

A Subjectivity Study on the Promotion of Korean Smart TV Industry through Q Methodology

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Received April 8, 2014; revised June 10, 2014; accepted June 10, 2014; published June 27, 2014

Abstract

From the perspectives of regulation and convergence, several debates on the industrial definition of smart TV service in the Korean broadcasting and communications market are currently in progress. The most heated controversy mainly depends on whether smart TV is controlled under broadcasting regulations or under communications regulations. This Korean-specific problem is summarized in regulation fairness or asymmetric regulations between smart TV and IPTV operators. Although both operators utilize very similar technology and share the same business model, the regulations for only smart TV operators are unfettered. This would be an intrinsic cause that prohibits fair competition in the new converging market. Currently we confront the matter of asymmetric regulations between smart TV and others including IPTV or ISP. The purpose of this study, thus, is to provide the strategic, regulatory guidance and theoretical definitions on smart TV service, as one of converging services, based on a qualitative approach through subjectivity methodology. The study identifies three issues net neutrality, regulation fairness and new media and new market and proposes desirable promotion plans regarding those issues. The study draws lessons learned through a Korean smart TV case and provides directions to strategic-policy studies for future emergent converging services.

Keywords: Smart TV, converging media, Q methodology, subjectivity study, asymmetric regulation

A preliminary version of this paper was presented at ICONI 2013 and was selected as an outstanding paper.

<http://dx.doi.org/10.3837/tiis.2014.06.021>

1. Introduction

Among converging services in Korea, IPTV is the most representative case of broadcasting and communications. This service launched in November 2008 and gained about 4.5 million subscribers in three years flat. Likewise, the domestic market share of smart TV, whose service is similar to IPTV, already has increased about two times from 0.29 million (12.8%) in 2010 to 0.54 million (22.7%) in 2011. Korea Communications Commission (2012) predicts 1.31 million smart TVs will be provided by 2013, which are 50% of the whole [1]. In spite of rapidly growing popularity, this emerging smart TV provokes bitter arguments for and against related regulation matters in the Korean broadcasting and communications market.

Above all, the crux of this matter mainly concern the determination of the regulatory range of smart TV services or business. This matter depends on whether we see smart TV business as broadcasting operators under the control of the Broadcasting Act, or as a value added to common carriers under the Telecommunications Act. The second issue is in regard to regulatory fairness applicable to both smart TV and IPTV operators. Although they are similar in terms of a business model that provides technically the same converging contents or service, IPTV operators are currently government-regulated by Internet Multimedia Policy (a.k.a. IPTV policy).

The main argument is focused on the matter of asymmetric regulation between smart TV and common communications carriers such as IPTVs or ISPs in view of fair competition. The purpose of this study is to propose plans for vitalizing smart TV in Korea based on the view point of fair competition and to propose desirable political directions grounded on the Korean market's reality. Compared with prior researches, it is timely that this study casts light upon the urgent problem between smart TV and IPTV operators. To discover three typologies of domestic smart TV-related regulation issues and interpret theoretical definitions of those, we conducted a subjectivity analysis through qualitative methodology. At the result, the study draws lessons learned through a Korean smart-TV case and provides directions to strategic-policy studies for future emergent converging services.

2. Literature Review

2.1 Smart TV: What is New?

Smart TV is a television equipped with an Internet-based OS. With technical innovation of the STB (set-top box) and TV receiver, a service area can be expanded to multimedia and 3DTV besides current broadcasting such as cable, satellite broadcasting, and IPTV. As shown in Table 1 [2], a smart TV based on an open OS platform provides web browsing, TV-applications, and SNS services through a connection to the Internet. By converging between TV and a smart device, smart TV shifted from one-way watching-TV to interactive TV playing with audiences. In other words, this is a remediated and restructured media and platform that offers a "homogeneous" experience in the nature of a smart phone or tablet PC through a TV interface. Likewise, the smart TV industry is a converging field that is essential to building a foundation for the environmental ecosystem among manufacturers, broadcasters, CPs, and communication carriers. Through the market entry of smart TV, the Korea government grapples with the problem of industrial strategies and regulatory controls on this kind of infant converging service in the broadcasting and communications market. Recently,

there has been an urgent need for an institutional framework for improving policy plans to ally controversial issues of developing common TV-based app stores that are applicable to digital cable TV, IPTV, and smart TV, improving convergence content or business, regulating fair competition rules, and creating a collaborative open-market ecosystem.

