

Morphological approach towards socio-spatial design of "Creative City"

1.0 Introduction:

The city as a socio-economic and political construct enjoys a dynamic relationship to its resource base. Specific strategies adopted by cities to exploit its resource leads to a structuring of space into a morphological imprint.

Traditionally cities depended on natural resources to sustain themselves. Today as the world community makes a transition from scarce resources like coal, iron ore to more sustainable resources like human resources the city form needs to change to accommodate this new resource base.

Today it can be safely said that "Industries of the mind" play a central role in regional and national economies and ideas are the most valuable resource in the market place.

1.1 Hypothesis: Certain spatial and organizational structure of cities is conducive for accommodating these new resources. The socio economic and morphological structure of our cities has to be adopted to accommodate the new resource base by reinventing the ideological and interactional roles and links between the city and its new socio economic matrix.

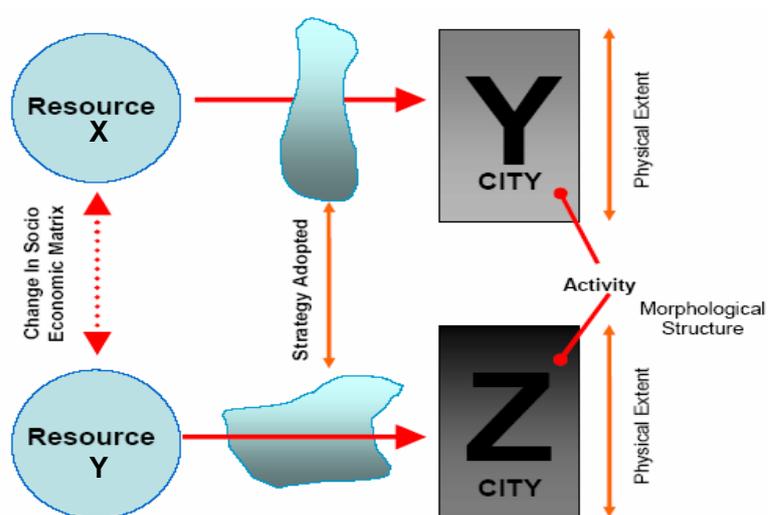


Fig 1: Morphological adaptation of city to accommodate changes in resource base Source: Author

This paper is a direction towards realizing that morphological structure that can harness creative resources.

1.2 Objective: The primary intention would be to establish a correlation between creativity and spatial structure through

Socio economic conditions - Softscape

Morphological structure- Hardscape

This paper being a morphological approach concentrates mostly on the hardscape aspect

1.3 Case study: The case study chosen illustrates this theoretical model by informing the strategic regeneration of a derelict post industrial city based on the creative city concept.

The urban regeneration programme harnesses the traditional knowledge resources of the community to rejuvenate the local industrial skills as a creative resource. The process of regeneration is achieved by building upon social capital to feed innovative culture industries.

2.0 Context: Post industrial economy

The world over economies are moving towards a post industrial global situation characterized by growth of the global city of trans-national financial service industries. Unlike traditional production systems, cities no longer enjoy a competitive edge due to natural resources at its command but it depends how it can harness the creative talent of its citizens.

"Cities," writes Charles Landry, in *The Creative City: A Toolkit for Urban Innovators*, "have one crucial resource—their people. Human cleverness, desires, motivations, imagination and creativity are replacing location, natural resources and market access as urban resources. The creativity of those who live in and run cities will determine future success." "The new economy has caused a positive revaluation of urban assets. Location decisions, once dependent upon access to ports, roads, rails or raw materials, are increasingly dependent instead on the ability to link often-scarce human resources." ¹

The ability to compete and prosper in the global economy goes beyond trade in goods and services and flows of capital and investment. Instead, it increasingly turns on the ability of nations to attract, retain and develop creative people. It is in this context that the concept of creative city powered by human creativity and ideas emerges as the future paradigm of development.

3.0 Illustrating the concept:

The new resource in consideration has certain unique features which must be understood before a way of planning for a creative city is approached. The form of a Creative city is determined by the resource base i.e. knowledge and the way it can be harnessed by two devices

Hardscape---Morphological structure of defined physical objects and a

Softscape--- Organizational structure that ensures a spirit of the place to bind the social fabric together.

This paper concentrates only on the hardscape aspect. But before the exact morphological aspects are discussed one needs to introduce the salient features of the Creative resource i.e. knowledge, that essentiate particular morphological arrangements.

Knowledge has three basic features:

- Knowledge as a shared resource
- Knowledge systems have a core and periphery
- Creative city is a PROCESS and not a PRODUCT

3.1 Knowledge as a shared resource:

The structure of the industrial and the post industrial city was based on the assumption that natural resource is scarce. The history of city planning, till now has been about distributing resources between groups of stakeholders having varying degrees of claim on the scarce resource.

However such a consideration for resource distribution has been changing since the advent of the knowledge economy, even before the first "Creative city" was discussed. Knowledge as against conventional resource is a shared entity. It is the collective wisdom of humankind that results in a software park or the dotcom destinations. It is never a sole invention that has led to the discovery of the computer or digital technology. One of the major problems with knowledge economy has been that of copyright and piracy which arise from this duality. Global superpowers assume that knowledge is scarce and tries to confine it in capsules of production, enjoys premium over it, protected by a copyright. The same knowledge is however available in the public domain as free resource, so we see lot of duplication, "piracy"- if we may call it. Grey markets all over the world bear a testimony to this fact.

