_Trajectories, Our Mobile Signature

A synthesis of our DVN Interior 10-episode series on mobile trajectories as a defining element of our cities. It includes the synthesis, followed by the 10 episodes

Written by

*INDUSTRIOUS*_____

(a designer's look at our mobility-centric culture).

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Abstract_

De Dion Bouton in London

This story began from a simple line on paper and continued to early representations, scribbled by the traveler's hand, during the 17th century while commuting by carriage all the way to the various trajectories traced on the landscape canvas by motorized vehicles that became the rough draft of our infrastructure, re-territorializing every era to our up-to-date footprint.

The reading of this 'mobility' saga unfolds through one of its most enigmatic characteristics that involves specific objectives, projects and aspirations that crossed different historic moments to come at their best, most updated tech/digital version and thus, the unpredictable happened.

Originally, it was the intention towards a destination but not always the destination itself. The most intriguing and inspiring part of it, was this magic aspect of being at a precise moment in time, in a specific place along the journey. Mobility at any era has showed an unquestioned obedience to its technical self, it is the element of randomness however, that brought about the shift of progress.

Corpus_

Richard Blome's map of London (1673). The development of the West End had recently begun to accelerate.

We all start mastering a new type of social art: face time. A practice that created an intimacy for long periods of introspection in front of a new looking glass since lockdown. A unique moment in time that we can observe a still of our mobile activity and surroundings whether through a window or a computer screen. There is a symmetry between the two, though that acts like an encryption device in search of a new definition of our mobile self. In other words, the more humans reduce their activity the more the mobile ecosystem reacts, scales and multiplies accordingly. At the image of a new industrial revolution we are about to create and implement mobility 4.0; that would configure cityscape through new needs and our living spaces accordingly. Mobile trajectories may split up again in new types; reconquer urban space and create new dedicated territories.

During this pause, we overtook the challenge to illustrate and test our new mobile expression through friction of established perceptions and institutions that concern systemic aspects of territorial governance. Mobility is like a bigger scale urbanism with multiple dimensions that involves both static and mobile components. The goal is the intention towards a destination but not always the destination itself. The most intriguing and inspiring part of it, is this magic aspect of being at a precise moment in time, at a specific place along the journey…serendipitous!

If our new industrial era is a carrier of decentralized production along with soft industry expansion and wide access to both autonomous and physical multimodal interconnected mobility, then our cities look like relics of the past pre-digital era. What is new city mobility and its new urban mechanics, how to indulge our technological citizenship and how to move without falling into predictability, are the enigmas to solve.

Boulevard Montmartre on a winter morning, Camille Pissarro, 1897

The first depiction of mobility behind a glass window took place in the early 19thC with the birth of railways, and changed completely the perceptions of travel; it had a direct influence on surrounding space, and segregated mobility by a new kind of movement that reduced time and space. Bridges, viaducts and tunnels painted the rigid trajectories of the modern era and the technical landscape. Travelers struggled though, to assume the rail's disregard to this basic rule of perception, the fact that travel did not perfectly follow the topography and at times went above and even through the land, showing an unquestioned obedience to its mechanical self! This critical period unlocked human imagination into a new narrative. Looking laterally to a framed, moving landscape educated perception of surroundings and raised the sense of belonging to a land, a country, a nation.

Exponential demographic changes due to industrial revolution provoked rural exodus and city became the land of progress. New urban planning achievements of late 19th century were aiming to enable flow of populations and goods to urban centers. In doing so, they dictated the spatial expression of modern mobility: straight wide avenues with sidewalks and vast spatial constructions intersecting staging monuments or large squares in Haussmann's reconstruction of Paris, commissioner Hobrecht's masterplan of Berlin and the shifted waterway flow and steel structures for Chicago and its elevated urban loop.

Steam locomotive running gear

In a mysteriously short lapse of time after the completion of this majestic era of city-planning, an astonishing, mechanical composition appeared. The automobile rapidly conquered, in times even possessed, the newly designed areas and urban masterpieces. Reaching the mass market, the automobile acted as a traveling toolbox, that remastered and traced new trajectories changing forever the layout of our surroundings. For several decades of petrol-based economy, our mobile panorama and its mythology were dominated by performance, top speed and many cars. Burned tire 'donuts' were painting the landscape of motorized trajectories in vacant parking lots. In the mid-80s, next to congested avenues, new urban trends of a tribal character emerged. A spree of randomness, filtered through the polyphony of motorized wheels, conquered all pockets of free space and brought about new moves and expressions designing the new looks of our mobile interactions. BMXers and skateboarders drew polymorphic trajectories on ever expanding urban areas;

they revolutionized envelopes, proportions and postures of upcoming mobile trends, devices and vehicles as well as the way we dress and act.

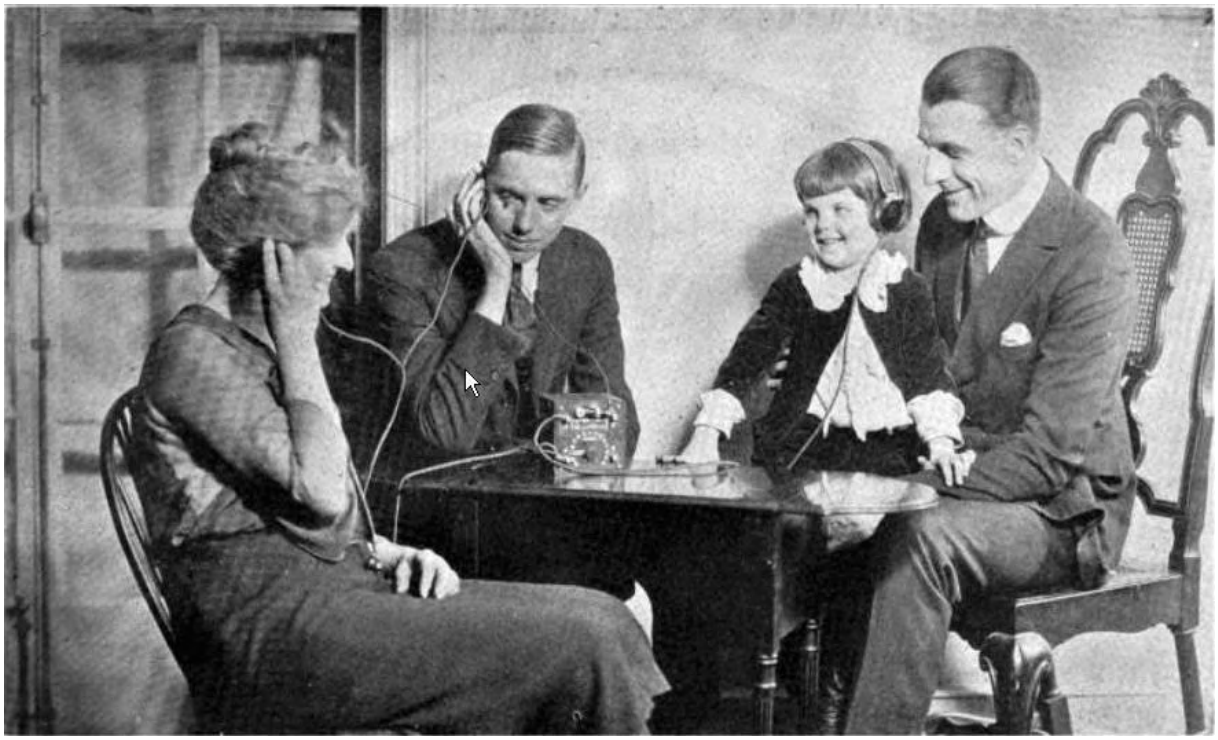
Olympics_opening_ceremony_Industrial_Revolution_scene London 2012

