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Bachelor Thesis

Communities of Practice Applied to Urban Development Theory – The Case of Insolar in the Favela Santa Marta

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Abstract

The thesis at hand aims to disclose certain core conflicts dominating the contemporary research field of urban theory from the historically derived insight that the topic of urban planning corresponds to a problem of organized complexity and can therefore be described above all as a matter of relations. Subsequently, these core conflicts will be expounded to be fundamental dilemmas that cannot be solved but eventually may be mitigated through learning processes. This research paper, therefore, proposes the concept of Communities of Practice as a platform for coordinated learning processes that is presented as a sensitive governance structure which enables the bridging of the dilemmas outlined. The potential that the application of the construct of Communities for urban theory contains is, subsequently, tested against the reprocessing of empirical data collected on a research trip to investigate the case of the social business Insolar. As the energy distributor is cultivating a Community of Practice that is concerned with the sustainable urban transformation of the favela Santa Marta it qualified as appropriate research object to investigate the benefits that this concept yields for urban development, especially with regard to the context of an informal settlement.

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1.Narrowing the Subject

In a first approximation to the topic of urban planning, it seems fruitful to distinguish this discipline from the sometimes synonymously used term of urban development in order to gain a clear definition of the framework to this discipline. Interestingly, the German language offers a more precise linguistic differentiation between urban planning and urban development, as with the terms 'Stadtentwicklung' and 'Städtebau' it uses different vocabulary for urban development, as umbrella term for any process that is related to the transformation of urban space, on one hand side, and urban construction, as term for the physical building practice within urban space, on the other hand. This allows for a delimitation of urban planning from these two different meanings, which are subsumed in the English language under the same term, in order to add definitional sharpness to what this paper understands by urban planning.

Firstly, the separation between urban planning and urban building practice could also be paraphrased as the differentiation between process and form. While urban planning focuses on the processual dimension of planning and its institutional and organizational integration, the term building practice is used when it comes to spatial design, and therefore, also contains proximity to architecture and individual building projects (Schubert, 2015).

The second concept-sharpening distinction between urban planning and urban development is more difficult to grasp, as the boundaries are more fluid here. Urban planning can be integrated as a subcategory under the larger framework of urban development and it differentiates itself from this rather unspecific collective term of the analysis of urban dynamics in general by means of the specificity of the activity negotiated within the discipline of urban planning (Taylor, 1998). Namely, urban planning is explicitly an action-oriented discipline which means that it contains different systematic approaches that deal with objectives regarding long term activity on different spatial scales including urban as well as rural areas (Schubert, 2015). So, the key difference of the distinction lies in the words 'action-oriented' and 'systematic'. Urban planning is concerned with the patterns of social process that lead to systematically planned action and decisions, whereas urban development additionally includes any unplanned, and therefore, not systemically tangible transformations regarding the urban realm like alterations in population and job structures or deindustrialization and revitalization (Flade, 2015).

To reduce complexity, the paper at hand will use the term 'urban practice' only for the design and the physical building process, whereas the term 'urban planning' is used regarding all social processes that integrate the building process into society and 'urban development' is, on the one hand, used in aforementioned function, but also as umbrella term that subsumes both

spheres if they are simultaneously addressed. The terms 'urban', 'town' or 'city' will thereby be understood as interchangeable.

The above presented distinction of terms is widely accepted across the contemporary scientific field that deals with urbanity and has led to a situation where the different contents of the terms and their respective logics are dealt with in separated disciplines both in its theoretical treatment as well as its practical application (Taylor, 1998). But this separation of terms is actually the result of a historic negotiation process within urban theory which was initiated through the first theorizations of the city (Sennet, 2018) and is therefore contingent and can be put to discussion. With the emergence of self-reflexivity to the discipline of urban planning, a historic progression between planning theory and building practice was incited which is characterized by a time-delayed interplay between theoretical criticism and practical resonance (Schubert, 2015). The paper at hand takes up the above made distinction of terms in their linguistic usage but essentially tries to reconcile the disciplines behind the terms by introducing the concept of communities of practice as overarching structure that enables the reunification of the former separated processes of urban planning and urban building practice within this concept. In the sense of process philosophy communities of practice allow for the unity of difference and sameness between the form and process of implementing joint projects by introducing mutual learning as bridge between formerly separated processes, which might be a viable theoretical extension to urban theory.

In order to understand this train of thought, first a brief historical overview of urban theory will be presented that aims to point out some of the key conflicts of contemporary urban planning from the analysis of their historic evolution. Furthermore, a special focus will lie on the difference between planning in informal as compared to formal settlements and the particular challenges that arise in a context like the Favela will be addressed. It will transpire that within urban theory community participation is touted as panacea for a variety of fundamental dilemmas. This assumption will be critically discussed afterwards. Therefore, a closer look shall be paid to theories about the process of participation on one hand and sociological theories of community on the other hand. The sociological perspective on community may serve not only as explanation for the popularity of the term in urban theory but also already indicates how the application of the concept of communities of practice can provide a fruitful contribution for this theoretical field. At the same time, the sociological demarcation of what this concept can and cannot render for urban theory may in turn lead to a sharpening of the theoretical construct itself.

After these theoretical challenges to urban development have been identified, the concept of 'communities of practice' (CoP) will be introduced in detail and it will be discussed as governance structure for urban development. In advance to this introduction, the subject of urban development will be put on the theoretical foundation of relational economics. Afterwards the endeavor will be made to show why an urban development project in informal settlements, regarded from the viewpoint of relational economics, is above all a relational event that requires mutual learning processes. Out of this theoretical outline the main hypotheses of this paper, which is that *the concept of community of practice (CoP) can provide a feasible governance structure for sustainable urban development in informal settlements* will be derived and substantiated by several sub-hypotheses. These theoretical proposals will afterwards be tested by means of reprocessing the database collected on the transcultural caravan's research trip to the community Santa Marta in Rio de Janeiro, which was carried out in order to investigate the social start-up solar energy distribution company Insolar.

2.Urban Theory

Since its formal establishment at the beginning of the 20th century, the scientific discipline of urban theory has undergone a historical development that is characterized by many distortions of different degree (Taylor, 1998). Although this represents a simplification of the actual complexity of the theoretical controversy about urban planning, the following historical overview will concentrate on two main transformations of the guiding principles to planning and the respective effects they had on building practice. This refers to, firstly, the changes that accompanied the establishment of theorization which paved the way for the emergence of the modernist urban ideal and secondly the changes that arose in the context of the post-modernist reorientation of urban planning that was triggered by the work of the urban theorist Jacobs which is still having a verifiable impact on todays practice (Sennet, 2018). It has to be clarified at this point that there is a theoretical debate about whether one can call replacements of different theoretical schools of thought within the discipline of urban development as paradigm shifts or not (Schubert, 2011). As changes in urban theory in contrast to natural science do not follow invariant laws but emerge out of historically contingent ideals, changes within urban theory in fact should be called changes of guiding principles and not paradigm shifts (Schubert, 2015). However, the division into three core epochs of urban planning resulting from above mentioned transformations is actually based on the underlying assumption that in the history of scientific thought in general there have been ultimately only three types of problems and corresponding solutions (Jacobs, 1961). This idea was introduced to urban planning theory by

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Jane Jacobs and is derived from a theory of general epistemology that subdivides the history of science into three stages. These can be recognized as different modes of analyzing and solving problems in science and they can roughly be distinguished as "ability to deal with problems of simplicity, ability to deal with problems of disorganized complexity and ability to deal with problems of organized complexity (Jacobs 1961, 429). Transmitting this assumption to the field of urban theory, it could transpire appropriate to denote these three stages as paradigms because after the realization of each stage it seems impossible to simply return to problem-solving approaches that neglect the increasing complexity that goes along with each stage (Capdevila, Zarlenga, 2015). The endeavor to retrace this progression throughout the history of city planning and substantiate it with empirical examples of the built manifestations of those paradigms will be made in the following chapter whereby only cases from Brazil will be taken into consideration in order to ensure proximity to the research question. Over the course of the following treatise of urban theory, special attention will be paid not only to this interplay between changes of scientific methodologies in urban theory and urban building practice but also to the relationship between political doctrines and urban building practice. It will be shown that changing assumptions in both these two dimensions have shaped the way urban planning procedure is conducted and resulting from this how actual construction projects are implemented into reality throughout all three phases.

2.1. Problems of Simplicity

According to the tripartite division made above, all urban planning measures that took place before the self-reflexive re-thinking of urban planning through the constitution of the theoretical discipline can be summarized under the criterion of the ability to solve problems of simplicity. This refers to the fact that although the activity of urban planning is arguably already as old as human settlements themselves and indicators of deliberately planned environments can be traced back as far as 8000 B.C. (Schubert, 2015) urban planning was in the majority of cases always treated as one dimensional remedy of monocausal problems without paying tribute to the actual complexity of the subject.

Out of an epistemological point of view, challenges in cities were analyzed as two-variable problems which means "that the behavior of the first quantity can be described with a useful degree of accuracy by taking into account only its dependence upon the second quantity and by neglecting the minor influence of other factors" (Jacobs 1961, 429). Although it is not negligible that many achievements in urban practice have already been made on the basis of this method, it should be noted that this has always been accompanied by the corresponding

costs of neglecting third aspects. Even though decisions in urban development such as the fulfilment of certain hygiene measures or progress in infrastructure were scientifically informed and a fictitious common good was brought to the fore in planning interventions, they always only took one decision logic into account. Correspondingly, a building practice arose which would accept certain negative side effects such as deportations and expropriations in order to achieve the desired objectives such as the implementation of a new sewage system (Hernandez, Kellet, 2010).

With respect to the dimension of political leverage on urban planning, it is recognizable that the built realities were largely direct manifestations of underlying power structures (Schubert, 2015). This circumstance is particularly visible in South American countries, since there the planning of cities was deliberately used as a representation of colonial superiority and foreign rule. Even the very placement of new cities in certain representative locations was in itself often already an expression of colonial land occupation. "Cities served as a means for the colonizers to impose their own socio-political and economic structures, thereby establishing themselves in a position of authority. Hence, cities had to be planned in order to materialize such a hierarchical structure" (Mehrotra 2010, 3). For this purpose, the orthogonal grid was established in most South American cities as a symbol of the supremacy of rational thought, to which all preexisting settlement types had to adapt and which subsequent constructions had to comply with (Pieterse, 2008). This patronizing urban planning practice was the beginning of the separation between the formal and informal city parts which still characterizes cities like Rio de Janeiro today. This proceeding led to a fundamental loss of knowledge about indigenous building practice which additionally served as a tool of suppression as local expertise about the usage of certain material or awareness of local conditions was devalued as compared to colonial expertise (Hernandez, Kellet, 2010). This proves to be particularly problematic when contemporary upheld ideals such as sustainable development goals rely on more local supply chains and correspondingly on local know-how.

2.2. Problems of Disorganized Complexity
The first big transformation terminable as paradigmatic for urban planning practice arose out of the foundation of the theoretical discipline of urban theory and the subsequent dynamic of self-reflection through the pioneers of the discipline. The decisive transition that accompanied the self-awareness of urban theory was that urban planning could no longer be regarded as solely a problem of simplicity linked to a two-variable approach. Instead, the discipline was increasingly accepted to actually contain problems of disorganized complexity, which means

that a multitude of variables could now be considered and made tangible by means of quantitative mathematical models (Jacobs, 1961). Also, the city as a topic and object of investigation took on a new significance and was viewed for the first time as an organizational whole in which all internal interactions and variables should be considered simultaneously in order to plan future interventions accordingly (Schubert, 2015). This change of perception was arguably triggered by the noticeable impact of general scientific ideals and methodologies originating from other disciplines that could be brought to use for urban development. "[C]ity planning theory began to assimilate the newer ideas on probability theory developed by physical science. Planners began to imitate and apply these analyses precisely as if cities were problems in disorganized complexity, understandable purely by statistical analysis, predictable by the application of probability mathematics, manageable by conversion into groups of averages" (Jacobs 1961, 436). This methodological turn in the discipline of urban theory eventually paved the way for the emergence of modernist planning ideals in architecture. The architectural luminaries of the modernist epoch, such as Le Corbusier or Niemeyer in Brazil, explicitly referred to the scientific method of empiricism and quantitative collection of data and developed their comprehensive urban regeneration plans on the foundation of this epistemological approach. In the context of the modernist dogma, the dominant planning model was considered to be a time-limitable event with predefined intern processes that addressed a spatially closeable area which in most cases regarded one specific town. A "plan should in principle show the extent and form of that town at some specified date in the future when, all being well, the plan would be realized or 'completed' […]. Plans were seen as 'blueprints' for the future form of towns - as statements of 'end-states' that would one day be reached" (Taylor 1998, 14). The paradigmatic physical feature resulting from this procedure is the functional differentiation of different societal spheres which can be retraced in a multitude of cities which have been subject to the modernist planning model.

The prime example of statistically informed planning in Brazil is the capital city Brasilia which was entirely planned from scratch. This cities conception, the so-called "Plano Piloto" was an intricate encompassing vision of the ideal city that stipulated specific future usage for different functional areas based on mathematical prognoses (Spencer, 2010). But soon after its inauguration, the problems that eventually will originate from the assumption that the urban planning process can be closed, both spatially as well as timely, transpired. Namely, the architects behind the plan had not anticipated that the craftsmen and guest workers involved in the construction would want to settle in the city after the completion of the building process (Sohn 2000, 219). As the official infrastructure was spatially closed, these individuals were

forced to settle apart from the formal grid which eventually resulted in uncontrolled urban sprawl and the formation of the first favelas around the city. In other words, one could say that the city as a closed system was not able to react to effects stemming from parameters outside of the defined limits such as unexpected influx of population.

Concerning the second dimension of the influence of political doctrine on urban planning it can be stated that the big blueprint plans that were supposed to cope with problems of disorganized complexity at the same time always were explicitly interwoven with utopian drafts of society. Urban "planning was also driven by a distinct set of values which, when generalized, amounted to a normative theory of what constituted the ideal physical environment which it should be the task of town planning to try to bring about" (Taylor 1998, 20).

In the case of Brasilia, this normative utopian conception was influenced by an egalitarian vision of society and the officially communicated guiding principle of the urban design was to create a balanced relationship between poor and rich populations, contrary to the Brazil of the time which was confronted with pronounced inequalities. Another motive was to distance the country from its colonial past by building a new capital in an independent Brazil that would serve as future-oriented center for Brazilian culture (Eisinger, 2006, 82). Both these objectives could not be achieved by the urban building measures and actual realization of Brasilia, although the unique possibility to start the urban planning process from a point of zero was given here. Most critiques examining the phenomenon of Brasilia explain the problems that this special case faces today out of the universality and predetermination of possible ways of living in this city that inevitably would not leave space for individual self-realization (Sohn 2000, 218). One could state that the conception of the aspired society did not match the social system that actually came to inhabit the city. It seems like imposing the conception of a society on a population just via the built environment is not feasible and, to the contrary, even may lead to unexpected side-effects.

In the case of Brazil's artificially planned capital, the attempt to equalize the cities societal structure actually reversed itself and the inequality gradually rose to similar numbers compared to the average Brazilian city (Epstein, 1973). Additionally, the segregation of different societal groups proceeded especially visible throughout the designated capital since the limitations of the official city structure resulted in a strict separation between the formal and the informal part of the town and a clear concentration of the elite within the formal grid (Spencer, 2010). These feedback-effects visible in Brasilia were connected to the underestimation of the designated residents wish for individualism and the productive force of diversity in a market driven society.

The egalitarian utopia confined to a specific realm with a specific date of completion and the imaginary of a finished end status instead had a paralyzing effect (Sohn, 2000).

The crucial finding for the argumentation of the paper at hand is that the applied planning model assumed that one could consider the city as a spatially and timely closed system, and therefore, as a mathematically solvable challenge. This static conception of the city effectively required a political utopia to serve as objective and ultimately reachable end status (Mehrotra, 2010). The political doctrine as guiding principle was essentially necessary because the process of organizing the plethora of empirically collectable data needed a direction so that it could be declared a solvable problem of disorganized complexity. But all in all, this combination of utopian political thinking and empirically informed planning turned out as a normative indoctrination which people inevitably rebelled against by redefining the intended utilization of the structure in their own individual mind (Eisinger, 2006).

2.3. Problems of Organized Complexity
With the realization of the symptomatic mistakes analyzable in Brasilia, a new attitude spread among urban theorists and they began to reflect differently upon the discipline of urban planning (Spencer, 2010). With Jacobs renowned work came the first real manifestation of this new perspective in urban theory. She analyzed the mistakes out of the above summarized approaches to urban development and plead for understanding the challenge of urban planning as a problem of organized complexity instead (Sennet, 2018). She especially accused the empirical approaches to urban planning for pretending ostensible reliability of their prognoses with reference to their quantitative methods while in fact just aggregating complex problems to simple paths of solution (Jacobs, 1961). Furthermore, a key aspect of her analysis was the realization that the planning procedure of her time which solely concentrated on quantitative data was only able to detect the average will and therefore incapable to reflect the diversity of the pluralistic society a city contains. Starting from this observation she developed directives for a progressive urban planning process that could pay tribute to the diversity and the resulting complexity of the city (Capdevila, 2015). Again, the impetus for the change of perspective and the development of her guidelines originated from other disciplines, especially from life sciences where organisms were made analyzable by treating them as systems of organized complexity which could be translated to urban theory. "And so a growing number of people have begun, gradually, to think of cities as problems in organized complexity – organisms that are replete with unexamined, but obviously intricately interconnected, and surely understandable, relationships" (Jacobs 1961, 438). So, the core realization was that the city is

a relational matter and should be analyzed accordingly. Out of this very basic assumption, arguably the whole discipline of urban planning is put from head to toe which is illustrated in the following three guiding principles for future urban planning that she developed from this fundamental change of perspective.

So, firstly the aspiration was to break up the paradigm of the quantitatively informed city planning by including research methods to the procedure that stemmed from soft sciences such as sociology, anthropology or psychology. The explanation for the necessity of this demand was the emphasis of the soft sciences' ability to determine particular correlations which are difficult to measure quantitatively by means of qualitative methods and heuristic operations (Jacobs, 1961). The second directive explicitly requests an inductive approach that begins the planning process with the respective subject of analysis and then builds up the required methods and actors to solve a problem around the problem perception (Pieterse, 2008). And thirdly the embeddedness of any urban planning activity in a general constant process of urban development is highlighted which transforms the notion of the city from static to dynamic (Hernandez, Kellet, 2010). Resulting from these basic directives, one can derivate that it is not the urban planner's task anymore to impose a certain comprehensive structure on the city which is supposed to fulfill some kind of end state conception. Instead, the city is seen as a dynamic system that is constantly in evolutionary progress and, therefore, cannot be treated as closed entity but instead has to be able to gradually react to effects from its environment on one hand and increasing complexity within its own boarders on the other hand (Wegener, 1978). In other words: "Cities can be conceptualized as complex ecosystems where different stakeholders with diverse interests are forced to collaborate to ensure a sustainable environment and an adequate quality of life" (Capdevila, 2015, 2).

The paper at hand takes up this theoretical understanding of the city as a social system which results out of the change of perspective on urban planning as a problem of organized complexity in its basic assumption. At this point it is nevertheless important to distinguish between what substantially can be derived directly from the theoretical directives established by Jacobs and the actual building and planning procedure that evolved in reference to her theory since its publication.

Therefore, the following chapters will primarily analyze what qualities a hypothetical approach to urban planning would require that tries to tackle the city as a complex ecosystem. Its challenges but also its potentials will be tested discursively against possible critique in order to uncover the fundamental contradictions such an approach would have to balance out. Thereby both the dimensions covered in the historical derivation will resurface and possible solutions

will be presented. The expectation is that a relational perspective can contain specific qualities that especially qualify it for the analysis of planning in informal settlements.

In the second step, the subsequent chapter will examine contemporary approaches on urban planning that are actually practiced since the release of Jacobs' work. Namely, the publication of her opus magnus released an immense wave of reactions among urban theorists as well as practical professionals and occupies the theoretical debate until today (Schubert, 2011). Therefore, a tradition of theorists and practitioners has evolved in reference to her theory that has declared decentralization of the urban planning into community-based participation processes to the core interest of urban development (Sennet, 2018). Whether these attempts to realize the guidelines Jacobs proposed actually reflect the directives postulated by her will be the question of analysis pointed at these approaches.

3. Planer vs Antiplaner

Ever since the release of Jacobs work, there is an ongoing dispute in the field of urban theory between competing approaches standing against each other that appear to be mutually exclusive (Flade, 2015). In his detailed summary of the theoretical discussion about problem-solving processes in urban planning Wengerer detects two fundamental directions of thought throughout these approaches that stand diametral against each other and can be paraphrased as the 'planers' versus the 'anti-planers' (Wegener, 1978). The simplification of this basic distinction allows to subordinate a variety of complex dichotomies and lines of discussion under these terms. As the development of the envisioned new relational approach to urban planning indispensably has to balance out these conflicts, they deserve to be payed attention. The basic differentiation between planners and anti-planners will therefore be further unraveled in the following and some of the underlying pairs of opposites will be sketched out. Furthermore, it will be shown that these juxtapositions if one follows them down to the core are unsolvable dilemmas that in practice, however, could be mitigated and thereby brought to complementary collaboration through the application of mutual learning processes which therefore gain theoretical interest (Wegener, 1978).

3.1. Incremental vs Synoptical

The first such dichotomy can initially be described as the opposition of the incremental and the synoptical approach to urban planning. As a first approximation, synoptic methods can be defined as attempts to handle the complexity of a planning problem in a holistic, comprehensive way without dividing it into sub-problems. Incremental methods, on the other hand, handle a

planning problem by splitting off one or more sub-problems and solving them step by step which does not necessarily require a logical sequence to overcome the given planning problem (Picot, Lange, 1978).

The depths of this juxtaposition which, if followed down to the epistemological core, is also related to the fundamental discussion about the self-conception of the role of soft sciences such as sociology and is represented in the debate between Luhmann and Habermas (Wegener, 1978), can only be indicated here. But decisive for the paper at hand is that if transferred to the realm of urban development it is determinable that this conflict of approaches is also implicitly visible in the historic evolution presented above. Roughly one could say that the modernist holistic planning was an expression of the synoptical ideal whereas the proposals of Jacobs hint to an incremental approach. This assumption is further underlined through the use of terminology. There are striking similarities between incremental visions of the city as an organism which is characterized by organized complexity and the vocabulary of Luhmans system theory which is an underrepresented perspective in urban theory (Pauli, n.d.). Although it is improbable that there could be any direct link between Luhmann and Jacobs, it becomes apparent that if one takes Jacobs analogy of the city as a cybernetic system serious urban planning is in need for a consideration of system-theoretical approaches (Pauli, n.d.). At the same time, it points to the importance of governance and leadership concepts as means to manage the planning process. This already follows from the very meaning that is incorporated in the notion of cybernetics, as this term actually stems from the Greek vocabulary for navigator or leadership (Ashby, 1957).

However, the incremental perspective on planning is not uncontested and sees itself confronted with an opposition that advocates more ostensible approaches to urban planning and critiques incrementalism for its missing big scale visions (Schubert, 2015). The main criticism expressed against the incremental approach is that its concentration on functional rationality fails to consider superordinate social values and, therefore, only leads to a reproduction of the current societal conditions (Wegener, 1978). Indeed, it is recognizable that the incremental approach faces difficulties if confronted with overarching objectives that also require big scale solutions (Capdevilla, 2015). This is a credible weak spot that has to be taken into account even though it is contestable that there is no room for societal change or evolution through the incremental approach especially if one takes up the concept of radical incrementalism. This is a disposition "that believes in deliberate actions of social transformation but through a multiplicity of processes and imaginations, none of which assumes or asserts a primary significance over other struggles. […] It provides a means to confront the struggle and perpetually work one's way

through it, stumbling across what works and what does not" (Pieterse, 2008, 7). The conviction of this approach is that the emergent fusion of pragmatic small-scale changes can in the end also lead to big-scale societal disruptions. But it becomes obvious that the incremental approach is furthermore in need for a negotiation process of superordinate social values that the incremental process can be pointed at in order to give the evolutionary progress direction (Wegener, 1978).

But even more critical for the paper at hand are follow-up questions arising from the discussion of principles between the incremental and the synoptical approach in the context of urban development. That is the accusation that the incremental approach is less capable of innovation and because of its concentration on consensus only leads to the realization of the lowest common denominator (Wegener, 1978). Through a system-theoretical lens the response would be to point out that the synoptical approach underestimates the innovative power behind emergent progress resulting from the interplay of heterogenous actors. This innovativeness is already indicated in the very meaning of the word emergence which describes the possibility that a system develops new characteristics and structures only due to the interaction of the already inherent elements (Baraldi, Corsi, Esposito, 1998). Consequently, it becomes the crucial task of an incremental approach that aims to stay innovative to facilitate a lively exchange of ideas in between all actors associated to a system. This essentially means that the diversity of a social system needs to be brought to collaboration via exchange and mutual learning processes. Furthermore, it needs to be noted that a concentration on incremental innovation emerging out of a system does not mean that the system is closed entirely. Conversely, precisely in regard to this perspective influenced by system theory, it is important to note that systems although closed operationally always are approachable through communication (Baraldi, Corsi, Esposito, 1998).