As mentioned above, smart TV contents include regular real-time broadcasting programs as well as various smart applications or web contents based on the OS and two-way broadband services, hence it's going to cause a problem when applying the existing Broadcasting Act and Communications Act without further amendment. Some researchers focused on the topic of "regulation fairness" and "regulatory definition of smart TV service" between smart TVs and other communications operators in terms of policy-approach research. As smart TV offers broadcasting programs or content to audiences, it could be regulated under the control of existing Broadcasting Act [3][4]. Conversely, since smart TV is among an emergent converging service, it may have to be controlled by new regulations such as IPTVs [5][6]. From a difference point of view, this will probably need to be the "horizontal regulation" that separately controls a network and content field. Some previous researches explained that the horizontal regulation means a service delivery-oriented regulation in the media industry, not a network-oriented regulation [7][8]. Kim et al. (2011) concentrated on improvement plans of current regulations: the legal definition of "smart TV-service provider", the business relationship between smart TVs and current broadcasting operators, and future strategic-policy directions [9][10]. At present, previous academic studies on smart TV are largely concentrated in managing consumer behavior or adoption focused on UX (user experience) and UI (user interface), developing service models, contents, and applications of smart TV, and related technological engineering functions [11-13]. There's an urgent need for a theoretical framework of institutional guidance to promote smart the TV market.

Table 1. A comparison between smart TV and existing broadcasting services

Classification	Terrestrial TV	Cable/Satellite TV	IPTV	Smart TV
Delivery Method	Air waves	Cable/Satellite	Internet	Internet
Bidirectional	None	Partially	Partially	Yes
Way of watching Contents	Terrestrial broadcaster provides (push)	Cable/Satellite broadcaster provides (push)	Communication carrier provides broadcasting contents (push)	Browsing Online/Broadcasting contents (pull)
Charge system	Free (excluding subscription fee)	Charged	Charged	Charged/Free
Example	KBS, MBC, SBS, EBS	CJ Hellovision	myLGtv, Qook	Google, Apple TV

2.2 Business Perspectives Trends

Platform, contents, devices, and network business operators have established full-scale n-screen strategy through smart TV. In order to provide the best convergence service, each business operator will establish a strategic alliance with others in different business fields, supplementing its needs. There are various business models that business operators use to enter into the smart TV market. First is the Inside TV type, targeting early-adaptors who tend to use web-based Internet service as TV devices. Second is the type that OTT (over-the-top) business operators and STB manufacturers choose smart TV OS. OTT service is a service in which third business operators provide various media content such as dramas and movies through the Internet; for example, Netflix, Hulu, Amazon, Comcast, and CJ Hellovision

(‘TVing’) services. Third is that a telcos or cable business operator converts their IPTV into a smart TV OS or develops an STB that is compatible with a smart TV OS. Last is the type that a smart TV itself enters into media market as a service operator. In this case, a direct competition with an existing pay TV distributor cannot be avoided, a smart TV operator should handle a huge investment in order to ensure its unique contents and real-time broadcasting QoS (Quality of Service) as the broadcasting business operator and be under the domestic Broadcasting Act.

Therefore, smart TV operators will attempt to provide their specialized content service by directly supplying contents; thus, a regulatory issue arises whether to categorize smart TV as a broadcasting business operator, who is attempting to provide video service. Hwang(2010) pointed out that categorizing smart TV as a broadcasting business operator at this transition period is not yet appropriate [2]. From this point, it is supposed that smart TV would spark off mergers and acquisitions among business operators in the broadcasting market. Accordingly, regulations and audits to a differentiate market-dominating enterpriser, who can control fair trade in market, will be important, and regulation to achieve objective and strict evaluation of market competition should be developed from deliberation of sophisticated methodology about related market expansion.

