universities.

Mulitplying effects because of circular cumulative causation

GODDARD's elaborations on "the response of higher education institutes to regional needs" introduce into two major value added systems each representing the university and the region (fig. 2). Their respective dynamic results through a third system, called the university-regional-interface. This interface-system has

many interdependent complex facets to be analysed in the following (fig. 3).

That learning region interface works as coordinating intervening opportunity within an input-output-relation interacting system between universities and cities, and where university restructuring and cooperation/ competition correspond to urban restructuring and urban competitiveness via agglomeration advantages. This interface stands for a serious of socio-economic processes which structure in circular cumulative causation both the attractiveness and competitiveness of cities and universities. However, the relational effects are not complete, i.e. that one input unit of either the university respectively the city does not necessarily create one output unit of the same scale and so on, on the one hand. On the other hand, the expected effects of input can not be expected as output within the same time range, i.e. economic and research progress take time before they can influence each other. Additionally to this incompleteness and time lag a third dimension, a general term of uncertainty, influences the intensity of the input-output-relation system. All three components explain, why politicians and actors have difficulties to make use of the endogenous potential inherited in the input-output-system between city and university.

In knowledge societies there are no sectors within the urban socio-economic environment which are not directly or indirectly affected by university influences or are part of the university input-output system within a certain, but from sector to sector differing time lag in a significant manner. Altogether, in such circular cumulative systems it seems be inevitable that time loss or wrong decisions will turn the system into a negative cycle and right decisions just in time create positive cycles, called positive multiplying effects. The total investment in positive cycles are, in the long term, lower than in the case of repairing wrong decisions or suffering from these.

Empirical evidence in the relation between City and university

In the following only the two modules of "scientists" and "students" will be taken to reflect such multiplying effects. The first model gives some insight into the network of supply- and demand- causation students create or depend on (fig. 4). In the centre of the model the direct relations between university and city are presented which cause only minor contributions to the overall GDP. However, as pointed out in the transformation concept before, most and the structurally decisive relations act indirectly and create via detouring multiplying effects create added values. Not only the students' supply of innovation, culture or jobs but also their demand on consumption and investment goods, jobs and housing facilities change or contribute to the adjusting development of urban structure.

Most of these direct contributions and their share to the GDP are well known, but structurally more important are the indirect circular cumulative effects which help the urban economy to adjust to the competitiveness of leading centres. E.g., in the general urban renewal process students function as one of the main catalysts of the gentrification process (fig. 5).

When considering the spatial distribution of rent- or land-value, the resulting curve (solid lines) can be described by the overlapping of the density curve (dashed line) with the curve of living space (dotted line). In the time view, all investment in real estate show an general increase in value; this increase is strong respectively low in areas of high respectively low investment. But, this high or low increase is only linear as long as the re-investment keeps permanently track with the investment needed for the standard of new real estates. Re-investment is, however, only of cyclical character. After a period of time a basic investment requires a re-investment just to re-upkeep the basic investment to the level of current basic investment.

In case of an overdue of the re-investment residential decay is following. Students, short of private budget but with high potential to substitute for the continuing decay, preferably move into these areas with rent-gaps and renew not only the apartments but also the entire infrastructural environment. They create over time - via supply and demand cycles - so-called urban scenes and give reason in designing the character of new urbanism which consecutively becomes attractive to other social groups like Yuppies, Dinks or even professors. With this increasing attractiveness rent is increasing as well and students have to move out or remain gentrified as yuppies, assistants or professors in this area.

It is quite interesting to realise that the members of different faculties contribute in a different way to this renewal (fig. 5 and 6). In general, students tend to live in these areas as long as they are cheap, otherwise they relocate to the neighboured, next cheaper areas to be gentrified. Professors in general tend to live more peripheral in suburban environments. However, this tendency is overlapped by two groups, the students and professors who are enrolled in social sciences – because they prefer gentrified areas – and secondly students and professors in medicine who tend to prefer peripheral suburban areas but all in the same social sector. Students and professors in natural science are intermediates. It is not surprising that the location of the university isn't as important as the access to regional and structural urban respectively suburban advantages. That indirect contribution to the GDP – generated by the gentrification process - is more effective than the students' and professors' direct contribution as consumers and suppliers.

The network of the second module "scientists" within the relation city and university – to be presented here - is of similar complex nature (fig. 7). In general, within their supply and demand system, they contribute to the general stability and high development potential of the local and regional economy. The demand part of the system, therefore, creates in a circular cumulative manner qualified housing, a deeply specialised division of labour, a high level of cultural events, qualified personal services and in addition all kind of agglomeration advantages. With their supply network they support not only the basis for the development of a knowledge region but also links to the future development of professional services, research based occupational advantages and, most important, to a set up of national and international networks which are important for the endogenous potential of a permanent structural adjustment.

The effects of those regional and structural agglomeration advantages can be tested when the locations of university and non-university research institutes are mapped as shown in the case of Berlin (fig. 8). Three major clusters can be identified. The strongest agglomeration is shaped in the Dahlem region with the Freie Universität as centre.

Among the subsystems with the structurally most important multiplying effects - the other systems, e.g. the occupational effects through external research funds, are well known and should not be reported here - can be counted the invention of incubators (fig. 9). While the multiplying effects of private economy incubators are relatively small, public institutional and especially the model of the university voluntary incubator are more effective because they deeper rooted in their related networks.