So, in summary the paper at hand takes up the incremental procedure as it fulfills the directive to start the planning process inductively. But in order to additionally enable a value driven evolutionary progress, it transpires that the incremental approach to urban planning is in need for a governance structure in combination with a leadership concept that is sensible to emergence and the innovative force of diversity and pays tribute to an orientation towards superordinate objectives and values. Precisely this is the first research gap that the concept of CoP in combination with the transcultural leadership approach can render for urban planning theory.

3.2. Technocrats vs Grassroot

The second line of discussion which can be subsumed under the basic dichotomy of planers versus anti-planers is closely linked to the debate about incremental or synoptic planning and concerns the role of the scientific expert in the planning process. It is noticeable that with a tendency to the incremental approach the role of the expert, be it the architect, the expert in sustainable development or experts from other scientific fields concerned with urban development, changes dramatically (Pieterse, 2008).

Although Jacobs manages to avoid a direct treatment of this topic in her suggestions for future urban planning, the reception of her work interpreted her directives as a clear devaluation of the expert's position (Sennet, 2018). Instead, the changeover to an inductive procedure was seen as an imperative to encourage public participation and civic co-determination rights in the planning process. But although the legitimacy of this claim is uncontested, it does not automatically resolve the discussion about the expert's role in the planning process. To the contrary, the level of abstraction in the terminology used by Jacobs may lead to a blurring effect of the actual underlying debate. Because the relocation of the expert's position as mere consultant and facilitator of the planning procedure which became the dominant ideal in reference to Jacobs directives, is actually just one side of the coin (Schubert, 2015). On the other hand, there is a broad opposition to this approach among urban planners that criticizes the inefficiency and lack of expertise control through bureaucratically cumbersome procedures (Capdevila, 2015). Accordingly, it becomes apparent that behind this central contemporary discourse about community participation in urban planning on an abstract level actually stands the juxtaposition between inefficient grassroot democracy on one hand side and efficient technocracy on the other hand (Wegener, 1978). This fundamental antagonism on how to evaluate the legitimation of planning decisions has a long history of discourse and, therefore, has to be considered in order to be able to give a recommendation for an appropriate handling of this topic for urban planning in the context of informal settlements.

On the one hand side the specific capabilities and the knowledge stocks of experts are indispensable for the successful implementation of sustainable transformations in an environment that is characterized by ever growing complexity (Mehrotra, 2010). The performance of the execution of building projects is, on the other hand, increasingly dependent on the acceptance of the appropriateness of the measures on the side of the directly affected stakeholders (Pieterse, 2008). Based on the recognition of this dilemma, various theorists have developed proposals for solutions. One concept is that a social system can practice a sort of

self-control based on the countercurrent principle which essentially means a combination of top-down control and bottom-up consensus-building or conflict resolution (Etzioni, 2004). This idea was further enhanced by political thinkers like Scharpf who developed a trade-off principle that evaluates the planning process by means of the input-output ratio weighing up between legitimacy gained through procedural fairness and legitimacy gained through substantive performance (Scharpf, 1997). This evaluation is meant to guarantee a productive combination of grassroot involvement and efficient technocratic decision making and can be accomplished through deliberative formats like the multi-stakeholder dialogue (Schmiedknecht, 2011).

However, more recent trends are emerging that entirely break with the idea of top-down and bottom-up and define planning instead as a form of societal learning which takes place in loosely linked, temporary and task-oriented working groups (Wengerer, 1978). The advantage that the complete removal of the separation between experts and laypersons or - in the case of urban planning residents - entails is that it highlights the possibility of additional value that is created through collaboration. Thus, the conflict between these usually competing approaches can be dissolved and the relationship "between these two perspectives [can instead be seen as] complementary and its combination can reinforce the collaboration between different city stakeholders. Top-down and bottom-up initiatives are not opposed forces but, on the contrary, can have a synergistic effect on the innovation capacity of the city" (Capdevila, 2015, 1). The argument of the paper at hand is that this mutual exchange between experts and laypersons as breeding ground for urban innovation has to take place over coordinated learning processes which is the second research gap the concept of CoP can serve for.

This learning exchange oriented towards additional value creation in the planning process gains further interest for urban planning in the context of informal settlements as the relationship between experts and residents is known to have an especially troubled history here. On the one side experts have a particularly negative standing in informal settlements resulting from patronizing experiences the city dwellers had with top-down interventions (Jiron, 2010). On the other side, especially in the context of an informal settlement, special local knowledge which only residents possess, plays a success-critical role for the realization of building projects (Sennet, 2018). The bridging between these opposite poles through learning processes, therefore, gains additional interest for the interplay between informal settlements and the formal environment they are inevitably confronted with (Mehrotra, 2010). Therefore, the following chapter will examine the relationship between informal and formal urban planning.

3.3. Formal vs Informal

To approach this third dichotomy, a definition of the two terms from the field of urban theory can be illuminating. "In architectural speech, the formal stands for the buildings that have been designed by architects and the parts of cities that have been planned. The 'informal', on the other hand, is all the rest: the buildings and parts of cities that have developed without the participation of architects" (Hernandez, Kellet, 2010, 2). So, at first sight the attempt to bring planning theory to areas that by definition are unplanned seems to be a contradiction in terms. But although this official definition indicates the absence of planning in informal settlements, there is still a comprehensible logic visible behind the way these areas are constructed.

Interestingly, it is recognizable that this logic is indirectly shaped through the practices of its counterpart the formal constructing (Willis, 2017). There is a striking regularity in the architectural language of informal settlements that is predetermined through the techniques and know-how that workers living in these areas have gained through their respective building jobs in the formal areas (Lara, 2010). Hence, it is demonstrable that the form of the informal is actually the result of a dissemination process of architectural knowledge that trickles down from experts of the formal constructing to the residents of informal areas who at the same time are the practitioners of the building practice in these areas. This effect has to be taken into consideration if one aims to induce sustainable building objectives in informally constructed areas, because it essentially means that sustainable transformation can only be reached by the incitement of a learning process that enables the actual practitioners to build in a sustainable manner.

Not only in the physical building practice there are more similarities between formal and informal building then one would expect. Willis for example argues that also the form of planning procedure in informal communities seems to copy administrative forms of formal governance which results in his claim that the self-governance of informal areas is actually a facsimile of its formal counterpart (Willis, 2017). But this perspective on self-governance underestimates the difference of the form of relations between formal and informal planning. While in the formal organization of a building project mutual expectations like for example the investment of resources such as the building capabilities of a construction worker can be fixed via contracting, this becomes far more complex regarding planning in informal settlements like a Favela (Lara, 2010). In these environments constructing projects both private as well as public are still mostly neighborly organized and thus originate from a community and are based on implicit agreements (Hernandez, Kellet, 2010). Here the success of a building project is

dependent on the informal motivation of actors to invest their workforce and know-how without formal contracting. It transpires from this point precisely that a building project in informal settlements like a Favela is at its core a relational event dependent on joint collaboration of actors within a community (Pieterse, 2008).

This being said, it becomes evident that the organization of the planning in informal settlements to some degree is already naturally structured like a CoP. If development projects from outside this social system approach a community with certain urban improvement objectives of the living conditions or the sustainability of these neighborhoods, these already existing social mechanisms, therefore, need to be considered. "While sociologists, anthropologists, economists and demographers have scrutinized the favela's social and economic foundations, architects have either ignored it or attempted to ‚solve' the issues with formal solutions that are foreign to the inhabitants" (Lara, 2010, 31). Precisely the neglection of the preexisting form of community-based planning has arguably led to the difficulties many outside interventions have been confronted with if they attempted to intervene in the Favelas. Instead of imposing the governance structures of urban planning that are functioning in formal environments, it becomes, therefore, a crucial task to develop a planning structure that pays tribute to the relational character of constructing in informal settlements which is the third research gap that the concept of CoP if applied as governance structure may be able to fill.

All in all, this chapter has uncovered three basic pairs of opposites in urban theory that out of their mutually repulsive nature cannot be easily reconciled. This is because all these three juxtapositions synoptical versus incremental, top-down versus bottom up and formal versus informal are in their original understanding fundamental dilemmas in the sense that the more one gains in one direction of the poles the more you lose on the opposite side. However, as the dialectic discussion of both poles and their respective characteristics has shown, there do exist possibilities to bridge these juxtapositions. The key finding is that the possible alternatives to overcome this conjecture of seemingly irreconcilable opposites are in all three cases closely linked to learning processes in communities. This realization is the cornerstone to the justification and the basic reason for the attempt to apply the concept of communities of practice in urban theory and thereby develop an approach that tries to respond to the directives given by Jacobs. But before this endeavor can be elaborated the actual planning and building practices which are currently predominant throughout contemporary urban development have to be discussed. Therefore, the ideal of community participation will be critically reviewed and some progressive alternatives that highlight co-creation and collaboration will be introduced.

4. Contemporary Approaches

In resonance to the paradigm shift in urban theory that arose with urban planning as a problem of organized complexity, the generally accepted answer was to deal with this new challenge by demanding community participation as possibility for the civil society to influence the planning process (Schubert, 2015). This postulate was popular among urban theorists as it seemed to solve a variety of planning challenges such as co-determination possibilities for residents, the qualitative incorporation of the residents' preferences for their communities in addition to the only quantitative measurements of data and the representation of the diversity in pluralistic communities which should include minority groups (Sennet, 2018). Consequently, most of the international development initiatives regarding urban development such as UN-Habitat, the Agenda 21, or the Sustainable Development Goals have adopted this proceeding as guiding principle in their international efforts to fight uncontrolled urban sprawl and as tool to bring some forms of administration to informal settlements (Pieterse, 2008). But there are some fundamental flaws in the proceeding of community participation that can be separated into two main angels of critique.

4.1. Participation or Practice

The first layer of critique targets the execution of participation and shows that the way it is conducted often actually prevents real participation. This discussion is about power distribution in public decision-making processes and all considerations in this direction always assume a fixed and clearly definable civil society as that is prevented from having a say in the decision about which option of an urban development project is chosen (Arnstein, 1969). Consequently, the main theoretical line of critique out of this direction points to the issue that although participative processes are implemented, they are often only ostensible improvements and the actual underlying power to decide stays in the hand of either the experts or the political powerholders behind these experts (Innes, Boher, 2000). So, by analyzing this power structure, they conclude from their observations that instead of this ostensible heteronomous participation urban planning especially in the context of informal settlements would require a form of autonomous planning that enables the participants to self-determine the structure of the participative process (Kapp, Baltazar, 2012). This basic claim can be further particularized by the ladder of participation which subdivides the struggle for codetermination about planning decisions between powerholders and have-nots into eight stages ranging from citizen manipulation on the one pole up to full citizen control on the other pole (Arnstein, 1969). It is

declared as desirable to reach this upper end of the ladder which would grant local communities "that degree of power (or control) which guarantees that participants or residents can govern a program or an institution, be in full charge of policy and managerial aspects, and be able to negotiate the conditions under which 'outsiders' may change them" (Arnstein, 1969, 223).

Although this at first sight seems to be an uncontestable objective to strive for, there is a second line of critique that points at the whole idea of participation and can be summarized in three main issues that the demand of the ladder of participation overlooks. First, participation presumes a preexisting local community that would either have to possess a completely homogeneous identity or would have to manage to self-govern its complex heterogeneity, which is why the notion of community will be looked at in more detail in the next chapter.

Second, the understanding of participation inevitably always builds up an oppositional situation where an imagined uniform community faces external powerholders or experts with conflicting interests (Kapp, Baltazar, 2012) which is an artificial confrontation that is not productive and could be dissolved by looking primarily for shared goals and general commonalities rather than differences.

The third main issue is that even if all the assumptions are accepted and the last step of the ladder is reached, in the context of urban development there still remains the separation between the planning process and the building process. This main line of critique is pointed at the way community participation is currently conceived by most development initiatives and it refers to the problem that even if a community would have full control of the decision process, they would ultimately only gain the decision authority over a variety of preconceived alternatives of urban intervention plans (Sennet, 2018). So, in the end the continuing differentiation between the political or managerial decision process and the architectural design process leads to a situation where even if the community has control over the political decision, they do not have the possibility to co-shape the design-process.

Out of this realization some contemporary planning concepts aspire to integrate the civil society not only into the decision process but also into the design process via the organization of workshops where co-production is practiced and the residents' creative visions about their built environment are pooled with expert knowledge (Nesti, 2018). Another example of an orientation in this direction are Urban Living Labs which aim to develop urban solutions in co-production with engaging participants from civil society whilst utilizing designated areas of the city as a kind of testbed for new urban solutions (McComick, 2017). "In recent years there has been an increasing interest in using physical spaces as environments of experimentation, where different stakeholders, from developers to citizens, engage in the creation of innovative

endeavors" (Capdevila, 2015, 8). These various approaches share the characteristic that multiple stakeholders gather around a problem and develop a shared practice and thereby constitute a community, which is why this paper considers these as different versions of the same approach subsumable under the generic term of communities of practice.

The introduction of such planning conceptions interestingly offers not only the possibility to mitigate the above discussed pairs of opposites but can also render a process that allows the unification of the introductory elaborated differentiation between urban planning and urban building practice within one structure. If the management of the public decision process becomes incorporated in the active design process because the planning is built up incrementally around the step by step solution of a problem and the participating civil society can creatively co-shape the design and actively follow the problem-solving process, the formerly separated disciplines automatically have to take place simultaneously. How this process may function in a community like Santa Marta is one of the core interests of the empirical analysis of Insolars activities in the Favela. In a way, this transition also resembles the concept of design thinking, where the problem-centered approach of designers is applied to management theory (Boland, Collopy, 2004). There are striking similarities to the endeavor to now apply a problem centered approach to the management of the decision making in the planning process. Although using such a solution-oriented design approach in the context of an urban planning process in a way seems only logical, it is not the way urban planning is commonly conducted throughout contemporary development initiatives.

In conclusion it becomes evident that development initiatives like the SDGs or Agenda 21 are not in need for simply more community participation but instead they may require more community practice which makes a deeper theoretical understanding of practice in communities necessary.

4.2. Community in Cities

It is striking that the notion of community in the context of international urban development initiatives enjoys almost undisputedly positive connotations (Pieterse, 2008). As mentioned above, community participation is often used synonymously for the integration of civil society and disadvantaged neighborhoods into the urban planning process, whereby it is presented as if the term was free from any ideology. In this context the term 'community' only serves as placeholder for the fulfillment of a just process that represents the pluralistic target group or stakeholders of a project (Arnstein, 1969). But it remains questionable whether 'community' is

the right term to fulfil this expectation which raises the interest in its sociological definition and origin, as it seems to be used without complete awareness of its sociological meaning.

The term was for the first time prominently examined by the German sociologist Tönnies who is regarded by many as the founding father of the scientific discipline of sociology. In his theory the traditional community served as object of differentiation and background against which he could make modern societies' social mechanisms analyzable (Opielka, 2004). According to Tönnies, modern society developed parallel to the first big tendencies of urbanization and emerged in direct conjunction with the associated overcoming of the traditional communal cohabitation in which actions had been coordinated solely through hierarchical organization (Tönnies, 1887). While in traditional communities, social integration had functioned over a hierarchical coordination of social actions and the top-down distribution and exchange of goods, this traditional structure of social actions was left behind with the emergence of the big cities (Opielka, 2004). Instead, it precisely distinguishes urbanity from community life, that here instead of hierarchy the market becomes the dominant social mechanism where now social interaction is coordinated via discrete acts of exchange and not anymore via relational exchange, which enables individuals to act and trade solely rational and with only their own advantage in mind (Tönnies, 1887). Max Weber's considerations regarding community point in the same direction and in relation to Tönnies, he defines the difference of social action in community and social action in society more precisely. In his theory the former refers to all social relations where the attitude towards the social interaction is determined through a subjective feeling of togetherness, which could be interpreted as a shared identity. In contrast the latter denotes all social relations where the attitude towards social action is based on a rationally motivated reconciliation of interests or association of interests (Opielka, 2004).

If one takes up these sociological definitions of action in communities, it transpires that the demand for community participation in urban theory also carries a political dimension. It represents the tendency to idealize planning processes that align to more communitarian decision making and attempt to counteract economic liberalism (Mayntz, 2010). In principle it reflects the nostalgic desire to turn back the historical separation of community and society that took place with urbanization and it obscures the need for a homogeneous shared identity for this process to work, which can be problematic if this identity becomes normative and therefore also excludes individuals (Opielka, 2004). The community understood as an approachable entity bears not only the difficulty of a clear definition of affiliation but also dangers such as the tyranny of the majority which makes it questionable if this is the right approach to reach the representation of the heterogenous society of a city in urban planning processes. Instead, it

might be fruitful to consider approaches that allow to understand the city as a multiplex of heterogenous identities that "are not expressive of a deep 'essentialist' core, but are best seen as contingent and articulated through interdependent and overdetermined practices structured by both conscious intention and unconscious desire" (Pieterse, 2008, 88).

Precisely this is what communities of practice in combination with the transcultural leadership approach can serve for. This concept is a further development of the concept of community of interest which refers to the voluntary and rational association of individuals that are in pursuit of a common goal (Mayntz, 2010). If one recalls the above given definition of criteria that mark social action in communities, it becomes visible that this concept in its genesis actually cannot be denoted as community at all in the mere sociological meaning as it bears the features normally connoted with society where the motivation for association is rational and goal-orientated. Instead, this concept offers a changed perspective on community through which a shared identity and the feeling of togetherness is not the a priori condition but can possibly be developed over time and out of a shared practice (Mayntz, 2010). Thus, identity loses its normative connotation and is limited to the form of sociality that is necessary to enable productive cooperation which does not require full consensus and a comprehensive community identity but a negotiation process about the shared values that are necessary to come to an agreement and cooperate for a shared project (Sennet, 2018). For this purpose, the following will elaborate the concept of communities of practice in more detail and present it as embedded in a perspective on the city from a relational economic point of view.

5. The Relational Approach

If one accepts that cities in general and informal urban areas especially are characterized by a dynamic relational urban life, it becomes indispensable to establish a corresponding planning format. Therefore, in the following an attempt will be made to develop this format as a governance structure within the framework of relational economics. The key features will be that "its focus is on relations and processes, not objectives. It emphasizes dynamics not statics, and the complex interactions between local continuities and 'social capital' and the innovative potential" they contain (Pieterse, 2008, 77). It might transpire that a relational-economic perspective on the building activity can meet this theoretical need and thereby open up new perspectives on how to tackle the challenges and potentials urban planning is confronted with in informal settlements.

5.1. Relational Economics

The theory of relational economics has its starting point with the realization that the sole concentration of mainstream economic theory on discrete, dyadic exchange mediated through the market mitigates its explanatory power as it thereby overlooks a great amount of economic activity that is coordinated through alternative governance mechanisms. With reference to institutional economics this taxonomy, therefore, proposes a transition from market to relational governance and from exchange to relational transaction as the basic units of economic analysis (Wieland, 2018).

In its perspective on society, the relational economic lens is strongly influenced by Luhmann's system-theory, which describes society as a cybernetic system composed of a conglomerate of multiple functionally differentiated sub-systems such as the economy, politics or civil society, each of which distinguishes itself from its environment and thereby reproduces itself via a specific binary code of decision logic (Baraldi, Corsi, Esposito, 1998). Relational economics endogenizes this description of society into economic theory by introducing the transaction as expression of social encounter and, therefore, as relational event that enables and, in many cases, requires structural coupling between sub-systems (Wieland, 2018).

As a result, the global economy and thereby also the global society can be described as a regional, national, transnational and international interaction network of diverse, individual or collective actors stemming from varying functional sectors which attach their respective decision logics to a specific transaction (Wieland, Montecinos, 2018). Consequently, the transaction becomes the attractor of polyvalent events with multiple actors, who in the context of relational economics are understood as stakeholders that possess resources and competencies and either stand in competition to each other or are potential cooperation partners which enhances the importance of the successful coordination of actors through governance structures (Wieland, 2018). The coordination of stakeholders can take place through different governance forms where on the one end of a spectrum the market as discrete exchange mechanism and on the other end hierarchy with highly relational exchange mechanisms stand and in between several alternative forms of hybrid governance structures exist (Williamson, 1979).

This is decisive for the paper at hand because it allows a focus on the analysis of governance mechanism besides the market and a concentration on transactions that are not solely determined by the binary economic decision logic but essentially through the productive relationalization of a multitude of sectoral or cultural rationalities. In the context of this theory, a relation does not mean a purely social connection based on solidarity or collective identity but rather the successful integration of these rationalities into a governance structure and the

successful cooperation for a transaction through the long-term continuity of these connections. Accordingly, the framework of relational economics allows the enhancement of the importance payed to long-term strategies and the successful and friction free integration of diversity into an adaptive governance form which essentially results from the revaluation of the cooperation rent and the additional value created through collaboration (Wieland, 2018).

Taking up this theoretical foundation and transferring it to urban theory arguably also the city or even a single community such as the informal settlement Santa Marta could be described as cybernetic system that is closed through its encoding which might be resident / no resident but is structurally coupled to its environment through transactions. But while the formal part of the city possesses a higher degree of structural coupling both between its sub-systems as well as to the environment of the city, it becomes visible that a favela as social system is more self-contained and there are less transactional connections to the environment be it the city at large or the global economy. In this context and through the relational economic lens, an urban development project can be described as polyvalent event as a society of transactions where diverse actors from varying sectors have to be brought to friction free co-production for a specific period of time in order to succeed the otherwise fragmented and temporary character of cooperation for a transaction. While in formal areas the governance structure of an urban development project can secure cooperation through the complementarity of explicit and implicit contracting, the motivation for the actor's investment of resources and competencies in informal areas depends solely on mutual promises and expectations between residents and the self-governance between peers of practitioners and, therefore, requires higher adaptive capabilities and the generation of trust.

This being said it, becomes evident that the actually empirically visible planning structure within urban building in informal settlements can already be denoted as CoP, which as proposed by Mayntz is defined as social structure interpretable as one form of governance that is distinct from market, hierarchy and network (Mayntz, 2010). This results out of the circumstance that the success of a transaction in this context is, foremost, dependent on relationships and the degree of familiarity actors possess to their cooperation partners which are qualities that the construct of CoPs can generate and foster (Lave, Wenger, 1991).

The hope is that, if understood as governance form, this concept is not only capable to serve as framework to explain the empirical visible emergent urban practice in between residents but also yields the possibility to address this community from outside and, thereby, generate structural coupling between the social system Santa Marta and its environment through mutual learning processes. The prospect of such a communication between the informal city area and

its formal environment can thereby have a twofold effect. On the one hand it might lead to an improvement of the constructing activity in a sustainable direction. On the other hand, the structural coupling also enhances the integrability of actors from the informal areas to functional systems of the formal environment and, thereby, offers a possibility to mitigate the social exclusion of the residents from the overarching social system city. In this context, it is worth mentioning that Luhmann has refined his theory about social exclusion deliberately with the observations of favelas in mind and the recognition that the individuals in these conditions are not seen as possible communication partners for the rest of the society (Meyer, 2012). The structural coupling through learning processes could therefore be seen as starting point for the social inclusion of favela residents into the communication of the system city.

5.2. Communities of Practice

The concept of CoPs first appeared in Laves and Wengers book 'Situated Learning Legitimate Peripheral Participation' and evolved in this context out of the theoretical observation of learning processes in apprenticeship relations (Lave, Wenger, 1991). Although today several in parts contradicting interpretations of the theoretical framework exist, the concept can as first approximation be described as follows. "[C]ommunities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, 1998, 4). Based on this fundamental definition, the concept has found a brought field of application and has been used in various theoretical contexts with a focus on organizational theory (Coakes, Clarke, 2006). The authors of the book 'Cultivating Communities of Practice', however, propose that this concept could also become the foundation for citizen engagement as it yields the possibility to "design their world on the model of fractal communities linking local and global practice development" (Wenger, McDermott, Snyder, 2002, 219). The application of the concept in the context of urban development is, therefore, at the same time the endeavor to contribute to this idea. Consequently, the following presentation of the concept attempts to highlight only those aspects of the concept that are fruitful for this objective.

