# 5<sup>th</sup> icCSBs 2017
# The Annual International Conference on Cognitive-Social, and Behavioural Sciences

## DIGITAL PROSUMPTION. THE ANDROID CASE

Şerban A. Zodian (a)*
*Corresponding author

(a) ) Ph.D. Student, The Bucharest University of Economic Studies, St 5-7 Mihail Moxa, Bucharest, Romania,
Email : serban.zodian@yahoo.com, mobile phone : +40741293919, web page : www.socioblog.ro

### *Abstract*

We are investigating Toffler's & Ritzer's "prosumption" phenomenon in a sociological, economical, psychological and cultural approach. Our scientific initiative is dedicated to the manifestation of prosumption in cyberspace, limited to the virtual Android community gathered at the "Xda-developers.com" (XDA). The main objective of this research is to establish the Android prosumer profile. The main research questions are: What does prosumption mean? What are the characteristics of digital prosumption? Who are the digital prosumers? What is the Android prosumer profile? How are they organized? What forces affect prosumption in the Android socio-economic environment? Data collection tools were used, such as the non-participative observation method, in the quantitative version to identify phenomena that occurred in the XDA Android community; we designed and applied a questionnaire in the community; we used the random sampling method to establish the sample; statistical observation was used, based on findings of the questionnaire; content analysis was used to describe and quantify the community production; documentary research was used to define the main concepts. Our findings show that the Android prosumers fit into the concepts of consumer and producer. The Android prosumers are organized in open-source virtual communities, where some function as both consumers and producers. Handset manufacturers, service providers or even Google should increase their involvement in these communities to benefit from prosumers' capacity to innovate, rather than to settle for their ability to fix or adapt to devices shortcomings, but without disrupting the economic, technical or social evolution of the Android platform.

**Keywords:** Consumption sociology, prosumption, cyber communities, Android, mcdonaldisation.

# 1. Introduction

This research is an introduction to prosumption study in a multidisciplinary approach: sociological, economic, psychological and cultural. The focus is on "prosumer" manifestations in the online environment, especially in virtual communities created around the open-source Android Operating System.

Android is an open development platform (open-source) for mobile devices. It includes the operating system Android, a graphical user interface, and applications for mobile terminals.

It was released by Google along with the Open Handset Alliance (OHA), in 2007, to counteract the absolute dominance of Apple in the mobile environment. Apple is running a closed source OS, the iOS. On the other hand, Google made this step noting the propensity of consumers to migrate from desktop to the mobile architecture, and to ensure that services – otherwise highly profitable – will continue to dominate the online market. We emphasize that in a closed environment the company's interests would not be defendable.

OHA members have taken advantage of this opportunity to launch or strengthen their position in the mobile market. The complexity of this alliances structure reveals a multitude of interests. We are dealing with mobile operators, mobile terminal manufacturers, semiconductor manufacturers, software companies, marketing companies, all contributing to the development of new markets - Android.

In the context of these operations organized communities of users and developers arose. The Android consumers became producers or co-producers through the open nature of this platform.

In the present research, we aim to answer the following questions: What is prosumption? Who are the prosumers? What is digital prosumption? Who are the digital prosumers? How are they organized? What is the Android prosumer profile? What does trust mean in Android communities? What motivations are characteristic for Android prosumers? What forces affect Android prosumers? Are Android prosumers mcdonaldizated?

## 1.1. Prosumption

Prosumption means to produce and consume at the same time, while the prosumer is the "actor" (a special kind of consumer). The notions were launched by A. Toffler (*The Third Wave*, 1970) and Ph. Kotler (*The Prosumer Movement*, 1983). We refer to processes that include physical and mental activity, translated into psychological and sociological experiences. So, the prosumption is the value creation resulting from the consumption of products and becomes consumer experience. According to A. Toffler, prosumption is about the transition from passive consumption to active consumption. Corporations promote prosumption by involving consumers in their activities. While, after D. Tapscott, the prosumption phenomenon is at the intersection between production capacities and consumer vision. This process has the advantages of knowing the consumer's needs and the partial elimination of bureaucratic formal control (innovation platforms), the consumer becoming companies' partner. It is about customized products and organizing communities of consumers who exchange information and opinions about products. The Prosumer is a better-informed consumer. (Tapscott, 1999, p.57-60)

The online prosumers are Internet users who communicate their views and comments, help companies promote and co-create products, slogans, and advertising campaigns.

The factors facilitating the prosumption phenomena are: increased proportion of free time, resulted from the automation and computerization of production; teleworking opportunities; permanent adult education; changing work organization by focusing on creativity.

Generations Y and C representatives, characterized as "opposite of an old consumer era", claim to be the first prosumers, creators of a new market reality. Still, the main trait of these generations is the positive attitude towards IT.

The prosumer profile was sketched by Lebiejko A. in *Prosumer – A new Trend of Active Consumption* focusing on the example of banking services, based on a research conducted by Zawadzki A. and Przewłocka J on Polish online prosumers for Gemius SA in 2008. Their results suggest that: prosumption is a field dominated by men, 59%; of ages between 19-34 years, 56%; with high or incomplete higher education, 45%. Furthermore, the results imply that prosumers are more likely to think advertisement – especially online – is useful and entertaining. Also, most Polish prosumers – 82% - found useful the input provided – reviews – by other consumers concerning online products and services, on online shops (79%) price checking websites (56%), forums or professional websites (38%). Finally, Lebiejko points out that most of them are actively looking for this information, and only 18% find the reviews by chance. (Lebiejko, 2011)

When trying to define, and identify the prosumption phenomenon on the banking market, it could be argued that while it gains access to new technology, the regular consumer is creating an advertisement and becomes a kind of intermediary for the development of products or services. For example, becomes cocreator, replacing bank teller and the opportunity to make an online payment through bank transfer on its own, by participating in the creation banking product interface (personalization), and finally by building active communities to share and change information about specific financial products and services (crowdsourcing).

