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DEVELOPMENT IN USING IT TECHNOLOGIES, MACROMARKETING DEVELOPMENT AND SOCIETAL CHANGES

Abstract: *At the macro level, marketing plays the role of the supply system of a market economy. The basic concept of macro marketing is that of a market system. Macro marketing has traditionally viewed market systems as drivers of economic development and wealth growth. Thus, marketing is seen as a driving force of economic development and, as such – of changes in societal systems. An important part of the development of marketing systems is related to the development of information technology. Thus, it seems interesting to find out the connections in the triangle "information technologies – marketing – welfare".*

The focus of this paper is the study of the correlation between the factors indicative of the development of marketing systems, information technologies and the level of welfare. Correlation analysis of data for 58 countries of the world shows that there is a statistically significant correlation between the level of technological development, the degree of Internet penetration, level of economic development and the index of sustainable development. However, the degree of correlation between the indicators of technological development, the level of Internet penetration, the level of economic development and well-being, on the one hand, and the indicator of sustainable development of societal systems, on the other hand, is insignificant. This result can be attributed to a supposed by some scholars contribution of marketing to a growing entropy of societal systems.

Keywords: *marketing systems, macro marketing, quality of life, economic development, sustainable development.*

Traditionally, marketing is seen as a tool for managing a particular organisation aimed at establishing and maintaining market exchanges by defining, anticipating and satisfying the needs and desires of target consumers for profit. Marketing is essentially a means of meeting and satisfying particular needs of people.

However, the use of marketing by a large number of market entities is believed to lead to considerable changes in the economic system as a whole. Marketing clearly plays an important

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role in the economic development and "must be regarded not merely as a business practice, but as a social institution" [Bartels 1976].

The relationship between marketing and economic development has been examined by many scholars from as early, as 1950s. Nevertheless, a consensus on this relationship and its impact on economic development is far from reach. There are two distinctive approaches to understanding the role, played by marketing in economic development: one developed by so called deterministic school, another developed by so called activist school.

Academics belonging to deterministic school tend to deliberate marketing as a *reflection* of economic system, developing under particular condition. Hence, marketing is thought as a kind of a reactive system that follows the path, *determined* by economic development driving factors. The principal goal of marketing here is to assure a conformity of a particular organisation to the market, its adaptation to changing environment, thus providing for more efficient business operations. Development in the marketing is attributed to the changes in its external factors like political, economic, social, technological and others. For example, Bartels (1977), and more recently Adizes (2004) argue that marketing is a formalised activity that is in need and takes place *after* the achievement of a certain level of development either in economic as a whole, or by a particular business due to a necessity of existence of the networks of marketing institutions, including agents and intermediaries on one hand, and a need to cover corresponding costs, on another has been reached. Therefore, marketing should be considered as a function of economic development, driven from external spurs. The degree of economic development is expected to be high enough to provide for covering of marketing expenditures, and the tasks to be sufficiently complex to justify the use of marketing.

Scholars of activist school claim that marketing plays a *leading* and formative role in economic development by stimulating growth. Various institutions of marketing systems are believed to perform functions vital for economic development. In particular, Drucker (1958) states that marketing's driving role for economic development lies in creating new businesses, spurring development of a middle class and fostering innovations in production and services, resulting in emerging new industries and markets. In this approach marketing contributes to economic development by:

- Reducing risks by providing information to producers and final consumers;
- Providing an organisational framework necessary for coordination production and consumption, and for providing the necessary provision to consumer in response to their needs [Fisk 1967];

- Creating conditions for technological advancements in production and services, thus generating advantages for organisations.

Further development of these early activist school's viewpoints resulted in emergence of macromarketing, whose scope was defined as referring to the study of: (1) marketing systems, (2) the impact and consequence of marketing systems on society, and (3) the impact and consequence of society on marketing systems. [Hunt 1981].

Hence, the macromarketing perspective allows for varying levels of aggregation to capture systemic views that embrace businesses and business interactions with different legal, political, and social value systems. Macromarketing describes the role of markets as *provisioning* systems for society, intended to improve the general welfare of humanity through networks of exchange that maximize the value derived from a division of labour [Mittelstaedt et al. 2015]. Macromarketing is suggested to shape a third significant set of factors o economic growth, along with division of labour and the benefits of specialization, and accumulation and dissemination of knowledge.