2.3 Regulatory Perspectives Trends

Major issues of regulatory level and research about regulatory policy direction from the introduction of smart TV are progressing more lively in the industrial than in the academic field. As mentioned above, smart TV is a bi-directional service providing various applications or web contents including real-time broadcasting programs using an OS-based TV receiver through a wide-use Internet network, which is not suitable for the existing Broadcasting Act and Communications Act of Korea. As a result, some researches have raised the regulation equity issue between position or service regulation of a smart TV business operator and business operator in terms of policy research. For a new service operator, such as smart TV, controversy over deciding which regulation is applied cannot be avoided. In other words, research about regulation of convergence service is classified as a research trend requiring an introduction of a new regulation system such as a horizontal regulation system, as the lack of reason and method to regulate this new service with an existing policy and conservative debate that convergence service should be included in the existing related policy.

IPTV might be a smart TV that broadcasts programs (contents) to the air; therefore, it can be under the existing Broadcasting Act regulation. Otherwise, since this is a new convergence service, it should be under the new regulation. In other words, it is a horizontal regulation regulating network and contents separately and fully adjusting the vertical regulation system of the existing broadcasting and communications market; Choi et al.(2008) defined that the horizontal regulation of media industry is a change of direction from a network-oriented regulation to a service delivery-oriented regulation [7]. To understand more concretely this type of phenomenon, a researcher suggested improvement and problems of existing regulations, which focused on the legal idea of a smart TV operator, relationship with existing broadcasting business operator, and a future regulation direction of smart TV in the field of marketing or policy [18].

3. Qualitative Research Through Q-Methodology

3.1 Step 1: Establishing Q-Population Statements

Q-methodology means a series of Q-sorting analysis that includes a sequential process from the compressing of stimuli Q-samples out of a Q-population (concourse) and selecting of p-samples (Q-sorters) taken from any p-population to discovering Q-factors (typologies). Q-samples are the statements or objects that p-samples should categorize in the form of a card. The Q-procedure is composed of six stages: (1) establishing of the Q-population; (2) Q-sampling from the Q-population; (3) selection of the p-sample; (4) Q-sorting and data coding; (5) analyzing the Q-factor; and (6) discovering and interpreting the discovered typologies. Q methodology is a model or a theory that is useful in “self” research in interpreting, according to the intrinsic similarity of thoughts, recognition, attitude, and intrinsic value structure of human respondents in the perspective of qualitative analysis (Brown 1986). Recent studies are expanding on the field of business and policy strategies [14][15]. The Q-method, as a scientific discovery, proposes a new approach to understanding a human’s thinking structure. The rationale underlying the Q-method is often compared with a flashlight in a dark room. It is not an operational concept but a methodology that generates in-depth hypotheses with a focus on discovering each expertise’s subjectivities of the smart TV industry [16].

In other words, “subjective communication” with the real world, which has an experiential meaning latent within each person, can work rather inside an “internal frame of reference” than researcher-oriented operational definitions [17]. The beginning of this Q-study is to accumulate Q-population statement about smart TV regulatory issues from respondents composed of 13 experts representing Korean smart TV industries, IPTV operators, private and public research institutes, and policy authorities. We collect Q-population statements one-by-one through in-depth interview and FGI [18] as shown in **Table 2**. The questionnaires include influences and characteristics of smart TV in Korean broadcasting and the communications converging market, the necessity and reason for smart TV regulation compared with IPTV regulation, and a desirable policy-strategy suited to emergent smart TV.

Table 2. Expertise group FGI and in-depth interview to establish q-population

Industry	Affiliation	Task	Position	Gender	Age
Policy authority	Biz cooperating	Network neutrality	Section chief	Male	39
Policy research	Converging policy	Converging market	Senior researcher	Male	37
	Communications	Communications policy	Researcher	Female	30
Market research	Network-value TF	Business model	Team manager	Female	41
	Network-value TF	Smart TV	Dept. head	Male	43
IPTV operators	Network policy	Network value policy	Dept. manager	Male	43
	Smart work	Smart work	Dept. head	Male	42
	Device TF	Converging device	Team manager	Male	40
	CR strategy	Neutrality & Smart TV	Dept. manager	Male	46
	Community biz	Admin. CUG biz	Team manager	Male	42
IPTV/Smart TV	Biz cooperating	Network neutrality	Dept. head	Male	41
Smart TV	Administration	Administration	President CEO	Male	40
Smart TV	Smart OTT	Admin. of smart TV	CEO	Male	42