For the most part the concept of communities of practice is used as means to manage knowledge in organizations and can serve as intra or inter firm structure to pool knowledge stocks and create a breeding ground for innovation through the lively exchange between peers (Wieland, 2020). In this context, the quality that communities of practice can provide is that it can serve as platform for mutual learning by allowing a combination between tacit and explicit knowledge. Tacit knowledge is thereby defined as "a deep understanding of complex

interdependent systems that enables dynamic responses to context-specific problems" (Wenger, McDermott, Snyder, 2002) and is incorporated in personal knowledge stocks. Conversely, explicit knowledge stands for unpersonal knowledge that is rather general and is not tailored to a specific context. Transferred to the case at hand and in regard to urban planning tacit knowledge could be translated as site specific local knowledge whereas explicit knowledge could be compared to the architectural or sustainable constructing expert who possesses a general knowledge in his domain but no specific knowledge of the urban context he is planning for.

In order to mingle these two types of knowledge in a productive manner, the mutual learning process needs to proceed over a shared practice because as proposed by the theoretical school of pragmatism, which the concept of communities of practice builds up on, only this procedure of learning by doing (Dewey, 1938) allows for a deep understanding that at the same time requires a negotiation process of meaning. "Practice is, first and foremost, a process by which we can experience the world and our engagement with it as meaningful" (Wenger 1998, 41). In Luhmann's taxonomy meaning is the only not differentiable entity and therefore can serve as means to reduce complexity in a system (Baraldi, Corsi, Esposito, 1998), which within the structure of a CoP functions over a negotiation process based on the iterative interplay between participation and reification (Wenger, McDermott, Snyder, 2002).

So in this understanding practice is a dichotomous process composed of participation, as the relational interaction and mutual engagement with the other participants' perceptions and contributions on the one hand side, and reification, as "process of giving form to our experience by producing objects that congeal this experience into thingness" (Wenger, 1998, 14) on the other hand. This dichotomous conception of learning in communities of practice as two complementary and reciprocal processes coincides with Whitheads understanding of the terms event and form in process philosophy (Whithead, 1979). Accordingly, it yields the possibility to reunite the two events of urban planning, as relational interaction of participants and urban building, as reification of the social experience into thingness, within one form the CoP.

The unity of the difference between form and process of the transaction (Wieland, 2016) of implementing an urban project is the decisive contribution that the concept of CoP may be able to contribute to urban planning, which can already be derived directly from the definitional core of the learning process. However, if applied as governance structure for urban planning, the question arises, how the cohesion in this concept functions, when considering that stakeholders have to be motivated to invest their resources, despite the lack of any formal structure, that binds them to these communities. The only constitutive elements and throughout all different

types of communities of practices detectable fixed constants are "a domain of knowledge, which defines a set of issues; a community of people who care about this domain; and the shared practice that they are developing to be effective in their domain" (Wenger, McDermott, Snyder, 2002, 27).

So firstly, the *domain* refers to the purpose of association and means the overarching objective of the community which inspires stakeholders to contribute and participate (Wenger, McDermott, Snyder, 2002). But it is important to note that this aim which legitimizes the foundation of the community is not seen as a static target but as a dynamic negotiation process that evolves naturally through the communication of possible peers about a shared problem perception (Wenger, 1998). Consequently, this understanding of the emergent formation of the governance structure around a shared problem is in line with an incremental approach to urban planning.

Secondly, the *community* is the term for the social fabric that coheres the peers to cooperation. Like the domain it is not static but evolves evolutionary with time and is defined by means of mutual perceptions and understandings that result out of the practice and collaboration for a shared problem (Mayntz, 2010). "A community of practice is not just a web-site, a database, or a collection of best practices. It is a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment" (Wenger, McDermott, Snyder, 2002). Decisive for the application at hand is that this community belonging does not require a homogenous identity. Rather conversely, the diversity of the members and the concomitant conflict can have a more beneficial outcome than the strive for harmony over passive conformity (Wenger, 1998).

The third constitutive element of the concept is the development of a shared *practice* which can be grasped as the basic shared knowledge of the community. It is the specific knowledge that every member has to possess in order to be able to participate in the communicative process of the community and it is expressed in a shared repertoire consisting of certain tools, documents, or ideals and the like (Wenger, McDermott, Snyder, 2002). Crucial for the application as governance structure for urban planning is that it is this shared knowledge that enables the community to proceed efficiently and, therefore, it can be seen as a shared resource that evolves out of the relation between the members. That ultimately is the critical aspect of the concept of CoP as it is this shared resource that can be responsible for the generation of additional value through this governance structure which essentially is the result of a synergetic effect between the domain, the community and the practice (Meyer, 2012).

These three are the constitutional elements of a CoP which can be tested against the backdrop of the case Insolar and the structure this social start-up has developed in order to tackle the sustainable transformation of the informal settlement Santa Marta. But there are two more aspects derivable from the concepts usage in organizational theory that are relevant for its application in urban theory which can be seen as the positive consequences that eventually occur if the constitutive elements described above are implemented successfully.

Firstly, some research about communities of practice highlights the potential of this structure to foster a shared social capital throughout its participants as it provides the environment for individuals to identify other members with the same interests and the relevant knowledge and resources (Lesser, Prusak, 1999). The result that the increase of social capital can have is that it enhances the individuals' willingness to invest their resources which can turn out to have a crucial impact on the self-governance of a building project in an informal settlement.

Building upon the community's ability to foster social capital, a second line of research concentrates on the positive effects the structure of communities of practice can have for the innovative capacity of networks (JiHao, Suiya-Ting, Suo Ling-Ling, 2017). According to this research, communities of practice can be seen as "an efficient and low cost route to promote innovation performance" (JiHao, Suiya-Ting, Suo Ling-Ling, 2017, 1) as it enhances the communication between professionals from different areas and varying professional sectors. Transferred to the realm of urban development, this innovative capacity can also yield the possibility for incremental and emergent innovation between peers with varying knowledge stocks but the same objective such as the sustainable transformation of a neighborhood.

These two aspects are elementary for the argumentation at hand because it is precisely the strengthening of the local and neighborly organized network and the inherent social capital that already Jane Jacobs had declared the ultimately desirable objective of urban planning (Jacobs, 1961). Crucial for the paper at hand is that it is this social capital, if incorporated by the residents of the favela through the learning processes in the CoP, that can lead to a mitigation of the resident's social exclusion from the rest of the city.

5.3. Leadership in Communities of Practice

Whether the concept of communities of practice can render this aim for planning in informal settlements, however, depends to a high degree on the kind of leadership this governance structure is brought to productive cooperation with. The assumptions about the positive enhancement of social capital and the innovative capacity otherwise run the risk of remaining only optimistic hypotheses if not combined with a corresponding leadership concept that is able

to cope with diversity and transfer its friction creating potential into additional earnings for all community members (Wieland, 2018).

In the context of urban planning in the favela, this leadership style would have to manage the interaction between culturally diverse actors stemming both from inside and outside the informal settlement as well as from varying sectoral backgrounds. Precisely this is what the transcultural management concept can make a valuable contribution for, as it offers a leadership style that helps to avoid friction in the interaction network through a focus on already existing commonalities instead of the concentration on overcoming possible differences between the diverse cultures of the individual actors (Wieland, Montecinos, 2018). Additionally, the transcultural leadership concept yields the possibility to tackle abstract value codes and adapt these to the particular context of the CoP around Insolar in Santa Marta by means of the differentiation between thin and thick descriptions of a value code (Wieland, 2018). The potential that the transcultural leadership concept can provide for the application of the sustainable development goals in the context of the favela Santa Marta was already the key research interest of a former research paper about the community Santa Marta (Zumbusch, 2020), which is why it should only be indicated at this point. Important to note is that transcultural leadership also represents a suitable management style for the governance structure of a CoP. That gains relevancy if one considers that several of the renowned contributions about CoPs have highlighted the necessity of internal leadership in order to guarantee that these social structures achieve their full potential (Lesser, Prusak, 1999).

But at the same time, it is important to keep in mind that the community's "ability to steward knowledge as a living process depends on some measure of informality and autonomy. Once designated as the keepers of expertise, communities should not be second-guessed or overmanaged" (Wenger, McDermott, Snyder, 2002, 12). Instead the task of leadership in this context is solely to provide the right environment and starting conditions that enables the self-regulation of this governance structure (Mayntz, 2010). Wenger, McDermott and Snyder (2002) denote this enabling of self-generation as cultivation because the needed leadership style is comparable with the analogy of cultivating a plant. On the basis of this realization, they developed seven management imperatives, that should be taken into account for any effort to design a community and thereby enable its generation and support its successful activity. These design principles are: Design for evolution, open a dialogue between inside and outside perspectives, invite different levels of participation, develop both public and private community spaces, focus on value, combine familiarity and excitement and create a rhythm for the community (Wenger, McDermott, Snyder, 2002). These management imperatives can be

regarded as quality measures of community leadership and are, therefore, suitable as evaluation criteria for the empirical case of this research paper about the CoP around the social startup Insolar in Santa Marta.

All in all, the examination of the concept with regard to its applicability for urban planning indicates the concepts' potential to address the research gaps identified in the previous treatise about urban theory. The theoretical part of this research paper has in summary attempted to comprehend how the concept of communities of practice could provide a planning structure for informal settlements that coincides with Jacobs stipulation to consider urban planning as a problem of organized complexity. The necessity for this transition was determined through a historical analysis that has pointed out the problems that arise if the dynamic process and relational complexity of urban areas is neglected in the planning procedure by means of examples rooted in Brazil. Afterwards, the inevitability of certain ideological dilemmas that one faces if designing an ideal planning structure was shown and the possibility to mitigate these juxtapositions by bridging them through learning processes was highlighted. Subsequently, the contemporary idealization of community participation throughout international development initiatives was critically reviewed and the possible advantage of shared practice in communities was illustrated by contrast. Lastly, the concept of communities of practice was introduced within the taxonomy of relational economics and it was shown how through the lens of this theoretical framework the concept can serve as governance structure that is capable to reconcile the historic differentiation of urban planning and urban building by means of the unity of the difference between the processes of participation and reification in the same form of practice.

6. Research Hypotheses

Out of this theoretical outline, the central hypothesis that *the concept of community of practice (CoP) can provide a feasible governance structure for sustainable urban development in informal settlements* becomes derivable. This main research question of the paper at hand shall be empirically verified against the backdrop of data, that was collected on the transcultural caravan's research trip to the informal settlement Santa Marta in Rio de Janeiro as part of an overarching case study on the social business Insolar. In order to test this central research interest, it will, firstly (1), be tested whether the requirement for a dynamic relational perspective on urban planning can be verified in the case of Santa Marta. Secondly, the main research hypotheses will be subdivided into several subcategories each of which represents one

of the constitutive elements that together compose the concept of CoP. At the same time, however, these subcategories are themselves again designed as research hypotheses, since within each category one of the questions raised in the urban theory section can be addressed. In concrete terms this means that the three basic structural elements *domain*, *community* and *practice* will be deductively tested against the collected data in order to confirm whether a CoP is present in the specific case. At the same time, it will be inductively investigated how firstly (2) the determination of the *domain* can serve as incremental approach with simultaneous consideration of overarching objectives. How, secondly (3), the shared *practice* allows the synthesis of the expert's explicit knowledge and the residents site-specific tacit knowledge. And thirdly (4), how the composition of the *community* allows a combination of individuals from the informal settlement and the formal environment and, therewith, yields the possibility to forge ties between the favela and the rest of the city. Lastly (5), it will be investigated whether the successful transcultural governance of the CoP can lead to an increase in emergent innovation and the increase of social capital and, thereby, to a higher density of structural coupling between the informal settlement and the formal environment.

6.1. Research Design
The objective of the research design of this paper is to investigate the specific phenomenon of the social start-up Insolar and its contribution to urban planning in the informal settlement Santa Marta in order be able to make general assumptions about urban planning in informal settlements afterwards. The conceptualization of the paper and the approach to contextualize the concept of communities of practice on the phenomenon was inspired during the single case-based investigation of this extreme situation (Eisenhardt, 1989), which means that the theory building was essentially inductive. Also, the approach to introduce this theoretical construct to urban theory is an explorative undertaking which was inspired inductively by the observations of the field and the subsequent preoccupation with the collected data. The explorative and inductive character of the approach which results out of the circumstance that the object of investigation Insolar and the research interest of applying CoPs on urban planning are relatively untreated phenomenon in science, requires a fundamental qualitative research procedure. The corresponding research design needs to filter out new assumptions from the distillation of subjective views and knowledge stocks regarding the specific case. Hence, it is inevitable that this research paper's methodical part makes use of a categorical qualitative approach.

For the qualitative investigation of a phenomenon, it is essential to increase the validity of the research results by triangulation which can be achieved by using different methods of data

collection and evaluation (Mayring, 2010). Therefore, the research approach of this paper makes use of two juxtaposed methods of data collection and evaluation and collates them in the presentation of the findings. Namely, this refers to the data collected on a participatory observation of a multi-stakeholder dialog hosted by Insolar and data documented by means of five qualitative interviews with varying stakeholders of Insolar.

Next to the combination of mixed research methods, another way to gain validity through triangulation can be reached by iterative observation of a phenomenon from different theoretical point of views (Eisenhardt, 1989). On that note this research paper can be seen as attempt to add a new theoretical perspective to the aggregation of research that has already been conducted on the phenomenon Insolar by the transcultural caravan's research group on the research trip to Rio de Janeiro and the favela Santa Marta, initiated by the Leadership Excellence Institute of the Zeppelin University. Especially the investigation of the multi-stakeholder dialogue as deliberative platform for urban planning, from which the decisive impulse for this contribution emanated, can therefore be regarded as complementary research to the paper at hand (Zumbusch, 2020). The motivation to additionally attempt to apply the concept of CoPs on the phenomenon arose out of the realization that the multi-stakeholder dialogue is just one and arguably one minor part of how Insolar tackles the sustainable urban transformation of Santa Marta and, therefore, does not fully grasp the actual empirical reality yet.

The formulation of the research question was consequently posed a-posteriori out of the renewed in-depth study of the same data material used in the former research. However, it is important to note that the first ignition for the application of the theoretical construct of CoPs already arose out of the observations in the field. This coincides with the research approach of the Grounded Theory, which suggests a methodical procedure that starts with the systematic collection of data related to a phenomenon and proposes the subsequent ignition of a reciprocal and iterative research circle between data analysis and theory building (Glaser, Strauss, 1968). The theory published by Glaser and Strauss (1968) puts the empirical data at the core of the research interest and allows the incremental layout of the theory around the object of investigation (Clarke, 2012). The theory building therefore originates out of the contextualization of theory on cases and the associated interdisciplinary merging of different theoretical fields whose key selection criterion is the empirically visible. The compliance with this research approach has therefore already crucially shaped the outline of the theoretical discussion above and the selection of the respective theoretical modules that were addressed all

of which were directly influenced by the evaluation of the database and the observations documented on the transcultural caravan's research trip.

6.2. Data Collection

As the research style and the techniques of methodological data collection and evaluation of this research paper are systematically orientated towards the Grounded Theory, the *period*, *object, location*, and *unit* of observation have to be specified in order to guarantee the traceability of the research designs operationalization (Clarke, 2012). The field research itself took place as part of a transcultural research project which generally follow an approach that aim to "conduct not only theory-based surveys of transcultural phenomena in the global context, but also practice-orientated research that opens up new perspectives for both the researcher and the subject of research" (Wieland, Montecinos, 2019, 228). With this objective in mind a research travel was carried out in the *period* between the 25th of August 2019 and the 5th of September 2019 by a transcultural research group.

All members of this research group were united by their interest in the overarching case study on the social start-up and energy distribution company Insolar with its complex network of stakeholder interactions. Insolar as governance structure of stakeholder relations can therefore be defined as the *object* of investigation that describes its mission as follows. "Through collaboration between small startups and large companies, micro energy generators and state energy distributors, citizens and government, Insolar helps to create the bridges for dialogue and for the collective construction of the society we envision for the future" (Insolar). How this social start-up can contribute to the bridging between informal and formal urban areas by means of this approach will be the present research papers focus of analysis. The hypotheses and question of research pointed at the way Insolar proceeds stakeholder governance is that the enabling of the communication between diverse stakeholder through learning processes is also a viable requirement for urban planning in informal settlements. So, although the comparability between the activities of the energy distribution company and substantial urban building measurements is debatable, it is the mode of governance that leads to the cooperative collaboration for a shared project, in this case the installation of a solar panel, precisely without any formal governance structure, that is of interest for the research at hand. The assumption of the present paper is that this governance structure, if its operating modes are fully understood, could subsequently also be scaled up and therefore made applicable for any other urban building measurements in informal settlements. Nevertheless, the direct comparability stays questionable which will be further discussed in the limitations.

As the research group was composed of students from Zeppelin University that were foreign to the Brazilian culture and the local costumes, the transcultural research approach demands a non-normative attitude that requires a substantive openness to local impressions. This procedure is especially relevant with regard to the specific area of observation the informal settlement Santa Marta in Rio de Janeiro, where most of Insolar's activities take place. The residents of Santa Marta emblematically designate the urban areas like Santa Marta that are not part of any official municipality as 'comunidade' which means community. These areas stand in contrast to the 'asfalto' which means asphalt and already indicates an awareness among residents for the direct connection between administrated urban areas and the formal urban grid. The present paper uses the terms 'favela', which is a term only used by outside observers, 'community', which is the term the local residents want to be addressed with, and 'informal settlement', representing the scientific term, interchangeably because they all share the common feature of the absence of administration. Nevertheless, it has to be noted that the term favela meaning 'unwanted weeds' has a negative connotation among local residents and must, therefore, be used deliberately. The community Santa Marta can be defined as the *location* of observation, because the governance structure of Insolar and all the attached stakeholder relations mainly operate in this informal settlement and because the participatory observation of the community's assembly meeting located precisely at the entrance of Santa Marta and, therefore, at the transition point between the formal and the informal part of the city, was conducted here.

Through the transcultural perspective local perceptions and context-specific knowledge gain relevance as they are regarded as determining factors for the research outcome which transforms the data collection to become a continuous learning experience. Therefore, personal interactions with various stakeholders of Insolar which represent the *unit* of observation, crucially shaped the research process through the constant challenge of the researcher's subjective perceptions and, thereby, added up to a lucid overall picture of the circumstances in which Insolar carries out its activities.

These direct impressions were additionally tested against the viewpoints of several local experts that are not part of the interaction network of Insolar and, therefore, were able to contribute an outside perspective on the social start-up. This direct consultation of outside as well as inside experts was necessary to be able to classify the absorbed impressions and, thereby, deepen the understanding of the preceding experience (Lamnek, Krell, 2016). The direct consultation of a diverse range of knowledge carriers allowed to already develop first interpretations while being in the field and enabled a direct confirmation or rejection of the evolving hypotheses.

The classification and categorization of the findings below is based on the reprocessing of data collected during the research phase by means of two main research instruments and their merged interpretation in the presentation. This refers to, firstly, the field notes recorded during the participatory observation of an assembly meeting with multiple of Insolar's stakeholders and, secondly, the transcribed material of five qualitative problem-centered interviews.

The participatory observation was conducted during the above described transcultural research trip and the field notes still can serve as relevant database for the paper at hand, as the observation of the multi-stakeholder dialogue at the same time represents the observation of a meeting between multiple members of the CoP, that Insolar is composed of. Although participatory observations are at the center of the research procedure proposed by the methodological approach of ethnographic field research (Rosenthal, 2015), they, however, have to be substantiated with additional research instruments, because they cannot be regarded as veritable database in isolation. The concise and laconic character of the field notes does not allow for an isolated content analysis as their interpretation bears the danger of subjective perception biases (Rosenthal, 2015). Nevertheless, they can serve as guiding reference point and comparison tool for the interpretation of the interviews.

The interview material consists of five transcribed interviews which are attached to this paper in order to guarantee the selectivity of the quotations and the traceability of the interpretations (Clarke, 2012). Three of the interviews were conducted with Henrique Drumond, the CEO of Insolar, two of which took place during the transcultural research trip both at the beginning and the end of the research period. The third interview took place several months after the research trip which coincides with the iterative research process of grounded theory and, accordingly, could serve as a means of debriefing the previous assumptions of the state of research. The other two interview partners were Alain Grimard, a representative of the United Nations Habitat in Rio de Janeiro, and Sheila Souza, a resident of Santa Marta and participant of the apprenticeship training offered by Insolar. The consideration of different interview partners with diverse perspectives helps to anticipate biases that could arise out of subjective perceptions and misinterpretations which, therefore, adds triangulation to the research results (Eisenhardt, 1989). All of the conducted interviews were orientated towards the requirements of the unstructured interviews procedure which allows the conducting of interviews without

prewritten interview guideline and, therewith, enables an open and non-normative way of gathering data while being open to the local context. Consequently, this interview approach is in line with the transcultural research ideals.

The subsequent and reprocessing evaluation of the data was performed with a noteworthy gap between the original data collection and the renewed overview and deeper examination of the material. According to the approach of substantively structured qualitative content analysis, this reprocessing, however, does not pose a methodical weakness for the validity of the interpretations. To the contrary, it is precisely the profound familiarity with the research database that comes along with the iterative examination of the material that is supposed to guide the systemic categorization and evaluation (Mayring, 2010). The formation of categories should combine aspects of deductive and inductive approaches, whereby both theoretical preliminary considerations and subsequent theory deepening can flow into the categorization of the data material (Mayring, 2010).

7. Presentation of the Findings

In concrete terms, this means for the presentation of the findings that each category will contain not solely the describing summary of all the relevant statements extractable from the interviews in regard to the categorial topic, but additionally some theoretical explanations matching the respective statements that are extractable from the contextualization of the quotations. The statements are chosen by means of their substantial relevance and in order to retain the interview partners' original tone as traceable as possible, a certain amount of direct quotations is intertwined into the presentation of the findings. Apart from that, each category will be expounded in the form of a continuing text which follows the logical structure presented with the exposition of the research hypotheses.

(1) Urban Planning as Relational Event in Santa Marta

The idea for this research paper was born out of the personal conversation with a resident of Santa Marta where she described her ambitions to plan and build a community center for this favela. And although there was no official architectural plan or any formal contracts yet existing, she was able to describe exactly who from her circle of acquaintances would do which specific work on the center and in which order and how the actors would be motivated to cooperate for this project simply due to the positive relationship she had to them. This seemingly trivial observation that the success of any building project in the favela is crucially dependent on the relationships and personal familiarity with constructing practitioners that at

the same time are residents of the community themselves, can have far-reaching consequences if one aims to bring projects like the sustainable transformation of this urban area from outside the informal settlement to the favela, while at the same time aiming to respect the inherent operating functions of the community.

> "The most important is to choose the area you want to work in and the people you want to work with. It's not about your project. It's about how you map the project in a very efficient way. Sometimes it will take time for you to do that. But then after that your project will just flow" (Interview 4).

Two decisive preliminary insight are already derivable from this basic statement of a resident from the favela Santa Marta.

Firstly, that is the determining factor that a different time perception played among residents, as compared to the time management most outside initiatives approaching the favela brought along and considered the planning horizon of their projects with. Accordingly, the residents criticized that external interventions mostly did not take time to understand the local conditions and instead attempted to impose their temporality on the context of the favela.

> "Because some people want to do projects fast like this and they don´t wait for us. Our own time to develop a program and projects. They never wait. They say this is important and everything and then at the end they get tired. Now that I am starting to understand this project, they are already abandoning us again. […] I think time here is the biggest thing, because we need to understand this very slow progress" (Interview 4).

This experience of the residents seems to point to the direction that the majority of preceded outside attempts to introduce development implementations in the favela rather complied with the notion of the static urban planning that aims to reach some ideated end state condition, but failed to anticipate urban planning as a dynamic evolutionary process which turned out problematic in the context of an informal settlement.

Secondly, the statement above highlights the local value of relational planning and the significance that outside interventions need to pay to the careful mapping of the preexisting social structures and the operational modes, by means of which projects are being conducted in the informal settlement. Accordingly, this requires deliberate communication with the local stakeholders and the actual practitioners that are responsible for the present constructing of the favela. "These are the people to talk to if you want to understand how you can collaborate with Favela people. You have to talk to favela people. Not to people that think they know about favela people" (Interview 4). A certain awareness towards the site-specific social interdependencies and the preexisting informal social mechanisms can, therefore, be considered

a success-critical quality for projects in the favela, especially if the aim is to strive for long-term value creation.

It seems like it is precisely this requirement that Henrique Drumond was consciously aware of and which in turn shaped and legitimized his performance in the favela, as he has taken into account the relational imprinting of the informal settlement when building up the stakeholder network of Insolar. "So, we always have that view interestingly shaped by the relationships. We are more concerned in building the relationships than the project itself, because the relationships are stronger, last longer and create more impact" (Interview 5).