Creative city, as an idea, should be based on this very assumption that knowledge is shared in the public domain which allows free access, cross fertilization. This concept has its own morphological implications.

If knowledge is being shared and if we take that analogy to the city where instead of having individual plot divisions and further subdivisions it is possible to achieve shared city resource base, the idea of a collective whole that cuts across plot boundaries to form a common public realm where information, knowledge and ideas are shared.

This in planning and design terms adds towards creating places and spaces which that champions the public over the private.

3.2 knowledge systems have a core and periphery

Knowledge conceptually, can be compared to a sphere having a definite solid core and a diffused periphery. It is the same configuration in which an idea works-it has a central strong theme and numerous other possibilities which are derivatives of the central theme. If two different strong ideas are juxtaposed, then there is a chance of a creative blend of innovative knowledge at their periphery where derivatives of ideas coincide. It is often seen in practical examples that if two different faculties are placed at close proximity, then there is a healthy interaction between them and often new forms of knowledge evolve. To illustrate further one may take two faculties like music and motion pictures, strong "ideas" in themselves, and locate them at close proximity then there is a chance of a new group of creatives evolving who deal specifically with music videos.

Such a system can be extended to a morphological structure in which there is a central core of specialization of a single faculty and a diffused periphery which deals with multiple faculties. As a working model one arrives at the concept of horizontal and vertical specialization of faculties that we associate with the normal production chain which is discussed later.

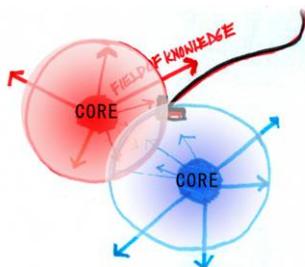


Fig 2: Conceptual model: Knowledge core & periphery cluster



Fig 3: Physical model of creative cluster
Source: Author

3.3 Creative city is a PROCESS and not a PRODUCT

Cities can engage with creativity, knowledge and arts through a broad spectrum ranging from arts as a commodity Product to creativity as a way of life. Traditionally Creative cities have been characterized by a process of living that allowed them to be innovative through their daily existence. However today much of the Creative city movement revolves around the Cultural PRODUCTS.

3.3.1 "Creativity as a product": It is interesting to note that, of these, some cities have approached "creativity as a product", a concept similar to cultural regeneration where culture and its derivatives are marketed as a product. An element of branding is introduced to market the city as a destination offering high quality environment to attract the creative class. This is a definite tool that the planner often employs to initiate economic regeneration.

3.3.2 "creativity as a process" Some cities are more involved and try to make the system itself creative so that innovation is involved in every step of economic production, culture of entrepreneurship, governance. It is these cities which can devise creative solutions, ingenious adaptation strategies to withstand changes in their socio-economic profile. This is

much beyond what the conventional "creative city" movement of 'creativity as product' stands for. Peter Hall in "cities and civilizations" identifies four models of Creative city:

- Cultural/intellectual
- Technological/ productive
- Cultural/ technological (Combined art and technology to produce mass culture)
- Technological/ organizational (Innovative efforts to establish urban order).ⁱⁱ

Hall conclusively points out that creativity is not confined to "institutional" creativity based on fine arts or software knowledge. Creativity is a way of life, deep embedded into the socio spatial fabric, a quality of existence that comes with collective wisdom in an organized, rich, creative social order. Such a society is a true creative society, much like New Babylon or traditional creative cities like Paris or Banaras.

The primary intension of a process based approach is to synthesize 'products' from the 'process' itself. For that we need physical spaces of production or the appropriate hardscape to work on the softscape. These spaces of production are not simple workshops, museums, galleries etc but the entire fabric of the city which is a playground for the creative soul. Unless the 'process' graduates to a 'product' the whole 'process' becomes redundant.

4.0 Morphology of a Creative city:

In order to support an open ended PROCESS based approach certain morphological arrangements are required at a

- Settlement level
- Cluster level
- Building level

4.1 Settlement level:

4.1.1 Open ended space network: Such a spatial network is primarily to support unique, unprogrammed experiences which fertilize the creative spirit. Landuse in a sense pre programmes human interaction by prescribing activity in a space. It is impossible in such situations to create chance encounters or unique experiences that serve to catalyze the creative spirit.

4.1.2 Flexible spatial system:

The unique feature of the resource we are dealing with is that it does not have a physical form, can be developed anywhere, given the conditions permit. It is like an ethereal layer of inspiration and wisdom which cannot be confined by physical margins of a wall, a house, neighborhood, or a district. It remains and flows with us as we move about in search of new knowledge. This freedom hints at a structuring of space which is indeterminate, non crystalline, flexible, a complete negetation of the exterior and the interiorsomething which lets inspirations flow and cross-fertilize.

The 'New Babylon' movementⁱⁱⁱ was based on a similar idea of a futuristic city of flexible spatial order, which creates consciousness and supports creative human interaction. "The variable structure grows out of the moveable assembly systems (walls, floors, terminals, bridges, etc.) light and therefore easy to transport, which can be as easily mounted as dismounted, thus (making them) re-usable"^{iv} - a system which offers the creative freedom. Every element would be left undetermined, mobile and flexible. For the people circulating in this enormous flexible social space are expected to give its ever changing shape; to divide it, vary it, to create its different atmospheres and to play out their lives in a variety of surroundings. In knitting those fragments together, says the situationist city, we might seize control of our own lives. The inhabitants of this 'New Babylon' drift through huge labyrinthine interiors, perpetually reconstructing every aspect of the environment according to their latest desires."^v

The above discussion points towards Flexible zoning and spatial structure which can support diverse activates to cross fertilize each other.