Finally, technology has contributed to a modern model of communication, facilitating the consumer-company interaction and allowing the consumer to use his natural inclinations to comment.

### 1.2. Prosumption and the New Economy

Marc-Oliver Goyette claims that the New Economy (Internet) will progressively transform the forms of production and consumption. However, M. Senecal (*La Société de l'information: Orders pour l'an exam often indulge dynamiques sociales?*, *Critiques of la société de l'information, sous la direction et d'Éric George Fabien Granjon*, Paris, L'Harmattan, 2008, pp. 45-65) points out – that communication – is equally a way of social emancipation and a way to intensify the alienation of individuals. (Goyette, 2013)

One hypothesis is that participation to the `New Economy` can be perceived as a form of crowdsourcing (outsourcing a service to a community, stimulating competition). In this case, the electronic frameworks are capitalist enterprises, with means of production, profits and property rights. In this view, the Internet contributes more to the enrichment of enterprises, rather than satisfying the intellectual and artistic needs of the user. As such, prosumers can be considered unpaid workers. On the

other hand, in Mcdonaldized systems, the consumers don't have to tip, wait a long time to get the order or customize ingredients.

Crowdsourcing 2.0 was initially tackled by theorist J. Howe. He revealed from 2006 that more and more companies turn to staff from outside their own structures, to produce and invent. And, since the Internet promotes the collective intelligence, it boosts general knowledge. (Howe, 2006)

At the same time, Kleeman lists several forms of crowdsourcing: consumer involvement in product development and configuration; consumer participation in the competitive tender bids; consumer participation in permanent open lines; noting their participation and analyzing consumer products etc. Consumers who use the Internet platforms are involved in the production of goods and services at a price below market. (Kleeman, et. Al., 2008)

Netizens activities have a double meaning. On the one hand, they are satisfied with the production of electronic content, on the other hand, their participation on the Internet produces added value for companies. But, since in the West most workers are not engaged in the industrial sector makes separation between work time and rest, or satisfying needs and passions, increasingly difficult. It is, among others, the situation of the "autonomous workers" (who provide by themselves knowledge acquisition, training, purchase of materials etc.). In this perspective, the concept of work should be reformulated.

Furthermore, C. Fuchs emphasizes the importance of knowledge, which already became a merchandise and created the knowledge workers. They contribute to the accumulation of capital, either directly (autonomous workers) or indirectly (by producing information goods or the market). (Fuchs, 2012)

2.0 platforms can be perceived as tools for valuing unpaid work. Google, YouTube, Facebook etc. do not produce content. But, they provide spaces that connect content producers and consumers. Making more profit out of the Internet users activities is crucial. Therefore, YouTube is placing their strength in valuing audience. While, Facebook advertisers can target customers by individuals in groups, per various criteria: location, level of education, depth of social contacts etc. And since it is believed that more and more consumers produce Internet content by writing comments, opinions, recommendations etc. more individuals participate in content creation. However, the relatively small scale of the phenomenon does not allow – after C. Fuchs – a restructuration of the relations between producers and consumers. But, the user involvement, as a producer of content and services, will expand in the sectors of culture and communications. (ibid)

B. Cova and V. Cova, in *Les figures du nouveau consommateur : une gènes from gouvernementalité du consommateur*, portray the prosumer as being a consumer actor. While sociology was bent on configuring, representing and establishing consumer categories, the prosumer corresponds to collaborative marketing. In the view of these marketing promoters, consumers will "take power", since the postmodern consumer is an anti-totalitarian individual. Also, this consumer is the co-producer of his daily life. In addition, the Internet allows for the emergence of a smarter consumer, who is informed, free in relation to distributors and brands. This consumer can obtain information about companies and products without resorting to the company's sources of information. Therefore, between the consumer and the firm a constant dialogue is established. Thus, today's consumers are very different from the ones

in the 1950-1960 period, who didn't pay that much attention to brands or to the careful selection of products. (Cova & Cova, 2009)

Another interesting perspective on the modern consumer is of him as the creator of services for his own need. The consumer-creator cooperates in this aspect with the sustainable consumer. In this case, the customers participate in the creation of services because they gather an amount of self-provided resources (intellectual, physical, affective), which are combined with those that companies add. Ph. Kotler since 1980 warned that future production and customer demand will act in cooperation. The consumer is becoming more evident. Consumer creativity means, above all, his ability to generate an idea, a solution, a product that is adapted to the new situations, with a utility and value. On the other hand, a current like "Do it yourself" reject ultra-consumerism and encourages the production. (Kotler, 1986; Kreziak & Cova)

G. Ritzer, in *The McDonaldization of Society,* assumes that there is a McDonald's business model and that it gradually expands into other geographical areas and in other fields than in food services. McDonaldization shall be deemed as an expression of globalization and extends to areas such as SMS, multicasting, iPhones, iPods, Facebook, YouTube. eBay, match.com, Wal-Mart, Body Shop, IKEA etc. The presented model "provides consumers, employees, and managers efficiency, calculability, predictability, and control." In his view: "unchained by the constraints of mcdonaldizated systems, but using the technological advances facilitated by them, people would have the potential to become wiser, more capable, more creative, more balanced than they are now." McDonaldization is a phenomenon both stimulating and constraining. Since consumption in the capitalist society can no longer be left to the decision of consumers they must be driven to consume, possibly in large quantities. (Ritzer, 2011, p.34)

Furthermore, G. Ritzer believes that the Western world, according to M. Weber's theory, has become increasingly rational, dominated by efficiency, predictability, computability and technologies that control people. The rationalization model was bureaucracy. Formal rationality distinguishes the West from the rest and selects the most optimal means to achieve a goal, by rules, regulations and larger social structures. Bureaucracy is an effective structure, which places emphasis on quantification, predictability and replaces human decision with rules etc. (ibid, p.39)