"Where there is specialization there must also be trade, and, over time, where there is trade there will also emerge the specialized roles and market structures needed to handle trade efficiently. These specialized roles and market structures, which will be called marketing systems, identify the third essential set of factors needed for growth to occur. While institutional change tends to be long term, and technological change is often discontinuous and medium term, marketing system changes leading to efficiencies or inefficiencies in trade have a much more immediate effect on the well-being of the community." [Layton 2009].

The core macromarketing concept is marketing system, which can be defined as:

1. a network of individuals, groups and/or entities;
2. embedded in a social matrix;
3. linked directly or indirectly through sequential or shared participation in economic exchange;
4. which jointly and/or collectively creates economic value with and for customers, through the offer of;
5. assortments of products, services, experiences and ideas; and
6. that emerge in response to or anticipation of customer demand. [Layton 2007].

Marketing systems have their origin in the trade imperative, where individuals realise that gains are possible through specialization. As specialization deepens, markets form, more people become involved, trade networks develop, linking communities and introducing cultural change and diversity [Layton 2011, p. 260].

As [Barile points out (see 2012)], the embracing of the concept of marketing system widens the view of market exchange, "in which a marketing system could be considered as a complex social mechanism for coordinating production, distribution and consumption decisions" [Dowling 1983].

Assessment of economic development, caused by marketing systems is based on the criterion that "the benefits of marketing to consumers, firms and society at large should be holistically reciprocal – not firms at the expense of consumers, consumers at the expense of firms, or both at the expense of society or the environment. Positive Marketing is grounded in the optimism that marketing plays a vital and productive role in human development, while recognising that there is room to improve the actions of marketplace participants." [Mittelstaedt et al. 2015]. Thus, positive marketing provides for a framework for the study of relationship between marketing development and societal progress.

A balanced view on the relationship between marketing and economic development can be as follows: marketing systems are driving forces of economic development, as their forms and specific features like operations in marketing channels are determined by the current situation.

Recent development of information technology and the widespread use of the Internet have radically changed the traditional business tools and approaches to address emerging challenges. The use of Internet technologies on the one hand can improve employee productivity and efficiency by increasing performance, reducing the number of involuntary errors; increase the volume of processed information providing for data automation. On the other hand, Internet based tools open new opportunities, unseen earlier not only for firms and consumers, but for society as a whole. Universal and mostly free access to information combined with one's ability to share and to create own content have a long lasting and profound impact to organisations, markets, marketing systems and society. There, where we used to seeing one company interacting with many audiences, now we can see multiple interactions of many-to-many with any given producer or seller being only one of agents. There, where we used to see one-way flow of information, now we can see two ways. Due to that, companies once been accustomed to mastering speaking first, are facing an increasing importance of hearing and being attentive to signs, given by customers. There, where only target audience mattered nowadays interests of various

stakeholders, including communities and non-buyers should also be taken into consideration just because they all have a practically unrestricted access to digital channels, enabling them to make a considerable impact on buyers' behaviour, purchase intentions and preferences – impact as only producer or seller used to exercise.

Not only methods or approaches to solve market's related problems have been changed due to further proliferation of IT and Internet – markets themselves have been evolved. Marketing systems are evolving due to IT and Internet, triggering further changes in societal systems. Who possesses information holds power, and today market power is gradually transferring to customers. Hence, development of marketing systems entirely and that part of their evolution, which relates to IT have an impact on societal institutions, which, according to the definition of macromarketing, given by [Hunt 1981] belongs to the domain of macromarketing. Macromarketing has long studied the quality of life and have made significant contributions to the concept [Hill & Dhanda 2004].

IT and Internet are crucial factors and major tool of technological transformations of the past decades. Essentially, these transformations, emergence of the global marketplace and proliferation of IT are seen as a specific set of conditions of contemporary economic and societal growth. Under such circumstances "have raised the stakes for all countries to become technologically connected – to be able to create, adapt and use global technological innovations". Desai et al. 2002 [Desai 2002] developed a measurement approach to assess the technological achievements of a country, by composing Technology Achievement Index (TAI). There is a valid correlation between TAI from one hand, and prosperity and quality of life, from another [Hill & Dhanda 2004], thus enabling using of TAI as a macromarketing metrics. TAI is measured by United Nations Development Program (UNDP).