In summary it can be stated that, with regard to urban contexts such as the informal settlement Santa Marta, the evaluation of the database can deductively confirm the increasing necessity to consider urban planning as a dynamic relational process and, therewith, as a problem of organized complexity. Additionally, one inductive finding is that Insolar meets this need by concentrating on long-term value creation. "So, we took a long time to implement the pilot project like one year for a single project, but at the same time further projects evolve" (Interview 5). Thus, one additional insight was that Insolar succeeds in adapting to the dynamic, relational complexity of urban planning in the favela by maintaining a certain substantial openness. "When we organize projects in communities, we have to be open minded about what's going to happen" (Interview 5). Insolar, instead, concentrated on maintaining the interaction network and cultivating the relationships between stakeholders from inside, as well as outside, the favela. In order to confirm or reject whether this interaction network can be denoted as a CoP, the aim of the following three categories is to analyze the three constitutive elements of this construct against the backdrop of the data.

   (2) Domain

The second category of this empirical research part aims to distil out all relevant aspects of the database that stand in correlation to the domain of Insolar. In concrete terms, this refers to the first constitutive element of the CoP, the shared problem perception or shared concern among members about a certain topic that combines all members and inspires stakeholders to contribute their resources and participate in the CoP. In the case of a CoP applied to urban development in an informal context like the favela, it transpires from analyzing the interviews, that it can be fruitful to keep this shared overarching problem rather abstract, in order to be able to initiate a negotiation process about the direction of development. "But for example, in the case of a person living in the favela: We are trying to change our environment and to build a better place" (Interview 4). The advantage of initially concentrating on such an abstract

formulation of purpose is that it picks up as many actors from the favela as possible and integrates them into the negotiation process, about what is required to succeed urban transformations in the complex context of this specific Favela. The orientation towards the filtering out of values and objectives that the residents of Santa Marta share and that are required to proceed urban projects in the favela out of a shared problem perception, is precisely one endeavor that Henrique Drumond is very concerned with. "Yes, and our final goal is not to install solar panels or to train people, but it is to help and more then help to work together with the community so that they can prosper. But how could Insolar tell them how they should prosper if we don't know what prosperity is to them" (Interview 2). In conclusion it can be recorded that the domain of the CoP Insolar can be defined as the prosperity of Santa Marta which may be so effective as shared concern precisely because of its abstract character that leaves room for interpretative reification.

The interesting finding of the data is that Henrique Drumond follows a two-parted strategy regarding the endeavor to concretize and reify the domain of Insolar that combines qualitative and quantitative elements of target-group research in order to distil out the main problem perception for urban changes among the residents of the favela Santa Marta. That refers to the fact that, on the one hand, he conducts wide range quantitative surveys and questionnaires that aim to gain knowledge about the prospective situation of the favela, in order to reassess the long-term feasibility of Insolar's projects.

> "You know we are talking about a technology that lasts for 25 years. So, how do people from the community envision their lives in 25 years. Do they see themselves in the Favela? How will the Favela look like? What is their vision for the future? So, I didn't want to promote something that is so long-term without matching the technology somehow with their vision of the future of the Favela. So, the first Idea was to have this collective vision of the future and then trying to match that with Insolars approach" (Interview 2)

At first site, this procedure reminds one of the modernist urban planning approaches that aimed to calculate the ideal end state, by means of statistical models. But Insolar, on the other hand, takes up this quantitative methodical research and substantiates it, subsequently, with qualitative formats, like the multi-stakeholder dialog or personal conversations with practitioners that serve as potential feedback loops and possibilities for debriefing the development. "But for instance, if all the people in Santa Marta answered that their dreams are something different, it doesn't make sense for us to bet in something that is just good for Insolar and not good for them. So, it's kind of a constant exchange and dialog" (Interview 2). Precisely this constant feedback loop is what deviates Insolar's approach from conventional development

initiatives and allows an "organic adaptation" (Interview 2) to the changing requirements of the favela which transform the concretization and subsequent reification of the domain into a constant dialogue with the residents which is the quality that constitutes a dynamic urban planning process.

The key insight of this category is, consequently, that Insolar has achieved to initiate a very abstract conversation with the residents about their values and desires for the development of Santa Marta and, subsequently, managed to translate this abstractness by means of a negotiation process about meaning and a dialogue about possible ways to achieve the reification of these values. That procedure lead to reduced complexity and allowed to convert these abstract values into very concrete implementations that enabled a building process that starts incrementally with tangible problems. "We just kind of take the opportunities that we find locally and then just start. And by doing that, we learn a lot and new opportunities arise" (Interview 2). Thereby, Insolar manages to bridge a fundamentally incremental procedure - "It wasn't like a strategy. Everything in the pilot projects was like step by step" (Interview 2) – with the overarching directive of the domain, to gain prosperity in the favela and respect the values that the local residents choose for themselves.

(3) <u>Practice</u>

The idea of a shared practice that results out of the combination of tacit and explicit knowledge is arguably the cornerstone of the construct CoP. This shared practice that represents the connecting factor between all members of the CoP is expressed by means of a shared repertoire consisting of certain tools, documents or skills and poses the requirement to become a core member of the respective CoP. In the case of Insolar, this practice could be defined as the technology of solar panels and the entirety of knowledge that is related to this technology. Especially in regard to the category of shared practice, it may become apparent from the analysis of the interviews that Insolar can in fact be denoted as a CoP, because the mediation of the technology and the transfer of knowledge required for the installations of solar panels is at the very core of Insolar's remit.

> "Insolar is less a Solar company but more a technology to the people company. For us it is more important to provide the technology, the opportunity, the capacitation, the information, the network, the collaboration, the integration. Everything we can provide alongside of providing 2 meters of solar panels" (Interview 2).

The concept of CoPs was derived from the analysis of the mechanisms of learning in apprenticeship relations. This is a striking linkage to the learning process Insolar is engaged

with as this social business also exercises a traineeship between local residents as apprentice and outside solar technology experts as tutors. This apprenticeship system, arguably, is the very cornerstone of Insolar and plays a crucial role for the success of this social business in Santa Marta.

> "We train the people to do the solar installation and we create a community training with the technology. We are developing educational material for Fata Louis [online knowledge platform] and as much as we can get away from Fata Louis the community can gain an ownership of the technology. They can themselves develop the technology further and develop other technologies" (Interview 1).

Hence, this traineeship system Insolar is providing in the informal settlement can have a twofold effect. On the one hand side it poses the possibility for outside planning experts to gain legitimacy and acceptance in the informal settlement by teaching their explicit and general knowledge about the sustainable development possibility of solar panels and, thereby, spreading sustainable transformations in the favela which changes the way the informal settlement is constructed, because the local residents understand that they can gain value from this learning process.

> "We don´t know how to use solar panels. We don´t have the knowledge, we don´t know about this technology. […] Henrique is trying to compensate this by involving people in a very deep level inside of the Favela. I think this is something that´s quite unusual. Because most of the time coming from the outside, they are very aggressive because they think Favela people are stupid because they don´t have all this technology and they don´t know anything about that technology. So, outsiders say: I know all this, I am here to do this for you. Normally this is the mentality. And that's why sometimes, you see some favela people very resistant" (Interview 4).

But this learning process through the CoP, where experts place their explicit knowledge to disposal in order to generate acceptance, is not only a possibility for outside initiatives to gain legitimacy in the informal settlement. Conversely, this learning exchange can also become mutual if the importance of tacit local knowledge as indispensable resource for the success of outside interventions is payed attention to. As one resident of Santa Marta states, outside experts approaching the informal settlement face the difficulty that "[e]ven if they are coming with great ideas, these people, don´t know anything about the favela (Interview 4). The tacit knowledge about an urban environment is arguably highly incorporated and, therefore, difficult to obtain as an outside expert. Hence, it is the quality of the approach of Insolar that it respects this local expertise and conversely includes this incorporated knowledge, by means of a learning process, into its own decision-making. In regard to the positioning of the solar panels, for example, Insolar delegated the role of the specialist to the local residents, when they had

concerns with the actually intended emplacement. "They explained me that and then I thought: You are the specialists, so I have to at least consider that. […] I would have put them somewhere else, but I was not responsible for that. So, in a way we have to accept the decisions that others take" (Interview 5). It becomes visible from this statement, that it is the tacit knowledge about the site-specific particularities of an urban area in general and of a complex urban area like the informal settlement Santa Marta specifically, that can have a success-critical effect on the implementation of urban interventions initiated by outsiders.

The striking insight extractable from the empirical example of Insolar was that the combination of explicit expert knowledge and tacit local knowledge, if managed to a cooperative exchange, can actually have a synergetic effect on the innovativeness of the urban solutions for the favela. Furthermore, the separation between top-down expert interventions and bottom-up self-determination can be resolved and instead brought to cooperative collaboration which in turn can have a mutually reinforcing innovative effect and thereby presents a possibility for innovative advantages. Insolar for example incorporates tacit local knowledge to a high degree into their decision-process for urban interventions.

> "What comes from the communities? OK that is: What's the best place to install the system. What's the best material. How will it look better. How do we need to communicate the product. How does it work. Who is going to install it. Is it going to bother someone in the community. So, there must be some kind of dialogue (Interview 1).

The advantage that Insolar can take out of this dialogue is the possibility to utilize the urban area of Santa Marta as urban lab and testbed for the innovativeness of their urban solutions, that therefore is crucially shaped by the emergent information stemming from the residents. "But since we have a good partnership I am sure they would be willing to share that information with us because we need that information also to understand what's the best for that community. We cannot adapt to the local market until we have that information" (Interview 1).

On the other hand, this approach also leads to a substantial enhancement of self-determination among residents and can effectively grant the residents of Santa Marta some degree of co-creation as they gain the tools to shape their urban environment autonomously.

> "The local residents who were trained by Insolar they know what to do when it's not functioning. We just want to make sure that they know how to find the equipment from Insolar. So, what we envision with Insolar is that we don't really mind doing these installations ourselves. We just want them to be done in any way. And if there is someone properly trained to do this installation and if there is someone willing to buy the installations, we just want to be the HUB" (Interview 1).

Hence, the combination of explicit expert knowledge and tacit local knowledge as shared practice which is effectively coordinated through the stakeholder mediation by means of the structure provided through Insolar, yields the possibility to unleash the innovative capacities of co-creation if this shared practice is governed and lead to productive cooperation. Furthermore, it represents an empirical example for how the opposition between experts and residents can be dissolved through mutual learning processes, and how planning and constructing therewith take place simultaneously.

At the same time this, fundamentally transforms the expectations put in the governance of this shared practice, that now foremost needs to guarantee the communicative structure and, therewith, enable cooperation between inside and outside the favela. "We want to be just another stakeholder, a partner that is benefitting the community and on the other hand we are benefitting from the community, as well. And as much as we can, we want to balance that cooperation" (Interview 2). This self-perception of Insolar raises the question about the governance structure of Insolar and the way Insolar manages the shared practice. It becomes apparent that the corresponding governance structure primarily needs to lead diverse stakeholders to friction free cooperation, but the question remains how it deviates from other governance structures.

(4) Community

In the framework of the theoretical construct CoP the third constitutive element community refers to the social fabric that coheres the peers to cooperate for a shared practice. In the case of Insolar this task has to manage the additional complexity that comes with the attempt to collide actors from outside and inside the favela which was the decisive challenge that initiatory had to be overcome in order to implement solar panels in Santa Marta.

> "What is the stakeholder's willingness to be together in a platform? First thing. And if they are willing to collaborate through the platform: what kind of interactions do they look for? So, of course we already have some kind of idea about that is because we have been cooperating for a while, but we needed to kind of validate that." (Interview 2).

The first insight that can be derived out of this quotation is that stakeholder governance, in a context like the informal settlement Santa Marta, requires careful mapping of relationships and the development of a personal interaction network that builds up on familiarity with the stakeholders.

> "Henrique is an outsider, right? And so, he was bringing a product here. What Henrique was trying to do, was to connect all these people to the project of Insolar. […] Henrique was really careful trying to involve local residents. (unv) It's a very hard task. Because first he is an outsider and second you have to be really like: who do I contact and then maybe things work in the favela" (Interview 4).

So, this is the special precondition for developing a governance structure around a transaction, like the implementation of solar panels, in the context of an informal settlement like Santa Marta. The governance structure that Insolar has developed in order to meet this challenge of the informal settlement, is interestingly characterized through its minimalism. When asked about the concrete formal structure of the social business Insolar, it became apparent how few formal relations exist and how much Insolars success is actually dependent on informal relations.

> "So, we have Leo who is taking care of installations. He is together with two engineers John and Richie from engineers without borders, that are also volunteers from Insolar. And Veronica and Saledgia the ambassadors of the project they are residents from Santa Marta. So, they are actually working in the project and for Insolar by accident. So, it is difficult to define, but it's mostly my project and a lot of people join by demand" (Interview 1).

The minimalistic formalization and the almost complete absence of any formal contracting raises the question of the adaptivity of Insolars governance structure. It transpires from the analysis of the data that incentive setting and motivation patterns for resource investment become dependent on the self-motivation and, therefore, soft qualities such as a certain excitement or the feeling of mutual belonging and commitment can prove decisive for success. Consequently, the crucial challenge becomes to manage the balancing act between open space for self-determination and leadership to guarantee the atmosphere that motivates actors to long-term commitment.

> "[I]n order to keep the business going we cannot be in charge of that. And in order for the community to be really empowered we cannot have a stronger participation in this community of practice than the locals. So that's quite a challenge […] and at the same time it requires from Insolar, since we organize the project, we have to practice some kind of leadership. But it's important for us to see how much we can contribute without being in charge of that community of practice" (Interview 2).

Overall, it can be derived from the evaluation of the interviews, that all three constitutive elements of a CoP are traceable to a certain extent and it is therefore deductively verifiable from the database that Insolar, in fact, is definable as CoP. Additionally, one striking finding from the statement above is the circumstance that the CEO of Insolar seems to be aware of the

existence of this concept and, therefore, consciously steers Insolar in this direction. Thus, the leadership Henrique Drumond practices in order to cultivate the CoP of Insolar in Santa Marta gains research interest, which can be tested against the seven imperatives for cultivation. Thereby, the following part aims to determine whether the CEO of Insolar complies with these recommendations, on the one hand side, and, coincidingly, why in an urban context like the favela Santa Marta it may turn out an advantageous factor to cultivate the community in a transcultural manner.

Firstly, it can be evaluated that Insolar is designed for evolution. "[O]ur strategy changed from step by step like our final project has now one specific goal which is totally different from the community project which is totally different from the scale up and it's totally different from bringing it on a national level. […] We'll take time to evolve it until it works for us" (Interview 1). Secondly, Insolar manages to open up a dialogue between inside and outside perspectives, by combining perspectives from local residents with outside expertise in deliberative multi-stakeholder dialogues in order to gain a cooperative atmosphere. Thirdly, Insolar enables different levels of participation. As extracted above, the core group of Insolar only consists of five individuals stemming, for the most part, from inside the favela. But, additionally, Henrique Drumond actively invites student groups and representatives from the UN to community meetings, in order integrate an outside perspective and, thereby, generate collaborative resources. "But on the other hand, we understand that we need real good collaboration with Santa Marta. That's why we are bringing in so many people like with United Nations, Shell, PUC students, Zeppelin University students" (Interview 5). Fourthly, Insolar has developed both public and private community spaces. Depending on the respective transaction, different working groups join together by demand which is coordinated over an online platform called 'Colaboração' that was launched by Insolar. "Colaboração that is a platform to connect the people we train in the communities with the people who want to install solar panels and the companies who needs the technicians to do the installations" (Interview 1). Fifthly, it may also be confirmed that Insolar's focus is on value. "Our strategy is whatever works, whatever is exponential, whatever impacts more people" (Interview 1). Sixthly, it can be demonstrated from the data that Henrique Drumond also manages to combine familiarity and excitement. Familiarity is guaranteed by the deep involvement of local stakeholders, which allows favela residents to identify with Insolar. "[W]hen communities see the project they see themselves as part of the project and they love it. […] The whole community like protects the solar panels" (Interview 5). On the other hand, excitement is evoked by means of the invitation of outside researcher in the framework of multi-stakeholder dialogues described above.

In regard to the seventh imperative, the rhythm for the community, it has to be noted, that this aspect could not sufficiently be derived from the data due to the limited observation period. Nevertheless, it can in summary be deductively evaluated from the analysis of the interviews that Henrique Drumond practices the cultivation of the interaction network around Insolar in line with the imperatives for forming a CoP introduced in the theoretical outline. All in all, it is the successful interplay of all these factors that shapes the governance structure of Insolar and thereby generates the cohesion of the stakeholders and the atmosphere of cooperation that leads to the voluntary resource investment despite the lack of formal contracting.

(5) Structural Coupling

The key inductive finding of the observation of Insolars approach in Santa Marta is the structural effect that the successful implementation of the CoP can have for the social system favela. If above demonstrated operationalization of Insolars governance structure is successfully implemented the effect can result in a substantial enhancement of the social capital within this interaction network which ultimately may result in a higher structural coupling between the urban system informal settlement and its environment the formal city. Interestingly, it seems like the effect is characterized by a reciprocal direction of impact.

On the one hand side, several interviews have shown that the financing approach of Insolar can lead to the appreciation of the residents' qualification as attractors of loans and thus investors for high quality products. "For Santa Marta it's also upside down because we should have started selling solar panels for high-end neighborhoods and we started selling high-end technology for the bottom of the pyramid" (Interview 5). Consequently, the social system favela becomes the attractor of transactions and outside functional systems, like the banking system in the case at hand, gain an interest in the relation to the residents from Santa Marta.

On the other hand, the residents also experience an increase in their social capital through the apprenticeship system of Insolar which formalizes their educational status and thereby substantially enhances their integrability to functional systems of the formal city.

> "But what is like the main thing that we learn from other projects. That's education opened doors. People get jobs and that's when the impact goes beyond Insolar. And that's the most important thing for us. Not to get people attached to Insolar in a way that if there are Insolar installations they make money, if there is not, they are lazy in bed you know. So, we didn't want that relationship. So, the best thing is to educate, certify and open doors for the guys and ladies to enter the market by their own" (Interview 5).

A path on which Insolar as CoP enables the improvement of the residents' integration capacity, is by providing workshops with community members that teach them two write a resume. "So,

what we are doing is okay let's go back to the people that Insolar trained and let's see how well they benefited from Insolar. Let's put that in a paper make it look nice. So, they have a much better chance of finding a job" (Interview 1). It transpires that the CoP of Insolar can crucially contribute to increasing the social capital of its interaction network, and thereby enhancing the possibility of residents from Santa Marta to offer this resource gained through the CoP not only to fundamentally transform their own built environment but actually also to become a part of the functional system of the formal city. Hence, it is observable that the governance structure CoP yields the possibility to mitigate the social exclusion, that comes along with living in an informal settlement, by means of enhancing the structural coupling between the formal and the informal city. Aptly, Henrique Drumond summarizes the effect that the CoP of Insolar can have for the social system Santa Marta as follows:

> "Our idea is not to go there do solar panels and quit. But go there start solar panels, train people to do their own CV, think about the future, design the future, bring volunteers, create a 3D future, create an augmented reality of the future, bring the major, make him envision the community. So, we go a little bit beyond our role […] but what we believe is that Insolar can also bring that experience of hope" (Interview 5).

8. Conclusion:

The endeavor of the methodical research evaluation presented above was to deductively verify against the reprocessing of data whether the interaction network that Insolar has created in the favela Santa Marta in order to tackle the urban transformation of this informal settlement can be confirmed as CoP, on one hand side, and to inductively investigate the effects that the transcultural governance of this interaction network can have for the social system favela.

At first, it may be noted, that the requirement of a dynamic and relational perspective on urban planning extracted in the theoretical outline, could also empirically be investigated in the case of the favela Santa Marta. Additionally, it transpired that Insolar meets this challenge by adapting to the time management of the local residents and by keeping a certain substantial openness and instead concentrating on the maintenance of the interaction network.

As a follow up step, this interaction network was analyzed from the perspective of the three constitutive elements that shape the structure of the theoretical concept of CoP. The investigation of the database could deductively prove that in fact all three elements are analyzable in regard to the interaction network that Insolar promotes in Santa Marta. Furthermore, the crucial research interest was whether the governance structure of Insolar is, thereby, able to tackle the research gaps extracted in the theoretical derivation. The data has

shown that in all three aspects, the empirical procedure that Insolar is conducting in Santa Marta poses possible solutions and developments in the theoretically anticipated direction to meet these challenges.

Lastly, the decisive inductive finding of the investigation in regard to the interaction network of Insolar was, that if governed in a cultivating manner, the social structure of Insolar uncovered the potential to enhance the innovative capabilities as well as the overall social capital of this interaction network. This is the decisive finding of the paper at hand because it essentially means that the construct of CoP if applied as governance structure for urban development can, in its consequence, lead to a higher structural coupling between the informal settlement and the formal city.

Taking into account the general impression, it became visible that Insolar achieves this ultimate objective, by respecting the preexisting social interaction networks that were already preexistent when Henrique Drummond in his position as an 'outsider' entered the informal settlement. So instead of imposing a formal planning structure the application of the governance structure of a CoP enables to foster cohesion and guarantee resource involvement while keeping the relations essentially informal. Of course, it is easy to imagine that this structure, if proclaimed on a large scale as a planning ideal to be aspired to, could reveal certain weaknesses, which could be the thrust of further research. Whether the application of a CoP for urban planning also poses a generally transferable approach to urban planning in any context was, however, not the question of research. Rather, the aim of this work was to observe the specific empirical case of the CoP Insolar in Santa Marta and it has become visible that, in this context of an informal settlement, the mutual learning process between outside explicit knowledge experts and inside tacit knowledge experts poses the possibility not only to mitigate the delimitation between inside and outside but also offers a possible planning structure where by means of the negotiation of meaning about the prosperity of the favela and their concurrent reification, urban planning and urban practice are reconciled in one planning form. If this empiric case is payed attention to, one key further learning for future urban interventions in informal settlements may be that to respect the preexisting planning structure of the informal settlement does not mean that overarching values cannot be addressed there. To the contrary, the example of Insolar points out emphatically that it is precisely the respect for the predominant network of relations in the favela that opens the doors to address superordinate ideals such as the sustainable transformation of the favela by stimulating a dissemination effect. Whether or not this observation is used to co-determine these formats of urban planning can have a decisive impact on the future development of informal settlements like the Favela Santa Marta. "As

much as it seems an impossible task, there is much to be gained from trying to dissect architectural dissemination. As we say in Brazil, good architecture is contagious; the problem is that bad architecture can also be virulent" (Lara, 2010, 32).

9. Limitations

In regard to the theoretical viability of this research approach, the most obvious but, nevertheless, severe theoretical limitation to the paper at hand is that it stays questionable whether the interaction network around the social start-up Insolar is transferable to any general interaction network that aims to serve as urban planning and urban building structure in informal settlements. Although a direct comparability is difficult to anticipate, the paper at hand assumes that the comparability can be attained in regard to the general modes of action and the type of relationships due to the level of abstraction chosen for their theoretical treatment.

Furthermore, there are several practical limitations to the paper at that are related to the methodical design of this research paper and the research procedures that were conducted during the research trip itself as well as in regard to the evaluation of the data.

So, firstly, in regard to the research trip itself the limited time period of the transcultural research trip poses a significant limitation as it hindered a long-term study of the phenomenon and the iterative visit of the favela Santa Marta, which would have been necessary to grasp developments in the Favela and changes in the relationships between the stakeholders both from inside as well as outside in regard to the CoP. Although it was attempted to minimalize this methodical weakness by the additional conduction of a time-delayed interview with Henrique Drumond it, nevertheless, stays a noteworthy limitation.

Secondly, the time gap between the original data collection and the reprocessing of the data for the paper at hand could have had a negative effect on the verifiability of the observations that were made during the research trip as they may have diminished in respect to their direct clarity. Thirdly, the sole concentration on the favela Santa Marta does not enable a generalization of the data collected in this specific context. In order to achieve transferability, future research endeavors may attempt to take up the inductive observations gained through the research paper at hand and try to verify or disprove the insights at hand against the backdrop of quantitative data.

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Interview (1):

Interview Partner: Henrique Drumond, CEO Insolar

Date / Location: 26.08.2019 / Rio de Janeiro, Brazil

Audio recording starts delayed. The topic of conversation at starting time is a new product of Insolar that they are about to launch in Santa Marta. It's a sort of battery that is installed into the wall and can be shared by a group of neighbours. The purpose is the guaranteed energy service for the indispensable facilities like a refrigerator or emergency lamps in the case of a blackout.

Speaker 2: And can people just take it off by themselves, or is it really installed into the wall?

00:00:12
Speaker 1: It is really modular so the residents can install it themselves and they will have the equipment. So, what is the idea for the next annual? We're going to train ten people. They are going to have all the equipment. We just give them the pieces and they do the whole installation. So, there is a machine that does the hole. After the hole we install the system put the outside put inside lock it. So the good thing is that if you just leave it outside your house someone can pick it (steal it). If you leave it inside no benefits for the outside (community). So, this one is locked and it's automatic.

00:00:47
Speaker 2: And how is this project financed?