In addition, G. Ritzer points out that the bureaucracy suffers from the rationalization of rationality. The ego is "tried" (R. Takaki), the spirit bowed, emotions are controlled. At the same time, the emphasis on quantification can generate poor quality work. Also, bureaucrats fear of non-human technology. McDonaldization, in turn, ensures higher profits and lower costs, stimulating or promoting the technological post-industrial society, support for services, the general information society, and information economy etc. Yet, McDonaldization in the post-industrial era is promoting superficiality, dilution of feelings and emotions, loss of historicity, reproductive technologies (electronics) etc. (ibid, p.318)

On a side note, web 1.0 is the internet before .com bubble burst from the 90s, while web 2.0 is the Internet of this decade. The two are distinguished by the connection speed. Web 1.0 is an Internet system controlled from top to bottom, designed centrally. It does not include Web sites that do use user generated content. Web 2.0 is a bottom-up system, which is defined by user-generated content. Web 2.0 would be based on the ideology of virtual libertarianism. "Like many other technologies, the Internet was designed by some as a revolutionary development, even utopian, that would bring those involved significantly

greater liberty". But "AOL and Microsoft, among others, sought to control the Internet through their patented products and buy immovable online in much the same way that they happen in the material world." However, Facebook is making the Internet more human, 'un-mcdonaldized'. "It should not shock us that the McDonaldization thesis requires certain amendments in this new context ... In any case, the distinction between un-mcdonaldization on the surface and mcdonaldization underlying might be useful, especially to analyze the Future Internet - Web 3.0 ... and the future of society in general. (ibid, p.327)

### 1.3.  Virtual communities and open-source

Open-source software, such as Android OS, often encourages consumers to organize in virtual communities to support and improve the free software. The virtual communities are groups of people interrelated through information and communication systems. The members exchange numerous symbols and values. The communication model and adjacent content coagulate, maintain and give consistency to the training environment. The community is characterized by cooperation and continuous exchange of information. Virtual communities are epistemic, which structures a noosphere, purpose and referential of its founding. At the level of this type of social solidarity stand the following components: identity (joining such a community implies acceptance of a value system); cognitive component (between members there are exchanges of information, knowledge, and tips); a component that depends on the interference logic and confidence (what others say must be trusted); some acceptance of individual choices to "reason" collectively (generalized opinion). (Stallman; Cucoş, 2010, p.120)

In addition, you can assign an adjacent intelligence to virtual communities, characterized by: a connectivity or a space in permanent transformation (associations, links and paths); a semiotics (an open representation system, images and signs); an axiology (a system of values that determines positive or negative tropism); an energetics with the role to specify the force of emotions generated by appropriate images. The social web must have a viable consistency and generate some social cohesion with formative implications on the societal assembly. (Alava, 1999)

On the other hand, even though there are those who argue that the individuals in online communities are deprived of concrete social relations, from the sociological perspective, these communities can be defined in terms of physical characteristics (size, location, and borders) and software support (protocols conversation). The simplest classification would be: after the place (local, national or international), size (small, medium or large), in terms of employment (with a professional profile or not). It's interesting when online communities are faced with the dilemma of public goods. Also, the individual must give up the personal benefit to constitute a public good. As such, anonymous users only foster consumption. Furthermore, to clot, online communities require founders, moderators etc. Only "through cooperation the status of a regular user can change to a member of the community." (ibid)

Furthermore, Dumitrescu D. underlines the importance of trust in unstable environments with informational asymmetry. In virtual communities, we should – as noted above – address both organizational variables (structural, environmental and management) and human variables (behaviour and motivation). You cannot make a clear distinction in matters of trust between the offline and online. On the other hand, it is known that virtual environments are generally communities based on interest or practice.

But, knowledge and information remain the essential goods of online communities. Trust is essential for the "knowledge market", especially because it does not depend on contracts. It includes generalized trust, specific trust, assurance, risk, reputation etc. Cooperation cannot take place without trust in online communities (social uncertainties due to the existence or risk), relational trust matters infinitely. Moreover, in 1995, theorist Charles Handy emphasized that the effectiveness of a virtual organization depends on its leadership on trust, not on control. In the relational trust, skills play a secondary role. (Dumitrescu, 2012, p.4; Handy, 1995)

Another interesting point of view is provided by the research on cyberspace, which should not be confused with the real Internet (as a network). Cyberspace contains psycho-sociological aspects, identities, and objects that exist in computer networks. The online environment enables corporations, NGOs, other organizations, state institutions etc. new ways to reach the client since "Using communication networks, human individuals clearly give cyberspace, besides its purely operative component – oriented towards solving tasks – an emotional valence, which humanizes the cyberspace." On the other hand, cyberspace can be defined metaphorically (hypertext browsing), in terms of video games (as an incomplete reality replica), as a 3D environment (in which we interact with synthetic entities), as an amplified habitat (teleoperation) and as an arena of artistic creativity (recreation without consequences). At the same time, cyberculture should not be ignored. As Cyberspace is also the land of a culture based on digital media, cyberculture crops include primarily the online communities and a wide range of specific cultural aspects, artistic and cultural movements associated, such as the cyberpunk phenomenon or the trans- humanism movement. (Chitoaşcă, 2004)

The Internet can be beneficial to people. For instance, email helps people receive support from their social networks, and websites allow them to find information and support them when they are faced with important decisions (medical, financial, family etc.). Since the power of relationship depends on emotional intimacy, social network contact and availability of capital, the email appears as an instrument of globalization, because it can maintain contact with distant friends or relatives, but also with those who live in the geographic proximity. In fact, the Internet medium can even become an agent of socialization.

On the other hand, open-source communities, such as those created around Android, would not be successful or even exist, without the contribution of highly motivated members who are willing to donate their spare time and effort to the community. Thus, the question of motivating the community members, while also supporting and directing their activities towards development, arises to the community leadership.

