Transforming Service Ecosystems – Revisiting the Arab Spring

A comparative case study of transformation and deformation drivers in service ecosystems in Tunisia and Syria

1 Introduction

As a social species, we create and live within human service systems that are dynamic and complex. Nation-states are so complex that they are best described as service ecosystems. Little service research has focused on nation-state service ecosystems. However, rapid changes like political unrest, famine, war, terrorism, and unprecedented numbers of refugees all threaten the stability of today's global service ecosystem. Similarly, such rapid changes can transform or deform nation-state ecosystems. Therefore, there is a need to explore nation-state ecosystems and their dynamics. Accordingly, based on the number of recent developments, this research aims to revisit one of the few papers that considered the nation-state service ecosystem; "Cocreating the Arab Spring: Understanding Transformation of Service Systems in Contention". The article was published in 2015 in the Journal of Service Research (JSR) (Skålèn et al., 2015). The paper received considerable recognition within the service research community (including the JSR Best Paper Award for 2015 articles). The article discussed the dramatic uprisings that independently emerged and spread across the Arab world in 2011, which became known as the "Arab Spring". This movement originated in Tunisia in December 2010 and quickly spread to Egypt, Libya, Syria, Yemen, and Bahrain. Skålèn et al. (2015) examined the transformation of service ecosystems through actors' resource integration and value cocreation in contention. In addition, the paper highlighted the role of conflict between two types of actors (incumbents and challengers) in the transformation in Syria (Skålèn et al.,

2015). Many hoped this “Arab Spring” would bring new progressive governments to power and deliver political reform and social justice to the citizens of those countries. While Tunisia achieved progress from the Arab Spring uprising and is witnessing a continuously inclining transformation, countries such as Syria fell into an astounding decline characterized by an armed conflict and violence, and a crackdown on people who dared to speak up for fair and open society (Amnesty.org, 2017). This Syrian misfortune is shown in the number of civilians killed, number of refugees in neighboring countries or internally displaced, and the severe destruction to physical infrastructure and essential service systems such as education and healthcare. 200,000 Syrians have been killed according to the Syrian Network for Human Rights (SNHR) (sn4hr.org, 2017), while 11 million people have been forced from their homes, including 7 million people within Syria and more than 4 million are now refugees abroad, mostly in Turkey, Lebanon and Jordan (Amnesty.org, 2017). According to SNHR (2017), 65,000 Syrians are missing after being arrested by government forces. Death tolls and refugee counts vary between other countries of the Arab Spring. However, the common dominator among them is violence, chaos, and destruction. Tunisia was the only relative “success story” that is witnessing an inclining change. Tunisia overthrew the former president, formed a new government and wrote a new constitution that gained support from the most engaged actors including the people. This success encouraged many in the diaspora of educated and entrepreneurial Tunisians to return and participate in writing the new history of Tunisia.

Skålèn et al.(2015), among many others, had an optimistic outlook on the escalation of events during the Arab Spring. Unfortunately, the attempt of transformation, in many cases, did not result in the desired uplifting change in terms of democracy and freedom. These major events deviated from the initial intentions, goals and principles of those who enabled the Arab Spring. Accordingly, in this paper, the authors aim to revisit the original findings in light of the current developments. Theoretically, we adopt a Transformative Service Research perspective

(TSR) to study the overlooked concept of "nation-state service ecosystem" and explore how and why intended change unfolds in different ways by studying the drivers of change. We select Syria and Tunisia as two different nation-state service ecosystems in very different states of change. We propose that these two nation-state service ecosystems represent examples of two opposite sides on a continuum of service ecosystem change, which we label "Transformation" and "Deformation." In this respect, we argue that service ecosystem change follows a "non-linear" pattern forming a spiral of either "virtuous circles" or "vicious circles" – accordingly; leading to "Transformation" or "Deformation." Specifically, this paper contributes to the ongoing discussion of actors' resource integration and value co-creation efforts by exploring how different actors at different levels of the nation-state service ecosystem (micro, meso, and macro) contribute to an intended change that leads to either transformation or deformation. We describe and analyze how change is initiated, scaled up and institutionalized from people (micro), to networks of people (meso) to formal organizations (macro). We borrow the definition of scaling up from Paina and Peters (2012, p. 367) who defines scaling up in the field of healthcare as 'a set of processes that lead to expanded and sustainable coverage of services, and involves strengthening the capacity of delivery organizations, increasing diversity and robustness of funding and management arrangements, and growing the system's overall capabilities to add more services or to integrate services'. We propose scaling up in the context of service ecosystem transformation is defined as The paper also explores the interdependencies between the service ecosystem levels. We thus select a multi-actor approach (management perspective on ecosystems) and ask why actors engage in resource integration that change service ecosystems. The proposed conceptual framework builds on TSR, management ecosystem literature and service-dominant logic (SDL) premises to contribute to service ecosystem literature. To meet the objectives of this study, an exploratory approach is used. We use a qualitative research design consisting of interviews and netnography as the main

methods of data collection and open coding and constant comparative analysis as the analytical methods.

The first section details an integrative literature review on service ecosystem change discussing the TSR, management perspective, SDL. The multi-actor qualitative methodology is then presented. The findings section highlights (1) how service ecosystems are transformed or deformed; (2) how actors interact in the three levels (micro, meso and macro); (3) what are the drivers of transformation or deformation for the engaged actors. The discussion provides theoretical, methodological and empirical propositions and contributes to the ongoing discussion of how service ecosystem change unfolds and how value is co-created through actors' resource integration. Finally, we present the research limitations and new important avenues of service ecosystem research.

2 Conceptual Framing

1. Ecosystem perspective

Ecosystem perspective is a biological concept that has inspired management to illustrate how firms and organizations face a new context of relationships and interactions where they can cooperate and compete at the same time; and where they rely on a complex network of resources (Moore, 1993; 1996; 2006). This coopetitive (cooperative and competitive) context (Adner and Kapoor, 2010) forces the different actors of an ecosystem to collaborate in order to co-innovate. Ecosystemic value is created through the interaction between multiple actors, acting purposefully in a coordinated way by using both internal and external resources. Furthermore, value is described as being multidimensional (economic, social, ecological and cultural) (Ben Letaifa, 2014).

Moore (2006) defines ecosystems as the third pillar of organizational theory since they offer a different perspective from firms and hierarchies (Williamson, 1979). Indeed, ecosystems

are networks that cannot be explained by focusing on one actor (firm) or on markets only. They need their own theoretical foundations. However, ecosystems are both a theory and an explicit mapping of a network (figure 1). Ecosystems are thus defined as community of organizations, institutions and individuals that impact the enterprise and the enterprise's customers and suppliers (Teece, 1997: 1325), groups of companies that interact and share dependencies to create products, to develop technologies and create value (Zahra and Nambisan, 2012), and as a multidisciplinary perspective on networks and communities of socioeconomic actors sharing the same vision (Moore, 1996; 2006; Iansiti and Levien, 2004).

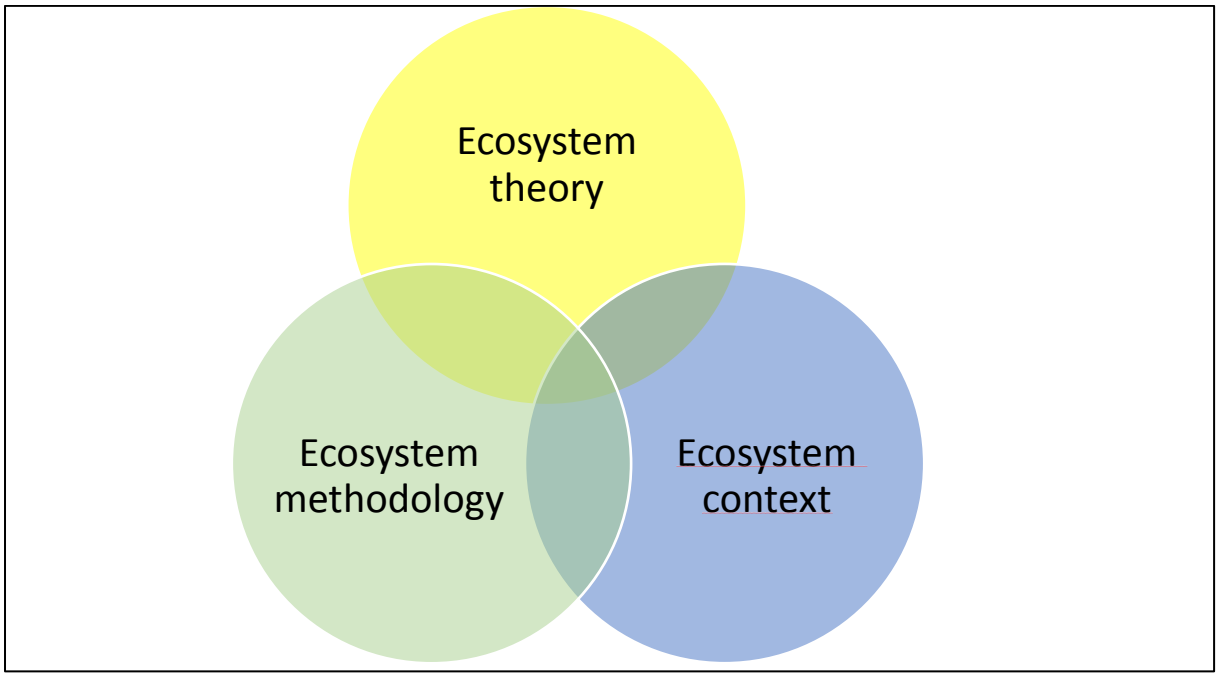


Figure 1 The Three Pillars of Ecosystem Perspective

The ecosystem approach offers a multidimensional and multi-actor perspective for understanding value creation and change that could take place in social entities including countries, regions, cities, industrial clusters, communities, industries, organizations, or virtual networks, among others (Ben Letaifa, 2014). It integrates the macro, the meso and the micro levels of interactions (Figure 2).