Marketing is not only the driving force of economic development, it connects economic growth with social transformations, enabling progress in improving of living conditions and prosperity advance through satisfying the needs and desires of end consumers. In this aspect marketing is inherently associated to human well-being and happiness as an ultimate goal. [Frey & Stutzer 1999] Being accumulated to a certain degree such advancements are believed to trigger changes in societal systems. Wide-ranging global indexes like the Sustainable Society Index (SSI), published biannually since 2006 by the Sustainable Society Foundation, have the potential to provide valuable insights into important issues related to macromarketing, sustainability, and quality of life. The SSI is assessed based on three different dimensions – that of human, environmental, and economic well being. These three dimensions of well being are

further segmented into twenty-one indicators across eight categories. The levels and categories encompass a wide range of social, physical, environmental, and economic indicators and concerns (See Table 1). Input for the SSI comes from a wide range of global indexes and data sources [Simkins & Peterson 2016].

Table 1: The Sustainable Society Index Indicators and Data Sources

Indicator	Name	Measure	Source
1	Sufficient Food	Number of undernourished people in % of total population	FAO
2	Sufficient Drink	Number of people as % of the total population, with sustainable access to an improved water source	WHO-UNICEF Joint Monitoring Programme
3	Safe Sanitation	Number of people as % of the total population, with sustainable to improved sanitation	WHO-UNICEF Joint Monitoring Programme
4	Healthy Life	Life expectancy at birth in number of healthy life years	WHO and UN Population Division
5	Clean Air	Air pollution in its effects on humans Environmental Performance	Index, EPI 2012
6	Clean Water	Surface water quality	Environmental Performance
7	Education	Combined gross enrolment ratio for primary, secondary and tertiary schools	UNESCO
8	Gender Equality	Gender Gap Index	World Economic Forum
9	Income Distribution	Ratio of income of the richest 10% to the poorest 10% of the people in a country	World Bank
10	Good Governance	The average of values of the six Governance Indicators of the World Bank	World Bank
11	Air Quality	Air Pollution in its effects on nature Environmental Performance Index	EPI
12	Biodiversity	Size of protected areas (in % of land area)	UNEP-WCMC
13	Renewable Water Resources	Annual water withdrawals (m^3 per capita) as % of renewable water	Aquastat
14	Consumption	Consumption Ecological Footprint minus Carbon Footprint	Global Footprint Network
15	Renewable Energy	Consumption of renewable energy as % of total energy consumption	IEA
16	Greenhouse Gasses	CO_2 emissions per capita per year	IEA
17	Organic Farming	Area for organic farming in % of total agricultural area of a country	FIBL
18	Genuine Savings	Genuine Savings (Adjusted Net Savings) as % of Gross National Income (GNI)	World Bank
19	Gross Domestic Product	GDP per capita, PPP, current international dollars	IMF
20	Employment	Unemployment as % of total labor force	ILO, World Bank
21	Public Debt	The level of public debt of a country as % of GDP	IMF

Source: Simkins & Peterson 2016

Our suggestion is that there is a correlation between (1) the level of development of marketing systems, (2) the degree of penetration and intensity of use of information technologies and Internet, and (3) the level of development of societal systems.

Since "macromarketing is the overall view of the aggregate activity in the economy for meeting society's objectives of a proper flow of goods and services" (Shapiro 1973) it is believed that indicators of its current state and development are macroeconomic ones, most notably Gross Domestic Products (GDP), Gross National Income (GNI) and Expenditure of Households. They all form part of national accounts.

The degree of penetration and intensity of use of information technology can be measured using indicators of the level of penetration of computers, the use of the Internet and mobile broadband data transmission. Using of Internet and IT is obviously dependent upon general technology access level, usually aggregated on macrolevel by Technology Achievement Index (TAI). The index clearly captures the influence of important indicators that are associated with the ability of a nation to exploit the benefits of an information-based economy and as such is of importance for this study.

TAI evaluation is performed by United Nations Development Programme (UNDP). Based on TAI all countries of the world are divided into four groups in regard to technology creation, diffusion, and use categories: leaders (TAI values of 0.50 and above), potential leaders (TAI values of 0.35 to 0.49), dynamic adopters (TAI values from 0.20 to 0.34), and marginalized nations (TAI values below 0.20). This study comprises the most recent data (as of 2015) from 58 countries across all four groups defined in TAI evaluating.