Within the private economy incubator, consulting service partners merely lead founder and investor to a yes or no decision. There are no other deeper regional effects to discover. The model of the public incubator functions more as a training and coaching centre where foundation is not necessarily expected to happen. The third model, the non-profit oriented incubator links both alternatives with a regional network of voluntariness, trust, seniority system, and without subsidies and creates this way best interdependencies and deepest roots between university and the resulting knowledge region.

When interpreting the spatial pattern of the 77, in a three year period founded start-ups in Berlin (WICHITILL, 2000), which past successfully the business plan competition, you will find clusters of spatial concentration where three the universities and non-university research institutions (Steglitz, Zehlendorf, Charlottenburg, Treptow) and the gentrified areas (Kreuzberg, Mitte) are located (fig. 10). The rest of the pattern is simply random. Most of these start-ups are knowledge producing and/or knowledge based production sites (high tech, internet, biomed-tech, I&CT, multi-media, professional services like consulting and education). Their customers are to a high degree not private ones but other enterprises which use the output as input for further multiplying effects. Companies having passed those incubators show a significantly lower death rate than those without the help of incubators. Within this three year period the young founders increased their average size from 1.5 to 3.4 jobs per start-up. The small size of this start-ups is related to the degree of specialisation and to their locations which are preferably residential or mixed residential areas. The average working hours are above 50 hrs. a week; that also explains the close vicinity to the urban scene. The number of total foundations increased since the implementation of incubators, the death rate decreased and the brain drain has been reduced despite decreasing subsidies. This development can be deduced not only from the effects of professional consulting but more specific from the depth of the related regional network in which the start-ups are embedded. It is hoped for that the third type of incubators is also able to re-effect the university education stressing on the transformation of the respective curricula towards market applications. This transformation is called story.

Conclusion and the specific role of capital cities

In concluding the resulting regional and structural output of the effects of the principle of circular cumulative causation within the university-city relation two remarks are added:

Firstly, the related turnover in capital cities gives reason for an additional dimension of the discussed complexity of the city-university-relational network. It is not only the localised expertise presented by universities in all kinds of political fields, more important is the internationality of the networks which can be implanted into the existing regional pattern.

Secondly, and this is not a satiric comment but the concluding evidence of the presented arguments stressing on the transformational process in the inter-city-university relation: a society cheering its universities is easily able to do well in sports as well (fig. 11).

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Fig. 1

K. STAECK, SATIRIST

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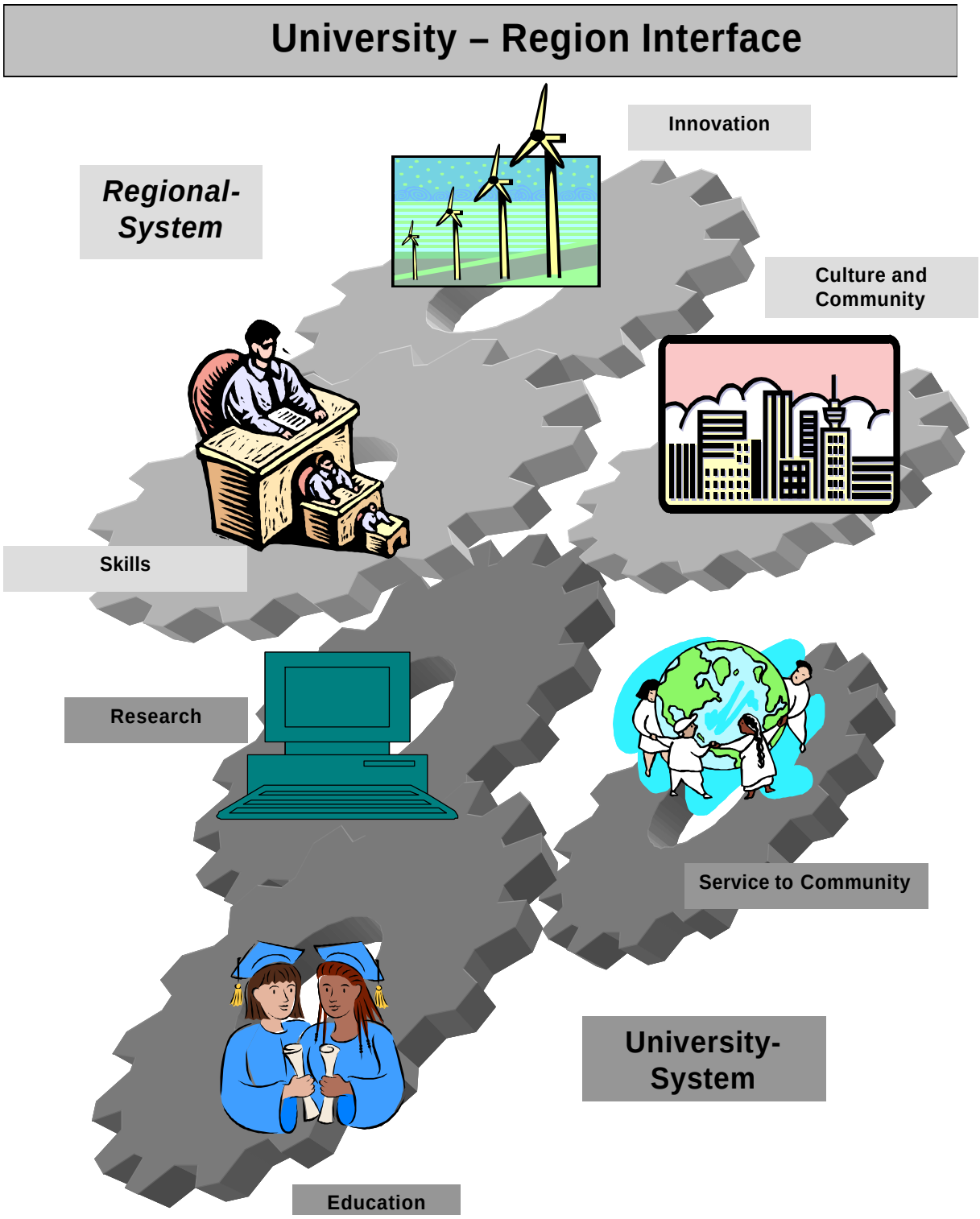
without universities