4.1.3 Continuous interlinked public domain:

New Babylon or traditional creative cities like Paris or Banaras^{VI} have a common feature. They offer a free public domain that cuts across the private property line to generate a common ground where knowledge and wisdom could be shared and cross fertilized, thus facilitating the public over the private. Ideas are thus not confined spatially but allowed to flow through.

Morphological similarities can be drawn between the public domain structure in New Babylon and Banaras, as also between the parts of emerging creative cities like Barcelona and Pune^{VII}, India.



Fig 4: Similarity in the flowing public domain of Banaras, India (left) and New Babylon (right). Space in case of Banaras is enclosed like in a medieval city unlike the free flowing space of New Babylon.

Source: Author (left)

Group sectors. The Hague's Municipal museum (right)

4.1.4 Supporting a city of human networks:

The 'Creative City' as a system of human networks depends on interaction, cross fertilization, creative exchange, and flow of ideas to enrich its knowledge base. This requires interaction and chance encounters in an interactive domain maintaining a network where an individual's knowledge and experience couple/augment/refine/ redefine another individual's knowledge and this continues as a circular system.

Bill Hillier^{VIII} and Christopher Alexander^{IX} lists criteria like permeability, configuration of surfaces, shallow-ness and depth of space, convexity of space, activity nodes, destinations as the ingredients of a physical space for successful interaction. A successful configuration of these elements assures a seamless human network.

A direction towards this creative nomadism was taken up in the design ideas of 'New Babylon' and their concept of Unitary Urbanism demanding "constant games in the urban labyrinth; it depended on free play and creativity, a subversion of the rational non-participation of spectacular society" (industrial society in this case)^X. In case of the 'New Babylon' this takes place through an arrangement of 'sectors' in a labyrinth fabric. The fabric is a typological solution in which a surface is modulated in various manners to yield spaces of rest and play. The surface twists and turns in both horizontal and vertical plane, forms urban rooms, niches and corners- spaces which are convex in nature to aid interaction. Activity points at regular intervals maintain the critical mass of people. The structure has lot of permeability, diversity, robustness to qualify it as a responsive environment^{XI}.

A similar morphological structure can be observed in the public domain of Banaras and Pune. Also conceptually relevant are the examples the La Ramblas a creative corridor in Barcelona, or the French boulevards with an unending sequence of travel through a maze of creative activates. The illustrations show a typological similarity between the La Ramble street and the secondary routes in Pune which are the main creative spaces of production. In both cases the axial space is modulated by pockets of convex space which become urban rooms, in the tradition of the Greek Agora. In both the cases intermittent activity nodes charge the

public domain. A single surface, twisting and turning runs through the space in a horizontal plane forming urban rooms, It is interesting to note that a similar morphological device of twisting surfaces has been utilized in both 'New Babylon', La Rambla and Pune though the plane of operation remains different.

Thus it might be concluded that a particular language of settlement morphology can ensure a city of seamless human networks.

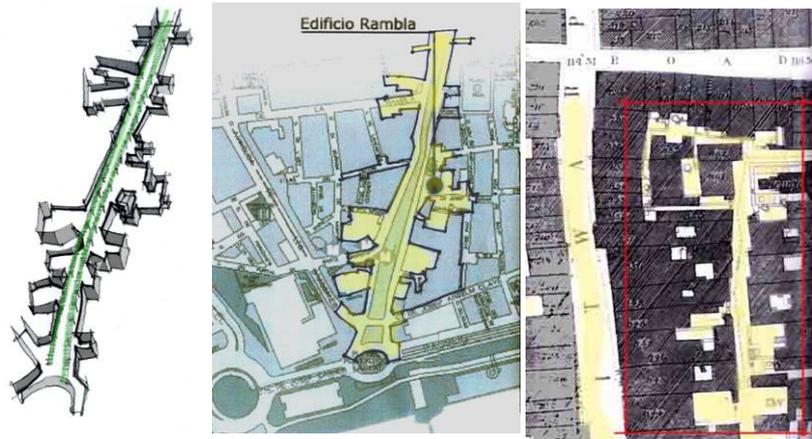


Fig 5: Left- La Ramblas Street with urban rooms. Right: Social spine of Pune,India Source: Author

4.1.5 Creative clusters connected by the human network

Case studies like London, Kolkata^{XII}, Pune show that certain areas develop as creative nodes specializing in particular activities like mercantile, medical or academic activities. Even in New Babylon the city tended to grow between a few anchor points. The clusters and the connections together form an interlinked system.

4.2 Cluster level:

The idea of a creative cluster has been long discussed in association but no one seems to be definite as to the exact or anticipated physical nature based on case experiences. In practical terms there is considerable vagueness as to how to empirically define a cluster (whether in terms of its size, number and co-location of firms, or social, cultural or economic interactions).^{XIII}

4.2.1 Density of Creative clusters:

Creative clusters invite interaction through sheer density of form. However this desired density at the cluster level is a product of socio-economic conditions and cannot be easily quantified.