The city became a laboratory of motion institutionalizing a different type of circulating, worthy of looking and being looked. With technological integration at the leap of 21st century, a multitude of mobile trajectories is dialed into performing servers that augmented information into a new multimodal technological era. The gap between pedestrians and automobiles, was rapidly conquered by shared electric scooters through gamified platforms. However, if electric scooters, that developed very rapidly compared to existing infrastructure, take away 15 people from a bus, then we are into a totally new perception and the public transport model needs to be redesigned.

Along the progression of mobile history, we observe an unforeseen technical transgression to the main infrastructure, specific and unique to every era of change: train versus telegraph, car versus telephone and multimodal versus multi app transportation. It appears to be an arrangement to any physical structure that created its alter ego that competed and often complemented its speed and performance. The new industrial model wants the constructor in competition with the application builder for the same product. The business of mobility in the new connected world, is being shaped in real time through information flow. Who or what defines the mobile

experience between owner, driver, passenger, constructor and operator, and who is really the final customer, remains to be explained, since there is no algorithm that can predict upcoming events. The anxiety comes from the lack of constant values that we will have to create and get used to, possibly in shorter time lapses; focusing to our digital literacy, ethics and behavior, until we reestablish the relationship to our proximity and institutions. Our precious surroundings are about to change and through the perception we are going to project back, we will build new habits, new modes of use and ways to make and consume space.

If we were to label the evolution of mobility through political history, we could draw a train for the imperial period, a car for the republic period and a cloud for today's mobile policy. This last arbitrary and metaphoric pictogram stands for something like a 'crowdsourced' participative governance, since institutions today face all challenges to keep up to speed with technology and innovation. Industry 4.0, stands for immediate plus frequent data and this task cannot be managed singlehandedly. As Banksy crafted on a wall, then photographed and posted a zillion times through the web: 'there is nothing more dangerous than someone who wants to make the world a better place'. We are moving from ownership to user-ship or users-hip and from mobility to accessibility. This is a direct derivate of the fact that the national state (today's political establishment) has to face a global economy infrastructure that doesn't take into account national borders; after the flow of people and merchandise, the flow of capitals, information, and knowledge is a 'cloud'. The new era has already begun.



Radio advertisement – 1930s

Over the past 4 decades, a number of technical events labeled our history: Internet, PCs, The web, Industrial robots, Wireless communication, AI: artificial neural

networks, 3D printing, Internet of things. However, these inventions did not change our lives. What shifted our lives was a striking, nearly universal, access to this fantasy land from: $20-50/month for Internet, $300 PC, the cloud (google docs,gmail, dropbox..) $100 for iPad/iPhone, Wifi (and Bluetooth, and cell data) everywhere, google photos_use of AI for picture searching (free), home 3d printers for $200, NEST, etc $10/month. Remembering Henry Ford's doctrine, is neither the invention nor the application that changed the world but the access to wide pools of population by increasing incentives. Through that spectrum, anything called 'mobility' is now up for grabs, and just like previous moments in history, new mobile patterns are put in place and old ones rearranged. Variation and flexibility in supply chains can now reduce uncertainty, enabling options and choices that make the network nearly 'fault tolerant' therefore, reliable in incredible speed and frequency. Manufacturing process does not demand any more gigantic self-contained facilities, since information and parts are instantly anywhere.

The lockdown period sets a similar type of supply chain on urban platform; this is the new model of services that will expand to all facets of our lives. Cities will absorb by practice our new moves and patterns and thus, our urban spaces will reconfigure accordingly. Without putting significant capital at risk and avoiding undesired investment through very long return cycles, C19 lockdown period is maybe a form of progress that does not necessarily obey to modernism but rather to a different type of ethics.

Kinzie Street Bridge, Chicago

Back in 2011 during ‘urban vehicles’ spree in automotive industry, the CEO of a leading corporation in the sector of automated doors and gates, elevators, escalators and walkways, revealed that if the world suddenly stopped and we counted people on the move, there were many more in elevators, escalators and walkways than in cars. In less than 10 years, his prophecy is accomplished. The earth did not really stop turning, but to some extend humans did.

The economic impact of our mobile situation is abysmal and what is closer to our reach is redefined and refined every day. With humans reducing their span of action during lockdown, a new complementary system emerged. Everything previously static, like shops, bars or restaurants, has now to invent a form of mobility and serve its clients. An inverse paradigm switched on and the mechanisms are tested, and locally established as we go. Solutions are not given by business meetings or long brainstorming sessions, but rather on the split minute and thus fail, readapt and rebuild again into the new mobile activity. No app can predict the following minute and we find ourselves observing data through algorithms designed for ‘business as usual’ times. Human intuition created misbelief and initiative; new things are happening and dialed again in our digital platforms to regenerate data that would always be in delay next to the real-world events. It is the moment that reality evolves faster than fiction and the intention is inversed, even if information ‘travels’ instantly will always succeed the facts. A whole new world emerges by little local experiments aiming to overcome the absurd, dangerous or harsh situation. However, this new world is a special place, because of the human factor. The most amazing thing about cities is the citizens. Our mobile trajectories will gain different characteristics in terms of frequency, length, speed, form and perhaps, a new type of motion altogether. Therefore, our surroundings will evolve in parallel to our perception and new roads and passages will show up on the map.