Source: Braun, 2000-12-14-01

Fig. 2



Source: J. Goddard; Braun, 2000-12-14-02

Fig. 3

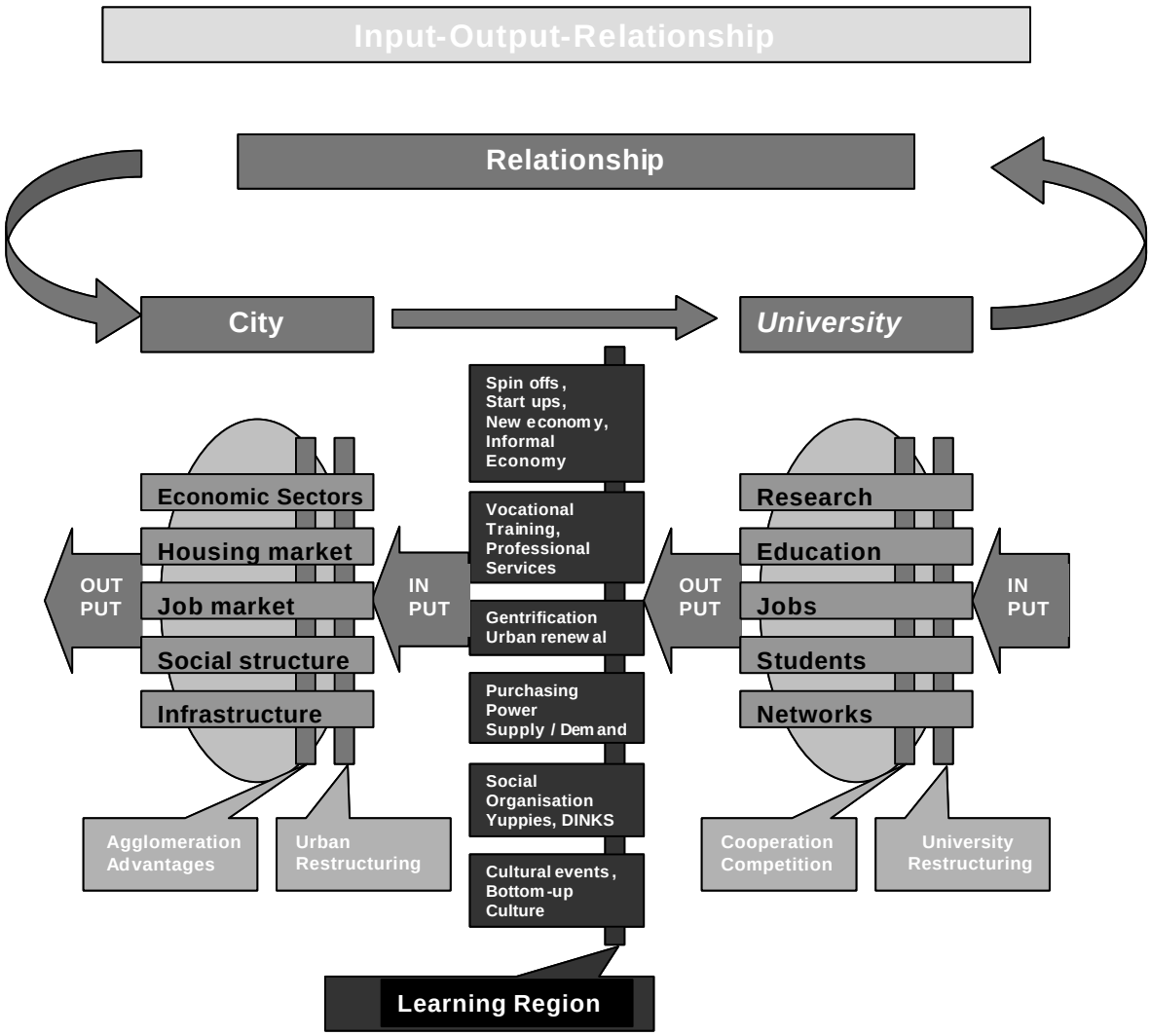


Fig. 4

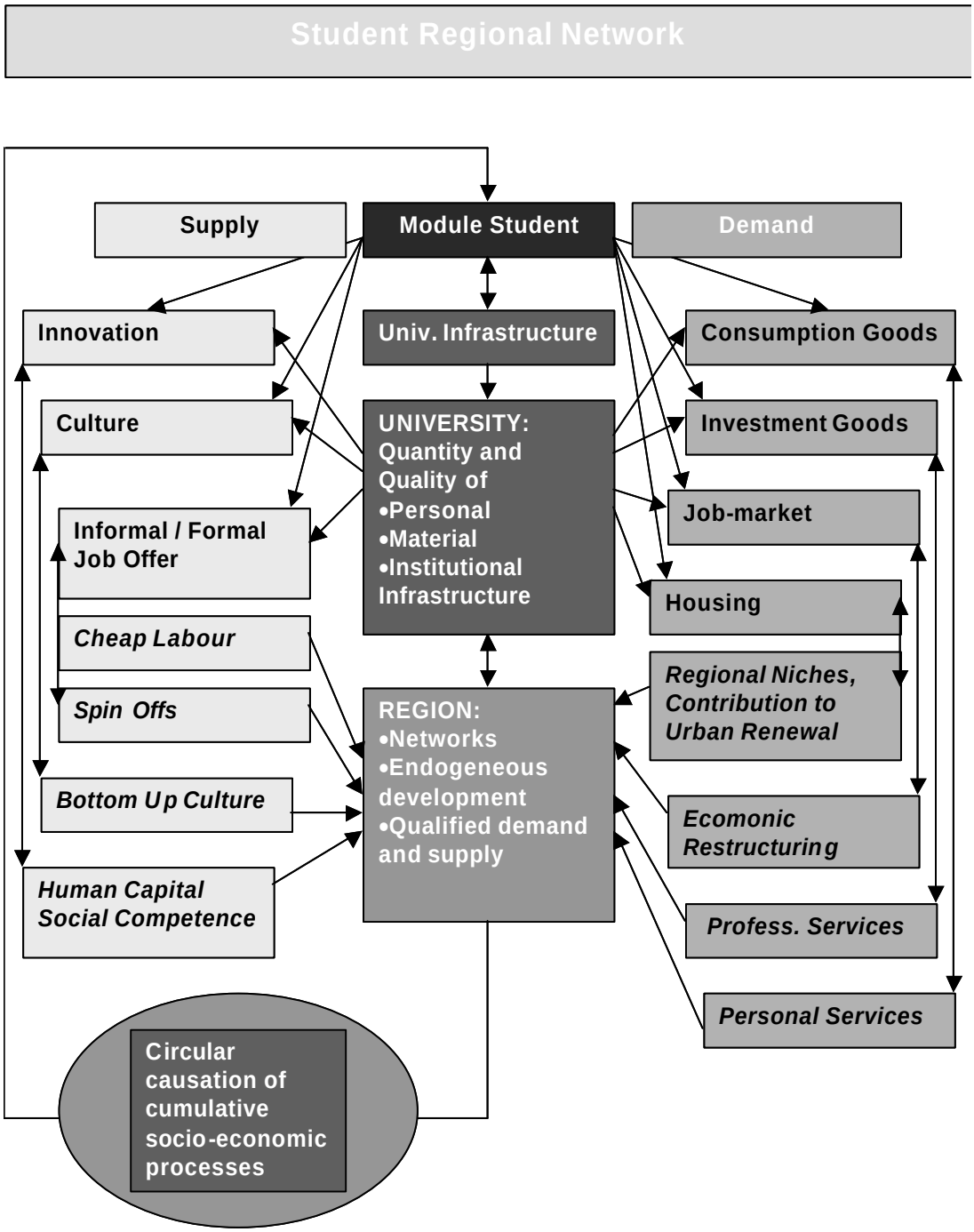