4.2.2 Grain of Creative clusters:

The concept of core and periphery when translated to urban grain leads to a specific disposition;

Small grain: suitable for smaller grained interaction. These are arrangements which support spaces for example café's where ideas can be discussed, conceptualized and brought to a platform of development. They occur ideally at the edges of a specialized core area, all along the periphery and along the public domain which connects the clusters.

Large grain: spaces which support development of ideas through specialization require large grain size to house activities like research, office spaces and workspaces. These are spaces where ideas are given a capital value through R&D.

4.2.3 Vertical and horizontal clustering.

There are specific arrangements in which creative spaces are arranged. These inferences are based on the concept of "core and periphery" and also case examples. A typical creative cluster will have vertical specialization of single faculty at its core and horizontal distribution of diverse faculties at the periphery. It is also to be noted that traditional Indian creative clusters in the educational town of Pune or the sacred town of Banaras always had this horizontal setup mainly because they represented the aspirations of a diverse society and rarely indulged in specialization of a particular skill. Also in this case the tasks of production, design, and management is performed by the same person.

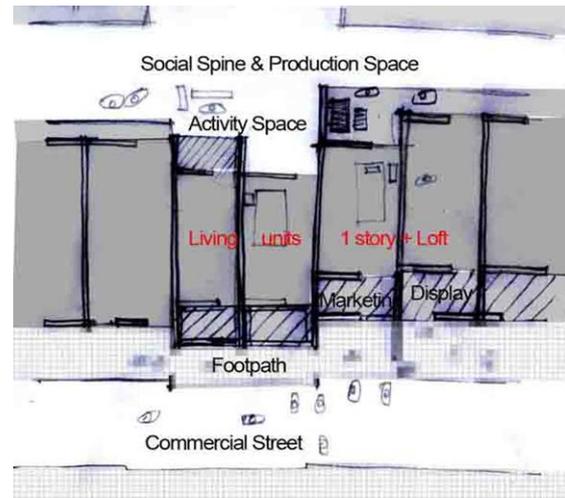
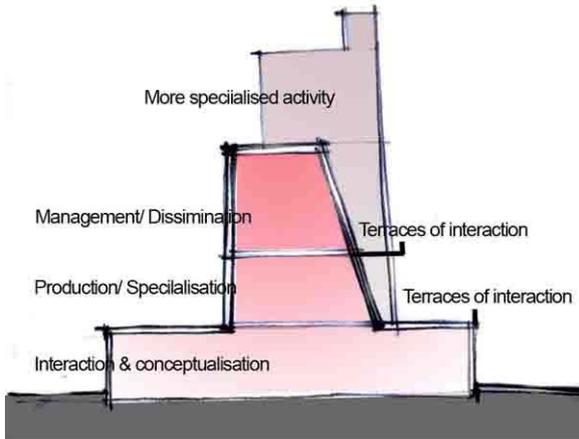


Fig 6: vertical clustering: Vertical specialization Fig 7: Horizontal clustering Source: Author

However newer market driven forms have taken the vertical specialization model mostly to compete with the world market. This form also suits the modern day management and communication needs especially when production, design and management are dealt with by separate persons at separate levels. This has obvious implications on building height and volume inside a particular cluster. Zones of vertical specialization have higher bulk, height than zones of horizontal specialization, irrespective of vehicular access.

In conclusion one might stress the point that the conventional system of distributing building bulk and FAR based on the road network; circulation, location etc. may not work in a creative city, which has an entirely different logic of distributing volumes. The location of the core of the cluster is the primary determinant of volume in such cases.

4.2.4 Type of spaces: A cluster has to have 4 types of spaces:

- Spaces of conceptualization- idea generation
- Spaces of development- idea development
- Spaces of dissemination- idea merchandising
- Spaces of assimilation- spaces of respite

Such spaces can be explained both by the horizontal and vertical models.

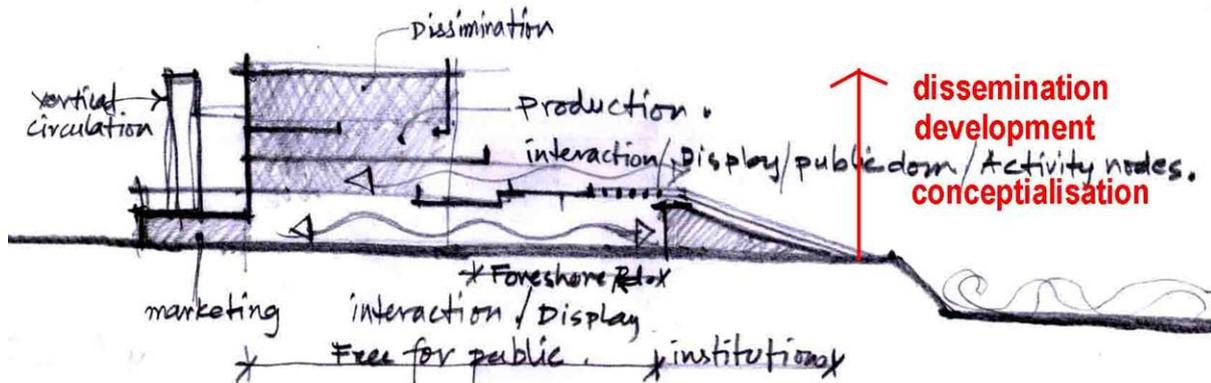


Fig 8: Vertical clustering showing type of spaces in a vertical layout. This is a particularly western model and suited for specialized creative activities Source: Author

