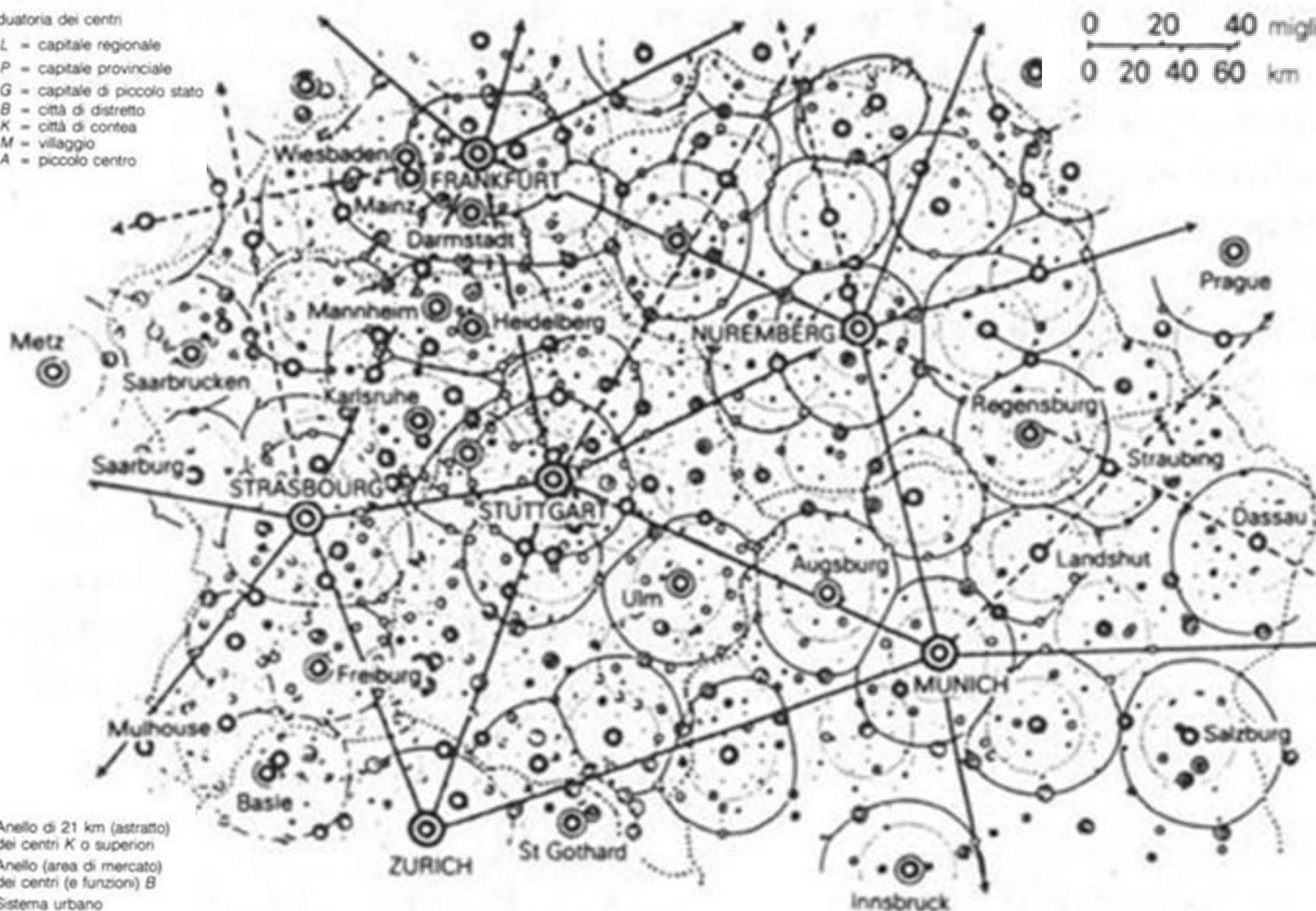


Graduatoria dei centri

- ⊙ L = capitale regionale
- ⊙ P = capitale provinciale
- ⊙ G = capitale di piccolo stato
- B = città di distretto
- K = città di contea
- M = villaggio
- A = piccolo centro