In literature, several motivational models for participation in open-source projects have been theorized. For instance, the motivational model of Campbell and Pritchard focuses on the idea that motivations vary in relation to individuals and in combination with their skills and talents produce behaviours relevant to the tasks. In addition, the motivation for work is a psychological force which determines the direction of individual behaviour in the organization, the individual's level of effort and level of perseverance in the face of obstacles. So, contributors' performance is dependent on motivations (they work better if they are motivated). (Campbell & Pritchard, 1976)

The psychological research focuses on the relationship between psychological needs and intrinsic motivations. The joy of programming is an intrinsic motivator while being paid to help is an extrinsic

motivator. To contribute to development, to solve the shortcomings of a handset, to improve community status or career opportunities are obviously different behaviors, being motivated extrinsically. The participants can internalize some of these extrinsic motivations, and adjust them intrinsically, rather than having them imposed from outside by others. These motivations can then be classified as extrinsic internalized motivations, thus allowing a careful analysis of the differences between participation motivations in open-source like projects. (Weinberg, 1998; Koestner, et. Al., 1999; Richard, et. Al., 2000)

Intrinsic motivations are correlated with the satisfaction of human needs for autonomy and competence (developing software is often an obscure and complex undertake which requires creativity). In such cases, self-regulation is done in two ways: either through introjection or through identification. (Ryan & Deci, 2000)

On the other hand, internalized extrinsic motivations based on introjection are associated with ego boost and self-esteem. For example, for this kind of motivation, in the open-source development environment, we find individuals who are trying to improve their social status or occupational prospects by contributing (an effort to increase the position of an individual to a reference group). Yet, internalized extrinsic motivations based on identification regulation are a form of extrinsic motivation rather determined by individuals. For instance, they identify with actions and personality traits they approve, which in result leads to an identification that is accompanied by more autonomy. In our case, such motivations are found in the use value behaviors, the desire to fix a programming error (bugs) or to solve an important problem for the contributor. This motivation is regarded as dominant in open-source like communities. (Lindenberg, 2001)

While, when the use value is externally motivated, due to personal gain for the individual, from a psychological standpoint the use value is internalized, and turned into a value for the open-source community. (Rossi, 2004)

In the case of internalized extrinsic motivations based on identification to values, often individuals are compartmentalized and separated by values and beliefs and are characterized by a reduced determination. Therefore, a contributor who strongly identifies with an open-source community may choose to fulfill tasks that are not necessarily interesting for him because their realization brings value to the community. (Ryan & Deci, 2002)

In addition, internalized extrinsic motivations based on introjection, like an ego boost, reduce the intrinsic motivation of target activity. Sometimes, developers that are motivated by community status can engage in activities that they do not necessarily like but still, do to increase or maintain their reputation in the community. Programming, testing, and debugging software are highly respected activities in these communities, but a contributor who is motivated by reputation concerns probably will not appreciate the testing and software debugging. He is however convinced that these activities are necessary to gain status in the community. (von Hippel & von Krogh, 2003)

In conclusion, contributors' intrinsic motivations to participate in open-source projects are negatively correlated with monetary remunerations. (ibid)

### 1.4. XDA-Developers.com – mobile development community

XDA-Developers.com (XDA) is an online community of users and developers interested in mobile handsets. XDA was founded by "developers for developers", and for years has been a valuable resource for people who want to "get" the best out of their mobile devices by customizing the graphical user interface (GUI) or even adding new functionalities. It was founded by two enthusiasts of mobile technology, which was in early development at that time, *Peter Poleman* and *ItsMe*, in 2003. The XDA name comes from a device, codenamed O2, manufactured by HTC, which was branded as the XDA's, PDA's with "Xtra" functions.

Over the time, XDA has grown through the increasing number of registered users and mobile devices it supports. For instance, by 2006, the community already numbered 100000 members, this providing new challenges to the moderation team. To answer these concerns, in 2006, the community hired *Flar,* the first administrator with a contract on XDA. In 2008, XDA had over 150000 members and had already become an important resource for end users. In 2009, a new administrative reform took place and support was offered for the first non-HTC devices, including the Android operating system. Thus, the tradition to only support HTC devices with Windows Mobile OS was broken. In 2010, 7 years after the creation XDA, the community had become a reference point on the Internet and XDA had become an international site. There were already more than 500000 topics, over 7500000 posts and over 2800000 members with a daily average of 10000 members. "The key to XDA success was to continuously add new devices and operating systems, which have extended and united the community, under one roof, where people can collaborate and develop things for their smartphones." (*Chainfire* in XDA, 2011) XDA grows with 3000-3500 new users daily. In 2011 there were over 4000000 registered members and 20000 online at any time with a record of 31000 users. By 2014, there were 56449444 members with an average of 35000 members online at any time, often over 50000 online with a record of 95000 online members. There were 2300000 of topics and over 50000000 million posts.

Onwards, in 2016, there are 7614908 members, 2996169 topics, 66160054 replies and most users online at the same time 135390. Per ALEXA, XDA is ranked in the top 525 most visited web domains in the world. (ALEXA)