Any road is a carrier of civilization, with characteristics that unite, divide or differentiate, and here lies the current epic. The extraordinary must be anticipated in order to orchestrate our contemporary environment and identity. From the early traveling pioneers, the anonymous craftsmen of carriages and harnesses of the 16th century, the ambitious engineers and urbanists of the 19th , the passionate and possessed mechanics of the new industrial era, the invisible railway machinists that serviced and reassured perpetual movement ever since, to the modern time drifters, skateboarders, BMXers and free-run daredevils, they all haven’t done other than falling and failing most of the time on their dream to reinterpret human motion. Their mobile signatures are drawn everywhere with gravel, mud, oil or dust, burned rubber, spray-cans, fingerprints and sometimes blood. They never stopped demonstrating the ability to reinvent motion and emotion, rebranding the mobile history of mankind.

Chicago Skyline

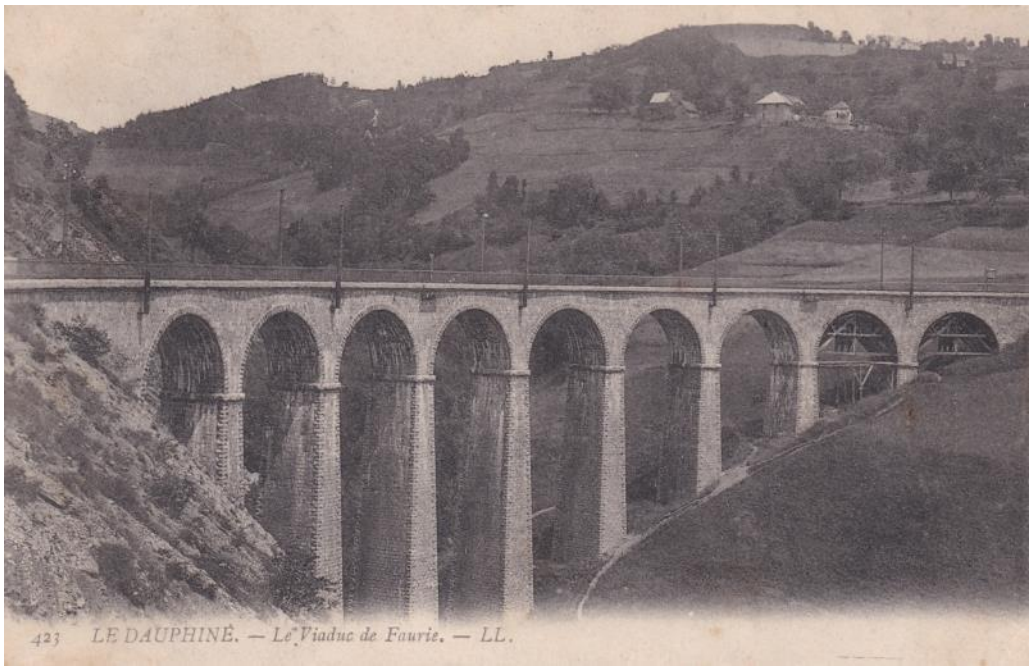
If we look through this kaleidoscope of historic events, we could take the Ford dogma into the next spin: regularly increase mobility incentives to enable a wider pool of mobile expressions, supply the necessary 'drawing' tools to dial-in new trajectories and further explore the amazing ability to move in infinite ways. We can study the everlasting traces and forms revealed by our activity and use this design language to shape our districts and living spaces. This artful labyrinth of trajectories is a collective, spontaneous expression and every citizen's contribution to urban planning. "Cities should be designed by dancers*"(Lyndsey Winship the guardian/2019/feb/11/dancing-in-the-street)* because cities are not about buildings but, the space in between.

Not everyone is an urbanist or an architect but each one of us is a self-taught designer, thus we all contribute to the final composition.

"… I have travelled on trajectories 25 times the speed of sound 17,5 thousand miles per hour around the earth, but only when I jump on my bike, I get a kick of adrenaline and I don't care about destination. It is not about that, it is about the journey" (astronaut Tim Peake on Limitless).

_Trajectories, Our Mobile Signature – 10 Episodes

1. The first segregation of mobility_



Design professionals often think in terms of lines. Every line is a representation of motion on paper. Big gestures draw long and fast lines; small wrist-moves draw short arcs and a constant-speed trace with a ballpoint pen, while talking at the phone and doodling, lays down an infinite string of labyrinthine paths. Mobility can be traced in the same way, while people and vehicles move on a landscape. This is the first of a series of short essays aiming to describe and understand mobile trajectories as a shaping element of our environment.