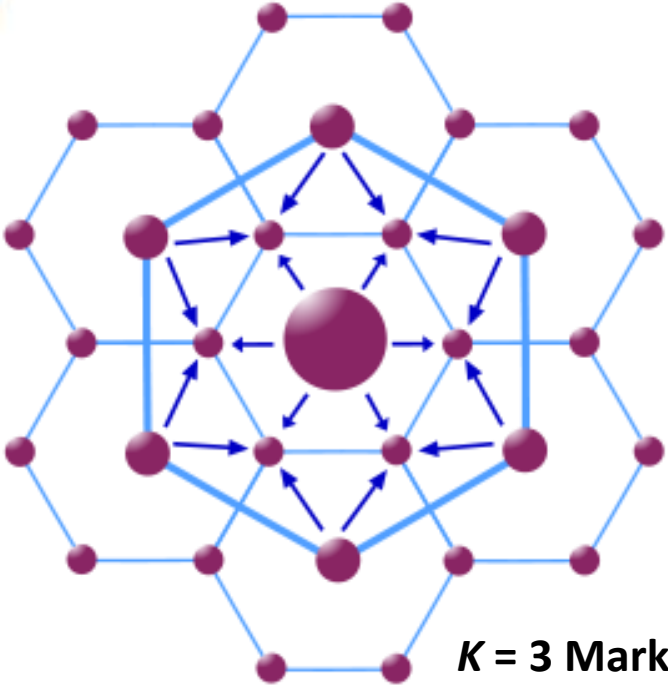
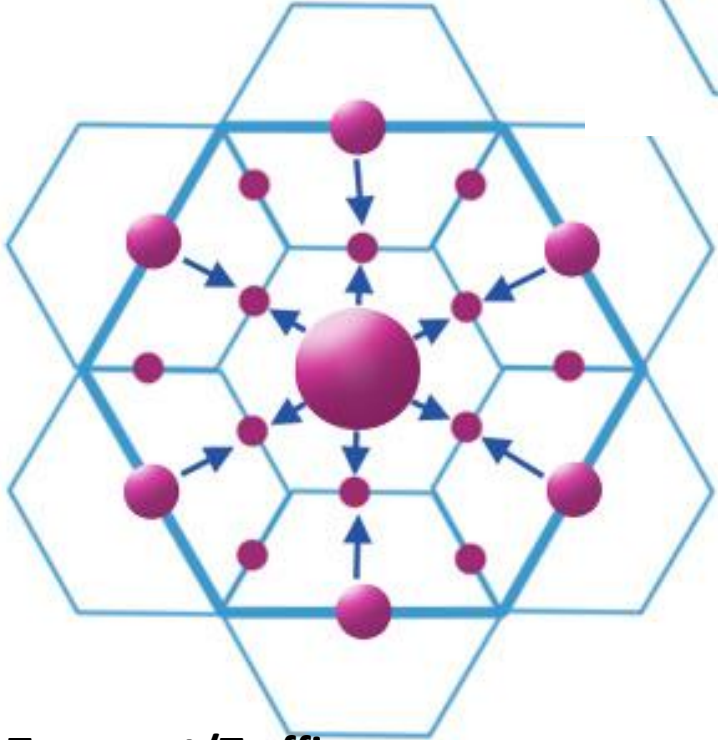
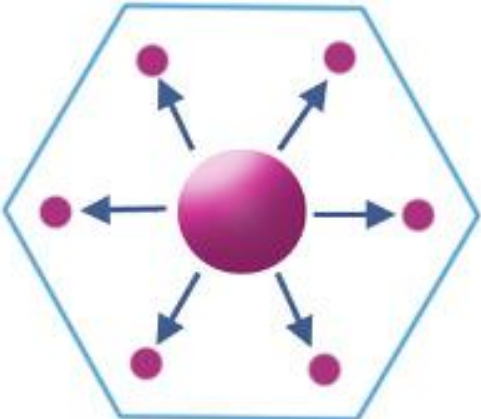
0 20 40 migh
0 20 40 60 km



- Anello di 21 km (astratto) dei centri K o superiori
- Anello (area di mercato) dei centri (e funzioni) B
- ... Sistema urbano subordinato ai centri L
- Interconnessioni principali fra centri L
- - - Interconnessioni secondarie fra centri L

Fonte: Walter Christaller, *Central places in Southern Germany*, Prentice-Hall, 1966 (ed. orig. 1933, trad. it. Milano, F. Angeli, 1980)

Principio amministrativo



$K = 4$ Transport/Traffic principle. Principio di trasporto

$K = 3$ Marketing principle. Principio di mercato

Building the theory

To develop the theory, Christaller made the following simplifying assumptions:

an unbounded [isotropic](#) (all flat), homogeneous, limitless surface ([abstract space](#))

an evenly distributed population

all settlements are equidistant and exist in a triangular lattice pattern

evenly distributed resources

distance decay mechanism

perfect competition and all sellers are economic people maximizing their profits

consumers are of the same income level and same shopping behaviour

all [consumers](#) have a similar purchasing power and demand for goods and services

Consumers visit the nearest central places that provide the function which they demand. They

minimize the distance to be travelled

no provider of goods or services is able to earn excess profit (each supplier has a monopoly over a hinterland)

Therefore the trade areas of these central places who provide a particular good or service must all be of equal size

there is only one type of transport and this would be equally easy in all directions transport cost is proportional to distance traveled in example, the longer the distance traveled, the higher the transport cost

The theory then relied on two concepts: *threshold* and *range*.