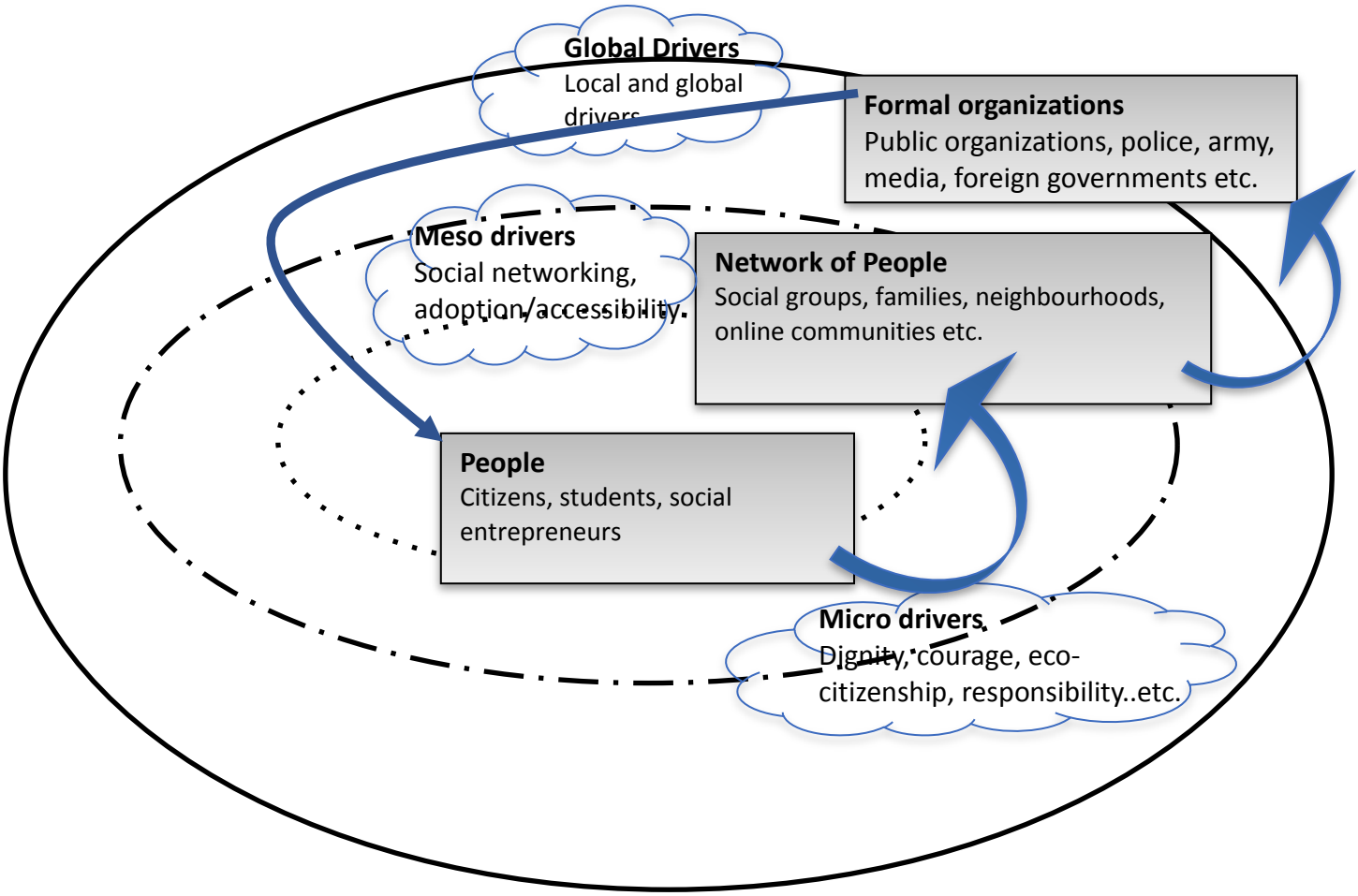


Figure 2 Illustration on Service Ecosystem levels, actors and drivers

The micro level refers to the first level of analysis, the meso to an intermediate level of analysis and the macro to the broader layer of actors. In this paper, we propose the nation-state ecosystem. Nation-States are defined as autonomous geopolitical entities inhabited by majority of citizens sharing the same language (s), law system, history and ethnicity, with negligible minority ethnic group (Yuval-Davis, 1997). The nation state is "one where the great majority are conscious of a common identity and share the same culture" (Yuval-Davis, 1997 P.11). Nation-State consists of political, economic, social and cultural actors. In a democracy, Nation-State is justified by the interests of its people. Therefore, a nation-state's government strive to create and enforce laws in order to regulate the behaviour of the citizens within the borders and thus preserving the identity of the nation-state (Price, 2002). In relation to our paper, nation-state represents a larger service ecosystem as individuals and other political,

economic, social, and cultural actors are held together by its physical boundaries and they all believe they are connected to each other by political, legal, cultural system.

The micro level in this paper includes people (citizens, social entrepreneurs, activists, etc.). The meso level refers to networks of people (online communities, neighborhoods, families, associations). This level includes social networks that are becoming more powerful as they can rapidly foster social contagion from the micro up to the macro level. Indeed, the ecosystem is systemic where information; communication and interactions create domino and retroactive effect that contribute to the ecosystem change. The macro level refers to the level of formal organizations. Institutions in the ecosystem theory are formal public or private organizations that are peripheral actors (Moore, 1996). In this paper, we will use the concept of formal organizations for the peripheral actors to avoid any ambiguity or misunderstanding of the terminology of "institutions". The peripheral actors include governments, non-governmental organizations (NGO), universities, associations, unions, investors, and all traditionally concealed actors. The ecosystem approach broadens the concept of value creation by including these peripheral actors in the co-creation and transformation process. It acknowledges the complexity of the observed reality and the importance of studying various levels of interaction to better reflect the socio-economic processes that influence service ecosystem change.

This comprehensive perspective on actors is rooted in network theory. A network is defined as a group of nodes, which can be individuals or organizations, and the relationships and interactions among them (Gummesson, 2007). Networks are also defined as "complex organizational structures that result in multiple strategic alliances combined with other organizational forms, including divisions, branches and resellers at high added value" (Webster, 1992, p. 8). Each actor is linked to at least one network, which, in turn, co-creates value in a given ecosystem.

2. The nature of change within Service Ecosystems

Ecosystems function as interdependent systems of actors in constant interaction that cannot be in a status quo or equilibrium but oscillate between order and disorder (Brown and Eisenhardt, 1997), as the status quo is synonymous with the death and elimination of the ecosystem (Moore, 1996). Network theory allows for the existence of a number of interacting variables and an indefinite number of unique situations, and it recognizes that change is constant and that processes are dynamic and non-linear (Gummesson, 2007). Similarly, we propose, that change can take the form of "virtuous" or "vicious" cycles. "Virtuous circles" refers to "A virtuous circle is a complex of events that reinforces itself through a feedback loop, thereby promoting favourable results" (Brudermann, 2010 p.174). We propose that "virtuous circles" refer to a sequences complex chain of positive events where each event feeds the next event with energy and directions that in total leads to improving the overall well-being of the involved actors in the service ecosystem. On the other hand, "Vicious circles" refers to "vicious circles are defined as deviation-amplifying loops, i.e., action loops with counterproductive results" (Masuch, 1985 p.16). We propose that "vicious circles" refer to a sequences complex chain of negative events that spiral out of control, where each event reinforces the next event with negative energy making the whole service ecosystem worst. Bush and Folger (2005) suggest that conflict escalation is the result of a "vicious circle of action and reaction," in which each participant responds to the other's tactics by strengthening his or her own tactics just a bit more (1994, pp. 74-75). Driven by blame, anger, revenge, fear, and perceived threats, the participants move from fairly light tactics (like ingratiation, persuasion, and guilt trips) to heavier tactics (like threats, irrevocable commitment, and even violence) (pp. 74-81). Thus, a spiral of actions and reaction is created and all actors stuck in a conflict cycle.

Another theory that helps shed light into the nature of change within service ecosystems is Game Theory. Wright (2000) argues that human cultural development and biological development has a positive direction towards a greater complexity, and follows game-theory rules (Basar and Olsder, 1999). Although there are two kinds of games, "non-zero sumness" and "Zero-sum", Wright (2000) argues that cultural evolution is shaped and directed by a “non-zero-sumness” i.e., the prospect of creating new interactions that are not zero-sum. In biological evolution, a cell evolved into thousands of cells forming living organisms. Similarly, humans have evolved into a more complex social organization over time. The common dominator between those two evolutions is cooperation. He argues that the evolution of ideas and knowledge, cultural evolution, is a result of a non-zero sum game, this refers to the win-win long-term positive relationship between involved actors, where there is no winner or loser. This relation brings progress and prosperity to all engaged players, it is based on cooperation where self-interest is boiled down and people's fortunes are correlated and shared. In non-zero sum relationship actors share fortunes and intentionality that provides them with directions to work together in order to achieve common goals.

Wright believes that “Trade” in terms of exchange between humans, is the major driver for human society evolution. Indeed, as the complexity of human society increases, the “non-zero-sum” gains increases leading to upwards virtuous cycles of continuous trade. This leads to a social evolution as it shifts humans towards a new global level of social organization and drives us towards moral truth. This is clearly reflected in the increase of trade between nation-states on a global level, allowing more products and services to be exchanged, thus resulting in shared benefits. The ultimate result of this trade is a sustainable peace, prosperity to everyone. On the other hand, cultural evolution deforms when actors play a zero-sum game, it leads to vicious cycles of brusqueness between actors that leads to violence. Vicious cycles spin out of

control. Game theory explains why service ecosystem transforms or deforms through the actors shared intentionally that leads to either cooperation or in some cases conflicts.