**Table 01.** Most popular Android devices on XDA in Q2 2014, after topics, replies, and projects

| Device | Release date | No. of topics | No. of replies | Dev. Projects |
|---|---|---|---|---|
| Samsung Galaxy S3 | 29-May-12 | 41620 | 1248135 | 90 |
| Samsung Galaxy Note 2 | 1-Oct-12 | 13907 | 508535 | 60 |
| Google Nexus 4 | 13-Nov-12 | 24612 | 1017981 | 90 |
| HTC One | 19-Feb-13 | 19706 | 601122 | 62 |
| Samsung Galaxy S4 | 26-Apr-13 | 19548 | 549412 | 113 |
| Nexus 7 | 28-Jul-13 | 5778 | 106139 | 44 |
| Moto X | 1-Aug-13 | 5148 | 78830 | 5 |
| Samsung Galaxy Note 3 | 13-Sep-13 | 11073 | 232000 | 40 |
| Verizon Samsung Galaxy Note 3 | 8-Oct-13 | 3958 | 86001 | 12 |
| Google Nexus 5 | 31-Oct-13 | 13163 | 434346 | 60 |
| Moto G | 31-Oct-13 | 3678 | 61375 | 19 |
| Samsung Galaxy S5 | 13-Apr-14 | 2072 | 32131 | 13 |
| Sony Xperia Z2 | 13-Mar-14 | 1331 | 39566 | 5 |
| HTC One (M8) | 1-Apr-14 | 2492 | 64111 | 32 |
| Verizon HTC One (M8) | 25-Mar-14 | 1404 | 27196 | 6 |
| AT&T HTC One (M8) | 25-Mar-14 | 759 | 11130 | 9 |
| OnePlus One | 23-Apr-14 | 124 | 1898 | 1 |
| LG G3 | 27-May-14 | 100 | 3066 | 0 |
| Total | | 170473 | 5102974 | 661 |
| Average | | 9471 | 283499 | 37 |

While XDA is "home" for Android, Windows Mobile, WebOS, iOS, Firefox, Ubuntu, Bada – all operating systems for mobile devices – Android is undoubtedly the dominant preference of XDA members supporting the free software. There are forum sections dedicated to each Android device which is or has been popular, from the HTC Dream to Samsung Galaxy S-S7, Note 1-7, Gear or VR, to LGs, or Sonys etc.

In XDA, each development project is a customized version of the operating system a device came with. Some projects are open-source, while some others are modifications to the factory firmware.

Furthermore, in this community, in 2009 open-source project CyanogenMod (CM) starts. CM is an operating system for handsets, based on the Android operating system, under the leadership of Steve Kondik. CM is the most successful project in this area, being the first provider of enhancements for Android enthusiasts worldwide. CyanogenMod is today CyanogenMod Inc. – a company – which managed to collect more than $10 million from investors. It has had partnerships with various manufacturers such as Oppo or OnePlus. CM site is preferred by most users of customized versions of the Android operating system, supporting many devices. Data from 2014 show that there were over 12 million active installations of CM, of which 6800000 are official versions of the CM and the rest are customized versions of CM. Among the devices with most installations stand out: Samsung Galaxy S3 (device with 30 million+ global sales) with over 1000000, Samsung Galaxy S2 and Samsung Galaxy S with 989330 to 769143. There are other similar projects open-source projects, like AOKP, Slimroms or Paranoid Android.

Generally, customizations of Android OS are aimed at usability, speed optimization, and resource consumption, protecting users' privacy and personal data and achieving total control of the device (root rights).

On the other hand, customizations extend to the aesthetic zone as well. Developers and even simple end-users, from the beginning, put great value on how good the graphical user interface looks. Thus, we find several thousand Themes (themes - aesthetic changes) for different versions of Android on the XDA.

A third direction worth mentioning is Android applications development. Many developers started application projects on XDA site, some of the best known in the community being: *Koush* with Rom Manager; *Chainfire* with SuperSU, TringleAway, AutoRoot; *Coolbho3000* with SetCpu etc. Under applications and games for Android section on XDA, many junior developers are launching, offering test and evaluation products, 20000 sites and projects, and over 650000 responses, in 2014.

Simultaneously, XDA functions as a true community, one can socialize and make friendships, or find diverse professional opportunities etc.

XDA is involved in Android developers' education, through the XDA-University project. There also is the XDA TV channel on YouTube where staff reports on the latest gadgets and technologies in the mobile world. XDA is always in contact with its members being a very active community on Twitter or Google+.

Therefore, we argue that the XDA community is the mirror of Android enthusiasts, genuine prosumers.

## 2. Problem Statement

This research is trying to pave the way for closer inspection to XDA-like communities, from the perspective of the prosumption and mcdonaldization phenomena that occur and what they mean for the society, economy and the Internet. Furthermore, it would be interesting to find if the investigated aspects are sustainable in time, who has more to gain from their existence, or even if they can happen elsewhere.

## 3. Research Questions

Our working questions were: 1) Are members of the XDA community aware of their prosumer status? 2) Are the XDA members satisfied with their experience? 3) How important is trust in this community? 4) How important are the leaders in this community? 5) Is the purchase decision of a new handset influenced by the presence or absence of support for it in the XDA community? 6) Are the community members influenced in their purchasing decision by the reviews offered by members of the greatest notoriety or status? 7) What motivates the members to participate in and contribute to the XDA community?

## 4. Purpose of the Study

The main objective is the realization of the Android prosumer profile. The secondary objective is to determine whether Android community members, represented on XDA, are aware of their prosumer status. Based on the Polish research, presented in chapter 1.1., the prosumer is usually a male, between 12-60 years, with higher education, completed or not. From chapter 1.3 we concluded that most Android prosumers are usually motivated by internalized extrinsic motivations.

## 5. Research Methods

For this research, we chose the non-participatory observation method, in the quantitative analysis variant, as we aim to measure objectively the facts focusing on variables, to analyze visible behaviors of several subjects and to use statistical analysis – while the researcher is detached from the phenomenon under investigation – to define the prosumer profile. The primary instrument we used was the sociological survey method, through an online self-administered questionnaire.

### 5.1. Operational concepts

The Android prosumer falls through his manifestations in the concept of the consumer and producer. He buys Android devices, applications, and services, while prosumers also sell products – especially software. Often they offer online reviews – for example on the XDA community forum – for products they purchase, along with searching for information about Android `products`, in the same environment. Some of them even contribute to the original Android source code by offering patches for bugs they find, which are later peer reviewed by Google engineers. Prosumers trust in the validity of the information available on the community discussion boards and respect the community leaders.