[Threshold](#) is the minimum market (population or income) needed to bring about the selling of a particular good or service.

Range is the maximum distance consumers are prepared to travel to acquire goods - at some point the cost or inconvenience will outweigh the need for the good.

The result of these consumer preferences is that a system of centers of various sizes will emerge. Each center will supply particular types of goods forming levels of hierarchy. In the functional hierarchies, generalizations can be made regarding the spacing, size and function of settlements.

The larger the settlements are in size, the fewer in number they will be, i.e. there are many small villages, but few large cities.

The larger the settlements grow in size, the greater the distance between them, i.e. villages are usually found close together, while cities are spaced much further apart.

As a settlement increases in size, the range and number of its functions will increase .

As a settlement increases in size, the number of higher-order services will also increase, i.e. a greater degree of specialization occurs in the services.

The higher the order of the goods and services (more durable, valuable and variable), the larger the range of the goods and services, the longer the distance people are willing to travel to acquire them.

At the base of the hierarchy pyramid are shopping centres, newsagents etc. which sell low order goods. These centres are small. At the top of the pyramid are centres selling high order goods. These centres are large. Examples for low order goods and services are: newspaper stalls, groceries, bakeries and post offices. Examples for high order goods and services are: jewellery, large shopping arcades and malls. They are supported by a much larger threshold population and demand

Predictions of the theory

From this he deduced that settlements would tend to form in a triangular/hexagonal lattice, this being the most efficient pattern to serve areas without any overlap.^[1]

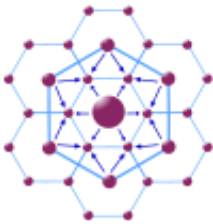
In the orderly arrangement of an urban hierarchy, seven different principal orders of settlement have been identified by Christaller, providing different groups of goods and services. Settlement are regularly spaced - equidistant spacing between same order centers, with larger centers farther apart than smaller centers.

Settlements have hexagonal market areas, and are most efficient in number and functions.

The different layouts predicted by Christaller have *K*-values which show how much the Sphere of Influence of the central places takes in — the central place itself counts as 1 and each portion of a satellite counts as its portion:

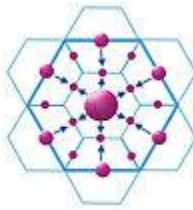
***K* = 3 Marketing principle**

According to the marketing principle *K* = 3, the market area of a higher-order place(node) occupies 1/3rd of the market area of each of the consecutive lower size place(node) which lies on its neighbor; the lower size nodes(6 in numbers and 2nd larger circles) are located at the corner of a largest hexagon around the high-order settlement. Each high-order settlement gets 1/3rd of each satellite settlement (which are 6 in total), thus $K = 1 + 6 \times 1/3 = 3$. However, although in this *K* = 3 marketing network the distance traveled is minimized, the transport network is not the most efficient, because there is no intermediate transport links (network) between the larger places (nodes)



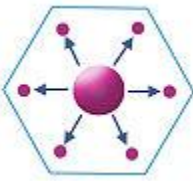
***K* = 4 Transport/Traffic principle**

According to *K* = 4 transport principle, the market area of a higher-order place includes a half of the market area of each of the six neighbouring lower-order places, as they are located on the edges of hexagons around the high-order settlements. This generates a hierarchy of central places which results in the most efficient transport network. There are maximum central places possible located on the main transport routes connecting the higher order center. The transportation principle involves the minimization of the length of roads connecting central places at all hierarchy levels. In this system of nesting, the lower order centres are all located along the roads linking the higher order centres. This alignment of places along a road leads to minimization of road length. However, for each higher order centre, there are now four centres of immediate lower order, as opposed to three centres under the marketing principle.



***K* = 7 Administrative principle**

According to *K* = 7 administrative principle (or political-social principle), settlements are nested according to sevens. The market areas of the smaller settlements are completely enclosed within the market area of the larger settlement. Since tributary areas cannot be split administratively, they must be allocated exclusively to a single higher-order place. Efficient administration is the control principle in this hierarchy.