Using the game theory premises (Roger, 1991), we propose that the uplifting and inclined change represents a "non-zero-sum human relation between actors" that leads to "Virtuous circles" while a "zero-sum relation between actors" represents a declined change (Figure 3).

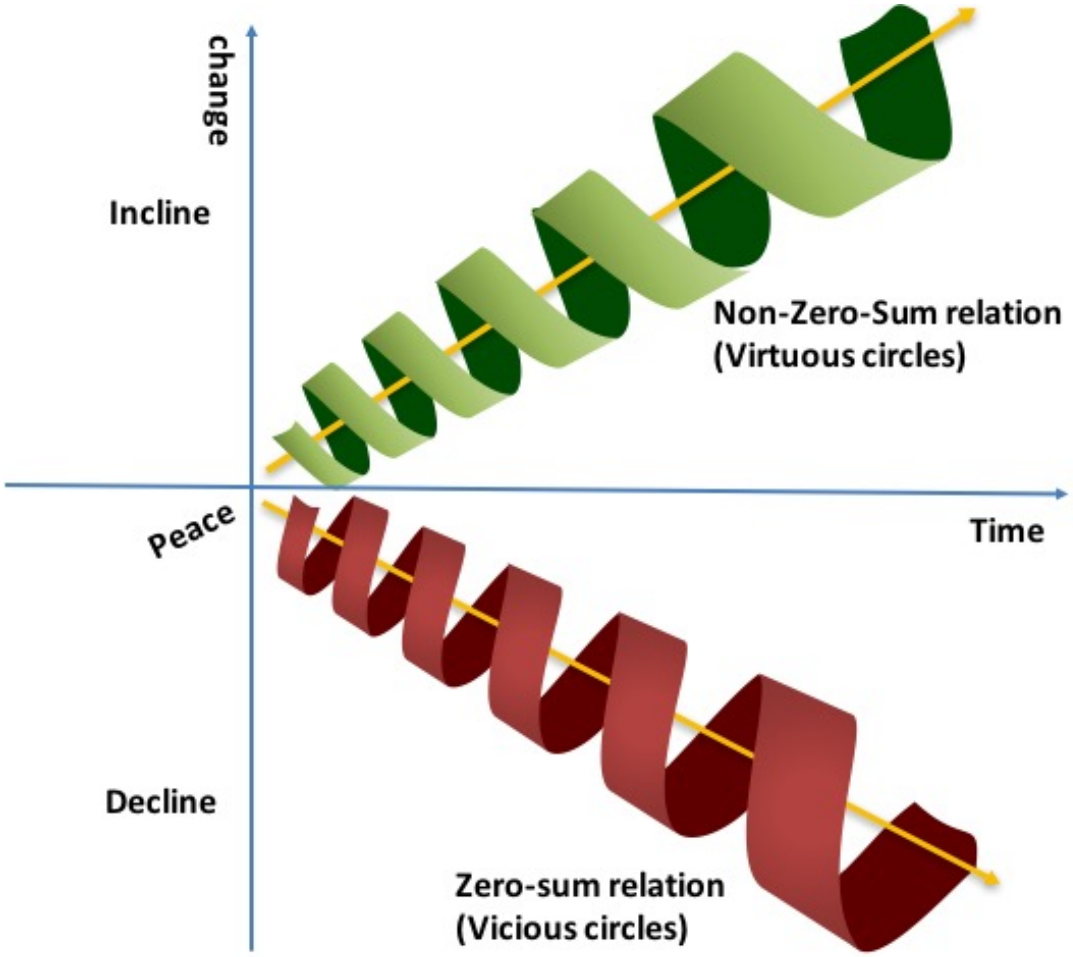


Figure 3 Visualization of transformation and deformation in Service Ecosystems

Based on the above theoretical underpinnings, we propose an extension to the TSR logic, by proposing two extremes on the change continuum: "Transformation" and "Deformation". Transformative Service Research (TSR) is: "…service research that centers on creating uplifting changes and improvements in the well-being of consumer entities: individuals (consumers and employees), communities, and the ecosystem." (Anderson et al. 2013). In this

respect, most of the studies conducted within TSR focus on “Transformation”, defined as a positive force creating “uplifting changes and improvements in the well-being of both individuals and communities’’ (Anderson 2010, p. 9). To counterbalance the focus on positive change, we argue that change could also be declining and therefore propose the term “Deformation”. Deformation, as a term, is mainly used in the medical field and represents “Deviation of form from normal; specifically, an alteration in shape and/or structure of an organ or other body part” (medilexicon). The term “deformation” is also used in physics and mechanics where it represents an “alteration in shape or size of a body under the influence of mechanical forces” (Britanica). We use the term “deformation” to refer to a declining change in the well-being of individuals and communities.

Different studies have theoretically addressed the dynamic nature of service ecosystem (Ben Letaifa et al., 2016; Skålèn et al., 2015; Taillard et al., 2016a). Vargo and Akaka (2012) use the term “system (re-)formation to indicate “XXXX” while (Taillard et al., 2016a) proposed the term “emergence” which refers to “XXXX” . However, there is a lack of empirical research on service ecosystem transformation and deformation.

Given that change, whether it is “transformation” or “deformation” is never static, this fully chaotic transitional position enables actors to constantly update themselves and get access to various resources. This new and complex reality needs to be captured with an appropriate theoretical lens and with an appropriate methodology. Ecosystem perspective offers a theoretical framework, but also a network context and a multilevel methodological approach (Figure 1).

Bridge to next section 3??

3. Shared intentionality within Service Ecosystems

Shared intentionality among service ecosystem actors is fundamental for service ecosystem transformation (Lusch et al., 2016). Taillard et al. (2016) emphasized the role of

shared intentionality between interdependent actors in forming service ecosystem. Indeed, the emergence of service ecosystem is a result of shared intentions between actors that enables collective agency (Taillard et al., 2016). Actors collaborate together on the meso level of the ecosystem in order to form social structures that enable or constrain the emergence of service ecosystem (Taillard et al., 2016).

Service dominant logic highlights the dynamic nature of service ecosystem by emphasizing self-adjustment and the interdependency between actors who integrate resources through service for service exchange (Vargo and Akaka, 2012). In fact, individual actors possess agency on their resources and actions that allows them to integrate these resources in order to seek solutions and create value for themselves and others in the service ecosystem (Lusch and Vargo, 2014; Ng et al., 2009). Actors' agency allows them "to take actions that shape the ecosystem that others inhabit" (Lusch and Vargo, 2014, p. 164). Actors' energy and direction are shaped by different drivers that enable them to integrate resources in order to create value. Actors within service ecosystem not only exercise their individual agency on their resources but also interact with each other and coordinate their activities in wider service ecosystem to improve resource integration and mutual value creation (Skålén et al., 2015; Taillard et al., 2016) thus, contributing to the evolution of service ecosystem by offering individual solutions (Gummesson and Mele, 2010). This coordination is driven by mutual intentions of the actors (Taillard et al., 2016a) and leads to creating social structures that enable or constrain the actions of the actors (Lusch and Vargo, 2014), which may enable and/or constrain the agency of individuals (Bhaskar, 2008). Indeed, research shows that participants with "shared purpose" while acting on technologically networked environments, take on more active and deliberate roles in developing ecosystems (Moore, 2013). In fact, Angus and Newton (2015) argue that shared intentions was an important factor in the evolution of humans' unique cognitive abilities, they argue that the advance in technology and culture is a result of the

emergence of the ability to take a “jointly intentional behavior”. Indeed, collaboration is what makes human smart species and differentiate them from others “That is, humans do not only collaborate because we are smart, but are smart because we collaborate” (Angus and Newton, 2015 p.1) . However, S-D logic emphasized the role of social interaction between actors in forming and re-forming service ecosystem. Indeed, actors create value by integrating and exchanging resources (Akaka et al., 2013).

Service ecosystem in service literature viewed the micro, meso, and macro levels as static, our paper adopts a more dynamic analysis of these levels and support that with an empirical case study. In fact, service ecosystem structure consists of three levels of analysis, micro, meso and macro (Akaka et al., 2015) each is nested in a wider layer. The dynamic of the service ecosystem originates from the process that moves from micro to meso to macro levels and vice versa (Taillard et al., 2016a). Thus process gives the service ecosystem the ability to constantly change. However, what is still need to be understood is what drivers service ecosystem to transform or deform? The drivers are influenced by the norms of the society, they give the individuals the sense of commitment to integrate resources and to synchronize it with others thus, individual drivers are facilitated or constrained by the society.