### 5.2. Selecting the instruments for data collection

The objectives of our research determined us to choose from the specific methods the following instruments: a) the custom questionnaire on a single theme to highlight the prosumption phenomenon on Android virtual communities, using closed questions to facilitate self-administration; b) statistical observation based on data extracted from the questionnaire on consumption types, prosumer categories, motivation, confidence in management and community satisfaction etc.; c) content analysis to identify projects developed within the XDA community.

### 5.3. Establishing the population and sample

The population is represented by Android consumers, surfers, fans of open-source and the online sociability that is expressed on XDA community forum. The sample was established finding the approximate number of registered members at XDA community forum. Our objective was to have a sample of 60+ Android users. Furthermore, a pre-test questionnaire of 10 subjects was used to find possible issues with our questionnaire. After the questionnaire validation, the data collection phase was conducted, by promoting the online questionnaire on XDA, and with help of the community manager we

managed to get enough users to attend. The data that was collected was placed in long series (variables), likely for correlation between them. After which, the data were statistically analyzed using SPSS.

## 6. Findings

After analyzing and interpreting the data, the following preliminary conclusions were drawn:

a) most responders are between 25-34 years (29.7%), followed by those between 18-24 (28.1%), 35-44 (26.6%), 12-17 (9.4%) and 45-54 (6.3%);

b) in terms of gender, 70.3% are male and 29.7% female;

c) the subjects' highest degree was high school in 23.4% of the cases, 23.4% had some college credits without a diploma, 21.9% had bachelor degree, 9.4% associate degree, 7.8% some high school without diploma, 7.8% master's degree and 3.1% trade/technical/vocational training;

d) most often they originate from USA (29.7%), UK (18.8%), India (7.8%), Germany (6.3%), Canada (4.7%), Romania (4.7%), Netherlands (3.1%) and Portugal (3.1%);

e) in terms of occupational status, 35.9% are students, 34.4% employees, 15.6% self-employed, 6.3% unemployed looking for jobs, 3.1% unemployed but not looking for work, 3.1% retired and 1.6% unable to work;

f) on marital status 68.8% never married, 28.1% married and 3.1% divorced.

In terms of motivation to participate and to contribute on XDA:

a) most consider their experience to be enjoyable or extremely enjoyable (62.5%), while considerably fewer regard it as somewhat enjoyable (21.9%), neutral (12.5%) and less enjoyable or to an extremely small amount 3.2%;

b) on the importance of the success of the XDA project in which they are involved, 46.9% consider it to be important or extremely important, 15.6% that is somewhat important, to 10.9% it is neutral, while 26.6% consider is less or not very important;

c) in terms of identifying with the values of this group, 31.2% identify to a large or very large extent, 40.6% somewhat, 12.5% are neutral, while 15.6% can identify less or not at all;

d) regarding how family and friends are evaluating responders' time investment on XDA, our findings suggest that: 21.9% are evaluating positively or very positively, somewhat positively 15.6%, 32.8% are neutral, while 29.8% have a negative and rarely (1.6%) very a negative evaluation;

e) in the matter of gaining a good reputation in the community, we found that: only 17.2% consider it to be important or extremely important, somewhat important 12.5%, 21.9% are neutral, while a massive 48.4% think it's less important or not very important;

f) on the importance of interaction with others and socializing, our results show that: 31.2% think it's important or very important, 29.7% somewhat important, 14.1% are neutral, while 24.9% consider it less or not very important.

Regarding the prosumption phenomenon on XDA:

a) in terms of how often, before purchasing a new Android device, do the responders search for the available support for it in the community, our results show that: 75% almost always or always, 10.9% sometimes, 3.1% are neutral, while 11% almost never or never do;

b) on the effect of the opinion of key community figures on responders purchasing decision, the results show that: 54.7% think the effect is much or very much, 25% considerable, 6.3% are neutral, while 14.7% think the influence is little or very little;

c) in terms of agreeing to the idea that being a member of XDA can significantly help prolong the lifespan of their handset, the data shows that: 79.7% consider the sentence to be true or completely true, 10.9% somewhat true, 4.7% are neutral, while only 4.8% think is false or false;

d) on the extent to which the responders expected more from their devices, in terms of performance, and therefore went looking for ways to improve it by themselves, our data suggests that 56.2% almost always and always do, 25% sometimes, 4.7% are neutral, while 14.1% almost never or never.

In terms of trust:

a) 79.9% trust in the validity of the information provided on the XDA forum, 15.6% somewhat trust the information, 1.6% are neutral, while only 3.2% trust little or very little in the validity of the information provided;

b) 62.5% place a great deal of trust in the leadership of the community, 23.4% somewhat trust the leadership, 9.4% are neutral, while only 4.7% place little or very little trust.

Regarding the overall satisfaction with XDA: 46.8% are very satisfied or extremely satisfied, 26.6% are satisfied, 18.8% are neutral or somewhat satisfied, while 7.9% are dissatisfied or very dissatisfied.

In addition, regarding their role on XDA, responders see themselves as part of these categories: 12.5% users that test and give feedback on the customisation made by others and provided on XDA, 32.8% users who provide customisation for devices on XDA and use (testing, feedback) the work provided by others (both categories producing and consuming), while 54.7% only use the customisation they find on XDA (not contributing - consumers).

Furthermore, if we consider the educational status and split the roles into consumers and prosumers (54.69% vs. 45.31%) we find that:

a) student consumers account for 14% of total, while student prosumers are 20.31%;

b) employed consumers account for 20.31% of total, while employed prosumers are 15.63%;

c) self-employed consumers account for 7.81% of total, while self-employed prosumers are 7.81%;

d) retired and unable to work consumers account are 4.69%.