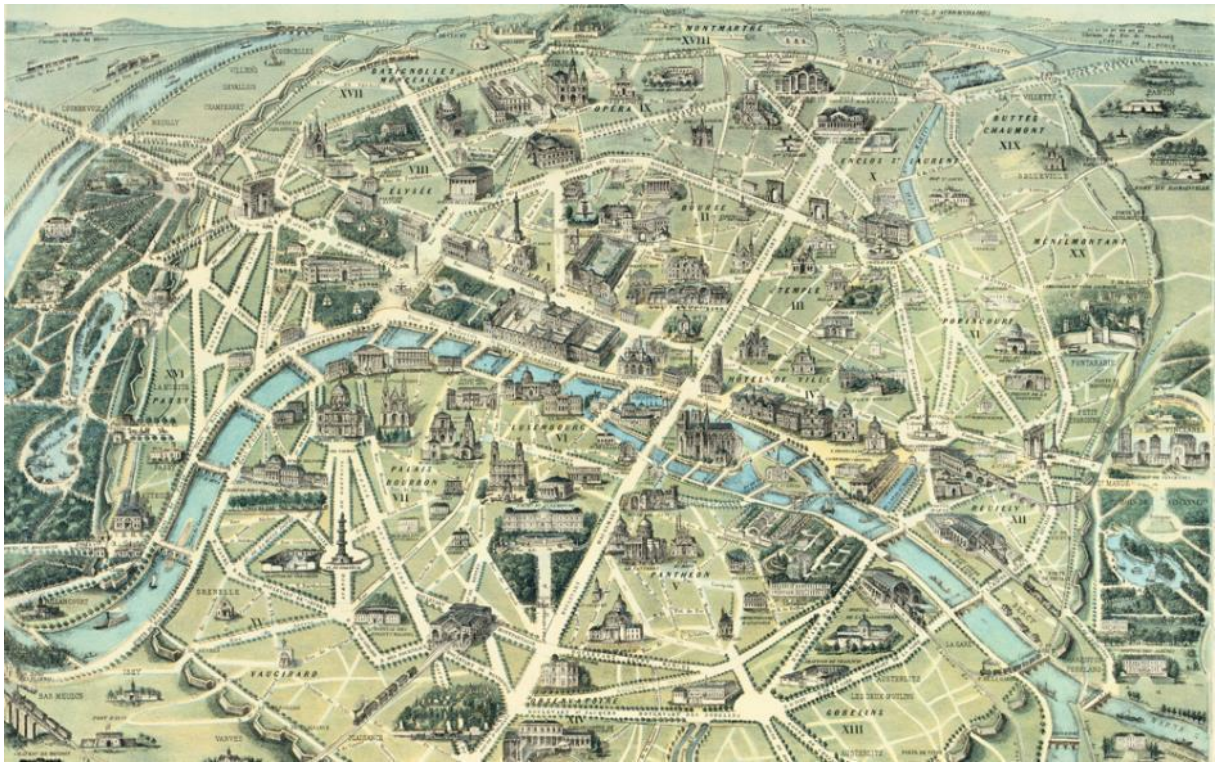
Representations, scribbled by the traveler's hand, during the 17th Century while commuting by carriage, soon developed into the first modern maps. Those linear paths of driving-riding and drawing various trajectories became the rough draft of our infrastructure, re-territorializing every era to our up-to-date footprint. By 1760, the outspread network in Europe was a mosaic of all sorts of trails drawn according to distance and territorial conditions, leading to crossroads, urbanization, congestion and a clear new typology of intersecting paths. They kept multiplying up to the 19th Century, following trajectories strictly related to topography.

The appearance of railways brought upside-down all perceptions, segregating mobility by a new kind of travel that reduced time and space. High mountain or deep river was no reason for delays. Bridges, viaducts, and tunnels were painting the rigid trajectories of modern era and the technical landscape of the years to come. Travelers struggled to understand the fact that travel did not perfectly follow the topography of the land and often disobeyed to this basic rule of perception. At times went above and even through the land, showing an unquestioned obedience to its technical self!

By the middle of the 19th Century, with the expansion of both railway and horse-powered networks, linear constant-speed steam engine tracks often cut horse carriage paths, while

in townships slow-moving carriages were mixed with scrambling and crossing pedestrians. We were entering the modern era of mobility and urban planning by the need of ranking all given means of transportation. A complex system of trajectories that would never stop augmenting and regenerating and soon gave place to a disruptive mode of urban planning.

2.Disruptive city planning_



Map of Paris during Haussmann "Grands Travaux" - 1864

This is the second in DVN-I's series of articles on trajectories as æsthetic depictions of our mobile self, in which we continue with the typology of displacements that reflect new economic, social and spatial organizations.

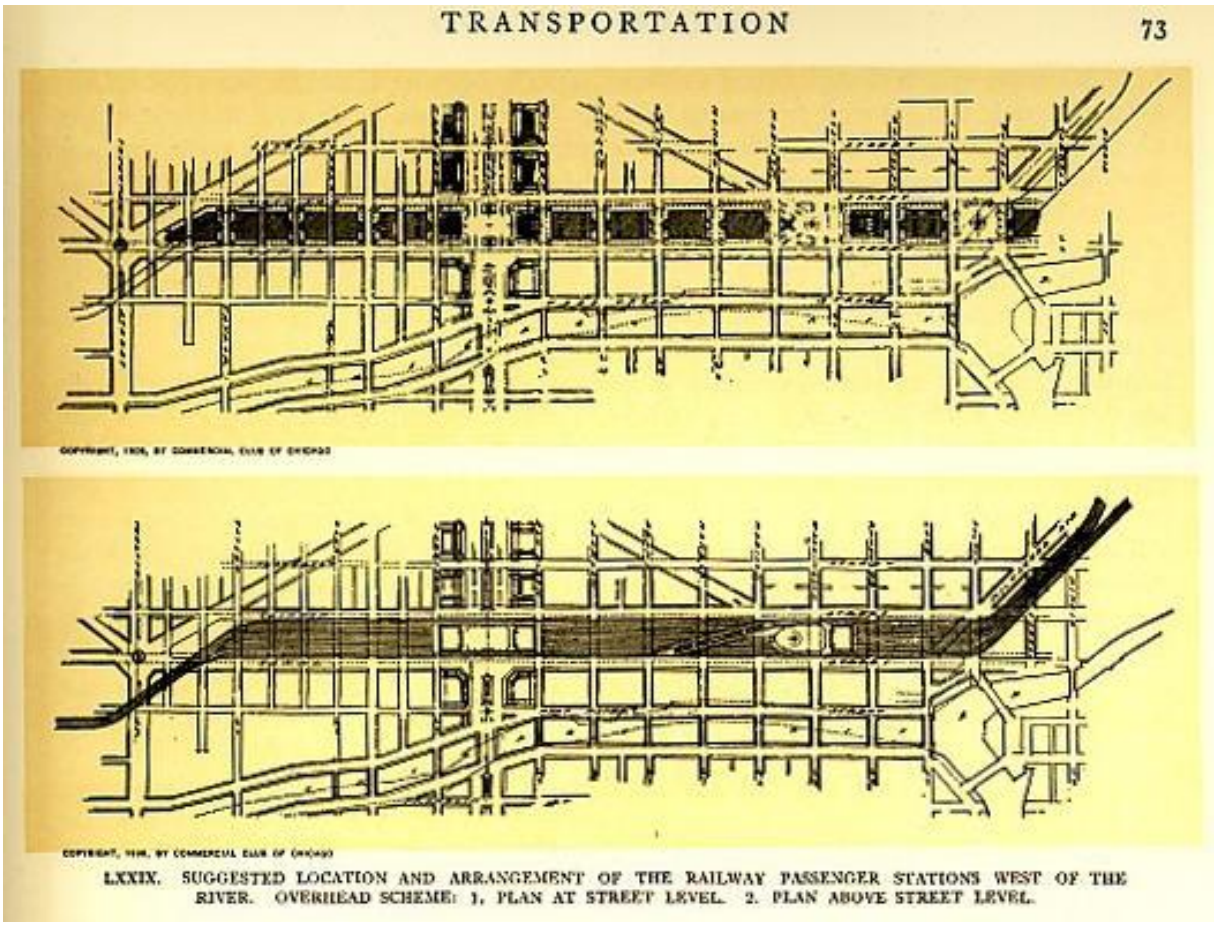
With speed being the third reading dimension of every trajectory, all aspects of the journey are distinguished. Long fast sweep segments, straight constant speed lines, or slow curvy arcs—and combinations of all these. Technical progress on tires, suspensions, brakes and steering brought better control of the carriage and drew smoother trails. By 1740, the outspread network is a mosaic of all sorts of drawn trajectories. This choreographic pluralism boosted by the cross section of different means of transportation gives rise, late in the 18th century, to the first sidewalks separating mobile paths and categorizing pedestrian pathways.