Fig. 5

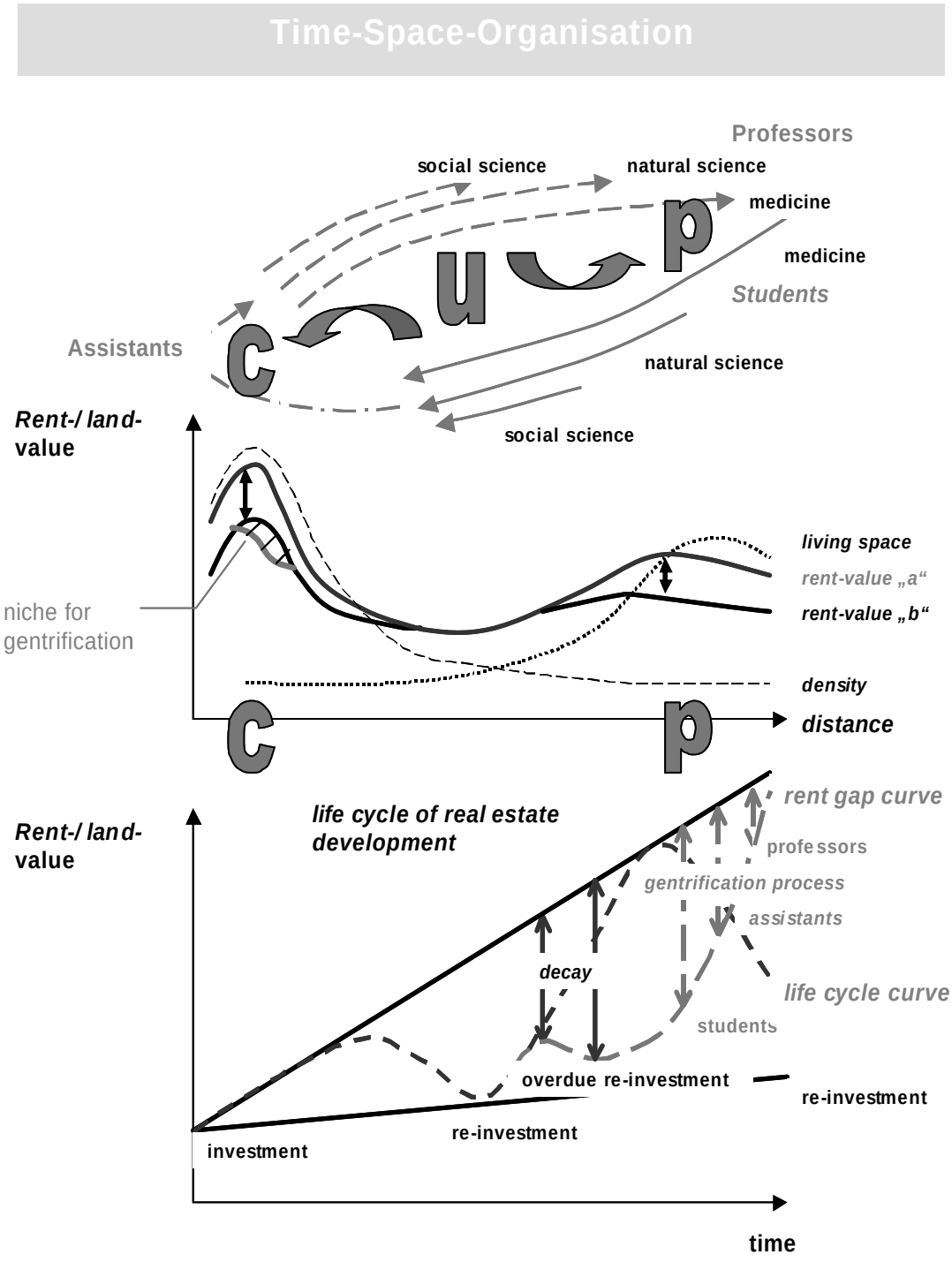
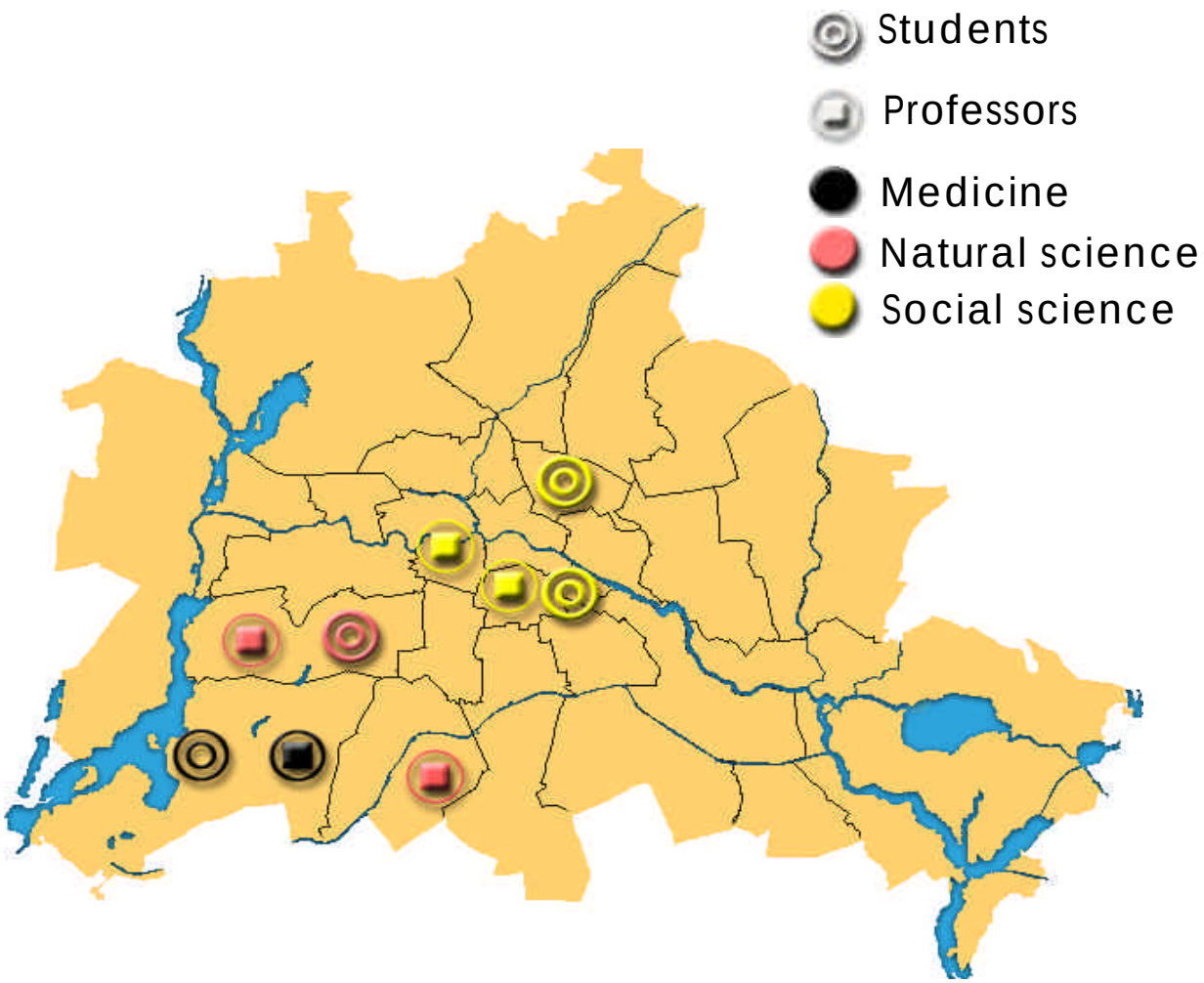