4. Service Dominant Logic perspective on Service ecosystems

On their efforts to contribute to a general theory of marketing, (Vargo and Lusch, 2004) proposed a new logic. SDL distinguish between “service” as a process and “services” as units of output (Vargo and Lusch, 2007). SDL zoom out from dyadic micro-level view to a more holistic, dynamic and realistic perspective of value creation, through exchange among a wider, more comprehensive configuration of actors (Vargo and Lusch, 2016). These actors are “social and/or economic actors” FP10, forming a network of value creation FP9 (Vargo, 2008). Thus, actors involve in a value creation process where each actor integrate resources that an actor has

the right to use (Ng, 2013). Resources in the service-dominant logic view are understood as being socially constructed and having potential value (Lusch and Vargo, 2014). Thus, each actor is connected with at least one actor in (A2A) relationship, and is dependent on each other's resources to survive. Actors vary in size (individuals to firms and organizations) and they engage in service-for-service-exchange either directly or indirectly through the provision of output (Vargo and Lusch, 2016). Thus, this network, or networks, of actors and resources are overlapping and dynamic as "each integration or application of resources (i.e., service) changes the nature of the network in some way" (Vargo and Lusch, 2016 p.3). Indeed, (Vargo and Lusch, 2016) stress the role of coordination between actors as a mechanism or a platform that facilitate resource integration and service exchange. "Institutions" or "rules of the game" govern the service exchange process and the cooperation and coordination activities between actors (Vargo and Lusch 2011; Williamson 2000). Institutions provides the building blocks (Ostrom 2005) for increasingly complex and interrelated resource-integration and service-exchange activities in nested and overlapping ecosystems organized around shared purposes (Vargo and Lusch, 2016). Technology is the application of useful knowledge (Mokyr, 2005) and it is one form of institutions, norms, conditions, and rules for transactions and other interactions Arndt (1981) that shape actors' interations and exchange. Actors interactions refer to "mutual or reciprocal action or influence" (Vargo and Lusch, 2016)

(Lusch and Vargo 2014 p.) define a service ecosystem as "a relatively self-contained, self-adjusting system of integrating actors connected by shared institutional arrangements and mutual value creation through service exchange". The service ecosystem view has a strong focus on actors' interactive and collaborative social and business processes, both within and between ecosystem levels in micro, meso and macro.

2.1 Transcending ecosystem and service ecosystem perspectives

Using a SDL lens (Vargo and Lusch, 2011) and ecosystem perspective (Moore, 1993; Ben Letaifa, 2009; Vargo and Lusch, 2014), service is the result of actors' resource integrating and coordinating value co-creation activities and interactions in networks and institutions, including employees, intermediaries, competitors, local and global networks and society as a whole.

Actors integration and operation on available resources when co-creating value can thus be captured in their ecosystem context and be analyzed as an evolutionary process shaped by established 'rules of the game' in networks and institutions. Institutions are in this paper understood as the social actors devised schemas, norms, and regulations that both constrain and enable them and make social life predictable and meaningful (North 1990; Scott 2014). These institutional logics influence the perceptions, mindset and behaviors of the three levels of actors in the ecosystem. Yet, when an ecosystem is in transition, these institutional logics are broken and are also getting changed. Change need to be institutionalized to achieve transformation. Institutionalization of change means that the norms, roles and behaviors change. This paper reveals that in order to validate a service transformation, there is a need to observe new institutionalized outcomes at the macro levels. These outcomes include new laws, new norms, new rules and new values. These changes can be captured at the macro level of the ecosystem, called the macro level.

In other terms, as long as the macro level is not embracing the change, there is no transformation of the ecosystem. The three levels need to adopt the change so that people, networks of people and formal organizations integrate and adopt the new vision. Yet, institutional logics at each level either enable or inhibit actors' transformation. These drivers should be further analyzed. Understanding transformation from a multiple actor perspective and in particular analyzing what motivate and enable actors to drive change, is grounded in

envisioning a more effective, larger value creating eco-system, and at the same time, to coordinate resource integration, as to jointly enact a more sustainable service ecosystem. In management literature, ecosystem is embedded in social system. networks are informed by institutional logics. We argue in this paper that when norms and roles of all involved actors share the same strategic intent, i.e sharing the same goal and norms, a new institutional values are created that allows for institutional and actors change.

This paper uses the ecosystem perspective and a multi actor centric approach for analyzing what drives actors to engage in change efforts. Drivers here denote the combination of actors' motivation (gives energy and direction) and their enablers (various resources) in accomplishing service eco-system change. In this article, change refers to those established co-created changes at three different levels of analysis: People (micro), networks of people (meso) and formal organization (macro), and varies from incremental to radical change, or shift, of social, economic, ecological and cultural value (Ben Letaifa 2014). Co-creation is here defined as the engaged actors' activities and interactions when gathering, leveraging, integrating and operating on (using) available resources resulting in value in context for all actors. When actors join forces and coordinate their activities and interactions, their driving force can gain enough energy and thus get a more clear direction to generate drivers at the network of people and institutional levels. This could then allow the transformation of a service ecosystem (Ben Letaifa, 2015).

The comparative study of two change processes which unfold very differently allow us to identify three levels of actors in service ecosystem change (micro, meso and macro) and what drives these actors to join force to reach transformation or deformation. The micro level refers to the individuals or the people who engage as active resources integrators, the meso is about

the network of people supporting these actors and finally the macro refers to the formal organizations to which the ecosystem belongs (local and global business and non-business organizations). These different layers of actors interact with one another and influence what they do and how actions are coordinated. Different drivers motivate actors to coordinate and integrate their resources within the service ecosystem boundaries across different levels. Drivers may play the role of enabler or inhibiter to the resource integration at each level

3 Methodology

This study is an inductive and comparative study of the transformation and deformation of two nation-state ecosystems, Tunisia and Syria. Both nation-state service ecosystems allow us to identify and analyze why actors engage in driving transformation in these two different institutional contexts. On one hand, they both share similarities in terms of cultural, political and economic contexts but on the other hand, they represent differences in terms of identity, norms and institutional rules. These two service ecosystems are considered as extreme sampling allowing for generalization (Patton 2002, 2004). We used multiple cases to build theory as this strategy is regarded as the "most interesting" research (Bartunek, Tynes, and Ireland, 2006) and is likely to produce theory that is accurate, interesting and testable. Our cases allow us to develop theory inductively by recognizing patterns of relationships among constructs within and across cases (Eisenhardt and Graebner, 2007). The first case has successfully accomplished its transformation from dictatorship to democracy, while the latter has deviated from the initial goal and continues to be in transition. Our case studies give us rich empirical descriptions to understand service ecosystem transformation and deformation that are typically based on a variety of data sources (Yin, 1994). A multilevel analysis of both transformation and deformation of the two nation-state ecosystems by focusing on what drives actors to transform or, in some cases, deform their service ecosystem is conducted in order to grasp the drivers at the people (micro) levels, network of people (meso) and formal organizations (macro).

Data collection:

Different activities that aim to transform or deform a service ecosystem are increasingly taking place online. Online platforms such as Skype and social media networks ex. Facebook have become a convenient context of studying change since it includes rich data of activists' activities, narratives, stories, and forms of collaboration. Therefore, it has become natural for

this study to use primary data generated from netnographic approach along with personal semi-structured interviews with some key actors who are engaged in the change process. In addition, we use secondary data such as information existing on international media websites, reports by experts on Arab Spring and YouTube videos uploaded by activists. While, primary data served to understand the longitudinal process that led actors to leverage and integrate resources but also to reveal the motivations or drivers, secondary data validated our primary data and connected them to key events and outcomes over time.

In summary, the data has been collected, presented analysed from an ecosystem perspective with a notion of people, network of people and formal organisation. although we recognised that the ecosystem actors are shaped by institutions and institutional arrangements, norms roles and habits.

Personal Interviews

Interviews provide a collection of rich data about the dynamics and drivers of the change in progress. A semi-structured interview guide was used in order to grasp how both nation-state ecosystems have been subject to a change and how actors at the three levels accomplished the transformation, integrated their resources and coordinated their roles and activities (Tunisia), and how the transformation was deviated from its initial path (Syria). These open questions allowed the interviewees to elaborate and further explain their perceptions and points of view. The aim was to have rich and detailed data from the activists and to favor emergent and spontaneous items and issues. By doing so, the study has a better internal construct and external validity (Yin, 2009). 37 Interviewees were strategically selected with the aim of achieving maximum variation on the basis of age, gender, geographical location, and educational background as the change attracted different ages, genders, and social status. For Tunisian ecosystem, we interviewed 27 individual actors involved in the three levels of the ecosystem. These actors include 4 entrepreneurs, 4 social entrepreneurs, 5 activists, 2 bloggers, 5

association founders, 3 NGOs consultants and 4 public decision makers. For Syrian ecosystem, we interviewed 10 actors of which they are known for their unique contribution during the first three years of the uprising. These actors are 2 social entrepreneurs, 4 online activists, 2 bloggers, 1 NGOs consultant, and 1 decision maker. (see table 1)

Table 1: Interviewees at the three levels of the service ecosystem in both Tunisia and Syria

Case	Individuals or People as citizens on micro level	Individuals acting at the meso level (networks of people)	Individuals acting at the Macro level (formal organizations)	Total
Tunisia	8	12	7	27
Syria	2	6	2	10
Total	10	18	9	37

Netnography

Netnography is used to analyze information available on the web in real time. Netnography is developed by Kozinets (2010) to capture online activity existing within online communities which is textual communication, or some multimedia communication such as video, audio, pictures (Kozinets, 2010). It has previously been used to investigate consumer activism in online communities (Kozinets and Handelman, 1998). Kozinets (2010, p. 25) defines Netnography as "a specialized form of ethnography adapted to the unique computer-mediated contingencies of today's social world." Like the ethnographer, the netnographer collects data by means of active participant observation but does it online. Netnography is

suitable method to use for understanding ecosystems change as much of actors' activities within the studied ecosystems have been carried out online. Netnography is a multi-methods that can involve other methods, such as in our case, interviews (Kozinets, 2005). In addition, netnography is retrospective which allowed us to trace back conversations several months/years ago so that allow us to understand the development of a topic/community (Kozinets, 2002), which is convenient to understand service ecosystem change over time.

Two of the authors were particularly involved in the Tunisian and the Syrian uprising. Their involvement granted them access to unique data and made it possible for them to understand the social context during the uprising and thus identify the key drivers that enable/inhibit actors to leverage resources to achieve transformation of both ecosystems in Syria and Tunisia. Other relevant secondary data connected to the social media communities that we studied at the time of interaction were gleaned and analyzed from various online platforms such as Skype history logs of involved activists, Facebook pages and groups related to the uprising, and YouTube videos uploaded by online activists as well as international media channels, etc.