Baron Haussmann, the first celebrity urban planner, wished during the reconstruction of Paris to institute a policy facilitating the flow of people, goods, air, and water; he was convinced by the hygienist theories inherited from the Enlightenment and which had spread following the cholera epidemic from 1832. This campaign was entitled "Paris embellished, Paris enlarged, Paris sanitized". *(«L'urbanisme hier et aujourd'hui. Et demain...?», Jean-Claude Poutissou, in Les Publications de l'AUEG)* . Haussmann's

obsession with the straight line, called the "cult of the axis" in the 19th century generated vast spatial constructions intersecting staging monuments in vast perspectives in the form of avenues or large squares. The resurrection of Paris included sidewalks for the first time—Parisians could now dress up and wear nice shoes. Hence, city streets were transformed into places to see and be seen among the fashionable elite, redefining the experience of urban life in the process. After the railway track, a second mobility segregation took place with space dedicated to pedestrians. A category on its own with slow, extremely fluid and flexible trajectories that can crack rules and infiltrate any vehicle paths, even coexist within, like in the subway that has been described as a moving sidewalk.

In the last decades of the 19th century, population growth in Paris caused a considerable densification of the central districts and the operations carried out by Haussmann influenced the urban planning of several cities bringing about major demographic and social changes.

3. Urban planning & demographic influences_



LXXIX. SUGGESTED LOCATION AND ARRANGEMENT OF THE RAILWAY PASSENGER STATIONS WEST OF THE RIVER. OVERHEAD SCHEME: 1. PLAN AT STREET LEVEL. 2. PLAN ABOVE STREET LEVEL.

Exponential demographic changes in the industrial revolution rapidly increased rural exodus. Population and goods drew the main paths of flux and cities became the lands of progress.

Following Haussmann's ventures [as described in the last chapter], Berlin's urban planning commissioner James Hobrecht visited all known urban chefs-d'œuvre and by 1859 Berlin's new script was pronounced. Based on old existing paths within a brand-new framing infrastructure, the plan was divided in sectors of pre-existing traces, that—contrary to Paris—were not erased but reused at the service of the new bigger picture. Often compared to Paris due to wide metropolitan avenues, large urban parks and squares, Berlin in Hobrecht's plan was instead conceived on a footprint base, the master plan defined only the boundary lines for housing construction. A fire engine was used as the measurement unit to set building dimensions. With houses no taller than 20 meters and a back yard of specific dimensions for the fire engine to turn, the first housing regulations were imposed.

Regardless of how the new looks of the late 19th urban territory appealed to the viewer, contemporary development status in urban planning was defined by sophisticated, invisible to the human eye, underground pathways and trajectories. Sewer systems constitute the rigid technical layout that codified cityscape measurements. A specific position of intakes defined street and sidewalk dimensions and engraved on urban land the proportions of every street, avenue and boulevard, passing-on the perceived character of the city for the years to come.

In a very diverse urban narrative, waterways and steel structures at the southeast tip of great Lakes edited Chicago's outline and mobile trajectories. In 1848 at the most strategic spot of the largest waterway network, the Windy City emerged once Illinois & Michigan Canal linked the Great Lakes and the Mississippi River waterways. Logistics imposed the first railroad tracks, and soon Chicago became the train hub of the nation resulting in a 500× population growth within the decade! An urban planning spree took over, focusing on big boulevards and roundabouts, when suddenly in 1871 a devastating fire destroyed a third of the city.

Water and steel, once again, would recompose Chicago's new urban alphabet and within a year, most of the city was restored. In 1889, one of the most ambitious projects of mankind kicked off; at its completion, the flow of the Chicago River would be reversed. In this unique example of man interfering and changing his environment, mobile trajectories shifted from east to west and the Windy City acquired a new mobile signature evermore. At the turn of the century, in 1897, the elevated Loop was constructed connecting several passenger rail lines and becoming Chicago's emblem of urban mobility.

All along the 19th century, accelerating urban growth gave birth to infinite paths, intersecting rails and roads, water passages and bridges, multiplying urban trajectories that withstood time. Pioneering urbanists at their best sharpened their pencils for the next big thing!

4. Early automotive trajectories_

Tire marks, Formula 1

With a wide spectrum of social changes, massive urbanization, high levels of productivity, profit and prosperity, the 19th century set some of the most amazing achievements. Talented urbanists and visionary leaders embedded the new standards into our surroundings and established the corridors of progress and social growth. A new urban mindset took over, and mobility branded modern urban spaces. From Paris to Berlin and Chicago and other major cities, wide metropolitan avenues, large urban parks, squares, roundabouts became the landmarks of new mobility and soon enough a distinct, state of the art commodity would be crossing all boundaries.

In less than 20 years after Haussmann's death, the automobile took over and a bothering thought came to mind. Did the Baron know that a novel form of mobility would soon conquer his urban masterpiece and thus he rushed to put in place, early on, its spatial expression? Perhaps. However, it is obvious that Paris was built before the automobile, like most European cities, but strangely enough was designed for it.

All technical progress made on carriages associated with the internal combustion engine gave an astonishing engineering composition. The automobile, inseparable of

its production method and the organization of a new manufacturing approach, implicated societal changes. Henry Ford recommended increasing wages regularly to widen the pools of consumption. The market opened to the vast middle-class populations and mobile trajectories became a form of personal expression. Now all territories were up for grabs, including external factors of cognitive intuition such as mud, bumps, steep slopes, sharp turns, and all unpredictable factors that may occur and alter the traveling path of the pioneer motorists. Road gravel, with frequent automobile passage, soon disintegrated into dust. Four-wheelers slid and dust becomes the visual atmosphere of this unexpected mechanical episode. Side sliding is an irregularity and a new type of trajectory that for the decades to come will constitute a strong and symbolic imaginary. Inherited sliding trajectories are now dialed into car mythology and graphically drawn in black burned tire traces on tarmac. They reveal the unique signature of the pilot in drift culture championships, set in a similar foggy atmosphere; dust is replaced by smoking tires and trajectories are drawn with artistic precision around interfering obstacles (*e.g., Ken Block gymkhana series)*.