Evaluation

The validity of the central place theory may vary with local factors, such as climate, topography, history of development, technological improvement and personal preference of consumers and suppliers.

Economic status of consumers in an area is also important. Consumers of higher economic status tend to be more mobile and therefore bypass centers providing only lower order goods.

The application of central place theory must be tempered by an awareness of such factors when planning shopping center space location.

Purchasing power and density affect the spacing of centers and hierarchical arrangements.

Sufficient densities will allow, for example, a grocery store, a lower order function, to survive in an isolated location.

Factors shaping the extent of market areas:

Land use: industrial areas can provide little in the way of a consuming population

Poor accessibility: this can limit the extent of a center's market area

Competition: this limits the extent of market areas in all directions

Technology: high mobility afforded by the automobile allows overlapping of market areas

Market area studies provide another technique for using central place theory as a retail location planning tool. The hierarchy of shopping centers has been widely used in the planning of "new towns". In this new town, the hierarchy of business centers is evident. One main shopping center provides mostly durable goods (higher order); district and local shopping centers supply, increasingly, convenience (lower order) goods. These centers provided for in the new town plan are not free from outside competition. The impacts of surrounding existing centers on the new town centers cannot be ignored

I principi di localizzazione chirstalleriani

Christaller individua tre principi in base ai quali le località centrali si strutturano sul territorio: il *principio del mercato*, il *principio del trasporto* e il *principio amministrativo*. Suo altro intento fu, nel contempo, quello di giustificare la localizzazione secondo un processo razionale delle attività economiche sul territorio.

Per ogni centro di ordine n esistono k centri di ordine $n-1$. Il cosiddetto **fattore di proporzionalità k** può essere 3, 4 o 7 a seconda del principio di localizzazione prevalente.

Nuove unità di produzione del servizio sono attratte dall'esistenza di una domanda inelastica e possono scegliere la localizzazione seguendo tre principi differenti:

• **Principio di mercato ($k=3$)**: la localizzazione del centro inferiore è equidistante da una triade di centri di ordine superiore, formata dalla località centrale e dai vertici dell'esagono di dimensione maggiore. L'ottimizzazione di questa localizzazione risponde al criterio di minimizzazione del numero di centri in grado di coprire tutto il territorio dell'area di mercato del servizio di ordine superiore. Seguendo questa logica localizzativa, in un'area di mercato di ordine superiore esistono $1+6/3=3$ centri di ordine inferiore;

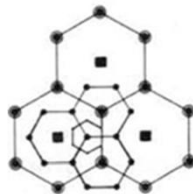
• **Principio di trasporto ($k=4$)**: la localizzazione del centro inferiore è equidistante da una coppia di centri di ordine superiore. Questa scelta ottimizza la localizzazione dei centri di ordine inferiore in base alla minimizzazione dei costi di trasporto verso i centri sede di servizi di ordine superiore. In ogni area di mercato di ordine superiore esistono $1+6/2=4$ centri di ordine inferiore;

• **Principio amministrativo ($k=7$)**: la localizzazione del centro inferiore è nel centro dei triangoli che compongono l'esagono. La logica di ottimizzazione risiede in questo caso nell'evitare i conflitti di competenze tra centri di ordine superiore per l'amministrazione dei centri di ordine inferiore. In questa logica esistono, per ogni area di mercato di un certo ordine, $1+6=7$ centri di ordine inferiore.

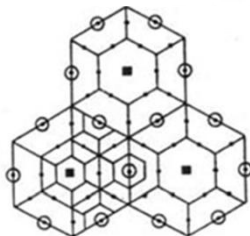
Il modello arriva a un'importante conclusione: ogni centro maggiore produce i beni e servizi relativi al suo livello gerarchico e tutti i beni e servizi di ordine inferiore. I vantaggi del centro superiore derivano dunque dal livello funzionale tipico del suo ordine gerarchico. La dimensione di una città diventa pertanto una approssimazione della funzione urbana e per ogni centro di ordine superiore esiste, a cascata, una pluralità di centri di ordine inferiore.

Organizzazione delle aree di mercato secondo i tre principi di Christaller

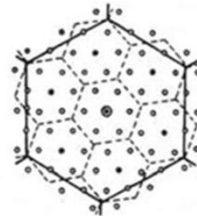
(s)



(p)



(c)



a) il principio del mercato ($K = 3$)

b) il principio del trasporto ($K = 4$)

c) il principio amministrativo ($K = 7$)