In order to protect the interviewees as well as the online activists from any harm that may result from their participation in the uprising, we avoided stating their real names or their used names on the online communities, instead, we refer to them by activist 1, 2 …etc.

Data Analysis

We analyze the data using open coding and constant comparative analysis (Glaser, 1965) with a focus on identifying drivers of transformation/deformation at the three analytical levels in the ecosystem. The data analysis was framed by our conceptualization and our research question presented above, but it also remained open to emerging themes. We look at what drives actors on different layers of service ecosystems to engage in service ecosystem change. Dual case studies with data from various online sources, interviews with actors were analyzed using

narratives, and visual mapping (Langley, 1999). Our data analysis process started with open coding, implying that we identified drivers of the transformation/deformation of service ecosystems. Codes were defined ad-hoc (emergent or invivo coding). This was followed by axial coding relating concepts to categories, building up themes that empirically illuminated the research question of the study. The results of this coding process are presented in table 2. This process helped us to identify the drivers of transformation/deformation adopted by actors. The results of this part of the data analysis are presented in the findings section.

To increase the trustworthiness of the data (Wallendorf and Belk 1989), we conducted open and axial coding of the data collected from other contexts other than Tunisia and Syria. The results of this coding are not presented in the paper; however, it suggests that actors' drivers for change were similar ways in Egypt and Libya as in Tunisia and as in Syria. We also carried out selective coding in order to integrate our themes with previous research and our above-mentioned conceptualization, further validating our results. On the basis of selective coding, we articulate our contribution.

The analysis allowed us to identify: 1/ how these actors leveraged and coordinated their resources (figure 2 and 3); 2/ what motivated or inhibited their actions (figure 4 and 5). Theorization allowed identifying the three levels of drivers that influence the ecosystem transformation (table 2).

4 Findings

The findings are organized according to the methodological framework following the micro, meso and macro levels of actors with a focus on the drivers of transformation/deformation. We use narratives to describe the change that escalates from one level to another, i.e. from micro to meso to macro (3.1), In doing this, we begin by summarizing our findings using narratives, then we define and describe the drivers (3.2). Finally, we show

the interdependencies and the interactions between the three levels of the service ecosystem and the role of the actors in driving the transformation emphasizing the drivers for change (3.3). We also analyze the implications for service ecosystem change.

4.1 Change from micro to meso to macro levels

Transformation occurs through interactive and dynamic phases and starts at the micro level (people) who might or might not succeed in transforming the other levels of actors.

Drawing on the management literature, the ecosystem provides three layers of actors, three chronological phases unfold and correspond to a move from the micro to the meso to the macro level: phase 1, refers to the actors at the micro level engaging in the ecosystem change, phase 2, describes how the micro level influenced the meso level and how actors at the meso level join forces and continue the transformation efforts, and phase 3 illustrates how the third level of actors, i.e formal organizations lead to deformation, as the case in Syria, or enable, as the case in Tunisia, the institutional change. While phase 1 and phase 2 are similar in both ecosystems, the phase 3 differs in term of XXX. This difference allows theorization on 1/ how transformation is institutionalized; 2/ drivers on ecosystem transformation at the three levels, 3/ the role of macro actors (external actors in particular) in enabling or inhibiting the transformation.

Phase 1: Actors at the micro level integrating resources, cocreating value and engaging in transforming the institutional level

This phase shows how actors at the micro level of the service ecosystem have initiated the spark of the change. A micro actor refers to an individual, a citizen, a social entrepreneur, a student or an online/offline activist. Micro actors are the corner stone of a change. Operating on different social networks such as a neighborhood, or a family, micro actors initiate the

change, recruit more people to join forces, integrate their available resource and coordinate activities in order to transform their society to a better one.

In Tunisia, Mohammed Bouazizi, a jobless young man desperately burned himself in December 2010 in front of a governmental building. His motivation was dignity, "Mohammed did what he did for the sake of his dignity, he felt oppressed and he wanted to take a revenge after he has been insulted by policemen, they slapped him on his face and did not allow him to work on his vegetable wagon" says his mother informed the Washington Post (Fisher, 2017). The young man later died from his injuries causing a huge anger and frustration among his family and neighborhood. Hundreds of Bouazizi's friends, family members, and many people who sympathized with him went down to streets demonstrating against the authorities in support to Bouazizi. Some civil activists created Facebook groups and pages that helped to recruit more activists to join the uprising, to connect activists together, to share videos and information on the demonstration and direct their efforts towards a common goal. Civil activists uploaded the videos of the demonstrations on the social media networks in order to reach more viewers, thus recruit more supporters. Later, the videos were used by the international media channels during their daily news reports. This creates a pressure on the local government towards explaining the incident, and questions their legitimacy. Thus, the local government is pushed to take an action. As a result, the former president at that time, Zine el Abidine Ben Ali, had to visit Bouazizi on Dec. 28 to try to blunt the anger (CNN.com, 2017). However, the outcry could not be suppressed and, on Jan. 14, just 10 days after Bouazizi died, Ben Ali responded to the public pressure and his 23-year rule of Tunisia was over.

In Syria, the bottom up change started in the southern town of Deraa in March 2011 by a few citizens, inspired from the Tunisian uprising, (school children who wrote on the school's wall "*the people wants the downfall of the regime*"). The regime arrested the children and tortured them. Soon after, the children's families gathered in front of the city governor asking

of the release of their children. The authorities faced them by violence and several citizens were shot dead. Later, more people gathered to show support to both the families of the children and the martyrs leading even bigger demonstrations (Sterling, 2012). The authorities responded to the pressure and released the children. Local activists filmed the tortured children and shared the videos on social media as well as on international TV channels stimulating more people to sympathize with the children (CBSnews.com, 2011). Citizens watched the news and demanded justice for the children, thus, more people joined the movement and a loop was created. Later, the demonstrations grew by number and by the geographical area the more the regime used the excessive force to suppress the uprising. "How can I keep silent and not to join the demonstrations when I see my family members, neighbors and friends are being jailed, tutored, and even killed" said Syrian activist.

In summary, the micro actors in a service ecosystem are individuals, citizens, students, social entrepreneurs and online/offline activists who use their resources (mainly skills, knowledge, motivation) to create social acceptance around the change by recruiting other individuals to join forces through social networks, and thus, create power that contribute to the change. Among the effects of this bottom-up change is the empowerment of people who enact as active "presumers" (Trendwatching, 2012). Presumers being defined as the new dominant profile of engaged and well-informed customers or citizens "*who want the best service, right now and with a human connection"*. Many citizens spontaneously raised their voices and took actions in the streets or online to express their needs and their aspirations. These initial isolated events and individual actions scaled up, reached networks of people and facilitated a new phase of a more empowered and organized collective social change movement to emerge (phase 2).

Phase 2: Actors at the meso level integrating resources and engaging in transforming the institutional level

This phase defines the actors on the meso level and shows their role in service ecosystem transformation. A meso actor refers to a network of people that share the same vision and strategic intent and coordinate with each other through forms of collaboration in order to perform the transformation in their society. Meso actors include strong ties groups such as family, neighborhood, friends or associations, i.e. social direct networks, but also virtual communities and groups reachable thanks to social platforms or tools like Facebook, Twitter, and smartphone applications for example, Whatsapp and Snapchat. Our findings show that the family bonds, neighborhood and social media networks played the major role in the social contagion in both Tunisia and Syria. They enabled the positive change by creating a platform where micro actors operate and integrate resource to strive for the change.

The family bonds and neighborhood have contributed to foster the change in both Tunisia and Syria. The neighborhood of Bouazizi is in the countryside of Tunisia where the family ties between individuals are strong, the same thing in southern Syria where the first spark of the revolution started. Bouazizi's neighborhood and family as long as the Syrian children's, pushed the rage and anger to the streets creating a wave of daily demonstrations in front of different governmental buildings. These demonstrations shed the light on people's sufferings and called for more people's attention to join the movement. Thus, creating more pressure on the government in their efforts to change. The plethora of associations and social entrepreneurship initiatives illustrate even the takeover of many traditional public services which used to be provided by formal organizations by the civil society (people and networks). Eco-neighborhoods in Tunisia, for instance, rise and citizens mobilized for cleaning neighborhoods when municipalities workers were on strikes, supplying security during January 2014 chaotic three weeks, etc.

The attempt for transformation in both Tunisia and Syria is primarily a cyber-revolution as social media networks enabled the activists and bloggers to communicate with each other,

share information, recruit more people to join forces and benefit from crowdsourcing. Tunisia is known for its high penetration rate of Facebook subscribers (more than 31% penetration rate whereas Internet users count for 43.8% of the population (Internet World Stats, 2013).

In Syria, individuals started to gather and organize themselves in order to coordinate their activities to change. Syria has Internet penetration rate of 26.2% (Internet World Stats, 2013). The majority of the users are educated young people and also include business elites. With the help of the Internet and the information and communication technology (ICT) individuals were able to coordinate and integrate resources such as knowledge and skills by using Internet and social media networks. For example, Syrian activists (micro actors) initiated a call for change by operating on social media networks (a Facebook group) in order to involve other resource integrators. The activists film the protests and share them on Youtube then send them to Tv channels such as Aljazeera (a macro actor) who in turn use the videos in their reports and news. “I am part of a group of activists that is specialized in media. We do the reporting process by ourselves after the regime banned the despondences from coving our activities. We film the demonstrations using our smartphones cameras, upload it on YouTube, share it thousands other activists on social media and share it with the international TV channels through Skype, email and upload services” he added “the world should witness and act, our nation is being exterminated”. This allowed the engagement of the institutional level through local and global media coverage and sharing of news and information (Phase 3).