00:00:54
Speaker 1: By "Anual" (company that collaborates with Insolar for the boxes). But actually they're financing only the first two units. After the first units are launched the residents themselves are going to pay for the system because the price is going down a lot because it's everything almost for free. Like for example all the pieces. One part we may be changing to wood because we are struggling with the electricity. Whatever it is we will see. Usually wood and electricity work good, as it is safe. Also, we are going to see how much we can use recyclable material from the community to develop that and other technologies. Because it's one of the - well not a complaint but one of the - points, that the community brings to us. OK, We really have a problem to donate or sell our recyclables because we get very little money with our recyclables like plastic and everything. So why don't we upcycle that so instead of getting one cent of a dollar out of a big plastic box why don't you use that to cycle that up. So maybe we can buy the trash from them for a higher price than they sell nowadays. So, they get money with that. So, they hired the local residents to do those installations. Local residents get money. And it seems like the price is getting lower and lower and lower. So, we realize that with very little money we can have two hours of lighted streets in a community like Santa Marta. It's a big temptation not to do that for free because with very little money we can light up the whole community. But on the other hand there are 11 million people in favelas in Brazil. So, we eventually will get out of money. So that's why we bet in this model where the people pay for it. Either for the whole system or a portion of it.

00:02:43
Speaker 4: How much would the community residents pay for an installation?

00:02:46
Speaker 1: Maybe 200 to 300 Reales, maybe less. And then if any of the pieces are broken it's all modular so they know what it's like to repair. The local residents who were trained by "Mirabolabi" they know what to do when it's not functioning. So, they say OK you just change these spots and then we just want to make sure that they know how to find the equipment either from "Mirabolabi" or from someone else. Anyway, that's the goal. "Anual" is excited about that, so they share their challenges with us.

00:03:26
Speaker 4: How many blackouts are there like per year?

00:03:34
Speaker 1: That's a good question. One step off the project with "Anual" is to install a system to analyze that unless they have that I believe they have that but it's usually like a restrict information. But since we have a good partnership I'm sure they would be willing to share that information with us because we need that information also to understand what's the best for that community. If you have like one blackouts a month but it lasts for eight hours, we need more batteries on less solar panels. If we have a lot of blackouts, that take 30 minutes, we don't need that much battery the battery doesn't need to last that long. So, we need to see what's the balance you know. But since it's modular you can put one battery, two batteries, three batteries one after the other. So, we cannot adapt to the local market until we have the information.

00:04:26
Speaker 2: And how do you find that out? Is it more an entrepreneurial concept that you just let the experts decide or do you really ask local community people as well?

00:04:38
Speaker 1: Totally local. Because that measuring system gives us some information like if we leave the system there on - okay - that puts all the information in a dialogue and tells me when there was a blackout and how long did it last.

00:04:58
Speaker 3: And you hope to get that information from "Anual"?

00:05:00
Speaker 1: Yes, at least it's mostly from "A" or regarding Santa marta also from "L"(Leich?). This doesn't come very much from the community. What comes from the communities? OK that is: What's the best place to install the system. What's the best material. How will it look better. How do we need to communicate that. How does it work. Who is going to install it. Is it gonna bother someone in the community. I give an example. Maybe the community the gangsters they want to make sure that the light is off when there's something. So if we just installed it they would break it. So there must be some kind of dialogue. Not myself but I know it's a job.

00:05:39
Speaker 4: It's the same situation with the panels, right? I mean they (gangsters) don't necessarily want them (community) to have energy for free.

56

00:05:47
Speaker 1: Not at all. Yeah.

00:05:53
Speaker 2: So, I asked myselft. If. At the moment the gangsters control the energy supply and they they send the electricity to the community right. They own the grid. So, if now people have solar panels on the roof and they get the energy for free the gangsters kind of lose some power?

00:06:17
Speaker 1: There are two groups. I mean there are many groups but the main ones are the gangsters, the drug dealers, and the militias. Right. Militias they are more or less kind of the police. So the electricity they're not really in charge yet. They are defenitly in control of the gas and the gas supply for cooking. Electricity is mostly the energy distribution company. So it's good news. Yeah. So, we don't believe we are bothering them with the solar panels. Maybe we might bother them with the lighting system but since we have a good relationship with the communities we never have big problems. For example: Once we put small piece of - whatever - we put in the walls (of the cable cars) to reduce the temperature compared to if you have like a plain glass like on them. Yes. Yes. And so we put that in the cable cars. But what we discovered that they were the best one in terms of reducing the heat but it was too dark. And then someone said maybe you need to take this off because the police guys were going down with the cable car and we're getting that the peoplewho were like consuming drugs as a surprise way said that it was very dangerous for the residents because if there is a police in the cable car together with the residents and they need someone using drugs or whatever that might be a conflict. And the residents are in danger now. And so someone asked to take this off and then we changed for a lighter one which is very good for reducing the temperature but that doesn't make it dark. OK. Yeah. So it's kind of an adaption but it's always you always need to be aware watching what is going on and you need to do that in a very careful way like because one day they took off. Two days later I was putting that back. If you don't do that carefully they can say: oh Insolar is supporting the police and also they are not respecting our responsibility as the owners of this community. So we need to do that in a very carefull way and you know communicate a lot. But there is always a smart strategy not to be killed.

00:08:52
Speaker 4: I have another question: Because I have also been talking to some people here in Rio. I heard it's common to as you said through the Gato to steal the energy. Yes. So why do they need solar energy then especially in Step 3. Do you maybe also estimate a bit into the future that maybe in future it's not so easy to steal energy anymore.

00:09:18
Speaker 1: Yeah, well there is an interesting like a cold war going on between the energy distribution company and the Favelas because the distribution companies invest more and more money to block the whole system not to steal. And as it always is with those technologies on the other side people are evolving in finding solutions to get the energy for free. So it's getting more and more expensive for the energy distribution companies to fight the "Gatos". And normally the people find a way so the level of "Gatos" is still high enough. So what we said to the energy distribution cpmpanies is: isn't it better to have a good relationship and then provide solar energy, provide "Fata luis", provide that you have the dialogue, provide energy efficiently like LED lamps or whatever and actually help people pay their bills instead of just combating. Because I mean through combating the Gatos sometimes they are actually combating someone who is not able to pay the bill because their neighbor is

stealing their energy. So the price becomes super super high. So they actually want to pay but they can't.

00:10:34
Speaker 1: We just want to make sure that they (people of the Favela) benefit more than they pay. So that's why we say: OK so You're going to save one hundred $ and you pay us 50 or 60. And another thing that we think is sensitive and we are still testing is that OK: If they're going to pay fifty dollars for a solar and they're going to have the solar panels we cannot test that out for everyone. So maybe their neighbors are going to say at the UN: my neighbours have Solar panels I don't have. So, the money that is coming back from the installments goes to Insolar funds which is a regular bank and bank account and then that money goes back to support their sponsors. So eventually the neighbors become the sponsors. So, what happens is that when you see your neighbor has an Insolar installment one thinks. Oh, my neighbor is is contributing to the funds and eventually I'm going to have my solar panel as well, so you are proud of your neighbor to have the Insolar installment. At least that is the assumption we are hoping for.

00:11:26
Speaker 5: So how do you communicate this project but also in general with the local community? How did they find out about your concept. Do you do commercial for example?

00:11:38
Speaker 1: Zero marketing and mostly spontaneous media, because in Brazil we got like we wanted the right with the right timing. So when we started to operate in the favelas it was during the UPC program so the pacification program so everyone was excited about it being, about bringing technologies and solutions to the favelas. About capacity building about the integration from the favelas and bringing people from the asphalt to buildings. And we are kind of checking on those trending topics. So thanks to them everyone was excited to know what's going on with Insolar. So the positive side effect was that we have a lot of materials that we use about Insolar that we haven't invested a cent on those materials. So for instance - im not sure if I shared that with Thilo - we have some very good clipping with some videos and things so people learn about that. There is a lot of things now about Insolar two documentaries were developed right in the moment when Brazil said OK we need to have more local content for the television. So they filmed the project. And since there is not that much local content they keep playing that over and over. So two years later people still say: "I just watched your documentary." Oh my God that's changed and everything changed since then actually. But anyway, It's promoting Insolar for free and even making that bigger than it is like everyone thinks: Oh Insolar is all around. Can you sponsor our community like you know they think we are like shells or something.

00:13:24
Speaker 2: How do you communicate the changes? You said there has been a lot of change in the last three to four years in the project.

00:13:32
Speaker 1: Not very well. But wee just hoped that through the media as it was publishing new things and people were catching up with that media they kind of would know what we are doing. But if they just get like random videos they have no clue and understand like nothing.

00:13:50
Speaker 2: Ho is that with the new projects like for example the blackout preventing system?

00:13:52
Speaker 1: Well, we haven't publicized it yet. And we are kind of waiting for the project to start, with "A" to publicize it so that e benefit from that and also out of respect for them.

00:14:05
Speaker 2: Because I thought it could cannibalize each other a little bit maybe?

00:14:11
Speaker 1: Can you explain how you mean that.

00:14:14
Speaker 2: I was thinking when I would be living in the Favela and having installed or getting installed solar panels you know and you told me that would be the best option to get energy. Okay. And then I would actually just want to see the project and then like one or two years later the same company that sold me the best solution comes up with a new project and sells this to the other people that dont have the solar panels. Is there a conflict?

00:14:41
Speaker 1: Well, that is an interesting point because the solar panels they actually don't work during blackouts. Yeah yeah. Because they could if you have the batteries but the technology we are supporting is the one connected to the grid and because we realized that in implementing the technology a solar technology with batteries to make the whole house work during the blackouts would be super expensive and maybe the blackout you just need to serve for one hour of lights. You know. I think it's OK to stay like one hour in blackout. We all do that and we are kind of used to it, to survive two hours with no electricity. Unless you have like an ice cream shop or if you maybe own a hospital and you are in need for the technology. So the solar panels are for reducing the energy bills and that's it. And the "Fata Louis" is specifically for blackouts.

00:15:52
Speaker 3: I have a question. Wouldn't it theoretically be possible at some point to disconnect the main grid from the Favela grid in terms of when there's a blackout in order to have the solar power directed to the local grid. Because I mean you can demand switches right. So if the main grid falls down couldn't you in some way at some point find a storage solution for these solar panels that then powers only the favela. So that if the main switch goes off you kind of you know switch the power grids off and go to the local grid. Wouldn't that at some point in the future be an idea?

00:16:35
Speaker 1: Technologically that works. Maybe the challenge that we just have to think about is the business model. Because the price to make sure that, for instance let's take the whole city of Rio de Janeiro, the price to have a backup system for the whole city to operate during blackouts. It would be very very high. If you take that to the community if it's a small community it works, but their financials would probably go against us. So what we realized that when there is a blackout. What is the minimum the minimal energy people need. We just need to not fall in the stairs. So we need the light and one USB plug so we can be in touch with our families or we can still be selling. Yeah. And in addition to that the solar panels generate the energy during the day and the blackouts are mostly a problem during the night. Yes. So yeah maybe it's not the best backup solution the better backup would be the battery. And by the way you can recharge that with solar panels. But that's why we put it up on "Mirabolebi" and dont launch it with Insolar because we can't have solar as an option and

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because it has nothing to do with solar cells. Thats part of "Mirabolebi" and the circular economy.

00:17:55
Speaker 3: Yes I was just was just wondering if that would be an option i general.

00:17:59
Speaker 1: It would if there was a business model that works and then we just need to understand: Do people really need to have fully operational electricity equipment or not. And maybe they're just going to loose the washing machine and the television one day. So are they ready to pay for that. A hospital probably would, an ice cream entrepreneur would and maybe a bakery too. But maybe not everyone. Yeah that's true. Yes. But we just need to work in the financials. You know who's going to pay.

00:18:38
Speaker 2: But also the problem. Like the energy coming from the grid isnt centralised. I mean if they take the energy as a backup you would need to centralize it to one line and then you have your emergency system which operates when the grid is down. Or alternatively you would at least need to decentralize the community.

00:19:07
Speaker 1: I'm sure that technically it's possible now. Yeah. But the challenge is: What is the benefit for the community. Do they value that enough to pay for that or someone else have to sponsor and we are trying to get away a little bit from the sponsoring project because they just; the money is finished and it's gone and who is going to maintain that system.

00:19:31
Speaker 2: Maybe since we meet you here today for the first time: I mean you've talked a lot about expenses etc.. We did not talk yet about your business in general and I was not there to the conference (TSL 2018). What I would like to understand. Now you've talked about "Faita Louis" and Mirabolebi. You started with solar panels in the communities and are planing now more privatization. And those are just some pillars of the business. What are others just to understand what are you actually all doing.

00:20:05
Speaker 1: OK. Yeah we have "Colaboracao" that's a platform. Colaboracao that is a platform to connect the people we train in the communities with the people who wants to install solar panels and the companies who needs the technicians to do the installations.

00:20:32
Speaker 2: And you launched this already?

00:20:35
Speaker 1: Well we already had the Google start. But let's say we still need to fix something. And then we realized that we need to finalize a business model because we kind of did it before the business model because we just knew it makes sense for us. But and then to present the business model to as many investors as possible. Well yeah it took some time to scale up everything we are doing because we started as a social business "..." based which is not very friendly to investors because they get no money back. So we are now shifting a little bit to say: okay Insolar can still continue to be a social business but Colaboracao is a revenue business and the sun umbrella is a regular business. So we can open up to investors.

Speaker 2: I thought it was really interesting like the way how it worked. You started as a social project to actually see what's going on and to see what is the demand like and what resources do I have. Then you actually shifted to make these resources available. I mean you kind of observed them in the beginning and then you made it more in an economic way. So, in the end it is more sustainable, I guess.

00:21:51

Speaker 1: Yes. As you said it was good to have this strategy because we gained credibility from the community and a good reputation. Free media coverage with partners. So now everyone from the solar sector knows a little bit about Insolar and so that was a good thing. But as you said if you don't work on and invest more time in the business model and in the the financing and where the money is coming from you evolve but it's difficult to exponentially expand the business. So what we realize is that our time was a gap, was a a a gap like a problem, as a we believe we couldnt have been all around Brazil to do the Insolar installations because firstly it wouldn't be financially feasible. Like we cannot do a solid study in marketing and the northern part of Brazil is very far away like 8 to 10 hours flight and only the logistic costs wouldn't make it work. So what we envision with collaboracao is that we don't really mind doing these installations ourselves. We just want them to be done in any way. And so if there is a company in "Acri" which is capable of doing this solar installation and if there is someone properly trained to do this installation and if there is someone willing to buy the installations we just want to be the HUB. We do want to go there and do installations. So as a HUB we have enough information to make sure that we support the market. But we don't need to be personally there and that's the only way we envision it and how we can really democratize the access to solar energy in Brazil. And that's why our strategy changed from step by step like our final project has now one specific goal which is totally different from the community project which is totally different from the scale up and it's totally different from the bringing it on an international level. No way we can do that without the platform and unless we have like a franchise model of this kind. We'll take time to evolve it until it works for us. So at the moment its ok maybe for Brazil but not for internationalization. Sothe Colabaracao it's key for us to expand. And in addition to that we realize that it's not sustainable to have one project here another project there another project. If the project doesn't leave a legacy for Insolar, not just media reputation. So, every project we are doing, even final projects, at the end we'll bring and asset to insolar. So "Fata Louis" we are launching that with "Anal". But in the end we have a nice product that we can also pack it in a box put in other regions. We train the people to do the solar installation and we create a community training with the technology. We are developing educational material for Fata Louis and as much as we can get away from Fata Louis the community can gain an ownership of the technology. They can themselfs develop the technology further, develop other technologies and we just move to the next one (Favela) or we can just supply them the small pieces or put it in a box in and sell it to retails or sell it as a franchise. The model that we are selling to "Anal" is more like a franchise thing. So we're training people and give them material and they do everything.

00:25:19

Speaker 3: And you still call yourself a social startup then in the long run?

00:25:28

Speaker 1: A social impact startup, yes. A socially startup as long as it's scalable and I don't mind changing the label if we are still socially driven which is in our DNA. So that's not my concern. And the more, the more we can make money ore the more we can be sustainable

with colaboracao with the sun umbrella. The sun umbrella has a lot of environmental impact. We are using eco friendly plastic for the pieces. We have solar panel in the umbrella. As long as we keep that in ey. For instance the sun umbrella is more like a way to make money to support the other initiatives then a social initiative itself. The "Fata Louis" is like a hybrid. It's from one side very social, because you cannot just buy the panel from shell, but you need to hire someone from your community to do this installation. So it's a hybrid. And for the solar communities we are considering, we are now charging the people. If that model works well, which we think it will, it's not a very profitable business but it's profitable enough to be self sustainable. That's why we were considering. Just because it's the best way to move forward because. I would prefer to be a social business. No dividends, but we get no investors. So we have to rely on sponsors or maybe a few NGOs.

00:26:53
Speaker 2: And that reduces the social impact?

00:26:54
Speaker 1: Yes, that reduces the social impact. What we are talking about with someone like Germany or other countries, especially the European countries, they have money, big money for investing in developing countries like the prosperity fund. So we are dialoguing with them to say: OK. Can we scale that up. With your funds instead of doing a one million dollar project, a 10 million dollar project or 100 million dollar project. If that can goe forever I don't mind if it's an NGO. As long as the beneficiaries pay a little bit, because that's good for empowerment we don't empower anything just giving for free. But the business model it's not my concern. It's like our strategy is whatever works, like football what is their strategy is whatever works. Whatever works, whatever is exponential whatever impacts more people.

00:27:52
Speaker 2: The thing is that I can imagine from what I know from german social startups: I mean I think the market is just super different and how you can finance it too. But you're kind of in a box with beeing a social startup. But you would probably like to get out there and do you communicate that with your different stakeholders like open? Or do you just try it out in your different projects?

00:28:16
Speaker 1: Well, that's interesting because we are actually in three boxes. Because when you go to a favela and you promote all the media coverage or say OK Insolar is a social business everyone was seeing us as an NGO. And in the beginning we were mostly an NGO because we were doing installations for free, training for free and then other stakeholders see us as a business. So they looked to us okay how can we invest in Insolar how can we scale that up and how can we benefit other industries. And we didnt feel very excited about doing like regular solar installations in other parts of the city also because we didn't see that much impact as in the community. And also if you are in this social impact box in Brazil maybe in Germany it's more evolved the concept. Yes but in Brazil it's very new. So people don't know the difference between a social business or a social impact driven business. So the concept just to give an example Insolar and other startups we're actually working together to develop the concept. So there was no concept. So in addition to running the business the social business we're building the concept that the social business was based on. So it has a bigger energy effort. So we were in the three boxes. And when we are in the right boxes that is OK. Like if you're talking to someone of "Petrobais" for instance and they see us in the right box its good. When they see us in a different box we have some energy to explain.

00:29:50
Speaker 2: What was the third box again?

00:29:55
Speaker 1: So, one is the NGO, one is the business and the third one is the social business. Actually, there was like four because you have the like a regular business. I just want to make money and happen to be in a Favela. There is a hundred percent NGO and then you have the social business. There are rules to this concept which is that no dividends and yes hybrid it has the social impact driven business which is closer to the business because it operates as a business but has a lot of KPIs which are social KPIs. So interesting to know that our first meeting with a company was "Petrobais" the national fossil fuel company and then they said that we really like Insolar but we cannot support you because you are not an NGO. Yes, because they have to support NGOs. And then we started as a limited company. Now we have the NGO. But at the beginning they said: we cannot support your project if you are charging the residents. And we didnt envision the model not charging. If you're not charging there's no empowerment. It's not sustainable. You will eventually run out of money. So how can you reach the whole country. Africa, South America this is very unlikely.

00:31:18
Speaker 2: Is this clear for everyone? Because it wasn't clear for me until two years ago. What's the social impact driven business. So the idea is that there is a market and there is demand. Because what happens to NGOs - and I think it's really a great Problem - is that they are always dependent on donations and if they don't get donations anymore they will not function anymore. And if you create products which have a market, which create demand and then it's of caurse a better solution but you always need to be really carefull that you still have a social cause if you communicate that. Because otherwise reputation trust and credibility goes away.

00:32:12
Speaker 1: And that's not very clear. That's why the social business we have chosen the social business for many reasons but one of the reasons that okay if we have no dividends that's a very clear constraint to say OK. Me and Michele my business partner at the beginning we can have a salary but we have no dividend. So everyone you know is okay with that. We are still a social business. When you are a social impact driven business it's not clear you know like maybe we can charge a little more but then people are going to have less money. Again it's not clear and you need to be very clear about what you are doing and you need to be able to prove that you keep up to your KPIs. And so it's kind of in the clouds.

00:33:02
Speaker 2: Do you communicate that transparent to everyone that you only pay yourself and don't share dividends to yourself?

00:33:09
Speaker 1: Only in media. Actually on the website because its a requirement from "transblock? connect" and "transblock connect" is the "Tompson Helters" organization for probonus lawyers. So since they are doing a probonus support for us and everything we have done since the beginning was for free like the best lawyers organized the entity the NGO, Colabaracao, Mirabolebi everything for free. So as a consequence which just makes total sense they once in a while they ask us: Are you still commited to invest more than 50 percent in social impact? In the beginning it was not a problem because OK its 100 percent. In our websites if you look at the english version you have: OK, we are committed we are a social

business so 100 percent of the dividend. So as long as we can indicate that as long as it's more than 50 percent but it's currently the institute, we have the Insolar limited and the Insolar institute. And Insolar institute owns 95 percent of Insolar. I have 5 percent. Insolar institute have 95. So that makes people more comfortable because, okay even if you make lots of money 95 percent of it goes to the Institute that has a a board. For instance if I get zero money from the Institute and I have no salary if I eventually I do have a salary the board has to approve. So it has some kind of a good governance. Because someone has to approve I cannot get the money just like that. But even if I dont want I can still make money out of it. So that's why we need to have a lot of consulting because even if I have 5 percent of the limited company I can still have 100 percent of the dividends. So that's one thing we are working on. But since I'm the only person that knows about that and the only person that would never do that its ok. But that's the only way I could eventually.. but anyway all the financial information goes to our financial board as well. We have the strategic board and a financial board. And the financial board is doing what it is supposed to do. And all the other lines of business Colabaracao, Mirabolebei etc. are not yet attached to that legal structure so they can have a totally different legal structure which is our goal. And then we will realize it's going to be 50 percent investors 50 percent Insolar limited or 50 percent investors 50 percent the Institute. But personally all of the money I make I invest in Insolar and Colabaracao and Mirabolebi. So this doesn't make much difference but for everyone else who is watching the documents and reading the documents maybe they ask. They never asked but maybe they want to make sure that I'm really committed.

00:36:02
Speaker 2: And are you in contact with any other social impact startups that are in the same situation as you that now have to switch their business model.

00:36:18
Speaker 1: Yes, I am. Well there are many different types of organizations but there are two main ones. The first one is the NGO or shifting to the model that I was mentioning. That's: OK, we realized that we don't get that much money from sponsors. We need to survive by ourselves. So they are shifting from NGO to social business. Some of them already had a social business model but they didn't know that that was called social business. So it's easier for them and others are more like a business shifting to social. So in the beginning it was like either zero or one. Now there is like zero point two zero point five. You know like some of them are somewhere in between the different modes, some of them are a littl bit lost and some of them already found their box. The good news is that we are in many boxes so that's why it's easier for us to have a good relationship with the stakeholders, because for the sponsor "Anal" we need their technology but they only support NGOs. So we can come and say ok here we are a NGO. Another stakeholder might be like: we love your idea but we don't support NGOs we only support social business. So we can say ok here in this area we are a social business, okay like just choose whatever you want. Yes yes it's helped but on the other side you have more costs. Yeah because we need to have two accountabilities to maintain two structures. But I think its worth it. We are just able to do the project with "Anual" because we have the NGO and we are just able to be supported by investors in the near future because of the social business. We are being supported not yet by investors but by accelerators. And eventually like endeavor can get started and Livewire they support different lines of business from Insolar and they make our business model and help us reach these investors.

00:38:05
Speaker 2: I think it's a very good decision because I've worked for a social startup. But we are a full profit entity in Germany a GmbH which is not a paradox because social impact

driven means for us social profit is full profit. So every time we sell a product we do something good. Let's say that's the idea. But we had no NGO entity nothing at all. So a lot of companies wanted to work with us. But we didn't find any solutions. And like the big ones like SAP, UBS like they would have easily paid probably a hundred thousand euros to us and we were not able to find a solution then we tried to do collaborations with other NGOs like for example SOS children's. But what happens is that then they want all the money. For example if we would havehad a deal about let's say 10.000 euros then SoS would like to have on top of that thirty thousand euros. That's difficult then.