Tires have reassured traction and simultaneously became the drawing media on driving grounds, tracing some of the sharpest lines along the most exotic race circuits and doodling domesticated trajectories in every populated or not territory. At the end of that fascinating decade, automobile was established as the dictate mobile reality in heavily decorated environments by direction signs that drew the theater-set of the automotive toe-dance.

5. Urban invaders_

Image: Ben Lawson_Longbording

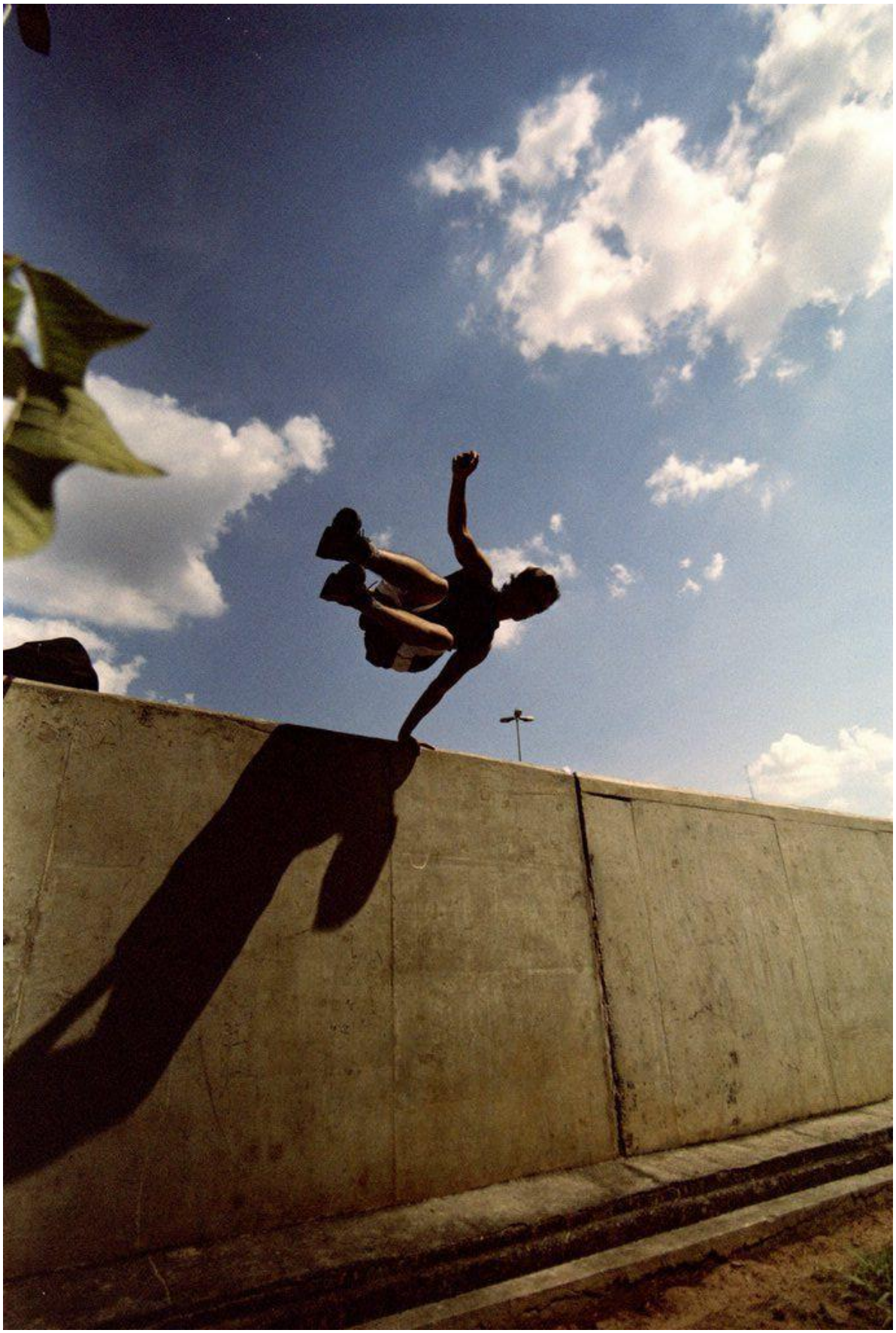
Following the demographic paradox and the industrial miracle of the 19th Century, the automobile became the prodigy of 20th and the badge of every social and economic narrative. The complexity of mobile trajectories by the mid-1920s was such that a new phenomenon could be identified. The art of circulating was a term often interpreted by numbers in an attempt to measure and tame the unpredictable. Statistic representations described accumulated trajectories as flow of a thermodynamic type and regulations put in place accordingly with often experimental character. Changing the sense, speed, and in times frequency of accumulated trajectories, generated all types of kaleidoscopic patterns in roundabouts and crossroads.

The world was rolling on wheels of all types, sizes and diameters that were scanning, reproducing, sharpening and reinventing linear trajectories on any dedicated alley for four or two-wheelers. The trend for speed and faster lines naturally built up, multiplied and finally overtook other motorized trends. Top speed became this one magic digit that said all about the vehicle and its owner. Gradually "fast straight line" took over tortured urban or rural paths and thus planners optimized journeys at the name of speed until sometime later we could observe straight long avenues congested with slow cars.

After decades of mastering and domesticating the art of automobile and just before the 80's, new trajectory trends appeared. Was it because humans could not rely anymore at this diluted and congested, over the years, spatial expression of mobility and wanted to reinvent motion? Arguably so, at the peak of mechanized mobility led by cars, we witnessed and experienced the invasion of a mobility new wave. The moment that all bicycle traces looked alike, BMX appeared. A stripped-down two-wheeler with nothing special but its choreography, was conquering everyday wider urban envelopes. Moving in peculiar ways, enhancing jumps, reverses, wheelies on front or rear wheel, the new urban invader was sketching exotic figures in the street stage. It became an object of desire bringing along something magic. Before too long, small-wheeled alien creatures landed on the urban territory, *(skate)* boards of all types claiming their part of new moves. A new urban tribe arise, highly determined to put beautiful traces on urban ground. Linear big sweep-slightly drifting *(longboard)*, fishtailing while accelerating *(wave)*, pivoting donuts *(skate)*, jumping and walking, while running *(blade)* variable mirror slaloming *(street)* etc. Literally, along these lines, multitudes of mobile objects are dancing next to car-congested roads. A new definition of 'freedom to move' was building up its legacy, escorted by its own surrounding graffiti art and music sounds. Accelerating, sliding, leaning, turning, breaking, colliding are built-in elements of our mobile self, while on shoes or on wheels.