Phase 3: Actors at the macro level enabling or inhibiting the institutional change (transformation or transformation of the service ecosystem)

This phase defines the macro actors of the service ecosystem and further explains their role in the transformation. Therefore, the change is a bottom-up process that starts from the individual (phase 1) through social networks (phase 2) towards the institutional or macro actors

(phase 3). Macro actors enable or inhibit the transformation. Macro actors include local governments, foreign governments, army, NGOs, international media agencies, and international organizations such as the World Bank and the United nations. Macro actors differ in their identities, interests and visions regarding necessary and desirable changes. They do not always share the same vision and they do not serve the same interests and motivations as citizens and networks of people.

This phase describes the main differences between the two service ecosystems (Tunisia and Syria). While in Tunisia the positive change has been institutionalized, in Syria the macro actors influenced the path of the change and lead to deformation. As formal organizations inhibit the transformation, the ecosystem cannot be transformed as planned by the micro and meso actors. The macro actors i.e. formal organizations must integrate and coordinate resources in order to the ecosystem to transform. The narratives below on each ecosystem will provide in details how change was enabled or inhibited.

Service ecosystem transformation through Tunisian macro actors:

After the president, Ben Ali, left the power in January 2011, the transitional government conducted a democratic election in 2012 to elect members of the constituent assembly to draft a new constitution. This assembly has successfully co-created and delivered a new constitution that was unanimously saluted by Tunisian actors (people, networks of people and formal organizations) (Piser, 2016). Indeed, the constitution took two years to be crafted but included several amendments, inputs and feedbacks from civil society who strongly participated in commenting and following different social and economic amendments and propositions in the new constitution (BBC.com, 2014). The final one was a consensual, collective and integrated piece of work. The 2014 elections were also an example of a new social ecosystem enacting in transparency, dignity and democracy allowing free, legitimate and fair elections. The peaceful,

consensual and civic process reflects the macro drivers in table.1 (educated people, homogeneous and feminine identity, and absence of geopolitical interferences).

The social change attracted foreign young talents who lived in Europe and North America and who built on the paying-back driver to be part of the socio-economic change. “Time to contribute or time to repay”. Many worked for free during six months or one year in different ministries (economy, education, interior, etc.). The 2011 new government was composed by well-known socio-economic leaders instead of politicians (minister of education, finance, etc.). Even the transitional government of 2014 was composed of many technocrats and successful top management men and women who came back to Tunisia to serve their country. For instance, the female young minister of tourism Amel Karboul was a successful business leader in London and she left her family for a year in order to reform the ministry of tourism. Many other young and brilliant Tunisians contributed in finance, economy, IT and education.

Some leading international organizations (macro actors) like the World Bank pushed for the empowerment of the civil society and forced the government to be more transparent, collaborative and inclusive in crafting social and economic reforms. Public consultations became very important and targeted all the actors for example involved directly or indirectly in the Telecoms reform consultation of 2013. The European Bank of Reconstruction and Development and the World Bank initiated and funded many economic studies and public audiences with the civil society and private actors. However they never interfered in the Government ultimate decisions. The recommendations were public and included the mobilization of the whole ecosystem. Funds were also raised to strengthen and structure the civil society into mature political actors. For example the Global Partnership for Social

Accountability provides a strong technical and financial support to local associations. More than 17000 associations are today active in Tunisia mainly to enhance governance, social entrepreneurship, open government and open data. For example the platform of open Gov "Marsoum 41" (i.e decree 41) has been initiated by the association touansa.org. The new decree 41 (may 2011) imposes to the Government to make all his public documents accessible and was pushed by the World Bank when it provided a grant of 500 million dollars to the 2011 new government. Thus, in Tunisia, people's initiatives leveraged through local networks and associations and were pushed by international organizations that were very involved in nurturing the ecosystem transformation (figure 2). The socio-cultural homogeneity of the Tunisian society (religion, ethnicity, language, education, modernity, etc.) was a lever to the change institutionalization at the macro level. Moreover, macro actors like army and police were not as powerful and highly loyal to the political regime as in Syria or in Egypt. Finally, the neutral geopolitical position of Tunisia also helped in reducing external interferences from global macro actors (foreign countries).

Service ecosystem deformation through Syrian macro actors:

On the other hand, in Syria, despite people's suffering from dictatorship for more than 40 years and sharing similar economic, political, and social challenges with Tunisia, the ongoing change in sociopolitical ecosystem in Syria has been brutal and bloody.

The macro actors in Syria lead to deformation and a decline change of the sociopolitical ecosystem. Macro actors were either active inhibitors or passive in the way they support the transformation. For example, the macro actors such as army, police, secret police responded brutally to the demands of the families to release the children from the prison. They also offered only incremental changes such as replacing minsters and police chefs with others instead of bringing them to trial (arabic.cnn.com, 2014). Moreover, the government applied more

regulations that restricted people's freedom (Reuters.com, 2011), for example, surveillance on the Internet and social media websites that lead to arresting many activists (Alkousaa, 2011). The hope for a change in the service ecosystem has not been translated into new rules and regulations in the macro level of the service ecosystem, i.e. changes in the law and regulations that support the change.

On the other hand, international media, western and many Arab countries took a passive role of supporting the transformation. Different media agencies have mostly muted their criticisms of the crackdown in Syria for fear of destabilizing a country (Reuters, 2011) therefore, activists turned their dependency on covering the events online from the international media local correspondences to more active and self-independent. An activist said "we need the whole world to see our suffering, to witness the human rights abuses by the regime, and to call the international community to act".

Macro actors differ in their vision and strategic intent as interests differ, thus they create a competitive ecosystem that inhibits the transformation.

Syrian society comprises of different ethnic, religious and sectarian groups that shape the Syrian identity. Syrian society is heterogeneous, masculine, with converts from different global actors in Syrian geopolitical position. The sectarianism has been always part of the Syrian national political climate, but the current autocratic regime implemented intentional policies to divide people based on sect, religious and ethnic criteria. Different disputing parties from different sides, both the regime and the opposition, promote their supporters to join the combat as a necessity to protect and defend their own sect. For example, "the Sunnis are more dangerous to us than any other enemies, they are the absolute enemies" said a Syrian citizen. As a consequence, the attempt for change shifted toward identity-based conflict or forms of sectarianism. Each sectarian group claimed that they are defending not only their position and

power, but also their very survival. Thus, the peaceful demonstrations turned into an armed conflict, accompanied with the creation of a group of the Syrian army defected from the army to create The Free Syrian Army, the group was founded to defend the peaceful demonstration from the attacks of pro-regime thugs. The armed conflict attracted different global formal organization (macro actors) that have different interests in the economic, geopolitical position of Syria in Middle East such as Russia, Qatar, Saudi Arabia, the United States and even global extreme organizations such as Hizbullah and Al-Qaeda. As a result, the international community remains divided on what action to take, with western and Arab economic sanctions only frustrating rather than disabling the regime, while Russia, China and Iran continue to support the regime financially, combats or by weapons. While on the other hand, Saudi Arabia, Qatar and Turkey are standing behind some armed groups and supporting them with money and training. As a result, the rift in the society has increased as both the regime and the opposition used the sectarian cards against each other to favor their external allies. The conflict resulted in 7 million refugees inside Syria and 4 million in the neighboring courtiers (UNHCR), 2015) many of which are well educated.

The ecosystem in Syria has also impacted the service system in both value creation and value destruction ways. So far, more value has been destroyed than created. Indeed, social, cultural, economic and ecological value have been destroyed as the movement turned into an armed conflict. Healthcare, financial system, security and education were the main services that have been severely destroyed. For example, the united nation estimated more than 1.5 million houses been destroyed in the war in addition to sever destruction to the infrastructure including electricity, water and sanitation (Humanitarianresponse 2014). In addition, 700 industrial facilities have been targeted. Since the armed conflict started, the demand for many services and products decreased due to the absence of the security and the people tend to save instead of buying. Thus, many businesses closed down and many have left the country leaving many

without jobs. For example, “I own a car company, the sales have decreased by 70% from before the conflict started, and I have received many cars back, and even the banks were not able to finance my business any more. Later, my business is now totally stopped”. This motivates many young people to join the armed conflict as combats. “I was working in Lebanon as a builder and due to the financial and political pressure resulting from the huge number of refugees in Lebanon, I was forced to go back to Syria. I lost my job, but I have offered to fight as a combat in the front line and get paid USD 500, then I joined as it is the only choice to survive”.

To sum up, actors have enacted a new and more engaged and proactive role; from passive to active participants in the transformation of the ecosystem. We presented the three levels of actors change with a focus on the people level as they played the role of initiator of the transformation by creating, integrating and using resources. Furthermore, resources were leveraged using various enablers such as social communities and other ICT tools. As a result, the network effects stimulate social contagion. In other words, the sociopolitical claim of the early adopters (resource integrators) resonates with the crowd latent aspiration (need for more freedom, democracy and dignity). The attempt for change has affected the formal organizations on the macro level of the service ecosystem. These formal organizations responded to the change by integrating resources to prevent the change from being institutionalized. However, the study shows that the change has been indeed institutionalized in one ecosystem, Tunisia, and has not fully institutionalized in the other ecosystem, Syria where the institutionalization of the change was in away that it stops or reverse the first intention of the change.

The table 2 below shows the transformation of the actors in the service ecosystem in both Tunisia and Syria under the period 2011 to 2014.