00:39:27
Speaker 1: That brings a new challenge then to find the best partner for that project and then in the beginning we considered "Citaoi" that was one of our first sponsors for the pilot project and one of the director from "citaoi" was in the Insolar institute and he's one of the board members. Gustavo, he is actually a good person to talk with if you have the chance. He's a specialist in Redbones so maybe that's the closest we get to the financial interest from Thilo. Also the "caisha" people might be interesting. The "caisha" team will be there other people not. Even the guys responsible, who were in charge of catching up with Insolar and seeing if the project is going well will be there.

00:40:17
Speaker 2: "Caisha" is this kind of social bank right? And do they have like an department for sustainable projects?

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Speaker 1: It's even more than a department because they have a social environmental fund. Yeah.

00:40:36
Speaker 2: What's the name of the person in charge of this fund of "Caisha".

00:40:42
Speaker 1: Well Caisha has this kind of obligation to invest a portion of its profit into whatever social project especially because they are a public bank. So they have the responsibility of a business company and the responsibility of a public company. And that money they say: okay, now we're going to support solar and hydro projects. So we presented to them the Insolar project and they approved of that. So their money is acting like a financial partner. They are more like a sponsor for social projects. But we're told that OK, what we are going to do is that you're going to get our money. Do all we have to do. But you're going to charge the clients and then we get that money and do more with less money. Since we have the money for free we decided to charge them like a percentage of whatever they say. Yeah because if whatever they take is less than whatever they benefit everyone is interested. And then we are the bank.

00:42:11
Speaker 1: "Sitaoi" for example. They are actually very big now. They now have a platform where you can say OK I'm a social business. I want to lend money and then every one of us can invest. So it's kind of a plattform for finance. It's a it's kind of a crowd funding. But usually when the crowd funding you've got no money back. So it's more like a crowd lending and it's also it's a return of investment. Yes yes. Even the crowd aspect I am not 100 percent sure because it's usually a few big investors investing in a few social startups. So its like a group its kind of a group lending.

Speaker 2: Can I maybe ask a topic not related to the business. It's more about the social side. So you talked about social KPIs and that you measure them. What are those?

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Speaker 1: We have the social one, the economical and the environmental. The easiest to measure is the environmental KPIs, because the whole solar system itself measures that for us. And we also have an app, so this is the easiest one. More difficult is the social one to measure as an KPI. To train people and to offer them 100 hours of training doesn't necessarily improve their lives even though it's the most used KPI. OK, we train people in the communities lets say a thousand people maybe we train them in the industry four point zero and they have no opportunity in that business. So they just lost their time and the money that they put in the training they could be making money now. So we realized that OK. We are OK about those KPIs but there are they really benefitting the communities as well. So yes, If they know how to use that knowledge. So now actually we are gonna make another project we're going to have another startup. It's called a CV workshop. And people are going to learn how to write a good resume. So, what we are doing is okay let's go back to the people that Insolar trained and let's see how well they benefited from Insolar. Let's put that in a paper make it look nice. So they have a much better chance of finding a job. Yeah. Because maybe there, some of them like Leo has his own business for five certificates from "Samai" which is the best educational company for that technical people. He had attended more than 10 or 20 trainiee solar installations. He's like a reference he has done some lectures about solar energy but maybe if he doesn't have a good resume no one cares like. If it is one example from Leo who attended the 24 hours of a reality show. It is an american broadcasting called the Climate Reality Project. Every year it has a 24 hours for a candidate not for a guest that when the sun is over Brazil they present Brazil when the sun is over you they present Germany. So Leo was broadcast to the whole country talking about his experience. It needs to be in his resume. So what's this new project is doing is they say: ok, Leo. You have all the certificates but maybe you should write in your certificate that you presented your history in front of one million people. So that's one gap that we realized. That they were very skillful but they were not aware of how to sell that. So that's why you're talking about the keep KPIs. There is the training KPI. And what's the gap that KPI has to really change their lifes. So that's this is the good work. Yes.

00:47:16

Speaker 2: Maybe to add like a German theory regarding the KPIs. Bertelsmann foundation developed a model which is calles IOOI. Input, Output, Outcome and Impact. So in the case of the KPI which you just mentioned input would be how much the cost is to train and output would be how many were trained the outcome would be how much did they install an impact is how much the cpeople save in money how was their life quality affected and did it lead to I don't know more education or basically enviromental benefits.

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Speaker 3: Yeah I'm just looking on the clock as well. Is there any time when you need to leave? Also I would say in order to stay focused I think more than two and a half hours are like maximum. So I'd say maybe we take one more hour maximum and then have lunch together. So I think what was still missing is our presentation. OK. What we have to realize. Yeah. And then going over the agenda as we said in the beginning and then maybe we take five or ten more minutes to close this like brainstorming and get to know you. I mean it's also very important to get to know you. And maybe one remark I still have I know I basically

understood your project. To sum it up five projects im counting. Insolar, Mirabolebi, solar umbrella, Colabaracao, Fata Louis.

00:50:01
Speaker 1: Yeah. It used to be 14 but we reduced.

00:50:09
Speaker 2: As my research topic will be on transcultural competence and transcultural leadership and what I realized working in a startup is: I really like the 80 20 rule so 80 percent of your time on 20 percent of your task. Because usually out of my experience i am then more effective. And could you say: what are you like actually working on for example let's say over the last three months. Because I cannot imagine that you work on all five project all the time.

00:50:49
Speaker 1: It's about 80 percent Insolar communities. 80 percent sun umbrella. Please dont do the math. Thats a challenge for us. Because im personally very engaged in all the projects. So what I do is that for Insolar communities I try to stay as much away as possible. So thats why I mentioned that with Insolar communities im actually not in the project. We just have a whatsapp group so I know whats going on. And I comment like: Oh I think thats a good way to go. And then I just hope that this requires less and less of my time. And the we have this collabaoration with the plastic company for the solar umbrellas. That is helping us to improve the technology with the ecological plastic. This is 100 percent myself. But as long as it is on track we can bring other people to the boat.

Zweiter Teil:

00:00:00
Speaker 1: I can be away. And then in two months we start "Fata Louis" (solar panels paid by citizens). So, for "fata Louis" we have at least four people engaged in the project. So, I think it's going to consume less and less percent of my time and then the sun umbrellas still require a lot of my time. But as it goes further, we can bring Hernat into the boat. So, it's kind of you know so I'm trying to escape from your question anyway.

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Speaker 1: It's really more like 80 percent community 80 percent. I know that the math doesn't make sense. But on a day by day basis it's because today there's nothing I can do about (name of the solar funding project) because well we've already sent all the documents and all the information. There's nothing more we can do today for the families. we can only improve the process but thats it since we only just have started in January.

00:00:55
Speaker 1: Sometimes I have a conflict since I have to choose between diferent opportunities that take place at the same time. An example: An important part of my work is the endeavor for cooperation with CPFL. CPFL is a major energy distribution company from Brazil and they were bought by state grid cooperation of china which is the largest energy utility company in the world. So, with CPFL we have endeavours supporting us with the business model and also in cooperation with CPFL we've been sort of developing a pilot project for this cable. In Sao Paulo its "Hintessa?", which is another (axcelleration) consulting company together with "Brasgain" the plastic company and dialoging with "FIRJAN" for the solar umrella box to put in the shelves. So sometimes the meetings go one over the other. So that's

when I have to choose. So, I already have lost one meeting with "FIRJAN" before and already lost one meeting with "Brasgain" thanks to the fact that I cannot be in two places at the same time. Yeah, it's a little challenge but as long as we have the company operational, we can hire more people and we can have endless volunteers for the Institute. But then we realized that even for the volunteers we need to hire someone to be together with the volunteers. Otherwise we can't give the proper feedback and training. So, what we are doing in addition to that is collaborating with other startups or other organizations. For Santa Marta for instance we needed to bring the SDGs to the project to say: OK what we are doing here is much bigger than the project. So, we brought the U.N. teams in and asked: UN can you do a few PowerPoint presentations and workshops about the SDGs and we explained that everything we're doing here contributes to one of the SDGs. So, the project Insolar in Santa Marta especially fits to the SDGs 5, 7, 11 and 17. So we are collaborating to the extreme to make sure we're doing everything we can to bring people voluntarily to the project without consuming whatever time the families still have left. So that's why we not only liked to collaborate, but we really need the collaboration. One of the good things that by being a social business or social driven business it's easier to collaborate. Everyone wants to do something with Insolar. So, we just had to manage that.

00:03:37
Speaker 3: So, when you talk about the "we", whom do you mean and how many people really do work regularly for Insolar?

00:03:44
Speaker 1: Now the answer is a relative one: It can vary from 3 to 15. The core business is: myself as full time worker and part time "G" and "J". "G" is operational and "J" financial. They are at the University still so they can only do part time. For the solar umbrella we had "D" as design and plastic specialist. For the capacitation we have "I" and "R" from the military educational University. For the Insolar communities we have the residents themselves. So we have Leo who is taking care of installations. He is together with two engineers John and Richie from engineers without borders, that are also volunteers from Insolar. And Veronica and Saledgia the ambassadors of the project they are residents from Santa Marta. So, they are actually they are working in the project and for Insolar by accident. So, it is difficult to define, but it's mostly my project and a lot of people join by demand.

00:04:54
Speaker 2: Did you ever build like an organigramm of Insolar?

00:05:01
Speaker 4: I think that would be really helpful to understand how your team is working and where which stakeholder has an effect and where which person is kind of the leading position especially maybe for us as well really to find out whom we might want to talk to. And I think that might be really relevant for us. Maybe we could also develop one in cooperation with you?

00:05:59
Speaker 1: I think that might be very useful for you and for me. it's a good way to find out whats really going on. What we already have in terms of a map is more like a stakeholder overview. Well for example for Insolar communities we have cashia economica, shell and UN. For insolar city, we have Shell Foundation and Snyder. Or for Collobaracao we have ... . Or for solar umbrella we have "Brasgain" "FIRJAN". So it's more a list of stakeholders which is probably not updated. But to develope one for the team that's one thing to talk about which

would be very usefull for us as Insolar as well. And also, for whoever is in the business because it's not very formal yet because for instance "Hernat" he's paid by project. So sometimes he joined me in the Santa Marta meetings and he got nothing for that, but it's part of the solar panel project. Sometimes he helped me with the solar umbrella and he gets paid for that because we just ran the sun umbrella so it's possible to pay our employees. So ,everyone is a little bit like that like we have one engineer that is a volunteer another engineer that makes money with the commercial project.

00:07:22
Speaker 1: So it's something that we have been rethinking a lot. That's what I like doing. And that's something we expect to do with "Colaboracao" as well. We don't want to do the solar installations ourselves but through "Colaboracao". And we just help the solar companies and the communities and everyone to make it work because now we know how things work. You know who is who we know who is interested in what we have lots and lots of people that say: So we want to have our own solar panel. We just need to connect them. And that's why we strongly bet in the platform.

00:07:56
Speaker 1: But the point even though is that it still requires a business plan and all that and the investor because Insolar paid for the developments with our money but the development also requires someone to maintain to develop through the next version to develop the market or bring the marketing effort. So that's that's when we really realized we needed investors that we wouldn't be able to do that using our cash.

00:08:39
Speaker 2: Yeah yeah. I think it's I think it's okay what has come up and talk later on the more about leadership in your business case, right. And yeah and I think like you know the social acceptance in the communitie is more important for my paper. But we can discuss that another time.

00:09:02
Speaker 1: Yeah and you need to save some time for your presentation right.

00:09:05
Speaker 3: Yeah I'm actually I would I suggest five minutes brake. So then we will present. Oh yeah it's okay we'll finish off the schedule.

00:09:14
Speaker 1: Sounds good. Perfect very good coffee.

Interview (2):

Interview Partner: Henrique Drumond

Date / Location: 17.11.2019 / Friedrichshafen, Germany

Speaker 2: How did the Idea for the workshop evolve for the first time?

00:00:12
Speaker 1: I think it was very organic. From one side I always had the feeling that the solar energy needed to be contextualized in the local communities in the Favelas. Of course, we can bring that with workshops talking about Solar energy but for me it was even more important than that. You know we are talking about a technology that lasts for 25 years. So, how do people from the community invision their lives in 25 years. Do they see themselves in the Favela? How will the Favela look like? Whats their vision for the future? So, I didn't want to promote something that is so long-term without matching the technology somehow with their vision of the future of the Favela. So, the first Idea was to have this collective vision of the future and trying to match that with Insolars approach. This in addition to the survey research we do with the residents. We asked them what are their dream? And something else related to like dreams and expectations on the future so we can also match that to Insolas concepts.

00:01:34
Speaker 2: So, this survey and the workshop where also connected to the launch of the third step of Insolar at the Multi-Stakeholder-Dialog? So, the aim was also to find out: does it make sense to start a longterm relationship with the residents of the Favela? Which would then fit to Prof. Wielands theory who figured out long term relationships as one of the core incentives for organizations.

00:02:07
Speaker 1: In addition to what you said, which yes is one of the main reasons, we also wanted to understand as people safe money with reduced energy consumption: where that money is going to. Are they just going to have more electric devices and like keep the same energy bill? Are they going to invest in education, in better food you know, I don't know. So, in addition to that we have Insolar fund that we are launching together with the Caisha Economica project. So, what should that fund be used for? Because originally the idea was to get that money to do more Installations. But for instance if all the people in Santa Marta answered that their dream is something different it doesn't make sense for us to bet in something that is just good for Insolar and not good for them. So it's kind of a constant exchange and dialog you know.

00:03:09
Speaker 2: And if something else would come out of this survey or workshop would you have considered to completely change your business idea?

00:03:18
Speaker 1: I would consider that as long as it is still scalable and sustainable. Because step by step, when I reflect myself, I realise that Insolar is less a Solar company but more a technology to the people company. For us its more important to provide the technology, the opportunity, the capacitation, the information, the network, the collaboration, the integration. Everything we can provide alongside of providing 2 meters of solar panels. Maybe they need something different. We cannot shift from water to wine. But we can do some adaptations and we have done that for a while. And for last but not least we also are launching the platform "Colabarasol" and the platform is very open. So, coming back to Prof. Wieland: What is the stakeholders willingsness to be together in a platform? First thing. And if they are willing to collaborate: through the platform what kind of interactions do they look for? So, of course we already have some kind of idea about that because we have been cooperating for a while but we need to kind of validate that. And for a personal reason as well: It is simply important for

me to know what the residents vision for the future is. Is what we are doing really relevant for them? Of course, there is the economic maths that simply makes sense but what about their inner purpose their inner dreams? How are we collaborating.

00:05:10
Speaker 2: Because only then the community can really strive. If they have the feeling that they are putting their own dreams into reality and not yours?

00:05:19
Speaker 1: Yes, and our final goal is not to install solar panels or to train people, but it is to help and more then help to work together with the community so that they can prosper. But how can Insolar tell them how they should prosper if we don't know what prosperity is to them. I have my personal vision which is probably related to my personal experience to my learnings you know. Of course, I have some empathy, but I don't think its enough to find out what they picture for the future.

00:05:53
Speaker 2: So, actually you really are trying to get to the point where the local residents share their local knowledge and their local ideas with you?

00:05:53
Speaker 1: Yes, exactly their local knowledge and their local dreams and constructive ideas but also their fears and desires. Maybe that's what I think would be the best for them to become engineers themselves and get a good salary. But maybe they want to become entrepreneurs or they just want to reject all those careers and want to just learn a little bit of everything to get things done and be more generalists. I mean I do have some feelings about that but to be scientific you need to make the research and statistics and everything and that's an important input for us.

00:06:39
Speaker 2: Ok, and coming back to the workshop: How was the structure of the workshop and what exactly where the program points on that day?

00:06:54
Speaker 1: So, as an attendee and not the organizer I really liked the way she addressed the SDGs. And she used the SDGs to connect to local issues. So, Beatrize sepperated the people into little groups and each group learned a bit about one specific SDGs. And they themselves could choose in a democratic decision which SDGs they wanted to deal with. By doing that they took something that is global and filled that global SDG with their local situation, problems and desires. So I think that was a nice link between local and global and also they had the opportunity to present and debate about the different findings ideas etc. So they really enjoyed the opportunity to express themselves. So I think it will be important to have a follow up which goes even deeper in the creative part, but already the fact that the locals could express themselves and that they got aware that their personal problems could be linked to those global goals was the success of this workshop. To see the link to those global goals made them feel important and when you feel important you are empowered. And if you feel empowered regardless of the outcome of the workshop this has a reflection on your daily life.

00:08:28
Speaker 2: So, through that the "real" outcome doesn't matter that much anymore because already the empowerment has some real effects?

00:08:33

Speaker 1: Exactly! I mean of course I want to have the best and most productive outcome possible but the outcome of the multi-stakeholder dialog to me already was very good. The participants stayed until the end. They expressed themselves they organized their thoughts.

00:08:39

Speaker 2: And it reminds me of the multi-stakeholder-dialog where we attended as observers last September, where you launched the new stage of your project. Also, every single person in the room got a voice in this meeting. And then you felt like the mood in the room became a group mood and you could feel a community spirit.

00:09:16

Speaker 1: Its, great that you say that because I was too busy organizing the event. I didn't have any time to observe. But yes, that's what I believe is important in such an event it is the empowerment of the people. And, of course it doesn't come without a reason that our project is called Insolar – empowering solar communities. And empowering means not only in the dimension of solar energy but also the human energy.

00:09:30

Speaker 2: Yes, one could feel that. I especially remember one moment where one resident actually wanted to say something but he was to shy to speak up in front of everyone. But then everyone in the room encouraged him to speak up for himself so eventually he did.

00:09:55

Speaker 1: Yes, I really like to heare your insights because as an outsider your attention was on different things than my attention as the organizer. Its, nice you practice your empathy well. ,

00:10:45

Speaker 2: Do you remember any other concrete results out of the workshop?

00:10:55

Speaker 1: So, of course we hope to have more results the next time. But it is kind of a trade of. We can go in that direction but to narrow that down takes us to far away from what we originally do. So, we would need volunteers and special budget for that. But we have been talking to Beatrize (architect / urban planner) and to the volunteers to see how we can move forward with that and we might have some news on that in the coming weeks.

00:11:03

Speaker 2: So, one other question would be what tools you used in the process of the workshop? But I believe you already mentioned that as it was the first workshop you decided for a more theoretical approach and next time you are planning to use more handcraft tools to really enable the creativity.

00:11:11

Speaker 1: So, yes for this time it was mainly talking about the SDGs, a group discussion and an invitation to the people to present themselves for the first time. But there was a lot of handcraft material as well for people to build their vison in a very tangible way. So, for example some people expressed their wish to install a pharmacy in the community or other services like a shop for fruits etc. Others build a hole roof of solar panels that they wanted the community to share. Through the material things they expressed the unmaterial things and

wishes and dreams and visions. So for example it bcame clear to us that they wished for a community HUB.

00:12:09

Speaker 2: Yeah, I remember Sheila saying that it would be important for the community to develop a meeting point for young people as well where they can meet freely and have like a space to hang out basically and exchange their experiences and learn from one other.

00:12:25

Speaker 1: Yes, and there actually would exist a good place for that. At the entrance of Santa Marta there is like a parking place that's actually a commercial place, but eventually if the community gets the sponsorship – and that already happened in other communities – the hole place could be like a HUB for innovation, education. Of course, Insolar cant do that by itself, but just by having the residents dreams tangible we know that that might help and that that might happen.

00:13:00

Speaker 2: And then you as Insolar would take the information that you gained from the workshop and go to the responsible people with it to say: We know out of this and that reason that this HUB is the majorities wish in the community.

00:13:00

Speaker 1: Yes, we actually also invited the responsible people to the workshop. They were not able to come this time, but they said: you know maybe a first step would be to install solar panels on our space, so that we develop some kind of connection to the community. So they are kind of open, but we know that they have this business approach, which might make sense. We just will have to invest some energy on that for us thats a challenge because we have so many things going on at the same time. But that's why its so important for us to have the network, so we might have some volunteers, who can follow up the connection with these guys. We have engineers that can install as a first step the solar panels. So we are checking what is the best way to go without compromising our core activity.

00:14:04

Speaker 2: Regarding Leadership: What style of leadership was practiced during the workshop?

00:14:20

Speaker 1: I think that Beatrize (architect / urban planner) has a very good quality. That she is leading, but horizontally. So of course, it is obvious that she has more knowledge and she is leading the workshop, but at the same time she is including everyone and inviting everyone on the stage to express their ideas and insights. And that proves that leadership actually is about empowering the others to express their talents their dreams etc. and not a top-down approach. So, at the beginning she was standing in front of everyone to give an introduction. But that was more out of practical reasons. She had a power-point and needed to explain some stuff. You know that a person is a good leader if the others working on the same project are not constrained to express their opinion. And that's something I am peronally very aware of and that im trying to practice myself. Not to create that distance between myself and whoever else is in the team and that's a constant learning. And she was good in that and so we have been talking. Maybe she can also help us in other initiatives and with other projects. Because that's the profile of leaders that we need for our team. They lead, they get things done, but they don't do a vertical top-down approach. This is especially important for the Favelas, because they are very used to receiving projects and instructions and whatever top-down. So,

in the Favela that really doesn't work because it creates some kind of dependency. Ok, we allow you to come to our Favela and bring whatever solution you have, implement that here you don't train anyone, but we don't see you in the same way as another organization that creates solutions together with us. So there is a difference between working together and working for. If they see they are working for Insolar, Insolar is like a father, there is this paternalism that Insolar is providing the community. And that's what we don't want to be. We want to be just another stakeholder, a partner that is benefitting the community and on the other hand we are benefitting from the community as well. And as much as we can we want to balance that cooperation.

00:17:20
Speaker 2: Well, that already very much reminds me of the concept of a community of practice and that through working together you really can enfoster the community. Do you think a workshop like that delivers the ground for a community of practice? And that the people if they are involved in the planning process they feel like they become a part of a community of practice.

00:18:02
Speaker 1: Totally, and at the same time it requires from Insolar, since we organize the event, we have to practice some kind of leadership. But it's important for us to see how much we can contribute without being in charge of that community of practice. For instance, now we are in 15 different communities in 3 different cities. Its unfeasible for us to manage these communities of practice and I don't think that that's the point of managing. But if we are able to create that first ignition in the Favela that people understand that what they think is important, that their challenges are solvable are addressable if they cooperate and they find the energy to move forward, I consider the job done. Even if we haven't solved things, but if they keep that going. Maybe Colabarasol can help with that maybe not. Or other stakeholders or just the local NGOs can articulate. But something that we are really eager on to happen, but we also have to run the business. So, in order to keep the business going we cannot be in charge of that. And in order for the community to be really empowered we cannot have a stronger participation in this community of practice than the locals. So that's quite a challenge.

00:19:30
Speaker 2: That's interesting. So now you already answered me what the role of Insolar is in the community. But to be more concrete: What is the role of Insolar in the workshop itself?

00:19:47
Speaker 1: Well we (Insolar) organized the workshop. But Beatrize (Architect /urban planner) was in charge. Saleg and Veronica (local residents) were organizing the setup and the structure. Gabriel (Insolar ambassador / local resident) was a little bit more involved in the organization. The groups were like self-organized. Of course, there was like a role of Insolar for leading the workshop. So, we are leading but not ruling. So, we are leading in the sense that we are showing the way. Here this is the way: you are welcome to follow or create your own track. But this is what we propose. In that meaning you know. And a few years I was asked by a mentor: How do you see yourself and Insolar in 5 years? My spontaneous answer was to say: That Insolar does so well, that it doesn't need me anymore. I think that would be my ultimate goal. Of course, I don't envision myself away from Insolar but I envision myself in a changing role more in the background. Because if the whole process of empowerment works as we envision it my role would be very limited. People would take charge of the projects of Insolar and I can do other things. Either with Insolar or for the community in

general or transfer my energy to other communities, which is something we are already doing. Implement other technologies, scale up etc. My role has to be smaller and smaller on the micro-scale so I can take care of the macro-scale. And that's a very interesting challenge.

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Speaker 2: Well, that's a very interesting interpretation of the role of business for our society. To me it sounds like you are taking on challenges that usually would or should ley in the states responsibility. Because you know you are doing tasks that are not business but more governance.

00:22:07
Speaker 1: Well, I think you are right. Insolar is insofar a kind of Hybrid between a business and a NGO and government. And then by being in the Favela you know that you have to work together with whomever is available. If the government is not there you kind of have to find the right setup of stakeholders to get the job done. And then there is a lot of cooperation and dialogue. But I don't see another way. We are not the kind of organization that waits until things are the way we want them to be to get started. We just kind of take the opportunities that we find locally and then just start. And by doing that we learn a lot and new opportunities arise.

Interview (3):

Interview Partner: Representative of UN Habitat responsible for Santa Marta

Date / Location: 28.08.2019 / Rio de Janeiro, Brazil

00:00:05
UN Habitat : I hope this works.

00:00:12
Ben: Yes. Maybe the first question was more or less. Yes how did cooperation looks like between you As UN Habitat and insolar and so on. Okay.