Fragmented mobile trajectories were perceived as choreographic performances and the new urban phenomena were represented by *scratching* DJs improvising the speed of music rhythmed in breakdance moves.

6. Global trends_



Mobile trends were raised for decades on the narrative of the wheel as the dominant form and symbol of mobility. Any size, diameter or layout of wheels and tires, from 1” roller to 29” fixed gear-bike wheels, biased the pandemic evolution of all types of mobility. On the dawn of 21stC, a new nomadic enigma created its own spatial expression and legacy; even though surroundings did not change, movement went beyond flat grounds and smooth linear sweeps. Motion was reinvented to trespass walls, gates, staircases and all obstacles that wheels could not properly deal with. This new, modern and disobedient swing was founded on the ultimate source of mobility, the human body; traction was reassured by the most personal and basic apparel unit: a pair of shoes.

Following the mid 90’s, globalization unfolded to its million facets through digital technology thus, new trends took rapidly world-class magnitude. The complex pallet of all known trajectories, with instant intercultural exchange, enriched and gained everywhere its own local version. From the suburbs of Paris to the study of African tribal moves, mixed with Asian martial arts, the new trend performed in the most complex of environments. Composed on urban choreographies, putting together trajectories from diverse and unforeseen practices and latitudes, ‘parkour’ or ‘free-run’ is the fluid act of moving in urban obstacle course. Exceeding all limitations on the form of moves and expression of positive thinking, it has been suggested that practitioners of free-running will sometimes fall, largely because they think they might. *(Declan Saldana, Jan 2012, Parkour Legends: Daniel Ilabaca).*

The undisciplined new urban behavior soon triumphed in city districts, any district, the global district. ‘It is about relearning something we forgot and not about pushing limits. It is the animal-kind relationship to the environment. It is not about the goal but about the journey. Finally, it is the fluid connection of all kinetic segments and the challenge is, keeping the flow'. *(Ft.Sebastian Foucan, The Making of Casino Royale-Parkour Chase)*. The new element is the perception of surrounding space through this specific path of motion and soon enough its digital version gave birth to highly performing game platforms around the globe. Free-runners can improvise their own moves, flows and lines in different landscapes. It is all about being creative in an objective environment by adding acrobatic and stylish moves, showcasing the art of movement. Suddenly, after over a century of industrial culture and mechanical motion, we witnessed the grandeur of human body, exploiting all dynamic dimensions through urban passages. It was a little bit like BMX without the bike.

Free-runners were in a way, predecessor of the upcoming global shift; humans declared officially ‘Urban’ in 2007 (UN) and ‘Urban mobility’ became a proper term, boosted by flow and density towards metropoles, where more people were prospected to live for the years to come. With their ever-multiplying broadcasts, they modeled the apotheosis of urban self and local landmarks became global labels.

7. Proportions_

As a result of rapidly growing urban dynamics, at the beginning of this millennium, advanced vehicle architecture studies emerged, sharing often newly invented proportions. With the shortest ever wheelbase, contrary to all classic car-body design codes, and without any front or rear overhangs, automobile elegance was questioned. Compact, tall and often narrow 4wheelers—Smart, Renault Twizy, etc—as well as leaning 3-wheelers like the Toyota i-Road that followed asymmetric trajectories, were the best practices of a new driving posture for concise trails and tortured town corridors. Journey was not anymore alluding to horsepower and top speed linear performance but rather skateboard-like, surfing trajectories to close proximity of our precious social surroundings. The upcoming challenge was the invention of a machine that could draw new types of uninterrupted, flawless trajectories on urban ground, taking in consideration its infinite complexity, density of overlapping paths in motion and the serendipitous way of piloting such vehicles.

The appearance of the first wireless electric skateboard, literally a motorized interpretation of urban gesture, brought about curiosity, experimentation and many more peculiar mobile devices. Progression of electric batteries and torque gave birth to the Segway (2002) and following the evolution of vertical posture trends, electric kickboards and self-balancing unicycles (2010): the most compact, tallest and narrowest yet mobile posture!

Increase of speed in such upright position implicates an exponential growth of falling parameters that, due to optimization, were not being dialed in the wide mobile culture. The consideration was and still is that we are transported, without seeing all other physical factors. There is a feeling that in some cases a mechanical/tech application took over the notion of mobility and rapidly conquered the market. Tall postures in low speed tend to better control proximity; low f1-like postures, not so glamourous in urban congestion, were conceived to go fast, far and often straight until the next quarter mile turn, and proximity was a derivate. Proportionally, low objects are directional by length; tall objects, often slower, are leaning in order to indicate or ‘gain’ direction. After all, mobility is mainly a horizontal act on our human planet. The paradox of our vertical

posture moving horizontally, may pronounce a different type of mobile authenticity, depicting dynamics and degrees of gesture we have not yet exploited. It is not just about an advanced vehicle shape but something considerably more intense and participative: an environment, an ecosystem of mobile objects.

It might be that we are about to witness a new shift, a new definition and a new separation of our transport/commuting modes. So, the answer to the question, what type of vehicle proportions will mature through such a complex mobility web, is rather depending on the types of trajectories we should envisage in order to design the urban republic of the 21st century.

8. Digital trajectories_

Source: Hoodmaps crowdmap

Mobility, paired with technology in a quasi-tactical way, embraced the new challenge to reboot itself by retracing new corridors of choice. Based on statistic and real time events, with dense broadband network in urban areas, new paths of transportation appeared, conquered rapidly by bicycles and electric kickboards through gamified shared platforms. It is just the introduction of what happens in the wider picture of urban motion over the course of last decade.