The level of welfare is usually stood for by GDI per capita and Human Development Index (HDI), where inequality should be counted for, thus producing inequality adjusted HDI, referred to as IHDI. Societal systems changes can be traced with above mentioned SSI.

Due to the fact that SSI is complex and contains estimations of many factors listed above, standing for human, environmental and economic wellbeing for the purposes of this study we use only some of metrics mentioned earlier, namely: (a) GDP (per capita, in PPP); (b) level of the use of the Internet and mobile broadband data transmission; (c) TAI; (d) SSI, and (e) HDI. Data representing the level of use of Internet are taken from International Telecommunication Union (ITU) statistics as percentage of individuals using Internet (HH7), the most recent published figures refer to 2015. Data on GDP and HDI are taken from International Monetary Fund publications and both refer to 2017. Gathered data are presented in the table below (See Table 2).

Table 2: Listing of countries by TAI values

Country	TAI	HH7	GDP PPP	SSI	HRI
Singapore	0.824	79.0%	90 531	4.5	0.932
Republic of Korea	0.822	92.8%	39 387	5.9	0.903
Finland	0.771	87.7%	44 050	6.3	0.92
New Zealand	0.752	81.6%	38 502	5.9	0.917
United States	0.746	74.6%	59 495	4.7	0.924
Australia	0.744	84.6%	49 882	6	0.939
Hong Kong (SAR)	0.744	87.5%	61 016	n/a	0.933
Japan	0.741	93.2%	42 659	5.3	0.909
Sweden	0.739	89.7%	51 264	6.8	0.933
Canada	0.734	83.9%	48 141	5	0.926
Norway	0.734	97.3%	70 590	7	0.953
Netherlands	0.731	90.4%	53 582	6	0.931
Germany	0.73	89.6%	50 206	6.2	0.936
Israel	0.722	79.7%	36 250	5.3	0.903
France	0.715	85.6%	43 550	5.6	0.901
Ireland	0.715	85.0%	72 632	5.4	0.938
United Kingdom	0.711	94.8%	43 620	5.9	0.922
Austria	0.71	84.3%	49 247	6.2	0.908
Greece	0.693	69.1%	27 776	5	0.87
Belgium	0.69	86.5%	46 301	5.4	0.916
Italy	0.689	61.3%	37 970	5.8	0.88
Russia	0.68	73.1%	27 890	5	0.816
Spain	0.675	80.6%	38 171	5.5	0.891
Czech Republic	0.652	76.5%	35 223	6.5	0.888
Slovenia	0.652	75.5%	34 063	6.3	0.896
Poland	0.631	73.3%	29 251	6.4	0.865
Hungary	0.627	79.3%	28 910	6.2	0.838
Cyprus	0.617	75.9%	36 557	5.3	0.869
Malaysia	0.613	78.8%	28 871	5	0.802
Ukraine	0.612	48.9%	8 656	5.2	0.751
Slovakia	0.609	80.5%	32 895	6.4	0.855
Argentina	0.606	71.1%	20 677	5.6	0.825
Portugal	0.597	70.4%	30 258	5.8	0.847
Bulgaria	0.593	59.8%	21 578	6.1	0.813
Croatia	0.589	72.7%	24 095	5.9	0.831
Costa Rica	0.574	66.0%	17 149	6.3	0.794
Panama	0.567	51.2%	24 262	5.7	0.789
Romania	0.545	59.5%	23 991	6.8	0.811
Uruguay	0.535	66.4%	22 445	6.3	0.804
Brazil	0.529	60.9%	15 500	5	0.759
China	0.529	53.2%	16 624	5.2	0.752
Thailand	0.511	47.5%	17 786	5.9	0.755