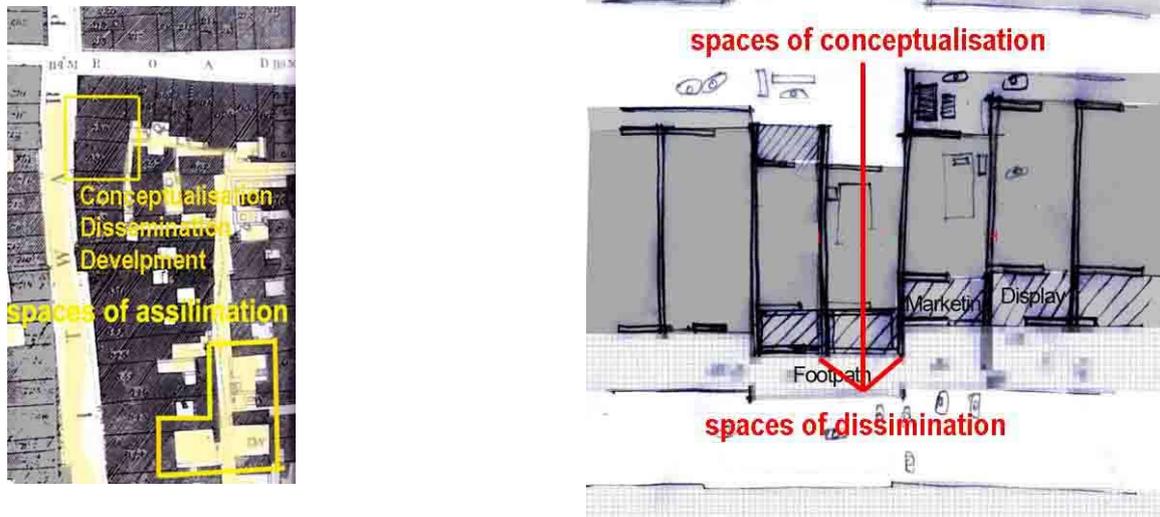


Fig 9: Left: Figure ground: settlement level Horizontal clustering showing type of spaces in a Horizontal layout. This example is taken from the potter's district in Pune, India. In a typical live-work unit Residential spaces are interlinked by a backlane and a commercial street. The backlane is the space of conceptualization where production takes place and things are sold from the front side facing the commercial street- spaces of dissemination. Such units are clustered in a settlement. At a larger level the backlanes and front street culminate in a big open space- space of assimilation which allows free thought because of the sheer scale. **Source: Author**

Right: Detail of individual unit

The above discussion gives us a theoretical base to approach the creative city from a morphological standpoint. It also shows that the current planning disciplines need to evolve beyond its limits to be able to handle the challenge of deigning a true creative city where human creativity is a process and a way of life.

This design knowledge hints towards certain morphological arrangements which can be employed to restructure post industrial cities so that they can gear up to the new Creative economy.

5.0 Case study: Howrah riverfront regeneration

The case study presented below is the result of my post graduation thesis on creative cities.



5.1 Location: West Bengal, India.

Howrah is a metropolitan sub-center within the Kolkata Metropolitan District, situated just opposite to Kolkata, the Hooghly River separating the two cities.

Howrah has been an industrial city since 1875. The city had a command over a large hinterland rich in coal and iron-ore, jute. It emerged as the one of the main industrial areas in India. The district has been declining since 1979 after

Fig 10: Location map Source: Howrahsouthpoint. Free.fr the 'National Equalization Policy' which resulted in logistical problems for procuring raw materials from the hinterland. Presently the area concerned is a run down post industrial area characterized by unemployment, social and economic deprivation and a high crime rate.

Recently Howrah has been earmarked for regeneration by the state government. The urban regeneration programme proposed harnesses the traditional knowledge resources of the community to as a creative resource. The process of regeneration is achieved by rejuvenating the industrial skills by building upon social capital to feed innovative culture industries.

5.2 Introduction to the site context:

5.2.1 Vision:

The scheme aims to project Howrah as a creative district excelling in multiple disciplines based on human creative talent. World class hardscape and softscape thus created would attract new talent and investments in the emerging knowledge economy of the state. The project would act as a seed to initiate a process of socio-economic regeneration that would serve to regenerate a wider area by restructuring the industrial district.

5.2.2

Resources:

Physical

resources: The site is dotted with numerous old derelict industries, transport terminals and warehouses- a legacy to the old industrial system. 5 main industrial units producing Jute textile and metallurgical goods form the backbone of the area.



Fig 11: Site Model

Source: Author

5.2.3 Human Resources: Population: 85,165 Literacy: 68% Employment: 35%
Despite moderate literacy, unemployment is too high resulting in high crime rate,

disillusionment, emigration of youth etc.

It is interesting to note a large percentage of this population is unemployed industrial workers skilled in manual dye casting, leatherworks, textile works, and wood work. These skills can be updated to suit culture industries like fashion textiles, creative artwork, leather crafts etc. This can be achieved by building on social capital in collaboration with local creative talent, urban local bodies and NGO's.

Resource mapping:

The site is in close proximity of the creative districts of Kolkata, traditionally regarded as the cultural capital of India.

The site enjoys a unique advantage. It is located near to three separate creative clusters.