On the other hand, if we consider the overall satisfaction with XDA and the consumer and prosumer roles we find that:

a) 48.4% of all responders who see themselves as consumers are generally satisfied or extremely satisfied with XDA, while only 3.13% are dissatisfied;

b) 34.38% of all responders who see themselves as prosumers are generally satisfied or extremely satisfied with XDA, while 4.69% are dissatisfied.

In addition, 46.8% of all responders who see themselves as consumers are looking on how much support a device has on XDA before purchasing it, while only 7.81% don't.

On the other hand, only 39% of all users who see themselves as prosumers are looking on how much support a device has on XDA before purchasing it, while 6.26% are neutral or don't.

These findings allow us to validate the hypothesis that the final report:

a) The analyzed prosumers make up a social group, characterized by the use of online communities, especially XDA to add value to Android handheld devices. The Android typical prosumer is between 20 and 45 years, male, educated completed or nearing completion, with technical abilities above average attracted the principles of open source, an active person professionally speaking English and belonging to of Anglo-Saxon culture.

b) The prosumer group is motivated by personal beliefs for contributing to XDA community. They don't expect to be remunerated. On XDA you cannot sell applications, you cannot ask for money (free software spirit). But donations and rewards may be offered for various hacks. Intercom enables a hierarchy of products and a critical analysis of their status in the community XDA.

c) Confidence in the information provided and in the leadership is crucial to the degree of satisfaction of the XDA community members. Regression analysis with R-squared 0.534 shows a medium to strong correlation between trust (in the information provided and leadership) and the satisfaction of XDA members. At first glance, it seems uninteresting information for XDA but this is a defining phenomenon. The considerations about virtual communities talked about trust as an important factor in any virtual community. From observation we found that any member who installs a customized version of the Android operating system, or "roots" (to get control privileged) his device loses the device's warranty and risks to "brick" (the word brick when used with reference to consumer electronics, describes an electronic device such as a computer, smartphone, game console, router, or tablet that due to errors, memory corruption or a problem hardware cannot operate anymore) and therefore, depends entirely on the honesty and talent of developers and the ability of the administration to maintain order in the forum. XDA provides special ranking to developers (Recognized developer), and enables members to "thank" them, these thanks are visible as a number ("Thank's meter") under their name, a high number gives more legitimacy to the developer, for example, moderator and senior XDA developer "*Chainsfire*" had at a point in 2014 about 47.586 thanks.

d) The community has an important role in future buying decisions of Android devices. On the one hand, it acts as a brake on the rush of producers to make profits consistently by launching "Flagship" models each year, most often without much novelty, in terms of actual performance compared to the product they intend to replace, and by clever marketing techniques, of various qualities a device has, they can create a halo effect on consumers (e.g. Samsung Galaxy S4 variant with 8-core). On the other hand, members of the community purchase devices that are

friendly for customization. The easier to "root" a device, the better is seen in the community. In the past, there were times when the community boycotted companies that made this process very difficult, for example, the conflict with HTC, and the community won that battle. Thus, it is expected that Android prosumers will buy those devices that have the best support in the community.

e) The Android prosumer community inevitably manages to crystallize the limits of online commerce about how much profit manufacturing firms can achieve by replacing classic service with self-service. On the other hand, these companies achieve savings on costs with personnel, which is evident even from the user comments.

f) There is a clear tendency for Android prosumers to achieve social re-grouping and an awareness of their group position in relation to other social categories.

g) Through observation and qualitative analysis of XDA forum content, we identified the socio-economic forces that face each other in this Android world. For starters, the consumers' diverse typology makes them vulnerable to capital represented by Google (device manufacturer, of web search services provider, email provider, ad seller etc.), mobile phone companies as co-producers of devices, manufacturers of mobile devices - smartphones, tablets - and manufacturers of semiconductors, especially for ARM processors and motherboards, network cards etc. Secondly, Google and others entities are gathered in the Open Handset Alliance (OHA) on behalf of open source, and against the unfair competition of Apple. However, only Google keeps up appearances and respect for what open source means in terms of social, cultural and technological developments with customers and Android prosumers. Others OHA partners are not open to their software sources, therefore the necessary source code for drivers are usually lacking. Governments and international organizations are also playing an important role in this market, for instance, EU made cell phone carriers drop prices on roaming. Thirdly, we should have consumer organizations but don't and this gives Android prosumer (organized in virtual communities, like XDA) an even greater importance.

h) Regarding the ideological debate about mcdonaldization, in our case, things are quite clear. The phenomenon is present, statistical analysis showed that 54.69% members are motivated by the chance to improve their devices, which can be interpreted as making consumers work, especially considering that these customizations are not always easy to install. Thus, we cannot put this on crowdsourcing since these devices are expensive from start. On the other hand, 45.31% of responders are prosumers and their participation motivations differ, ending up getting more in terms of status, knowledge or job opportunities.

i) It is worth recalling the risk of capping the mobile devices market faster than was anticipated, due to the multitude of devices that appear, capable performances that seem to leave behind real needs of users, something which happened in the market desktop in the past.

## 7. Conclusion

We verified our initial assumptions and identified the Android prosumer as a special category of consumers and producers. The trend of this category is growing globally.

We exemplified the decisive role of trust in the success of these communities, we drew the profile of a sophisticated consumer-producer and we analyzed the mcdonaldization phenomenon among Android users.

From the sociological point of view of conflict theory, Android is an interesting phenomenon, in terms of the socio-economic factors and the consumer action it involves. On the other hand, the Android prosumer group seems to gain the most and is very careful with his purchasing.

Prosumers could be investigated further by the connection with the theory of social classes, the low-income individuals are more likely to engage in prosumption and are prone to use mcdonaldizated products (Apple users usually earn more, while their handsets are shipping with most useful features at no cost to their device stability). In a socio-economic analysis on the causes of unemployment, one could argue that prosumption is causing a loss of jobs, if so, how much, or even if we have so much prosumption in IT isn't because we don't have enough support specialists etc.