00:00:25
UN Habitat : Yeah it's not usual. UN Habitat, we have a here in Rio the original office office for all Latin America and the Caribbean. It's here In rio. So that means that we are more reachable from local organizations, NGO´s the private sector, located in Rio. Because most of our activities are out of Rio. Let´s see, we have projects in Mexico, Argentina in Haiti along following the earthquake. But now for the last few years we have been quite active here in Rio but mostly through a partnership with the municipality of Rio. We did support them implementing mostly to three main projects all of them linked with the favelas with the (Territorio Socialecs?. When we like eight years ago we did start they had an initiative call. You must sell to big business out. Before then when the families were more quiet there was a specification? that's favelas. So we did support the municipality getting in the Favelas. And that lady who is from Santa Marta, she used to work for us five years, six years ago. She was one of our functionaire? working in Santa Marta. So we were present in 93 Favelas of Rio and meeting with citizens of those Favelas. Once those Favelas were pacified we were coming in

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and we were doing some participative meetings in order to set up with them. What was their priorities, the main challenge they are facing were facing. Following that we were facilitating coordination between municipal secretariat and different favelas because as you might know Brazil is quite decentralized so in municipality they are demanding a health education. Public works. So in 93 Favelas of Rio we set priorities and we did facilitate change with compromisal, commitment from different Secretariat in order to support different favelas. Following their pacification. So in some favelas we did it football, the library, schools health centers roads so we were facilitating this work. And nowadays or the last few months we have been supporting still them spread over Rio in a project calles Terrioreties sociales were. it's very interesting. Now we are in 8. I'm not sure that's 8 of the biggestFavela of rio video for example. Rocinha, Cidade de Deus, Complex Santa Mao, etc. And what we are doing. We have again contracted slum dwellers working with us. So we have 85 slum dwellers working with us. So they are going in all those big favelas and identifying the poorest of the poor within those Favelas. We think that there may be around 30000. Slum dwellers in Rio that do not have nothing. They do not have access to any services. They don't send their their kids at school. They don't go to health centers. They even don't have I.D. cards. They have nothing. They do not exist legally. So we think that there are around 30.000. So now, in the last four weeks. Now we are (unv). What we are identifying all those, mostly 30000 people and following that we do again facilitate their work with different segments of state. (unv) Saouch, Educacao (Portugese). Anyway, in order that they can get ID cards, It can happen CPF Number no and they can access to the health services and education. So this is the kind of activities we are doing in the Rio . So when Henrique came last year and he came with this idea of solar Panels It obviously is part of a mandate also. Also meet the more sustainable. So, as I said we don't have specific resources, but we did support in terms of advocacy, institutionally speaking and we did support some meetings with some banks and the administrative stuff. So, I am here today to acknowledge what he has been doing. And although we are not here in Rio and even In Latin America actually we don't have this kind of projects of solar energy local energy in neighborhoods. We do have this kind of projects in Africa, in India I think. But in South America most of our activities projects are related to urban planning, urban design, housing. Risk and Disaster, city level mitigation. What else. Water sanitation just a bit. This is what we´re doing

00:05:59
UN Habitat : And so you mostly promote meeting that henrique held with all the e stakeholders you attend them and then you motivate the stakeholders to come to one table. How would you define your role in that.

00:06:17
UN Habitat : We had a very very small role in this initiative. Let's saz. Absolutely. We were not fully involved. I have to acknowledge that we were more a moral partner. And doing advocacy within for him. And I'm sure he was using U.N. Habitat not global local but saying that he was being supported by a U.N. agency promoting sustainability so as to overall sustainability and. And or human settlements which is quite our mandate. But mostly that was that advocacy not technical advice. No funding for those solar panels

00:07:01
Thilo: But i would be interested is: How did the cooperation start. Did he write you or did you meet somewhere or?

00:07:11
UN Habitat : Oh that's a good question. You will have to answer. I don't know that. You

didn't contact me because we are like 20 in the office. Someone else in the office heard from him. I think he sent an email or he came to a meeting because we are part of many meetings telated to to Slum Upgrading or planing at neighborhood level. So I'm sure he did meet with one of my colleague and they fixed a meeting we had two meetings. We discussed about this idea and we as I told you we do. We don't have money to support, but obviously this fits within our mandate and we can sign an MOU? But an MOU there's no financial commitments. It's kind of spirit of cooperation. As long as its initiative fits within our mandate which is a sustainable urban development we said yeah we can go along together.

00:08:10
Jakob: Maybe also from kind of an outside perspective. You have you already know. Henrique and Insolar for some time. What do you think. What are some key factors of the success of insolar so far.

00:08:33
UN Habitat : I think the main factor to his success is Henrique own energy really. He is doing all the organization I would say although he is not alone obviously he is very active and proactive that help a lot in succeeding. Obviously, it's a question of personality. Above all I would say.

00:08:56
Jakob: And what do you value such a multi stakeholder meeting like we have it now. Do you think it leads to a lot of like new energies for the Favelas of the new urban development.

00:09:08
UN Habitat : I think I believe so hopefulle they are. I didn't check with them. Hopefully they did organize a good press coverage of these seven because the media have to talk about that. But that doesn't have any was your younger then I am. So you know that it's not only traditional media and through Facebook and Instagram they have to advertise the this event in order that other neighborhoods other communidades like here in Santa marta. wil hear about that. Will request this kind of support from this NGO or from others because there are other individuals in other organizations.

00:09:46
Ben: Absolutely. And what do you believe is necessary for social entrepreneurs or social ventures to be successful.

00:09:53
UN Habitat: Successful working in this kind of environment.

00:09:58
Ben: Ye

00:09:59
Ben: (...) Willingness to change things.Willing and capacity to gathering local leaders. It's very important. I don't know exactly how he operate that way but I'm talking to (unv). The capacity to gathering to mobilize local leaders is essential. working even are now, doing survey and meeting with the sensing everyone. If you don´t are not in touch in good relationship with local leaders. Things don't work. Thank you.

Intervie (4):

Interview Partner: Sheila, Insolar ambassador and resident of Santa Marta

                      Ben, Jakob, Philip and Yasi: research team transcultural caravan

Date / Location: 28.08.2019 / Rio de Janeiro, Brazil

00:00:14
Sheila: He was like just. What you need to understand is that it´s a very men environment. Because espescially for example solar panel electricity in a favela is much more like a mans stuff. And then they invited some girls to be part of the electricity course So we participate in the electricity course. That is the first stage before you start going to the solar panels. Because some of them will be connected You have to remove the electricity So it. (unv)I was part of this trainign. Me and the girls that were sitting here. .

00:00:40
Ben: And so what I would be really interested in you have some contact with Insolar, right. You already have contact. And I am looking at how social innovate as social venturers like social entrepreneurs can function in like Favelas for example. And what do you think is really important for those social businesse ventures to function. What do you think is important?

00:01:05
Sheila: I mean (unv) This is very important because most of the time if you look in a Favela environment companies come from outside. And normally we are not participating and taking decisions. Instead projects are already pre-done. They were already thought before they are coming to the Favela. So, most of the time when we are participating in a project, we didn´t have the possibility to think the project. I think this is the main thing. Yeah, I normally don´t participate because I want to be heard because if someone is doing a project in a favela, where I live, I want to be part of the decision. I don't want to be just someone that's like watching. Do you understand this? I think for me, this is the key.

00:01:54
Jakob: How do you know, that the decision what made you realize that you can also contribute and participate?

00:02:11
Sheila: Because, you know, also most of the time we feel that we are taking part in a project, but we are not the project itself. We are not really able to take basic decisions because then like. Oh men. (unv) Because experts say: we already have had this decision we already decided to go in this direction. And most of the time how do we know there's not much flexibility.

00:02:34
Philipp: So here it´s open?

00:02:40
Sheila: I am not talking about Insolar. What I'm trying to. What you need to understand for example. Insolar does solar panels this was a project coming from Henrique. Henrique is an outsider. right? And so, he was bringing a product here. What Henrique was trying to do, was

to connect all these people to the project of Insolar. Because what happened here. We don´t know how to use solar panels. We don´t have the knowledge, we don´t know about this technology, all these things. And Henrique had money. To run his project. Of course, so this is something very important. And he is very Careful, involving people from Santa Marta. I think this is something very important. Even if he´s an outsider, he´s trying to integrate people from the favela. Not many people have this care. To like: Ok. We are coming from outside. Most of the time, people have a project, they have the money. They can develop here if i don´t accept. They´ll find someone in the favela that will accept. if you are against the project, someone will come and buy it and develop it here. You understand. So, Henrique is very careful with developing Insolar in Santa Marta. So, for example you can see that everybody who sits here, was involved in the Project. So, this is something that is very good. Even if we didn´t take the main decision about Insolar. Henrique is trying to compensate this involving people in a very deep level inside of the Favela. I think this is something that´s quite unusual. Because most of the time coming from the outside, they are very aggressive because they think Favela people are Stupid because they don´t have all this technology and they don´t know anything about that technology. So, outsiders say: I know all this, I am here to do this for you. Normally this is the mentality. And that's why sometimes, you see some favela people very resistant, very like oh no, because of this.

00:04:44
Ben: So it's really important to take people for full. For like you know that individuals can contribute too (unv) and to ask them for their opinion and get involved.

00:04:49
Sheila: Exactly. And not only this because when Henrique decided to make the multi-stakeholder dialoge they put us in a level that we understand. The things that are in a very technical level. It´s is not only about giving you information and how the solar panels work. Like Sheila. For understanding better the solar panel technology you need to do this, this and this we could provide you courses or workshops or whatever for you to be able to follow what we are trying to show. I think this is really very cool.

00:05:30
Jakob: And how does it work? Because as we know there are different stages so now. So first you have the community building, And then they go to municpality plan, for example near Santa marta. How does it work like, to decide what do you (unv) receive solar panels?

00:05:53
Sheila: These, i mean. maybe better to talk to Henrique because they now this better than me. I don´t know why they decided to choose Santa Marta, I just know, that he probably was much easier for him to come to santa marta. Because sometimes some favelas they don´t accept him. Thats what you need to understand. So he probably found the right people here to develop this project.

00:06:11
Jakob: Within santa Marta. There are some buildings, some community buildings, they have solar panels.

00:06:11
Sheila: I don´t know. But in santa marta we have some buildings with solar panels. We have. But i dont know, why here.

00:06:30
Sheila: So I think basically the first ones were just like a public building. Yes. So just for people to understand because. What you need to understand is that people here (unv) for this technology. And second the investment is very high. So I cannot effort for example for the first invest. It's important to understand this. And so for majority is the same. So you should talk to Favela people and tell them. Listen the solar panel, the solar energy that's very important, it´s a clean energy, bla bla bla. OK. I'm interested. Yeah but then you have to put I don't know three thousand reais, people cannot afford.

00:07:14
Ben: So it´s needed to be a financial incentive as well.

00:07:20
Philipp: which is caixa bank

00:07:22
Sheila: Exactly. And this is like because Henrique is here for a long time now. Caixa is just entering now. I understand. It's a slow and long process because you also need to convince investors. To come and invest in this type of technology in a favela.

00:07:44
Ben: You are now also kind of worked which is related to Insolar or not?

00:07:45
Sheila: No. Only independent. Yes.

00:07:55
Ben: but you are also doing tours on yourself. So you are kind of also an entrepreneur in a way?

00:07:55
Sheila: Yeah, i´m a very big entrpreneur. Laughing

00:08:01
Ben: Very different. So what do you understand, what´s for you an entrpreneuer? What is maybe a social entrpreneur for you

00:08:15
Sheila: I think an entrpreneur is for people solving problems.

00:08:15
Ben: Ok. And what is a social entrepreneur?

00:08:20
Sheila: I think a social entrpreneur. Social is something very tricky i think. But for example in the case of a person living in a favela. We are trying to change our environment. To build a better place. Where most of social Entrepreneurs they are just putting money in their pockets, with some social ideas. But they are not doing anything to anyone. You understand? So I think that. For peole that are really like. YOu see many people from santa marta in this round. And we´re allways trying to solve a problem connected to our life in Santa Marta. Or something that we need to do. For example to keep ourselves in the market. Working, supporting our families and everything. I thin what we are trying to do is make a change in our social life here. Trying to show. Not to you guys from outside. In fact what we are trying

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to tell people in santa marta it´s possible! It´s possible to do stuff without any type of support. Going this way, (unv) when I doing my stuff and people come in talking to me. What i am doing the social thing i am doing is for all people different. I am not doing trying to be the best social entrpreneur in Rio for example. Because some people are really crazy about this. What iám trying to impact are the people from inside santa Marta. And thats what I think is the thing we´re doing that is different because for some people down there. You have resources, you have people invest in you and everything. Dude, we don´t have anything.

00:09:58
Ben: One last question from my side! I think Philipp has some more. I wanted to ask, wether you just said in order to change something inside here the movement has to come from inside in a certain way. So, do you believe for social innovation to happen, that´s also a criteria? In order that social innovation happens. That innovation processes can happen. Do you believe that is has to come from the inside?

00:10:28
Sheila: We need to understand that it's very important to give the space to those that have the special speaking. Sometimes you have people talking about the Favela they are not coming from the Favela. I have lots of people representing me. But they never slept here. They were never at a party here, they were never here when we had shootings or anything like this. So, they have no respect. In portugese you say: (unv). What it means: respect the place of your speech. Respect. This is this is the most important for us to respect our space for speaking. So, nobody can speak better about favela than favela people. It is not someone from outside, they are writing books. There is say as a master degree, PHD is a medal. The best person even without any type of formal education or anything. These are the people to talk to if you want to understand how you can collaborate with Favela people. you have to talk to favela people. Not to people they think they know about favela people. This is important. So i really think it´s a sanctuary that it´s not only about listening. But taking your time to understand. Because some people want to do products fast like this and they don´t wait for us. Our own time to develop a program and projects. They never wait. They say this is important. and everything and then at the end they get tired and oh fuck, now that I am starting to understand this project, they are already abandoning us again. And what is happening to Favela areas sometimes you go to the favela and say like this: Man, I have a great project for this Favela. And people look at you and say: Oh my god not another one. (unv)

00:11:58
Sheila: So, time is really important, so including the people long-term, the locals.

00:11:58
Sheila: Because what we see especially me with my experience. People are always in a hurry with favela projects. There crazy about time. But then we always forget that some people need time. Because for example some people don't have access to education for example. check the level of education of people here. It doesn't mean that people are stupid. They just have no formal education. But if you talk to some people here they are genius. but they didn't have access to education. But some they are crazy about: let me see your diploma, your master degree bla bla bla. And then it´s like you intimidate people here. So, some people sometimes they don´t come to this meeting, because they think they´re not good enough to follow this conversation. They are afraid. But because it´s oh my god, it´s students, oh this person is from (unv) you intimidate them. I interview people, they feel exactly like this. And they tell us, Sheila i´m not going because. You understand?

00:12:49

Philipp: When you are talking about social business. What do you think has been the biggest impact of insolar in the community?

00:13:23

Sheila: I think i was telling him. For me one of the biggest impacts i have is like the way Henrique is doing the work here in santa marta.

00:13:40

Philipp: Ok. And for the people?

00:13:40

Sheila: For the people? What we need to understand, we don´t understand much about solar panel technology. This something very new. And thats why we have lots of people here. People don´t understand. When Henrique presented the project. We had a big problem. And the biggest problem i think is like people don´t have money to invest in that project. It´s a great project, it´s clean energy but it´s expensive. You understand? When he presented the cost of the project. The cost of the project is like 3000 reais. No one has 3000 reais. It´s not a fortune. It´s not really like a lot of money. But people here don´t have this amount to just like pay. Because if you ask people, they think solar panels and clean energy it´s good. But they think it´s expensive.

00:13:40

Philipp: But,when the financing (unv) Okay i can finance?

00:13:40

Sheila: I hope so. Because this is something that now. Because these people in the first approach. YOu tell them it´s 3000 reais. what happens to people? They give up. And then they feel really like no. So now we need to do very good work inside. To tell them listen: We didn´t have this money before, but now we have it. It´s not only about financial support, but if people will be able to pay this financial support. You have to think about it. It´s not, ok, Caixa is here. So how much money do i have to pay a month, to be able to have solar panels on my house for instance. We need to think about these things. But for some people it´s quite easy. You just say like, it´s fine and everything. But here some people cannot pay 100 reais for electricity bills.

00:13:40

Philipp: But also the electricity is very expensive, right?

00:13:40

Sheila: We have lots of people here with illegal connections. They can not afford to pay the electricity. I was about to ask them, what about them who have a illegal connection? can they be included in the project. Because a big part of the population is not paying for the electricity.

00:13:40

Yasi: And then the thing, way should i pay now? Maybe for clean energy?

00:13:40

Sheila: Exactly. A lot of problems you understand. But of course we need to understand it´s a good step. I am not saying it´s not a good step. It´s a lot of work. It takes time. I think time here is the biggest thing, because we need to understand this very slow progress. Ask when

for the first time when henrique was here, maybe three four years ago. Thats like o my god, i think this man was speaking here. I will ask him, because i can´t remember, but it´s a long time ago.

00:16:03
Yasi: And what would you say is the difference to other projects and people that tell you they want to do projects. What is the difference between Henrique and other projects.

00:16:55
Sheila: That's what I was telling him. He was more careful. Because he is an outsider. What is always happening here. We have outsiders coming and telling us what is good for us. And sometimes we just listen to them and say hm okay. And then it´s like oh my god another guy coming here to do that again. And Henrique was really careful trying to Involve local residents. (unv) It's a very hard task. Because first he is an outsider and second you have to be really like: who do I contact and then maybe things work in the favela. It´s the most important.

00:17:45
Philipp: Can i maybe ask one more question?

00:17:45
Sheila: sure, sure.

00:17:45
Philipp: It´s about that you said it´s really problematic to get outsiders to work with you. right? So, for example Caixa (unv). Henrique is working with you now for a long time and caixa just now. Maybe with insolar people could come from the outside and work with you?

00:18:10
Sheila: I don't see. I don't think it is problematic that people are coming from outside in general. I think it becomes problematic because the way they develop projects. I'm understanding it so they don't take the time you know it is very simple I was asking him Caixa is coming here to invest money. As i told you. How to use his investments and everything. So, this is one thing it's not really it's not it's not only about bringing people here because then you have it and then you only see it and then (unv). So, it's I think it's very important because most of the time this project inside of the favela is (unv) people don´t take the time. For example, do you know the reality of santa marta?

00:18:59
Yasi: No

00:18:59
Sheila: I am not asking the question to you. I am asking the question to (unv). And thats why i think and educational process, to go to universities, in schools, they are very important. Because first people need to understand how people think, how people live. You can´t develop a project without it. IF you don´t know the mentality of your persons. you can´t offer anything to them.

00:18:59
Philipp: So, you think they don´t understand you from the outside.

00:18:59

Sheila: It´s not about really not understanding. We create resistance. When we feel there is a barrier. If you ask me like. I don´t know. I know for example if someone is bringing a project here and is really arrogant for example. I cannot explain but I will not be sitting here, I will be very polite. I will listen to but then ill be like oh man. And when we go out and talk. Favela people talk (unv) man did you see that guy. I wanted to kill him. And they will be here like. Yeah ok.You understand? happens a lot. this type of situation. Because we know. They don´t know anything about you. Even if you are coming with great ideas, but then for us it´s just like. These people, don´t know anything about anything.

00:18:59

Yasi: (Unv) Also part of the feeling of not understanding everything and he wants to know more about favelas, about santa marta

00:20:45

Sheila: Most of the time me we understand that people think they know what is good for us. I don't like this. exactly what will happen when you live in a favela, people think you are greedy because you're not taking it as something good. Listen, you are fucked up you are really living in bad conditions, not really like nice quality and everything. Someone comes here to save your live. And you still creating resistance. And then i think probably for (unv) because normally in this situation we´re really calm. Sometimes i get mad at people become really passive. When i went to the meetings i normally speak about things. Because some things i really don´t agree. And some people as i told you, they feel intimidated. And then they don´t want to speak, And sometimes you have people in this meetings and this kind of things. In this meeting people really like very fast. When I go to the meetings I speak about because some things I really don´t agree, but some people as I told you they feel intimidated. And then they don´t want to speak in and sometimes you have people in this meeting isn't going to succeed. It is being seen seem like pretending everything is fine. But you know It's not.

00:21:56

Yasi: (unv) change people that they can speak out? Don´t be afraid of whatever

00:21:56

Sheila: So, the feeling like you can be comfortable in your environment is important. We have things that are been run by. What you need to understand it's like it's it's hard for us, the environment is hard for us. If you ask how many people I can touch with my space. Probably not much. And I was born in santa matrta. It's already hard for us if everyone living here in Santa Marta They have their own listeners. But you can not reach a lot of people. It's quite hard. A lot of people who are coming by your idea.

00:22:33

Philipp: But it's also quite well connected, right? . If you speak someone, they´ll tell someone

00:22:40

Sheila: . Yeah but this is something you do it inside. Then you need someone to empower people to do that. What is the problem with people coming from outside, they think they can do it. Instead of just like, who are the people we think so. let's work with these people. Most of the time they don´t want to work with Us. They put other people because they have specialtists. I have a person that is this and this and blablabla. And people here a (unv)

00:23:14
Yasi: Theyre working around you and not with you?

00:23:14
Sheila: Exactly And for example if you think about workshop for accounting. Because you will learn how to save money. Imagine a person that was never at school. We have lots of illiterate people who cannot read. Some of them it's quite interesting. I just realized that because since I started using WhatsApp, some people not text me. They are just (unv). Every time I was texting they never answered. I was like Sheila, (unv). Because I understand how just better. I'll just go the persons house, they can´t read and write. That is speaking, everybody can speak. So imagine that you can't even watch some of accounting questions like this. And we have lots of people that are like this. And then this people abandon your multi-stakeholder dialog and then you think people are not interested.

00:24:05
Yasi: I am sorry, I have one last question: when you think about empowerment and you say it´s about talking, not writing not sending someone. It´s about the person. Can you imagine that Henrique builds up someone else to make the same work, he does. Because he has a legacy of people trusting him. Because the problem that I see, is that he is just one person. For a lot of communities. And at one point when he wants to make the project grow and for like all Santa marta for example. I think its 90% he said. At one point he has to decide, what can I give the power to the same empowerment. Do you think people people perveive will perveive it and then give way?

00:25:10
Sheila: I mean why do you need to understand that imagine you're developing a great project like Henrique and your project with other people. Some people don't like it. Can be a lot of stuff. Just give an example. So maybe it was quite hard to develop the project together with someone else. Well we need to understand it's like the communication in these Spaces is the most important. Second also important to understand it's not about this to listen. Some people have a great ability to write. You have to understand who can lead this people better. Some other will be listeners, so who is the best for speaking. You have too understand all those possibilities. All this (unv) aside of the empowerment.

00:26:04
Yasi: And then it does´nt matter who is here. You just have to understand the need.

00:26:04
Sheila: The most important is to choose the area you want to work in and the people you want to work with. It's not about your project. It's about how you map in the project in a very efficient way. Sometimes it will take time for you to do that. But then after that your project will just like flow. And sometimes you think the easiest part in the beginning but then your project starts. Mapping is very important. Mapping takes time.

00:26:39
Yasi: Mapping takes also time. We are allways coming back to the time point.

00:26:43
Sheila: Time is always something. But for example when we have these students coming from universities here. When I was at university I was studying for four years. The problems most of this like universities are not continueing So sometimes I get disappointed especially public

universities who gives a private universities Public Universities should it be working for communities. I'm don´t understand why, what of this money is coming from public funds.

Interview (5):

Interview Partner: Henrique Drumond

Date / Location: 30.08.2019 / Rio de Janeiro, Brazil

00:00:00
Speaker 2: The last officia meeting of the group. Maybe some of us will contact you individually. OK. But that's why I would really like to start with questions now. Because tomorrow we'll have a symposium and we'll have the reception. We will be a lot of talking, how was the week, the meeting and everything. But, just not to be too german direct.

00:00:27
Speaker 1: Okay. I'm becoming a little bit German after this.

00:00:35
Speaker 2: I just try to be effective now and because we have quite a few questions. And I think it will be very very interesting.

00:00:45
Speaker 2: Yes. Ready.

00:00:47
Speaker 3: Maybe I start. Okay. I mean we saw a lot this week also regarding your decision making and how you act with your stakeholders together which was a great opportunity. And what was open for me in the end was maybe you can just tell us and maybe how was your decision process in the beginning of Insolar. And maybe to tell that you could just explain your story of how you first got into the Favela. And how your first meeting with the bank was, To get a little feeeling.