- College Street: Educational district, Calcutta university, medical college, numerous Institutes, Libraries
- Bengal engineering college: largest engineering college in the state
- Rabindra Sadan; Cultural district, theaters, art colleges, museum, art gallery
- Netaji Subhas Marg: Linear spine of institutes, colleges, cinema halls

Apart from the institutional sector, other creative sectors specializing in low arts like embroidery, toys, handicrafts, clay modeling form part of the system. The city has a rich

tradition of institutional arts like music, films, theatre and literary arts concentrated around College Street and Rabindra Sadan.

The intention to do a mapping like this would be to identify the dynamics of the future public domain and the main creative clusters that could be connected to the proposed creative district.

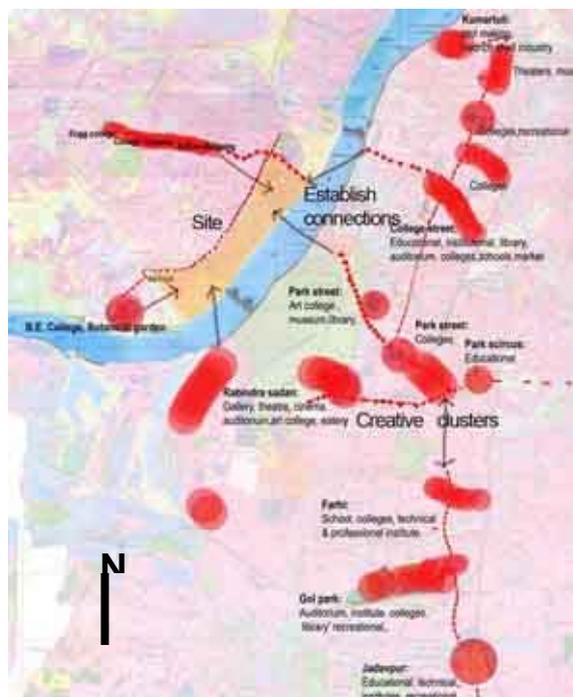


Fig 12: Resource mapping: Howrah & Kolkata
Source: Author

5.3 Adaptation strategy:

- A democratic public domain will be the mainstay of the project. It is a part of the softscape that binds the creative clusters together by a terrain of experiences for the creative talent.
- This public domain employs specific morphological devices derived from case studies. This is the actual creative engine that incubates the obsolete skills, reinforces it by aid of institutional creativity, to harness creative ideas.
- Creative clusters are established along this public domain, around the existing industries, utilizing the physical infrastructure and machinery of the industries for new creative industries. A policy of downsize and upgrade would result in establishing creative industries conforming to the existing one. Pursuing a policy like this jute mills would give way to fashion houses.
- Creative clusters adopt the concept of both horizontal and vertical specialization. Residential sectors, work –live units, artist's studio's/ lofts are based on the horizontal model. Whereas the units which require specialization, merchandising, branding and active dissemination is contained in a vertical setup.
- For each creative cluster a specific module is developed which has a mix of workspaces, residential, institutional functions and open spaces.

- Each cluster is a separate corporate entity having a co-operative setup between industrial workers, local youth groups, urban local bodies, creative institutions etc. Each of the clusters have a particular specialization like fashion, metallurgy, visual arts, performing arts and literary arts.
- The district will be promoted in the international market as a lucrative destination for creative talent. The established brand is visualized to usher in a second order regeneration in which other knowledge industries like software, gaming move into the site.

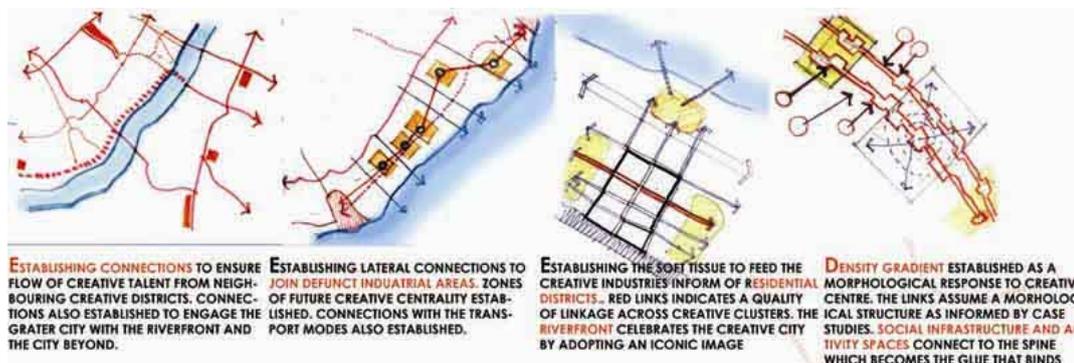


Fig 13: Adaptation strategy

Source: Author

The system would be initiated as a public platform where diverse ideas will be shared democratically. This creative district will be connected to the adjacent creative districts by a vibrant public domain to ensure a seamless nomadic existence for the creative class. The whole system would offer a terrain for cross fertilization wherein institutional creative talent, incubates, upgrades and educates local skills to suit modern creative industries.

5.4 Typological solutions:

The typologies are derived from the generic solutions of the case studies. They have been appropriated to suit local climatic and socio-economic conditions.

5.1.1 Creative clusters:

Horizontal model: based on traditional Indian creative clusters of work live units in Pune and Kumartuli in Kolkata, India.