To avoid the phenomenon of blockage or boycott of the companies it is recommended: to gather prosumers in supporting or analysis groups for large companies; companies must complete their advertising with the justification for prices (price elements); manufacturers should make more efforts to improve the quality of Android software products; support services must be improved; Android prosumers on XDA are a homogenous group and an important niche in the mobile market  and they should be more determined to defend their interests, must continue to argue for the principles of open source, to pressure other OHA members to become more open; companies should be quicker to absorb the recommendation offered by the community in order to make better products and ensure consumer loyalty.

## References

Alava, S. (1999) Cyberapprendre, un défi de formation

ALEXA XDA ranking, http://www.alexa.com/siteinfo/xda-developers.com

Android Open Kang Project (AOKP), http://aokp.co/

Campbell, J., P.; Pritchard, R., D. (1976) Motivation theory in industrial and organizational psychology. M. D. Dunnette, ed. Handbook of Industrial and Organizational Psychology. Rand McNally, Chicago, IL, 63–130. https://goo.gl/BRM8fZ

Cascio, W., Shurygailo, S. (2003) E-leadership and virtual teams, Organizational Dynamics, 31(4)

Chitoaşcă, M., I. (2004) Internetul ca agent de socializare al „generaţiei M", https://goo.gl/jS0Sw6

Cova, B. ; Cova, V. (2009) "Recherche et Application en Marketing". Vol 24, nr3

Cucoş. C. (2013) A new Framework and Adult Learning Environment – The Virtual Community, https://goo.gl/BDMWvJ

CyanogenMod (2016) CyanogenMod, http://www.cyanogenmod.org/

Deci E.; Ryan L., Richard M. (1985) Intrinsic Motivation and Self-Determination in Human Behavior, Springer, https://goo.gl/Cyy3V6

Deci, E. L.; Koestner, R., Ryan, R., M. (1999) A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. Psych. Bull. 125(6) 627–668

Fuchs, C. (2008) Internet and Society. Social Theory in the Information Age, New York, Routlege

Fuchs, C. (2010) Labor in International Capitalism, "The Information Society", nr26, p. 180, https://goo.gl/zVDoqo

Fuchs, C. (2012) Google capitalism, triple C 10(1): 42-48, http://www.triple-c.at (14-06-2014)

Gemius Research (2011) H1 2011 trends on the internet market, Mini-report based on Gemius Ranking data, https://goo.gl/1fZ34Z (14-06-2014)

Goyette, M., (2013) Les nouvelles formes du travail, ou comment la notion de „prosumer" permet d'analyser les pratiques participatives sur l'Internet, https://goo.gl/1F7DoP (1406-2014)

Handy, C. (1995) Trust in the Virtual Organization, Harvard Business Reviewm 73(3)

Howe, J. (2006) The Rise of Crowdsourcing, https://goo.gl/f6D3fk

John, K. (2010) Identifying, knowing, and retaining your customers: the "Prosumer", "Sterling Commerce White Paper"

Kanfer, R. (1990) Motivation theory and industrial and organizational psychology. M. Dunnette, L. Hough, eds. Handbook of Industrial and Organizational Psychology, 2nd ed. Consulting Psychology Press, Palo Alto, CA, 75–170, https://goo.gl/BRM8fZ

Kleeman, F.; Voß, G.; Rieder, K. (2008) The Commerical Utilisation of Consumer Work through Crowdsourcing, "Science, Technology & Innovation Studies", No. 1, "Extending the scope of STI-Studies" - http://www.sti-studies.de/ojs/index.php/sti/article/view/79/60

Kotler, Ph.; (1986) The Prosumer Movement: a New Challenge For Marketers, în NA - Advances in Consumer Research, Volume 13, eds. Richard J. Lutz, Provo, UT : Association for Consumer Research, Pages: 510-513

Kreziak, D. ; Cova, V. "Ça peut toujours servir ! : le consommateur ferrailleur", IREGE, Institut de Management de l'Université de Savoie/CERGAM, Université Aix-Marseille III Faculté d'Economie Appliquée, 15-19 allée Claude Forbin, https://goo.gl/JwtsNN

Lindenberg, S. Intrinsic motivation in a new light, Kyklos , p.317–342, 2001

Open Handset Alliance (OHA), http://www.openhandsetalliance.com/oha_members.html

Paranoid Android (2016) http://www.paranoidandroid.co/

Ritzer, G. (2011) Mcdonalizarea societăţii, Comunicare.ro, Bucureşti

Rossi, M., A. (2004) Decoding the free/open source puzzle. A survey of theoretical and empirical contributions. Working paper, Dipartimento Di Economia Politica, Università degli Studi di Siena, Siena, Italy, https://goo.gl/MMPWw7

Ryan, R., M., Deci E. L. (2002) An overview of self-determination theory: An organismic-dialectical perspective. E. L. Deci, R. M. Ryan, eds. Handbook of Self-Determination Research. The University of Rochester Press, Rochester, NY, 3–33, https://goo.gl/sB0lPS

Ryan, R., M.; Deci, E., L. (2000) Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions, Contemporary Educational Psychology 25, 54–67, https://goo.gl/QU3mM6

Slimroms (2016) https://slimroms.org

Stallman, R. The GNU Project, https://www.gnu.org/gnu/thegnuproject.html

von Hippel, E.: von Krogh, G. (2003) Open source software and the "private-collective" innovation model: Issues for organization science, Organ. Sci. 14(2) p.209–223, https://goo.gl/ccoLhv

Weinberg, G. (1998) The Psychology of Computer Programming. Silver Anniversary Edition, 1st ed. Van Nostrand Reinhold, New York

Xda-developers (XDA) (2011) The History Part Two, https://www.xda-developers.com/xda-developers-the-history-part-two

Xda-developers.com (XDA), www.xda-developers.com