Country	TAI	HH7	GDP PPP	SSI	HRI
Philippines	0.489	48.1%	8 229	6.1	0.699
Colombia	0.48	58.1%	14 455	5.3	0.747
Peru	0.458	45.5%	13 342	5.7	0.75
Iran	0.456	53.2%	20 030	4.8	0.798
Mexico	0.455	59.5%	19 480	5.8	0.774
Jamaica	0.451	42.2%	9 212	5.1	0.732
Tunisia	0.439	49.6%	11 987	5.2	0.735
Egypt	0.431	41.2%	12 994	4.7	0.696
Paraguay	0.42	48.4%	9 785	5.5	0.702
Ecuador	0.413	54.1%	11 234	5.4	0.752
Bolivia	0.378	34.6%	7 543	4.6	0.693
Indonesia	0.378	25.4%	12 378	6	0.694
El Salvador	0.376	26.8%	8 934	5.8	0.674
Sri Lanka	0.348	10.5%	13 001	6.1	0.77
Dominican Republic	0.328	54.2%	16 965	6.3	0.736
Pakistan	0.268	15.5%	5 354	5	0.562

Source: Mittelstaedt, J.D., Kilbourne, W.E. & Shultz, C.J. Macromarketing approaches to thought development in positive marketing: Two perspectives on a research agenda for positive marketing scholars 2015

There is a tight correlation between some of the indices we use, namely TAI correlates significantly high, yet expected to HDI (R=0.93) and penetration of Internet (R=0.90). Correlation of penetration of Internet to HDI is also expectedly high (R=0.90), as well as GDP to HDI (R=0.88), and TAI to GDP (R=0.84). At the same time SSI correlate to every other indicator at significantly low level, $R \leq 0.26$ (See Table 3). Statistics show that there is a statistically significant relationship between all studied indicators. ANOVA analysis shows that there is a statistically significant relationship between all studied indicators (at α=0.05).

Table 3: Correlations between indices

	TAI	*Internet*	*GDP PPP*	*SSI*	*HRI*
TAI	1				
Internet	0.9002	1			
GDP PPP	0.8386	0.7847	1		
SSI	0.1353	0.2436	0.1093	1	
HRI	0.9285	0.9029	0.8798	0.2616	1

Source: Kadirov, D. Macro-Systems Role of Marketing 2011

Such a low value can be explained by the influence of other, more significant factors. In this context, attention should be paid to the fact that, as [Kadirov 2011] pointed out, there is a statistically significant negative correlation between the level of development of marketing

systems and the level of entropy of societal systems, which, in turn, defines its indicators. The trade-off conjecture leads policy makers to believe that established marketing practices are indispensable despite their questionable impact on ecological sustainability. In consequence, an undue emphasis on protecting not only polluting industries, businesses, and goods but also unsustainable institutions, values, and practices might follow simply because these marketing system elements are deemed key to societal (actually economic) welfare [Kadirov 2011].

It should be noted that the TAI shows a higher degree of correlation to GDP compared to the Internet penetration indicator. The TAI aims to capture technological achievements of a country in four dimensions:

- creating new technology;
- diffusing recent innovations;
- diffusing existing technologies that are still basic inputs to the industrial and the network age; and
- building a human skill base for technological creation and adoption.

The index focuses on outcomes and achievements rather than on effort or inputs such as numbers of scientists, R&D expenditures, or policy environments. This is because the causal relationship between these inputs and outcomes are not well known. [Desai et al. 2002] Such a complex construct reflects much more different issues compare to just a proliferation of one only part of the progress of technology we are observing now. Other elements of technological advancement are of a big importance and cannot be substituted by IT only.

There is an obvious and undoubted connection between the development of IT and the technological systems of society. Marketing systems are also under constant pressure from IT. It is also clear that marketing directly affects the development of consumption in both quantitative and qualitative terms. Our findings are that a supposed link between the indicators of technological development, the level of Internet penetration, the level of economic development and well-being, on the one hand, and the indicator of sustainable development of societal systems, on the other hand, is insignificant. However, the question about contribution of marketing to wellbeing via sustainable development remains open as the link in the "IT – Marketing – Well being" triangle is ambiguous. As was shown above, the SSI is a complex construct, the various components of which are interdependent and interact with marketing in a non-linear manner. The relationship of marketing systems with indicators of economic development via consumption appears much clearer than with components describing environmental dimensions. It can be assumed that marketing directly affects some components, while in relation

to others, it most likely creates conditions or obstacles for development. Further studies of the long-term and short-term effects of the development of marketing systems on the development of societal systems and the entropy in them are likely to make it possible to learn more about the nature of the interaction of marketing systems and sustainable development.

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