3.2 Step 2: Contracting Q-samples and Comprising P-samples

The Q-sampling process from the Q-population is the most important step in a Q-study. This study is proactive qualitative research, proposing business or political decision-making of smart TV, which is appropriate in the Korean domestic market, so the number of Q-population statements relatively include professional and complicated knowledge. Considering this, Q-samples were contracted to 40 items for this study as shown in **Table 3** based on Minto's (2008) "Pyramid Principle" [19]. A P-population is the actual group of respondents and p-samples are respondents who actually participate in q-sorting. Because a larger p-sample causes statistical problems, the Q-method follows Stephenson's (1953) Small Sample's Principle based on Q-theory. A Q-study is, rather, based on a small sample doctrine [20]. This study selected 11 p-samples based on purposive and judgmental sampling and snowball sampling with consideration for demographics variables. It is most desirable to sample respondents who have different but uniform opinions, such as persons with a special interest in this research topic, dispassionate judges, authorities and experts, and those with a class interest [21].

Table 3. Q-samples from q-population

Q-samples / Statements
1. As Smart TVs have no intention of paying net subscription fee ("The tragedy of the commons" problem)
2. Accelerated competition of similar operators in the market will create new collaborative biz models.
3. Through n-screen services based on Smart TV, mobile or media ecosystem becomes prosperous.
4. Education service market would be more vitalizing as qualitative e-learning contents through Smart TV.
5. Charging on smart TV operators about net usage (applying B.P.P.: Beneficiary Pays Principle)
6. Reorganization of current broadcasting institutional regulation (terrestrial broadcaster-IPTV-smart TV).
7. Strengthen content or entry approval regulation on Smart TV, with other regulations to be deregulated.
8. Smart TVs sell unlimited contents on internet, which brings commercial conflicts with other broadcasters.
9. There are not enough charming smart TV apps in quantity, so no effect on market for the time being.
10. Consumers are not reactive with smart TV such as smartphone or tablet PC, so market impact is limited.
11. Convergence services provided with Smart TV has profound impact on communications and broadcasting.
12. A mass traffic smart TV transfers causes net load and network insecurity, without extra net charging.
13. POOQ STB or VOD functions provided by terrestrial broadcaster union against Smart TV have direct effect on sales structure of CATV or IPTV.
14. A question of continuous business connections with ISP or manufacturer without any other contract.
15. In addition to existing e-commerce and m-commerce market, t-commerce using smart TV is expanded.
16. As smart TV or internet broadcast are used only if internet works, so other regulations are unnecessary.
17. Smart TV supplies TV size apps and so provides new win-win business opportunities to contents industry.
18. Creating new collaborative services. e.g. smart TV manufacturer+ IPTV STB or IPTV STB + Google TV.
19. Smart TV accelerates to expand the interactive services based on open platforms.
20. In overall, smart TV is changing the value chain of traditional broadcasting industry.

- 21. Social or context-awareness information through smart TV will maximize consumers' media consumption.
- 22. Provoking regulatory controversy about how to apply marketing positioning with existing broadcasters.
- 23. Aggravated the burden of net investment of existing ISP operators due to increase in smart TV data traffic.
- 24. Smart TV provides a market opportunity that various enterprisers participate, who are not inherent financial sources of existing broadcasting enterpriser
- 25. IPTV operators will be declined as IPTV's VOD main service will be provided by smart TV or CPs.
- 26. If interactivity or convenience similar to future PC realizes, CP role of smart TV is redoubtable.
- 27. A converging service era is led by smart TV. e.g. PCs-TVs-game devices.
- 28. No clear evidence of what effect smart TV will have on the existing broadcasting market.
- 29. In terms of audiences, ways or chances to use the smart TV service is increasing through existing media.
- 30. An importance of net neutrality regulation raise due to increased real time data traffic of smart TV.
- 31. Smart TV increases the investment burden to ISPs, stopping the network upgradability projects.
- 32. Converging services between smart TV devices and media platforms has ripple effect on the market.
- 33. Inverse condemnation of smart TV function by IPTV or CATV is increasing.
- 34. It is possible as new contents window, but consumer needs is not large and the effectiveness is not high.
- 35. Broadcasting-augmented reality (AR) converging services can provide differentiate contents of Smart TV
- 36. Smart TV shows its media status causing broadcasting-contents-communication industry ecosystem.
- 37. Smart TV creates new business model by developing commercial converging platforms (internet + mobile).
- 38. Keen competition among smart TV, CATV (STB), home appliances, security equipment, Fem-to-cell operators, etc. to preoccupy home gateway.
- 39. As the supply of smart TV in houses extends, appliance companies will change to service enterprisers.
- 40. Future new TV devices will mostly change to smart TV, and finally will encroach on IPTV market.