Table 2: Tunisian and Syrian actors’ transformation

Ecosystem’s actors	Before 2011	After 2014
People	Passive- afraid- fatalist (Tunisia and Syria)	Active-engaged-optimistic (Tunisia)

		Passive-disengaged-pessimistic-exiled (Syria)
Networks of People	Politically corrupted – power driven (Tunisia and Syria)	Independent- active associations-values driven (Tunisia) Restricted, monitored and scattered (Syria)
Formal organizations	Corrupted- inefficient (Tunisia and Syria)	Reformed by law and norms (Tunisia) Weakened, preserved and reinforced by the same prevailing autocratic methods (Syria)

4.2 Drivers of service ecosystem transformation

The three levels of actors allowed us to identify three types of service ecosystem drivers for transformation/deformation, micro drivers, meso drivers and macro drivers. Interviews collected fine-grained data on how activists explain the drivers of the ecosystem transformation. These drivers can be divided into three categories: micro (people's motivations), meso (network of people dimensions) and macro (institutional context) see (table 3).

1. Micro drivers (people's motivations), refer to activities and interactions that give energy and direction to the people for transformation. From this perspective, a micro driver is personal feelings, values, norms, motivations and perceptions that would explain micro actors' actions and decisions in support of or against the dominant institutional logic. Thus, a micro driver can be cognitive, emotional or social; it is also intrinsic, as it exists

within the individual rather than relying on external stimuli. It is personal and it generates in the person the need to do something. The change starts with an individual initiative performed by a micro actor. In our study, micro drivers belong to the micro level of the service ecosystem and they are carried out by the micro actors. In Tunisia, an initiative to change started by an individual i.e. a micro actor, a jobless young man and school children in Syria. Different drivers motivate micro actors to act for a change. Our data analysis allowed us to identify the following micro drivers on the micro level of analysis. At the micro level, in Tunisia and in Syria, people felt it was the "zeitgeist" for change and felt they need to do something for their country. "No more fear" and "it is time to do something for our country" were the main leitmotivs in the interviews. Thus people were transformed from passive to become active and engaged in the transformation. They were driven by: Courage, Grit, Eco-citizenship, Responsibility, Grateful guilt, Political Freedom, Dignity (economic/ social), Reciprocity, and Revenge.

2. Meso drivers (network of people motivations) refer to the activities and interactions that provide the individual with energy and direction and that connect isolated people with other individuals in order to create a network of people that share the same strategic intent, in order to coordinate their activities and perform the change. From this perspective, a meso driver is extrinsic to a collective group as it goes beyond the individual himself to include the individual's social network. In our study, meso drivers belong to the meso level of the service ecosystem. They are carried out by the meso actors (off line and online communities). These meso drivers include technology (platforms, social media, Skype, SMS, etc.) and ICT knowledge which enable the activists and bloggers to communicate and share information and benefit from crowdsourcing. To sum up, the meso drivers of service ecosystem transformation that drive micro actors are social networking, ICT knowledge and adoption/accessibility.

Finally, the need for the individual/citizen/activist to be part of a collective and shared vision (online communities, family, friends and neighborhood) is also an empowering driver at the meso level.

3. Macro drivers (institutional context) refer to the institutionalized, prevailing norms and rules that the current system has. It provides actors with energy and direction towards a goal that enables or inhibits the change. Macro drivers belong to the macro level of the service ecosystem and they are carried out by local and global macro actors. Macro drivers are extrinsic as they come from outside of the actor, for example, the level of education in the country, the national identity, local culture including norms, history and values in addition to the demography of the country. In our study, institutional drivers in Tunisia were the homogeneity of Tunisia, highly educated population, feminine culture and neutral geopolitical position. These drivers enabled the transformation as it found resonance with the micro and the meso actors vision. For example, the feminine society of the Tunisian society contributed to consensus between Tunisians rather conflict. While in Syria, heterogeneous society, less educated population, masculine culture, and sensitive geopolitical position compromise the main institutional drivers for the change. In conclusion, the key drivers of the macro actors for service ecosystem transformation are national culture (norms, history, values), identity, geopolitical position, density, area, population, demographics, legal system, education (table 3).

Table 3 Drivers of service ecosystem transformation for each of three levels of actors

Service ecosystem levels	**Unit of analysis**	**Drivers**		
		Micro	**Meso**	**Macro**

Micro	People	Presumers profile Courage/ Grit Eco-citizenship Responsibility Grateful guilt Political Freedom Dignity (economic/ social) Reciprocity Courage (-) Revenge	Social networks Adoption/accessibility	National culture (norms, history, values) Identity Geopolitical position Density, area, population Demographics Legal system Education
Meso	Networks	Presumers profile Knowledge Opportunistic behavior	Applications (Skype, SMS, Calls)	Technological infrastructure Transparency
Macro	formal organizations	Eco citizenship Courage	Crowdsourcing E-government	formal organizations, Global media coverage, Global stakeholders

4.3 Interdependencies of service ecosystem levels and drivers

This section clarifies the interdependencies of the three levels, and the interactions between the three levels of actors of the service ecosystems emphasizing the drivers for change/transformation.

Fragmented crowds grew, shaped the movement and converged into collective and coordinated actions. Citizens who regained the sense of eco-citizenship and claim for democracy, freedom and dignity with protests in the streets spontaneously led social change. These social claims moved from people to networks of people according to different ways using

different platforms (smartphones, social media, family…) and then were either promoted or inhibited by institutional drivers. Thus, the social movement on its struggles to achieve the change started with people (micro level), leveraged through networks (meso level), impacted formal organization (macro level) and loops of reinforcement (Tunisia) or deviation (Syria) allowed dynamic and continuous transformation of the whole service ecosystem (figure 2).

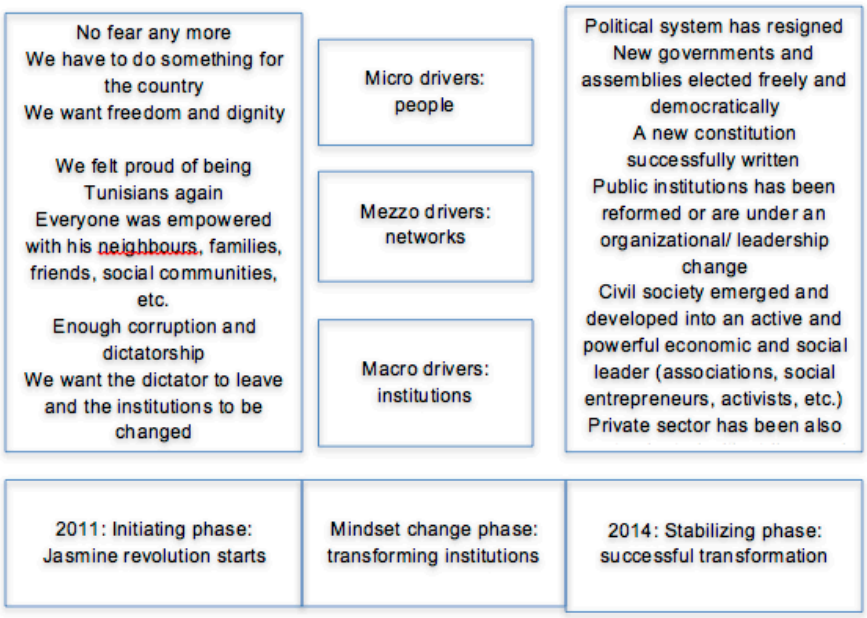
These two cases findings highlight how the service transformation initiative starts from people who engaged and involved others and use networks in order to transform the formal organizations. The network effect with loops of reinforcement creates self-nurtured transformative ecosystems, the Tunisian being virtuous and the Syrian unsuccessful so far.

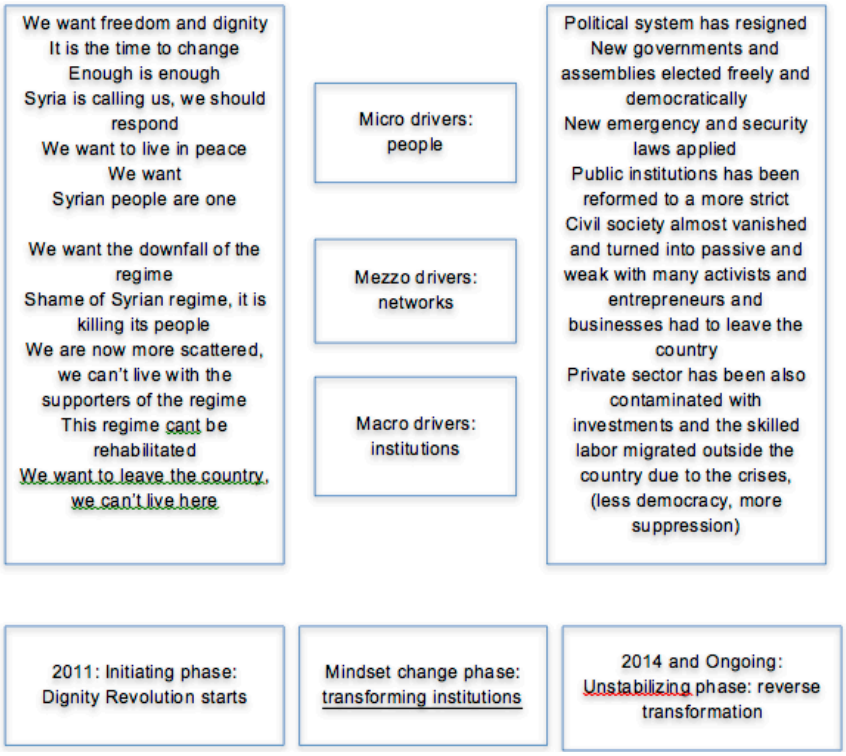
At the micro level, in Syria and in Tunisia, people felt it was the "zeitgeist" for change and felt they need to do something for their country. "No more fear" and "it is time to do something for our country" were the main leitmotivs in the interviews. These aspirations have been echoed by the network dimensions, mainly the social media in both countries and the empowered associations in Tunisia (as detailed in the previous 4.1 section). The difference between the two cases relies in the macro level (formal organizations) as people and networks were able to impact the formal organizations in Tunisia but failed in Syria. According to the data collected, networks did not scale in Syria because of local and global institutional drivers. Indeed, the macro drivers were inhibiting in Syria and enabling in Tunisia (figure 3 and 4).