00:01:25
Speaker 1: Yeah. First Santa Marta. Our decision making started by seeing that Favelas pacified by the pacification process. Which Favela is close to Insolar. Because our team was like one or two people. So ,we couldn't go too far. Smaller community because we would be able just to see better the impact. Safety, because that was our first experience in the Favela. And the one which was winning mostly willing to collaborate within Insolar. And in one of the meetings in Santa Marta. I heard that words during the one of presentations; We are very peaceful and collaborative community and. That was like. This is the place, you know. And also the nursery that received the first ballot project. When I talked to Veronica, even before I finished my presentation and explained the project to them, She said: Oh you doing something with solar energy, we are in. So I think that this kind of excitement. So it was partially like a excel sheet with criteria and the other part intuitive. So it's kind of hybrid. Can you say hybrid? It's mostly intuitive and then I find a way to explain it lgically (laughing)

00:02:47
Speaker 3: Your first step was into Santa Marta and then you talked to Caixa Economica?

00:02:47
Speaker 3: It wasn't like a strategy. Everything in the pilot projects we did, was like step by step. Even for launching the institue which was one of the questions that Professor Silvia brought to the students event allows them to use it we said we don't have enough credibility. We haven't done anything. So, we have to start as a regular business, because if we have an NGO we're going to need the board of directors a committee and so on. But it would be too

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bureaucratic and we haven't tested anything. So, let's start with the limited company. Then in the future we think about the NGO. For Santa Marta, we needed to start with a pilot project somewhere . So we started with a pilot pilot at the community nursery. But always thinking long term. For instance, the pilot project was co-sponsored by the Consulate of Germany and you are here today. Shell and then we had Shell Foundation in a project in Sao Paulo. Sitawi FInance For Good supported the pilot project and then they got in to Insolar Institue. So we always have that view . Interestingly shaped by the relationships. We are more concerned in building the relationships than the project itself, because the relationships are stronger, last longer and create more impact. So we took a long time to implement the pilot project like a year a single project, but at the same time further projects evolve, we were in Germany, we are with Shell. And they are all together with us now. So we are actually more concerned about building that those relationships than building the project. And that kind of explains a lot of things like just the phase of today where it was if you were together with me, with Insolar. Actually, I was in my house. I was talking to the person who rents the office for Insolar. And it was funny because our discussion was that she was she was arguing that the rent should be lower. I was arguing that there should be a higher. That's a long story. I am not going to go too deep into that. But our relationship is so good that I was proving her that's the rent was too low. And she was proving me that it was too high, you know. But if you see the results, the rent was supposed to be X and she actually reduced the rent. And that's her job. For Santa Marta it's also upside down because we should have started selling solar panels for high-end neighborhoods for Leblon guys and we started selling high-end technology for the bottom of the pyramid. So today I was reflecting about that having Insolar upside down. We don't follow like a regular track and I was thinking that, that might give you a little bit hard work to understand.

00:06:09
Speaker 2: I like would be especially interested in some of the first contact points with the Favela. Like when you actually pitched your idea? Was that first time in Santa Marta or visit the Favela several times before and you talked to the people?

00:06:50
Speaker 1: The first option was not (unv) but the big nursery. But thanks to some political changes in the big nursery we had to shift, but luckily we had to shift because we were able to do a pilot project in a real community building. So, it was like a problem that eventually was very positive. But we reached Santa Marta by different channels. So, one of the channels was the residents association, we reached through UPP Social. UUP Social is an organization that connects outside initiatives with communities. So we went through UUP Social. We went through the residents association and we went through Aliane . He was a friend of mine who lived in Santa Marta and she was actually organizing the buffet, when you attended the event. So everyone there has many, many layers of relationships. Aliane's place was the first house I visited in September and she's still excited to attend the project. Yeah.

00:07:54
Speaker 2: It's very relevant. I think regarding the trip yesterday. So I think because the general idea of it was I think a good one because it was not only military or not only police but really social projects building, education approach etc.. And maybe also a social like in general like then connecting likewise they helped a lot.

00:08:25
Speaker 1: Not only Santa Marta but we visited several communities. One of them was Babylonia which is another community very close to your home to your building. And even though we decided to move forward with Santa Marta because we didn't have that many arms and a pilot project was found. But they also advanced mostly at their own, also with a lot of collaboration. But it was nice because we were there at the same moment that everyone

started this movement (In Santa Marta). So now having to run Insolar very well and improving their business model engaging more stakeholders and so is moving forward as well. So we went out. Anad coming back to your point UUPC Social team us to Babylonia and to Santa Maria. I went by myself to the Tabjares which is another favela and Hoscina and to Vijigao. So different with stakeholders but usually with someone who lives there. But only yesterday. I was Sunday morning. I went by myself to another favela where I have never been before. So it was the first time that I went there and I went by myself knowing no one. So that's very unique. And I had to talk to someone that I wouldn't like to talk very my databases. But it was okay. And then they approved. They approved these Insolar would be inside the community. And then I did the whole tour, took the pictures. So now I can say like were are in. Actually it was a with Aneel, the project with the local energy distribution company. They have never been there before. So I went there.

00:10:30
Speaker 4: Very good. Who was it that you had to talk, you didn't want to have contact with?

00:10:34
Speaker 1: A drug dealer from the Favela.

00:10:36
Speaker 5: And they said that it is ok?

00:10:40
Speaker 1: After a few moments, yes. It was the first time I had to do that.

00:10:45
Speaker 4: In Santa Marta you didn't have to do it?

00:10:48
Speaker 1: No. But I kind of filter and see the good things so I don't really remember.

00:10:51
Speaker 2: So, they (drug gangsters) are not really interested in the project?

00:11:55
Speaker 4: I think they know so much about me that they don't stop me because I know all their stakeholders like kind of 80 percent of their stakeholders. They either attended like their cousins or other relatives at the training or they know me, they drive me to my events. So, they know enough about me so they don't know. And we are very close to everyone, to all the stakeholders. We have very good relationship with all the priests of the Santa. There are like one at the nursery. There is one representative of the Catholic Church and six representatives of six different churches. They all support Insolar. No one messes with churches. Yes. So, for us it is probably the safest place in Rio.

00:12:14
Speaker 2: For example, we heard that Leo was part of the gang before.

00:12:18
Speaker 1: Yes. In the very past.

00:12:25
Speaker 2: And I think it was interesting to hear that your project is maybe also an opportunity to do something else. And not be part of the gang. anymore

00:12:35
Speaker 1: Yes totally. It was the only one. Like other people who attended the training. They were on there. Some have already left. Some were part time doing bad things and part time at the training. We knew that but we wanted to bring them to the training. Yes, so one of them is already very well.

00:12:57

Speaker 2: Do you think you can get really out of the game?

00:13:00

Speaker 1: Yes. You can. If people know ok I'm quitting. I want to work. I want to study. You can. I don't know you can talk to Leo. I don't know if he likes to talk about that. I try not to force them and just chill. Yes.

00:13:20

Speaker 2: Yeah we asked Sheila. Her response was very much saying that we should be careful.

00:13:21

Speaker 1: I think Sheila would be ok to talk. That other people don't feel comfortable especially because they want to forget the past. But yeah, I have very good success stories not just Leo or also other guys. They got a job and they retunred to the study so own

00:13:49

Speaker 4: But is not also conflicting that they (the gang) feels that you take their people from them.

00:13:56

Speaker 1: For some reason they think it's good because maybe they were at the gang because they didn't have the opportunity. So yes they find other friends having the opportunity they are oK. I can't know if I can generalize. But all the drug dealers want to have a good relationship with the Favela. So, for them it's nice. Yesterday I was interviewing the people who attended the events. To see what we have what you can improve, what was is. And we've got like a lot of feedback, regardless of positive or negative and a very good insights and suggestions. And one of the people we interviewed. She said Leo is an excellent case. Regarding the Feedback I asked specifically about each slide: Did you understand the success cases? Do you think I was clear that we were clear? And then someone said: This part is everyone in Santa Marta knows especially Leo which is an excellent case. It was very nice to hear that.

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Speaker 4: I think that would have been our next question. What did you think about the Stakeholder meeintg last week?

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Speaker 2: I think it was nice. When we organize events in communities we have to be open minded about what's going to happen. Like for instance I didn't send many invitations. I just share the invitations. Oh just trust whoever you want (Henrique saying to the amabassadors). So we expect this for the people it was 60 people. So it was good. But you also got feedbacks that we should have printed the invitation and put in some places up Santa Marta. The time was limited that we could have done that. But we were actually scared that we would have much more people than we could the host. So we didn't make so much effort. People also said that subject was not so clear and other subjects were clear. So we are we're gonna improve the power point and share it to everyone as soon as we have all the feedbacks. Andrea for instance suggested us to have ones slide for each workshop. Which we could not do because we didn't know exactly what we're going to do. Anyway, we are just getting the inputs and improving the presentation.

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Speaker 5: Was it only about the presentation or did you also get input about..?

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Speaker 1: Everything. Presentation, buffet, time, place, and so own.

Speaker 5: Ok. And what else do you, you take out of such a stakeholder meeting?

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Speaker 1: It's always like we get inputs every time. So if I am there today I'm getting inputs. If we have the events I'm getting inputs if I have the feedback efforts to get input so it's not just one event for collecting inputs but one of the big opportunity. But what is also good about collecting feedback is the this systematization. Because for these feedback sections we asked: Did you think it was it clear for you. Who are the partners of the project. Was it clear for you what are the workshops. If we had another event like that what would you improve. What was not clear. How do you see the community more engaged. Why the community didn't come and who you think should have attended the event and people said: Oh of course mostly they are the businessmen and women, entrepreneurs. Why they didn't come? How can we make him or her come the next time. Could you help us when we needed to communicate that better. So what are the strategies to reach these people. Like we have the excel file I'll be happy share.

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Speaker 5: And what about aspects and questions regarding the business model or the strategy of Insolar?

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Speaker 1: Through the presentation also. We had a few slides. One was the Insolar fund. So we also asked why do you think about this sort of fund. Is it clear for you. And the first two people said that it's clear. And another aspect of the feedback sheet was: what you think about the technology? Is it clear for you? And when people don't understand the technology. For example one woman got it wrong. She thought that that system was only for lightning and not for the microwace. So we realized that we should have invested more time and then I realized that I haven't talked to Leo before the presentation because the original plan was for Selencia and Veronica to present. And then Leo said maybe I can talk about how it works. That's why Leo didn't present how the whole system works because we had like one two three four five. But I haven't set it up with Leo. So it's a Salencia that Veronica we talked for four five minutes and they both did the whole presentation with lots of enthusiasm and also for Leo I didn't have that chance. So he spoke whatever he thought it was relevant and that was very nice because it was his initiative but it was my mistake not to catch up with him before. I also asked how much do you see Insolar team: non-residents against the locals. Who do you think should be doing what. Do you think Henrique should be doing 100 percent, Henrique and Gabrielle, and 0 percent the residents or a hundred percent the residents and zero percent non-residence. The first person said: "That doesn't makes any sense. It has to be collaborative." Because it's always a question for me: Should I be a hundred percent outside. Because if I am quiet, someone came to me, one of the engineers and they said: "I was expecting you to say more." And then I was making some effort not to say anything to let never then be the hosts. So I don't know yet the balance but people tell me: "maybe in the end you should talk a little bit more or maybe in the beginning". And then I do my own mental reflection and maybe at that time I should have spoken a little more. But anyway it's a learning process. We never will be like that was perfect. Especially because I'm a perfectionist. For instance the communication. We should have posted the communication at the cable car station. Everyone takes the cable car. The banner should be in the entrance of the event. And then I realized that my communication with Gabrielle was not very efficient because he was expecting me to bring the UN banner for the entrance. I choose very fast. I didn't talk to him to say why I didn't want to put an English version of Insolar logo at the entrance where we are expecting the residents. But I didn't catch up with him. There's 100 percent of the time a lot of things to learn and to improve. But we just focus on improving like

we're never going to be like 1oo percent. And we also have a budget and we can't do what we used to do we have Shell. With Shell it was like: "Oh we want to have a drone here". And then we had the drone. For Caixa though, they are very precise because it's public money. More bureaucratic. And then I think it's okay because it's public money. And I'm glad to follow the script and it's good for us to exercise the planning and execution. On the other side, it was easier with Shell. We could do kind of everything because they trusted us. For some things I say that we have to do that with Leo. They did ask, try to get other prices. They know that if I say we have to do that with Leo. We have to do that for many reasons and I'm going to lose time hearing my explanation. So, it was a different approach. So, for me it's a learning process. But it was for me so good. 20 more people than we officially promised to Caixa. Caixa was there. The UN was there. Zeppelin University was there. Some entrepreneurs. Not everyone but we're gonna go door by door so that's not a problem. So, it was good. For me It was good.

00:23:09
Speaker 3: I have a question that goes away from the stakeholder meeting. That came to my mind at the stakeholder meeting talking with Sheila. She gave us the tour through the Favela. I think it was very important when she gave us her vision for Santa Marta in the next years. "How would you see yourself in the next ten years?" She envisioned a cultural center but didn't have a big dream. So, what I recognized is that there is maybe a little problem between long term and short term thinking within the Favela and between other stakeholders, because Favela members might have daily struggles. How do you cope with that?

00:24:44
Speaker 1: Yeah. That was one of the questions when we are thinking about solar technology because solar technology when we started like the payback was like 80 years. So, if Insolar was not that there. They would have to invest the money that they don't have because they don't have access to the banks and to financing. And they had to wait 80 years for the payback that they don't even know what it is. So, since the very beginning what we said, we escaped a little bit from telling about the price. And every time when they asked what is the price we said: "Think this way, if you're going to save 200 reals would you pay 100 or 150 reals for that saving. And I said yes I will. So that's our thinking. Forget payback forgets a return of investments. Forget. How much does it cost. It can cost one billion dollars if you can pay for that with your savings. Everyone can pay for that. And they said: "Yeah, makes sense." A lot of people don't even know how much does it costs. Maybe the students because they attended the training so that is the way we found to bring the benefits, which is a long term benefit for short term thinking costumers. Because I can say. "oh you're going to have a payback of six years, it's going to last twenty five years and they're going to think there is no chance I'm going to be here in 25 years". It is too far away from them. You said "Oh what's your plans for the next five years" And then they said "Oh I don't have plans for five years:" I it's too much long term. So we have to ask what the short term benefits are, what they need short term. They want to have a job. "Oh my goal is to get a job." So it's energy savings. So we train people to get a job. So for the people that's a way to get a job. Marcus got a job. Leo created his own job. Leo hired a Alan to install solar panels. Other guys just benefited by saving money by doing their own remodeling. So they've got a short term benefit which is job, (job) certifications which is very important for getting a job and making money. And for the people who receive the solar panels. If you are paying zero in the beginning you just have benefits because you're saving money. Now with Caixa Economica they have to pay for the Insolar Funds. If we would have done that within the project with Shell before people would have been suspicious. Now they trust us. The say it's OK. So even though there is this Insolar funds it was very clear for everyone that the money will go to Insolar Fund. And it was very clear that Insolar fund will do more for the community.

Speaker 3: How was the feedback on the pricing? Because it's 600 hundred. Sounds like a big number.

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Speaker 1: Yeah I I got feedback that I should have done that monthly wise. I had that feeling when I was doing that presentation. I asked myself if I should put it to a hundred reals and people save 60 reals. And I thought that people were say that they are losing their time to save 40 reals. Or should I make the number bigger. Because when you talk about solar energy, we are used to do that annually. In the US or maybe in Europe as well. So I did it annually but maybe I should have accepted the fact that the savings could be small like 40 reals per month and then explain better that the saving are small but last a lot and make it monthly. So for the next presentations what we decided was to do a real case like. Okay. Like: Donna Maria has this building. She currently faces this amount of money. She going to install eight solar panels. Those solar panels are going to save that amount. And then we have those savings and so own. Like doing the whole track. And for the communities had already learned that. But for the presentation I just did a quick explanation everything should be very visual and simplified. We put in the powerpoint six different capacities: United Nations, women solar empowerment. And in the first interview, she did not know any of the capacities because it was not visual for her. So I think we should make it more tangible. We need to have pictures. It has to be very visual, very simplified and we need to be more precise.

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Speaker 3: And when you go to Caixa you switch back to the long-term perspective? Or are you still caught in the other perspective?

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Speaker 3: Always both. The good news is that everyone who is supporting Insolar is thinking about long term which is a very good news because they could say: "Oh just you have a deadline. You have a timeline. You have the budget. Just implement it." And of course it's a challenge because there are some things you can predict for the long run. Other things you can't like for instances the maintenance of Shell's projects, it's a little challenge. Some installations are a little bit challenging because they are in public based places. But once again we learned and we improved. So we have a Fata Luis which solves the fact that we need someone to take care of the those systems.

00:31:21

[Break: ordering some tee and water]

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Speaker 1: However, one thing we said to Caixa when we presented the project to them was: We are going to do everything we promised but in addition to that we are going to bring some money back to us and do more. So when we talked to them for the first time, they already knew that we had promised this legacy, the Insolar Fund. So they just asked: Can you clarify the sort of fund? And then we just had to clarified. They already had that concern. So we one of the meetings with Caixa was about Insolar Fund: What should we do with the fund. And then one guy, it was Gabrielle, maybe we need to use part of the money for maintenance and then I was not very happy about it. And then we talk about it, because I thought that part of the empowerment was: you got the technology, you are saving money you're paying as a portion, but you need to be empowered to do the maintenance by yourself which is very small maintenance. So, we have to train people to do the maintenance or pay 50 reals to Leo or some other guys. So, he goes there and fix it. So, for Insolar We just wanted to offer the guarantees. So solar panel lasts 10 years. The invertors for five years and the installations for one year. But the maintenance is on your own.

Speaker 2: And how is the empowerment discussion solved now?

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Speaker 1: It's still up to us. But we are either investing more education or doing more solar installations. But when I say us, we said to Caixa: we don't get to decide that. That's a community approach. We are going to have a community board who will decide that. Of course we are going to say we cannot use that for caipirinhas. So the options are more installations, educations, maintenance. It will be like a mix that a hybrid. But what is like the main thing that we learn from other projects. That's education opened doors. People get jobs and that's when the impact goes beyond Insolar. And that's the most important thing for us. Not to get people attached to Insolar in a way that's if there is Insolar installations we make money, if there is not, we are lazy in bed you know. So we didn't want that relationship. So the best thing is to educate, certify and open doors for the guys and ladies to enter the market by their own. So if we can drive some part of the money to do that, that's good. But also part of the money to do more installations. Because if you see that your neighbor has solar installation. The first feeling is that why they have and I don't. So it doesn't strengthen the community spirit. But if you see: "oh my neighbor has solar panels.", but a part of the money is going to help fund and eventually I'm going to have solar panels thanks to my neighbor. Okay. Now I supporting that.

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Speaker 6: I have a few questions in that context. What happens when the solar panels get damaged? How do you manage these risks? My second question would be how do you prevent solar panels from getting either stolen or disconnected by people themselves or other people?

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Speaker 1: Yeah that already happens a solar panel to be damaged. So we learn a from these things. Making sure that solar panels are not stolen has a lot to do with the relationship we have with the community. For instance, when communities see the project they see themselves as part of the project and they love it. They know that people are saving money and the people who are saving money are doing something good for their community. So there are a lot of layers. The whole community like protects the solar panels. Once a few solar panels were relocated from one building to another, I was the first person to learn about it. So everyone told me. it's their project. So they told me: "Henrique, as long as the solar panel continue in the community it's ok. People have this ownership of the solar panels and the project. The other thing you asked about the broken solar panels. We have no clue. So we just did the installations. Then we accepted that we get damaged a few solar panels. So how can we cope with that. And then we realized, part of it is the place you choose to install. So when you select roofs you need to be very selective and understand that the roof should be somehow higher and in a very protected location. So it brought some learning. There were also shoots on the solar panels. One of the got shoots. But it was one panel out of 200. So I don't know where teh bullte came from. But I was happy that it hit the solar panels and didn't hit the children. So that's my perspective. Of course from my investor point of view that's not a good thing. But to the residents somehow take the risk. Because the warranty doesn't cover bullets. Anyway, that's part of the risk. But on the other hand we understand that if we have real good collaboration with Santa Marta, that why we are bringing home so many people like with United Nations, Shell, PUC students, Zeppelin University students. If they are in Santa Marta people know that it is not supposed to have gun shots. The police will know that is not the best moment to hunt the guys. And the guys (drug dealers) know that is not the best moment too. So, when we were there, there was very little crime actually. Maye because someone that watch out, we have a lot of visibility there. Our idea is not to go there do solar

panels and quit. But go there start solar panels, train people to do their own CV, think about the future, design the furture, bring volunteers, create a 3D future, create augemented reality of the future, bring the major, make him do the experience envision the community. So we go a little bit beyond our role, but with partners, Because if we do that by ourselves: First of all, we don't have the expertise to do the whole thing. But by bringing other stakeholders, our vision is not the solar panels, but to have a safe place for the people to live with solar panels. Solar panels is part of that new vision that Sheila doesn't have anymore because she was maybe tired of having so many expectations. And very disappointing expectations. Because UPP Social was the dream come true. So the UPP was gone. So what we believe is that Insolar can also bring that experience of hope. And then they think of how was the past with Insolar. And then we brought United Nations. When I showed to Salensia and Veronica: "This is the representative of United Nations. He is here to partner with you. What can we do together?" You know. And then I am sure if all the stakeholder are there it is not the best moment for gun shots,That was one thing. And the other thing is that we always start the project from a strategic point of view. Who is going to steal solar panels from the nuersery that was built by women of the Favela Santa. You are not going to steal it then Gunshots You know.

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Speaker 2: So I understand that regarding sealing you belive that the community protect that in the way that if someone steals solar panels, the others will say: No, don't do that.

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Speaker 1: That was one thing and the other thing is that we start the project from a strategic point of view with community places. So who will steal solar panels from a nursery that was built by the residents of Santa Marta, only woman, for children. So if you are a resident your are not going to steal that.

00:42:40
Speaker 1: But now the next project is 30 households, private households. What are you do then if they are not able to pay?

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Speaker 2: We have to decide that, when I say we, not Insolar but the community committee will decide that, what the criteria will be. We don't yet know who will be in the community committee. On the one hand, we wanted to have someone from Santa Marta. On the other hand, having someone from Santa Marta people would be suspicious. That person knows that and that person. So, he or she will kind of support and so own. So, we are thinking about it. We have a few options. One of the option is to bring very credible people, very respected people, from respected NGOs, or people from other communities that are not attending to project. We haven't decided that yet, but someone as much as neutral as possible. So funny thing is that regarding the selection of the people, the entrepreneurs who are going to receive the solar panels, the people who are going select will not see the names. They don't know who it is. So can't choose by the name. They will choose by the criteria. So we are doing our best to make sure that to the community decides. The criteria should be even for everyone. It should be according to the engagement in the organization. Or the more that your are paying your bill correctly the you get credits. However, it's still very open. Maybe the community so the entrepreneurs should get a bigger credit because they are using more energy and then say they might say "Yeah makes sense. Everyone agree? Yes agree". So Insolar just implement. Maybe we (Insolar) think it is the best way. But if we always decide what is the best way it's not collaborative. So eventually I have to decide. I give an example. I didn't think that the - of course I am a perfectionist - places, where we put the posters for the Santa Marta event; I would have put them somewhere else but I was not responsible for that. So, in a way we have to accept the decisions that others take. It's usually better than mine. Another example is the

question: who's going to be selected by the project. Of course you need to have some common sense but maybe they say just female entrepreneurs and the United Nations team from the United Nations women said we shouldn't do that. You know, so since the project has a lot of female empowerment and we had thought of maybe bringing someone from UN Women to be part of the decision. Why they do not think about it. "No, we need to support that, but we follow a very sensitive way not to create a fight between the families. Because if you say it's just for women that you might creat a gap, you know. They explain me that and then I thought you are the specialists so I have to at least consider that. Or maybe they say it should be open to women and men. So what's the criteria than

00:46:45
Speaker 3: I actually remember that you were talking for the first time four months ago you would also tell me that female empowerment is going to be a big part.

00:46:54
Speaker 1: It is already it is already. But no it's going to the committee but my personal visions is that we should prioritize female entrepreneurs but not exclude others. For instance if you have Leo. He is paying the bill but in his house his wife is an entrepreneur. Leo could apply. Or Elias who lives with his mother. His mother is an entrepreneur but the energy bill is on his name, so he could apply. My personal view is that we should focus on female entrepreneurs. But in a way that does not exclude the demand. For example 80 percent of the people who received training were man. They think we invested so much time learning about the technology. Now we want to have that in our house and then just women can receive it and a lot of people that have nothing to do with Insolar, that never helped to promote solar energy are going to have the solar panels and we don't. I'm not saying that it should be this or that but that's something to is going to be considered in an emphatic exercise with everyone who is there. For instance, Salensia and Veronica could be excluded from the solar panels. And then I said to Caixa let's exclude Salensia and Veronica from the decision process of choosing who receives the installations and let them be part of their selection process because if think it's not fair to exclude them just because they are in Insolar team. Because I think they are good candidates. They have good proof. They are very engaged socially. So it's very sensitive.