3.3 Q-sorting and Data Coding

Q-sorting is similar to rank ordering. Typical Q-sorting starts with a researcher proposing a group of Q-samples to sorters with the respondents arranging stimuli in the order of importance from his/her subjective points of view. It is not about obtaining a black and white opinion about a Q-sample but, rather, about observing the sorting process arranged into a forced distribution. In brief, the results of sorting are subjective opinions of respondents about a certain question. Generally, the desired sorting time requires 30 to 40 minutes. This study follows the card-arranging rule of traditional Q-method using re-designed Flash Q software (offline version) to overcome gaps in geographical locations. The Flash Q program is a drag-and-drop tool. To observe a respondent's Q-sorting process directly, we conduct the sorting work using a remote instant messenger for one-to-one interviews. The below Q-pyramid shape adopted a nine-point scale from strongly disagree(-4), neutral(0), to strongly agree(+4).

Table 4. Q-sorting using Flash Q software tool

	Disagree		Neutral					Agree	
Score	-4	-3	-2	-1	0	1	2	3	4
Frequency	3	4	5	5	6	5	5	4	3
Value	1	2	3	4	5	6	7	8	9

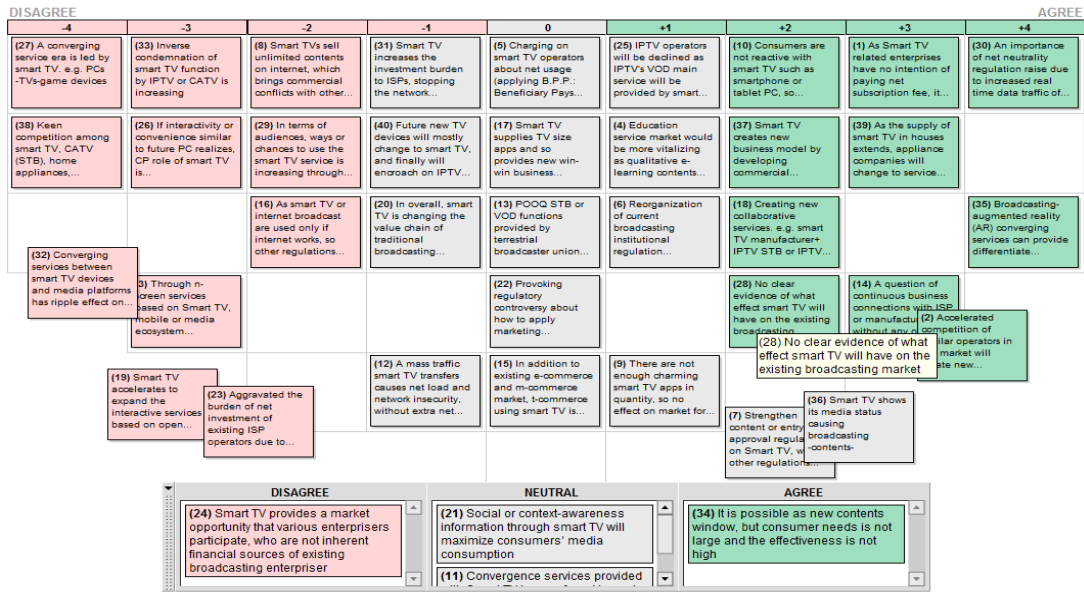


Fig. 1. Q-sorting with Flash Q

Table 5. Demographic and q-factor weights of p-samples, ※ Factor weight * >1.0

Q sort	Factor loadings		Factor weight by type	Eigen values	Variance (cumulative variance)
	T1	T2			
Type1 (n=5)	P9	.875	-.023	1.5977*	3.0426 .2766 (.2766)
	P4	.687	.494	1.2283*	
	P5	.626	.245	1.1782*	
	P10	.614	.310	.9148	
	P8	.723	-.072	.8739	
Type2 (n=6)	P6	.459	-.635	2.0020*	1.8955 .1723 (.4489)
	P1	.621	-.362	1.0515*	
	P11	-.160	-.802	.9452	
	P7	.156	-.574	.8482	
	P2	.058	-.040	.0649	
	P3	-.317	-.244	.0434	