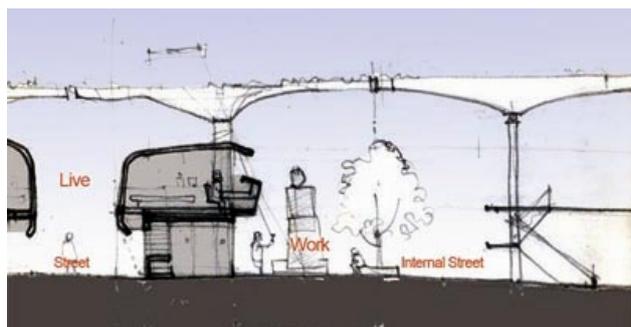


Fig 15: Horizontal model mainly for live –work units and artists districts, based on creative clusters in Pune, India. The roof above is a climatic response as observed in the clay modeler’s district in Kumartuli, India. The main workspace is in itself the social spine which is the space of conceptualization. The parallel commercial spine which acts as the space of dissemination

Source: Author



Fig 16: View of housing cluster. Shared Living spaces are arranged in parallel rows on pilotis. Commercial spines and workspaces run parallel to the housing. Circulation is through perpendicular raised platforms. The cluster is edged with shared institutional facilities to encourage inclusion

Source: author

Vertical model: based on conceptual model (ref: 4.2.3)

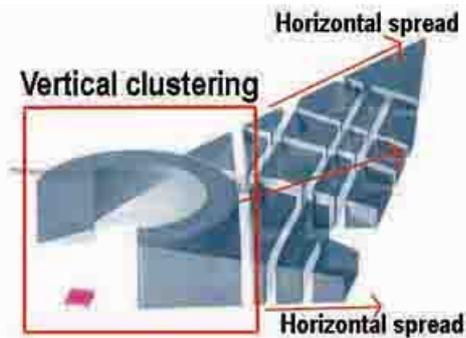


Fig 16: Vertical clustering: Meant for units of culture industries. The marketing/management are housed in the higher floors at the core while the lower ones at the periphery are meant for production/interaction. The clusters around the periphery are less specialized and deal with more with fusion products. The grain here is smaller with a high degree of permeability supporting interaction and conceptualization
 Source: Author



Fig 17: Section thro' Vertical cluster: Meant for units of culture industries. Public spines moving thro' the cluster generates the grain of spaces. The public spine spaces near the periphery are smaller gain while units towards the core are larger grained. Conceptually ideas are generated near the periphery and are brought to a development as we move towards the core which has the dissemination spaces.
 Source: Author

5.1.2 Connecting devices/ public domain: The public is a generic solution based on the Creative corridor of La Ramblas and the public domain in Pune, India.

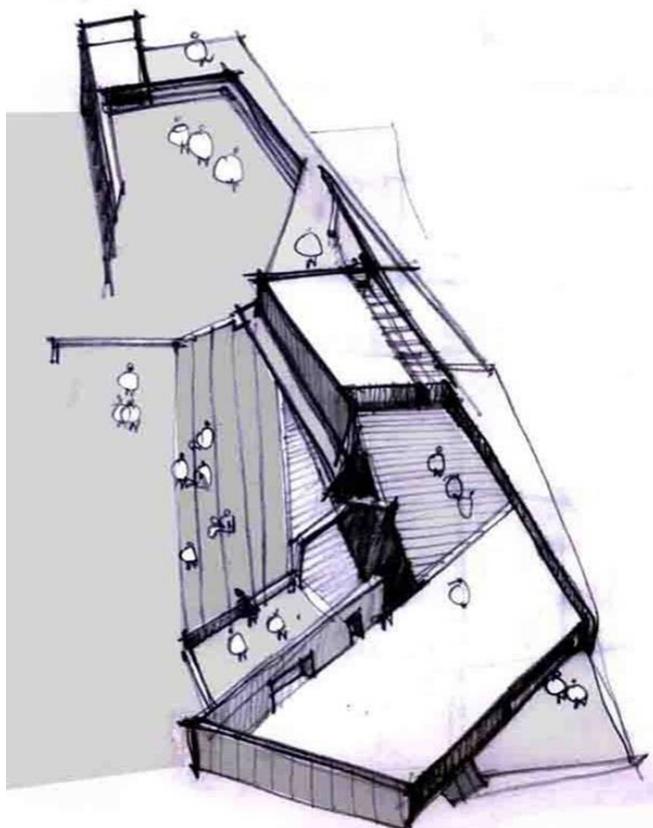


Fig 18: A probable morphological expression of the public domain based on the typological inferences of 4.14. The generic form of the twisting surface and the urban rooms has been adopted to generate an array of meeting spaces with a high degree of permeability.
 Source: Author

5.1.3 Final design solution: The design proposes a public domain with two pedestrian connectors linking the four creative clusters like a necklace of pearls. A density gradient has been established in all the clusters resulting in a modulated skyline. A number of convex celebration spaces on the waterfront give an apt expression to the creative district. Strong connections with the peripheral creative districts have been established to ensure a diverse creative district.