Fig. 6

Residential gravity locations of professors and students (FU Berlin)



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Source: FU-Project, 1995

Fig. 7

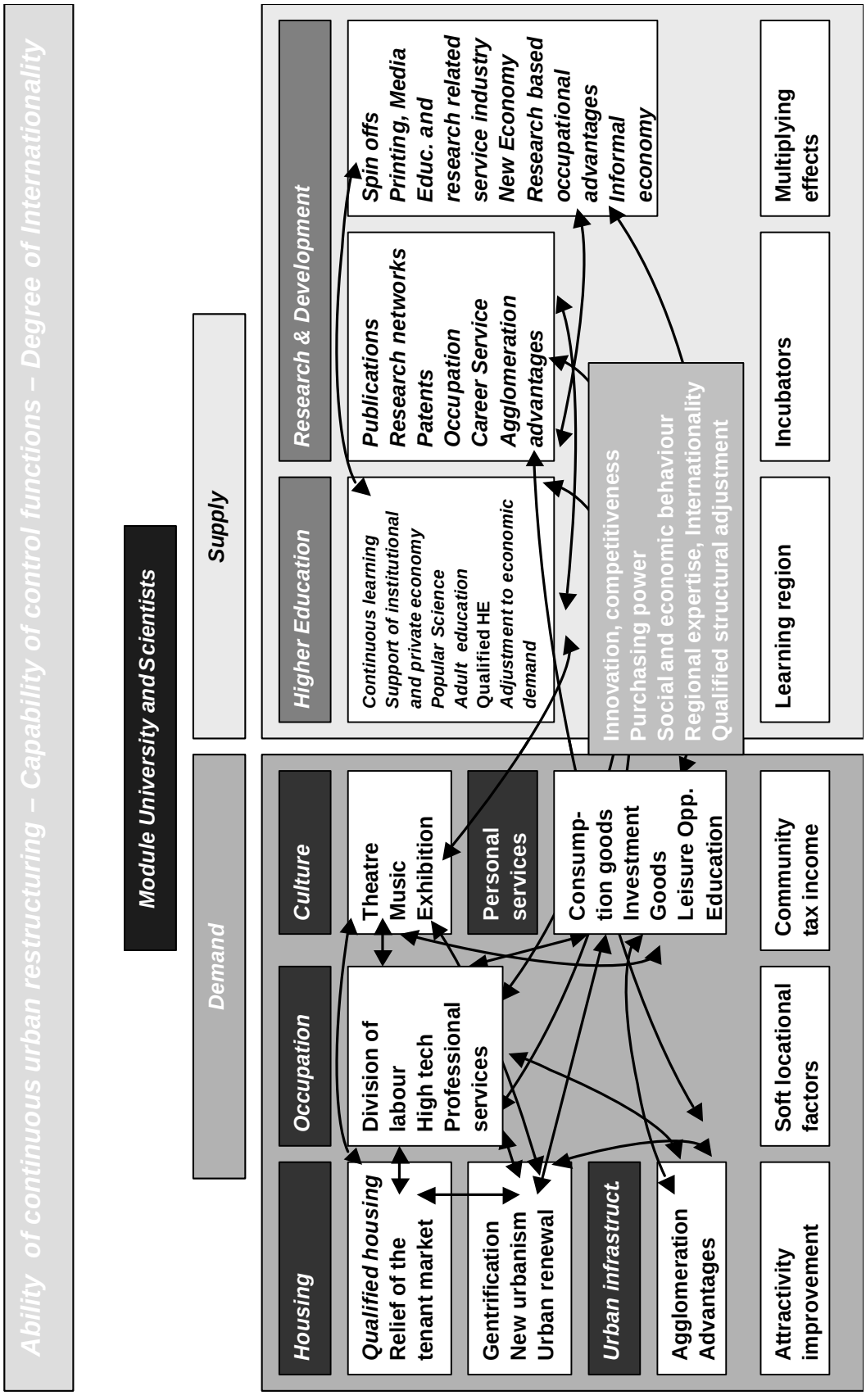


Fig. 8

Research Institutes in Berlin

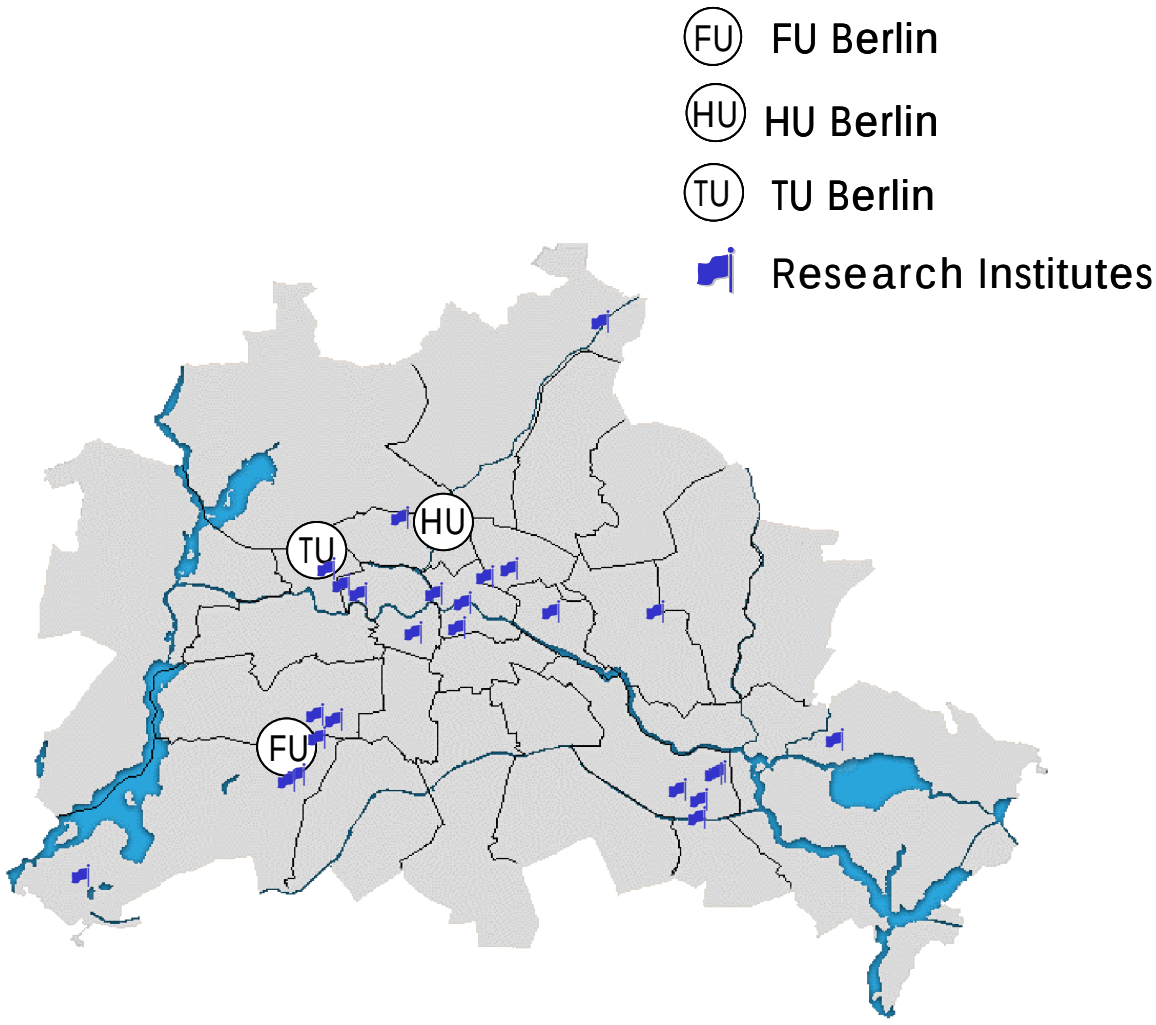


Fig. 9

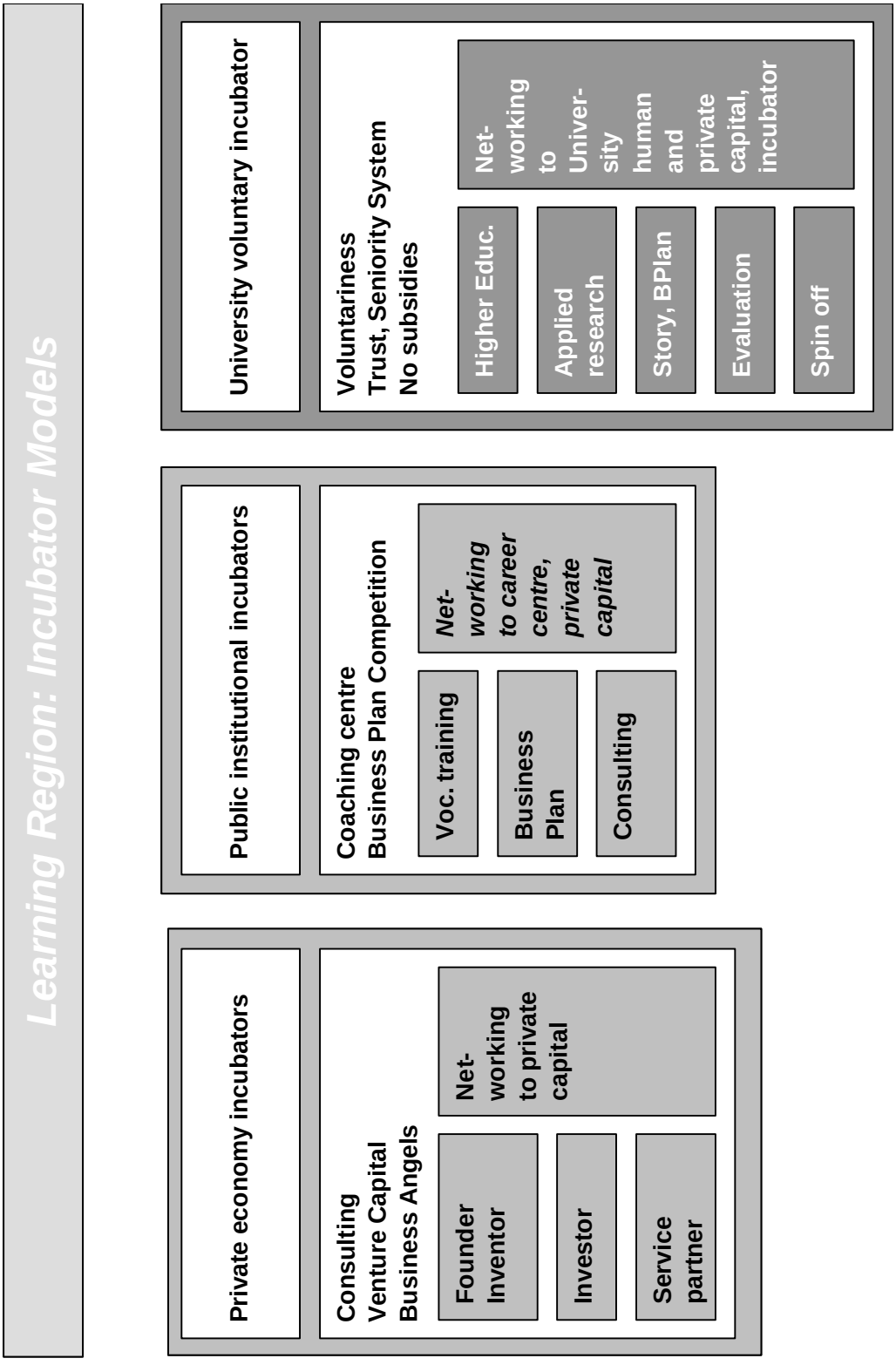
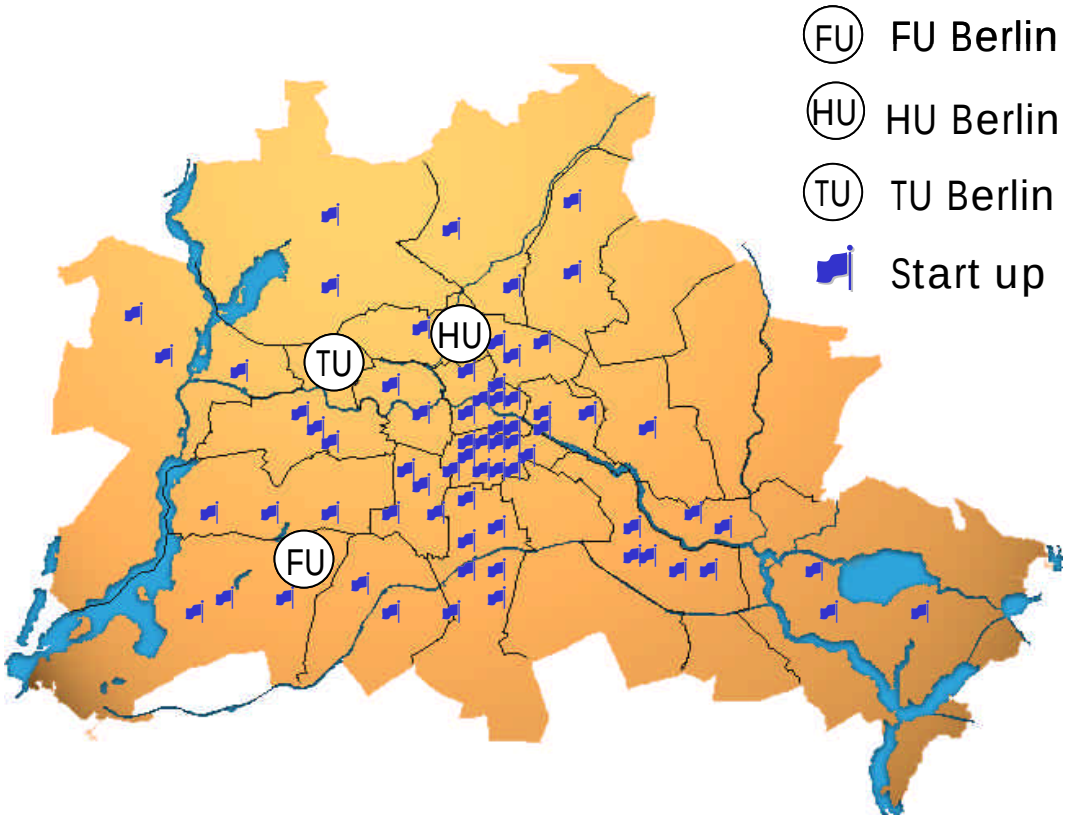


Fig. 10

Locations of start ups of the business plan competition (1997 – 1999)



Datas: EGI, 2000

Fig. 11

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