Proximity, frequency and density dictated the complex interwoven metropolitan paths, visually represented through advanced digital media, as ‘fluid textures’, prismatic, psychedelic patterns in all sorts of arrangements. These, real time often animated, portrayals are strong indicators of social fabric, depicted in various compositions according to local trends. Depending on landmarks and framework, they are now replacing previous infographic maps (ie, Metro maps) and overtime become the stylized logo of a district or a city, containing intimate and profound characteristics of its everyday life. Unlike the aesthetic similarity to previous, static, graphic flux representations, the new mathematic models, based on trajectories of mobile objects and people can conduct

‘character recognition’ and through the choreographic evolution of our motion, generate profiles of behavioral psychology.

With tech filling the gaps of all previous infrastructure blocks, digital paths and traces of mobile subjects add a 4th dimension on our itinerant culture. Through this conversion, density is represented by ‘image-size’, and we can zoom-in and dial alternative trajectories thus, generate further information that will bias prospect routing. The value of mobile data is arguably greater than its utility! Street view is expressed in megapixels, time in battery autonomy, autonomy itself in megabytes available, connections are infinite, and distance is zero. A different type of proximity brinks together urban communities that often have not much to share with their physical neighbor, other than the same hotspot. This casts another layer of social interaction, just like an interfering trajectory, adding itself into to the big city data, laying its own lines on the canvas of urban life.

An augmented mobile human emerges with individual trajectories, drawn by all previous mechanical means, amplified, multiplied, copied, and memorized in many dimensions into a digital profile. New soft applications of autonomous robotic services and self-activating public devices integrate to our personal path and, surrounding infrastructure becomes an instant mirror of our needs. After two centuries of monumental urban planning, great streamline avenues and fast lane highways, designers internalized the question of a new approach. New design codes are not anymore referring to linear performance but unconfined, crowdsourced events and situations. It is not about conceiving ‘the vehicle’ but, enabling choice.

9. ‘Routing’_

The last known transformation of mobile trajectories is happening between digital and actual, physical paths. This is a direct derivate of a new industrial model that wants the vehicle OEMs in competition with application builders for the same territory. A multimodal versus multi app transportation sets the business pace and mobility in the new connected world is shaping in real time through information flow. Who or what defines the mobile experience between owner, driver, passenger, carmaker and operator, and who is really the final customer, remains to be explained, since information never follows a fixed linear path?

Hundreds of thousands of networks and billions of devices connected make the internet of today. Data, divided in tiny bits transported separately, is reassembled upon final destination to its original size and format. Routing is the process of selecting a path across one or more networks and routers are the traffic-managers that choose alleys according to destination and 'administrative distance', in other words, complexity. Often the best way to travel is not necessarily the most direct since parameters multiply so fast that anytime things can go horribly wrong. In order to always and constantly reassure arrival to final destination, routers have options and choices that make the network ‘fault tolerant’ therefore, reliable. Cheapest and fastest in this case does not mean money but, politics and relationships between contracts, companies/destinations; based on reliability, delivery is multipliable and scalable!

In 2008, the number of internet users through mobile cellular broadband, surpassed the number of fixed cable lines; at this speed, cellular networks begun to blur with the vast but fragmented constellation of Wi-Fi spots. At least two additional things are connected to internet for every human’s personal device. The metropolitan nervous system is wireless while the internet of people gave away to the internet of things. However, there is still no algorithm that can find out when people want to switch from train to bike or access to inventory by proximity; there is no such thing as a perfect route. Mobility data becomes a new currency and routing, a political instrument: how should modern routing look, is partly the answer of how should modern roads look. We are witnessing the birth of a new civic movement, as smartphone becomes a platform for reinventing cities from the ground up. Each one of us holds a smart-city construction kit.

For thousands of years, we have migrated to cities to connect, while cities accelerated time and reduced space. In countryside, car is a property, in urban territory, a shared commodity. ‘Everyone can benefit from the city because city is, everyone’ phrased in Plato’s Republic.

The friction between information on infrastructure and infrastructure itself, will unlock the city into a new type of commuting typology and maybe a new segregation of mobility will still be amongst physical and digital trajectories but this time dictated by a different opposition rule. the element of randomness.

10. Social Distancing_

Walter Molino, Italian Comics Illustrator, 1962

From a simple gesture of motion to the first path traced on a map, from crossroads to outspread railway networks, and from streamline highways to congested city centers, we have crafted our interconnected world. Masters of our movement up to now, in charge of direction and speed, we put together paths and trajectories while discovering new places. We rehearsed modernity on motion, by going to the land of gold or the land of the next business opportunity. Exceeding all previsions, obstacles and expectations, we surfed mobile trends throughout history. Our trajectories became vectors of civilization. We have traced paths that united us and others that separated us, carved and evolved according to territory. We dialed our knowledge into digital carriers entering unexplored domains that accelerated, scaled and multiplied our imminent presence; our mobile self-shaped its virtual ego. At the sharpest moment and unlike all forecasts, a latest constituent adds into the mix of our multi- spatial activity: Social distancing.

Suddenly, everything prior seems a fairytale. We are entering a new era by augmenting spacing from people and surrounding surfaces. That would mean, in theory, smoother trajectories and faster overall, further away from each other, a little bit like space orbits. The way we move is the physical representation of our profile and touches a fundamental dimension of our social interaction. Mobility after all, is an emotional experience. As Gandhi said, *'there is more to life than increasing its speed'*. Fast trajectories enhance the emotion of speed; slow trajectories favor the

speed of discovery. Digital trajectories focus only on destination. The more a trajectory is tortured the more it is about the travel experience; desire of connection is what maintains in our era all slow trajectories.

All along our mobile history, the immaterial possession of our surroundings gave a sense of belonging (to a nation, a tribe, a city or a neighborhood etc.). Over the years, we have built a reality of motion-observation to the point where the ‘vehicle’ became invisible and sometimes irrelevant. People in glass bubbles as in Walter Molino’s 1962 illustrations or Melvin Sokolsky’s 1963 utopian pictures, today constitute an inverse paradigm. The contrast arising is stunning since for a few moments during lockdown we switched on the other side and became part of the ‘static’ scape observing out through a window. What is devastating though is that feeling of not being in charge anymore of anything that moves. We delegated to mobile devices, run by overwhelming algorithms, all our needs expecting to be served by an optimized logistic script. C-19 pandemic challenged some fundamental concepts and brought us back to the origins, reminding that mobility is neither obvious nor effortless.

We have built our modern citizenship based on the skills we acquired by moving, driven by vision, passion and conviction. We moved towards progress with a scope, an objective or an intention. Social distancing is directly affecting transportation and it is the moment of reexamining principal notions: transportation alone does not guarantee the right to mobility because being mobile means having plans, projects, and aspirations.

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