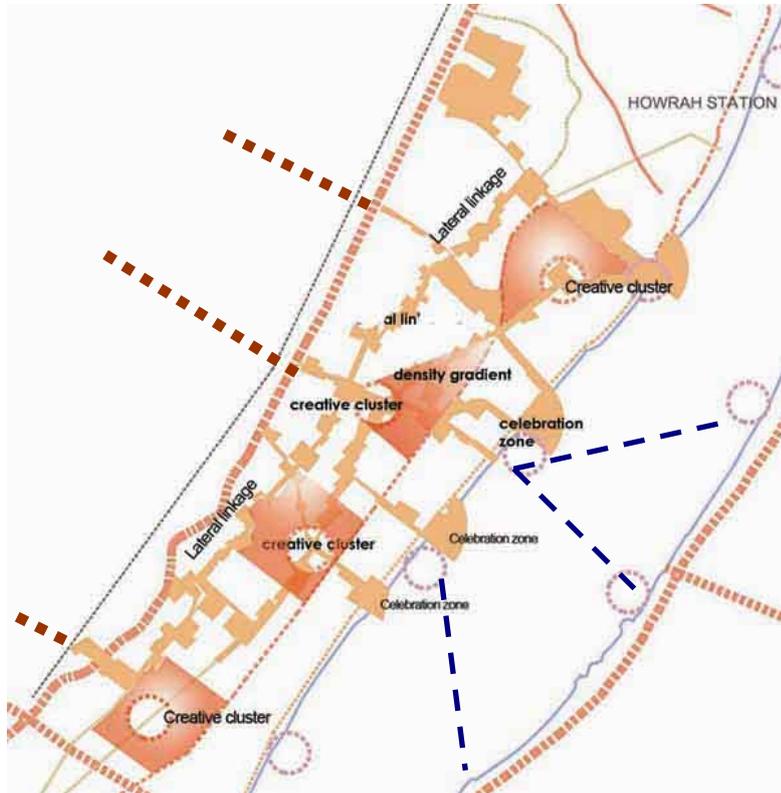
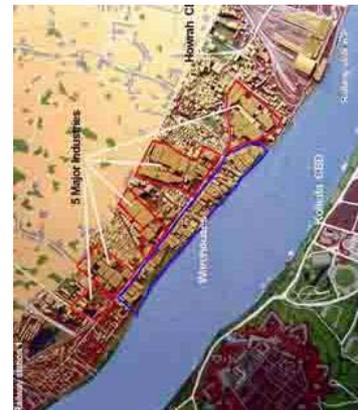


Fig 19: Left: Figure showing the final design proposal with the creative clusters threaded on to the main public spines. Entry points to individual clusters are marked by the celebration zones projecting on to the river

**Below: Original site
Source: Author**



6.0 Conclusion:

Typically the defined scope of work for planners creates difficulty to move beyond the two dimensional master plan. It was perhaps adequate for the industrial city where "place" of production was not as much relevant as the "space" of production, its dimensions more relevant than its quality. The subsequent chain of management, marketing and consumption too did not require the place making element to function efficiently.

The creative city needs to transcend beyond the two dimensional masterplan into an experiential realm of spatial design. Creativity Is Influenced by Place—"certain environments have greater density of interaction and provide more excitement and an effervescence of ideas"¹

The planning profession should gear up to this specific requirement of a creative city. Apart from addressing the structural changes like zoning bye laws, property ownership patterns, FAR, grain & density various softscape requirements like social inclusion, branding, tolerance, incubation are to be dealt with at a planning level. The way in which grain is distributed and how the four types of spaces (4.2.4) are arranged will have a definite bearing on the success of a place as a Creative city.

A city of human networks needs a participatory approach which can be achieved once Planning shifts to a bottom up system wherein the citizens are freely able to nurture their creative talent through a process of participation and self discovery.

Endnote:

^I Joel Kotkin and Ross Devol, 2000

^{II} Peter Hall "Cities and Civilizations"

^{III} Dutch artist Constant Nieuwenhuys (b. 1920) developed his visionary architectural project New Babylon between 1956 and 1974. The situationists' Unitary Urbanism program, of which New Babylon was the largest project, was designed specifically to open up new possibilities for social interaction. Unitary Urbanism demanded constant games in the urban labyrinth; it depended on free play and creativity, a subversion of the rational non-participation of spectacular society

^{IV} Architectural design June, 1964

^V Architectural design June, 1964

^{VI} Banaras is one of the oldest cities of the world. It is famous as a pilgrimage and as a centre of Vedic learning. Banarasi Music and fabric are also of high quality. Musician's colonies are designed as an extended public domain.

^{VII} Pune is an educational town in west India. The old core of Pune consists of several traditional craftsmen's districts which are examples of horizontal creative clusters. Most of the residential structures, known as *Wadas* also has a similar structure

^{VIII} Since the mid 1970s, a group of researchers at the Bartlett School of Architecture and Planning, University College, London, has provided powerful conceptual and empirical support for the claim that the physical-spatial environment plays an integral part in making active streets and an urban sense of place. Largely the work of architectural theorists Hillier and Julienne Hanson, this research examines the relationship between physical space and social life, or, more precisely, "the social content of spatial patterning and the spatial content of social patterning" (Hillier & Hanson, 1984, pp. x-xi).

^{IX} Alexander in his book '*Pattern language*' discusses thumb rules for designing active streets

^X Architectural design June, 1964

^{XI} 'Responsive environment', 1985, The Architectural Press. lists criteria for developing a responsive environment- Permeability, Variety, Legibility, Publicness, Visual appropriateness, Richness, Management

^{XII} Kolkata is the cultural capital of known for it's various art movements, literature, theater and modern thinking

^{XIII} Dr Andy C Pratt (2004), Department of Geography and Environment, London School of Economics Creative Clusters: Towards the governance of the creative industries production system?

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