In Tunisia, global formal organizations helped to empower the civil society and to make economic reforms whereas in Syria global formal organizations brought war and chaos. In addition to that, in Tunisia, local formal organizations were not as empowered as in Syria, especially the army and the police who stayed neutral and did not fight against their population. Finally, in Tunisia, the homogeneity of the highly educated society helped to preserve solidarity and cohesion while in Syria, the heterogeneity of the society combined with a less educated population led to more anarchy.

In conclusion, and as highlighted in figure 2, the findings show how and why the transformation moves from micro to meso to macro level of the service ecosystem: a number of isolated initiatives at the micro level contaminated the network level (people networks) and finally transformed the formal organizations.

Figure 3a and 3b: How social transformation in Tunisia and Syria led to value creation in service ecosystems





Is this also Figure 2

The integration of micro, meso and macro actors with micro, a meso and macro driver pushes the research on service ecosystems to a new systemic perspective that links actors, resources and service transformation. These findings allow for new propositions that are detailed in the following discussion.

5 Discussion

This section discusses the contribution made by this article to inform service research and TSR by answering its research questions: (1) how service ecosystems are transformed or deformed? (2) how actors interact in the three levels (micro, meso and macro)? (3) what are the drivers of transformation or deformation for the engaged actors? The discussion provides theoretical, methodological and empirical propositions and contributes to the ongoing discussion of how a service ecosystem change unfolds and how value is co-created through actors' resource integration. This section also outlines policy implications and suggestions for future research.

A service ecosystem framework put forward by Lusch and Vargo (2014) emphasizes all involved actors' social system belonging, engagement and contributions in resource integration processes. The service ecosystem view has a strong focus on actors' interactive and collaborative social and business processes, both within and between ecosystem levels in micro, meso and macro. Within SDL, the micro level refers to an individual actor, the meso level to a company or an organization while the macro level refers to an industry or a country (Kjellberg and Helgesson, 2006).

In this vein, society can be described as a web of interconnected resource integrating, service providing and value co-creating actors formed dynamically and evolving within complex service ecosystems (Vargo and Lusch 2011). In service ecosystems, actors integrate resources from multiple sources (private, market-facing and public) through exchange (Vargo and Lusch, 2011). Service ecosystems are formed and changed through a recursive relationship between individual actions and the reproduction of relationships and shared meanings (e.g., social norms and cultures) which has been discussed by Edvardsson et al., (2012). The service ecosystems perspective highlights the importance of institutions – socially shared 'rules of the game' – in value co-creation (Vargo; Akaka, 2012) and thus ecosystem change. Vargo, Wieland and Akaka (2014) argue for "institutionalization – the maintenance, disruption and change of institutions" – as a central process of innovation and we argue here that institutionalization is driving actors and service ecosystem change. Furthermore, Information and Communication Technology (ICT) is viewed as potentially useful knowledge that is both an outcome and a driver of actors' resource integration processes in their efforts to change service ecosystems.
Actors possess dynamic resources such as knowledge, skills and motivation and the use of these resources are moderated by their enacted role as well as the networks and formal organizations they are part of that have an impact on what is meaningful (signification), possible to achieve

(power or domination), and what is understood as being legitimate (legitimation) (e.g., Giddens, 1974; Edvardsson et al 2011).

6 Future research and limitations

In this study, we have focused on the drivers of service system transformation through actors' resource integration at the three levels of the service ecosystem. The transformation comes through the collaboration between actors on different levels to achieve the change. A limitation to the present research is that it is based on a study in only sociopolitical context. Therefore, future research on drivers of service ecosystem transformation should study other empirical contexts such as healthcare, transportation, education and the financial sector. Future studies should also focus on how businesses and business ecosystems transform themselves as a basis for understanding innovation, especially the scaling up of innovation. Finally, we suggest that future research should compare the transformation of similar ecosystems where the transformation was short and clear cut with ecosystems where the transformations were long and windy to understand the determinants of different routes of transformation.

7 Policy Implications

We believe that policy makers in general and actors that are engaged in Transformative Research should learn from the lessons presented in the paper, therefore, we recommend the following recommendations. We organize them on three levels of the service ecosystem.

Policy implications on the micro level

Transformation starts on the micro level. Family is the basic unit of the society and the original cell of life. It is indeed the smallest service ecosystem that we know of, and it is the basic building block of the wider service ecosystem. Individuals values are built first in the family,

and then they emerged as they grow up. Children look upon their parents as role models. When families are insecure, when parents are absent for long time, emotionally distant, or preoccupied, or when parents themselves are immoral, the learning of moral values by children is greatly hindered. Thus, improving the family growth and well-being is essential for building a viable service ecosystem. Policy makers should support family education and resources, and improve the family conditions economically as well as psychologically. For example, focusing on sufficient parenting time and encouraging gender equality in terms of child care. These policies would prevent both families and societies from entering vicious circles of poverty and deformation.

Policy implications on the meso level

As the study showed, transformation in a service ecosystem is driven by different drivers on three different levels. And since transformation is a bottom up process, then we believe that micro drivers are essential for sparking a change. Therefore, we recommend policy makers to provide education on both individuals' human rights and nonviolent resistance at schools. This would empower individuals since early ages of their rights and roles in the society. Individuals will learn tolerance, respect, and equality which would contribute to create a healthier environment that is based on positive communication. Education on nonviolent resistance improves individuals understanding on the role of law in the society and on how to behave in situations of disagreement. This would avoid getting into vicious circles of violence and deformation.

Social platforms and cyberspace are crucial for transformation. Therefore, creating social networks are a cornerstone to foster transformation. Policy makers should be a free place that promote positive communication. Policy makers should enact laws that protect the freedom of speech on such platforms, and make sure that the communication between individuals are free

from hate-speech. At the same time, laws should criminalize fabricating and spreading fake news.

Policy implications on the macro level

We believe that supporting transformation and avoiding deformation in a nation-state ecosystem is a collaborative responsibility. All international actors including governments, NGOs and media should promote positive communication. We believe positive communication is the only way to end up the vicious circles caused by conflict. Accordingly, all international actors should take part of advancing an inclusive peace talk and getting the hostile parties to a negotiating table. This require including all hostile parties with an active participation of women and minorities.

Indeed, negotiations is essential to bring peace and end wars. It requires building mutual trust and consensus, and also compromises between different actors of the conflict. On the other hand, the international community, under United Nations umbrella, should create consensus on "interest-based" where agreements on key issues are reached. Peace agreement should provide for the termination of foreign involvement. When peace agreement is reached, and adopted by all actors, sustainable socioeconomic and political transformation of a country begins.

We recommend as well that it is the international community's responsibility to support a safe internet and communication safety. This requires imposing bans on export of internet surveillance gears, software and equipment that monitor the cyberspace in countries where human rights are violated. By doing so, we protect life and safety of human rights activists, journalists and civil society activists, and thus, freedom of speech and their activism against the autocratic regimes is protected.

We also recommend arms embargoes on individuals, groups, and governments to either avoid an armed conflict or to stop fueling the viscous circles of violence. Thus, hostile actors are pushed to sit around the table of negotiation.

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Extras:

First we draw on the management ecosystem literature to clarify the concepts that we will use to describe and analyze the three levels of actors (Moore, 1993; 1996; 2006; Iansiti and Levien, 2004; Ben Letaifa, 2009; 2013; 2014). Then we will integrate this framework with the conceptualization of service ecosystems in service dominant logic (Lush and Vargo, 2014) by proposing an extended framework on service ecosystem transformation. To further develop current conceptualizations of service ecosystems, we draw on the more elaborated theoretical views on ecosystems in the management literature as a basis for understanding transformation in service ecosystems. In doing this, we emphasize a multi-actor approach and what drives these actors at the micro level, as well as the meso and the macro level. We use actors' integration and coordination of resources to enhance the service ecosystem integration that enables transformation. To conceptualize transformation of service ecosystems our focus is on drivers, linked to coordinated activities and interactions among engaged actors that give energy and direction to transformation. The proposed multilevel framework will be used to explain the inhibitors and enablers in the transformation process of service ecosystems and thus contribute to the field of transformative service research.

Extras

people are willing to empathize more with "a people in a group" than "a group of people" for example, people in the west are more likely to empathize with a single picture of a drowned refugee guy than to empathize with the large group of refugees. thus, the language we daily use affect significantly the way we create empathy on others. therefore, I believe this explains why people empathize with stories on the oppression of minorities in a conflict zone than they would with the majority of the people.

Extras: In summary, the aim of this paper is to extend the service ecosystems by understanding the service ecosystems by analyzing the process of the drivers of service ecosystems transformation, to further develop the concept of change. More specifically, with

regard of changes of system and with a focus of drivers of change. We use literature on ecosystem from management perspective, which it is more descriptive and more about behavior, outcomes, from more positivistic point view. Other literature in management is more about social constructivist point of view and about sense making. While service dominant logic literature on ecosystem is more dynamic and concerns what actors produce and how they use and integrate their resources. Service ecosystems are always shaped by institutions that are embedded in meaning people are shaped by certain roles and norms. We show how people, network of people and formal organizations have changed. This change has been institutionalized. The outcome is a new service ecosystem intuitional logic.

This paper extends the understanding of service ecosystems dynamics by analyzing the drivers that enable a transformation or deformation, based on a nation-state comparison of service ecosystem change in Tunisia and Syria.

Table of Contents