4. Results and Interpretation

4.1 Q-Factor Analysis

To categorize expert subjective opinions about the Korean smart TV industry, this study analyzed the Q-sorting materials with a principal component analysis, varimax rotation, and correlation analysis using the QUANL PC program. A Q-factor analysis is the process of self-grouping people with similar thoughts about a certain topic. In other words, it is not a group of people sharing certain attributes but a typology of each person’s subjective thoughts [22]. A total of 11 data items were used in the Q-analysis after excluding three p-samples due to missing content. As shown in Table 5, two typologies were discovered. The eigen value is the sum of factor-loading values; other values are correspondent to the variance, total variance, and cumulative variance. The factor weights for the two types are 3.0426 and 1.8955. As a

result, all eigen values per factor are greater than. The cumulative variance was summed to 0.4489 (45%). The factor weights of the p-sample are typologied as T1 type (n=5) and T2 type (n=6). Among the types, the value of the typical person becomes greater than 1.0. The factor loading value is greater than $0.309(1.96 \cdot 1/\sqrt{40})$ at significance level 95%.

4.2 Smart TV Regulatory Directions Based on Two Typologies

From the above Q-analysis result, there are two types of point of view of correspondents, the current expertise, viewing the market effect of smart TV, and the representative Smart media in Korea. Subsequently, this chapter is a core of Q method as this is a step to interpret in-depth the internal opinions of correspondents, which are differently shown for each type. While the Q-analysis results in a quantitatively classified type of correspondents, Q-type interpretation will qualitatively compare and interpret the different points of response for each type and what prospective characteristic each type shows in order to precisely understand the difference in opinion of expertise correspondents looking at the current smart TV market of Korea. Eventually, both types commonly consider the debate of policy and regulation with similar services occurring due to the appearance of smart TV; on the other hand, it reflects the situation of the current Korean market, as they are in conflict with a question of an asymmetric regulation or a vitalization of the new smart media market. From now on, the essential causes about the reason why a diametrical view is strained in conflict, with the result of a type of interpretation to be discussed through Q-research, would be investigated to suggest a theoretical guideline, which can help establish an institutional strategy of related policy and regulation that is reflected with special characteristics of the Korean market in a realistic and objective point of view.

Table 6. Z-scores and Q items descriptions for T1 and T2 (z-score $\geq\pm 1.00$)

Type 1(T1)				Type 2(T2)			
Positive		Negative		Positive		Negative	
Q item	Z-score	Q item	Z-score	Q item	Z-score	Q item	Z-score
Q5	2.20	Q16	-1.51	Q9	1.99	Q25	-1.98
Q23	1.84	Q36	-1.51	Q30	1.80	Q35	-1.73
Q31	1.60	Q35	-1.33	Q10	1.78	Q40	-1.34
Q22	1.50	Q25	-1.28	Q34	1.54	Q4	-1.12
Q12	1.36	Q27	-1.17	Q16	1.44	115	-1.10
Q1	1.33	Q21	-1.07	Q22	1.20	Q32	-0.99
Q8	1.26	Q15	-1.07	Q18	1.18	Q31	-0.98
Q6	1.20	Q37	-1.02	Q33	1.09	Q1	-0.83

4.2.1 Type 1: In the Perspective of Regulatory Impacts

Type 1 is a group of people who strongly support application of the same regulations to smart TV as applied to similar business operators, such as pay broadcasting or IPTV. They agree that no fair competition is fundamentally possible in a media market, as current regulation imposes asymmetric regulation. Q-items that represent this character of Type 1 are follows. From closely considering the contents of strongly support ($z > +1.0$) or oppose ($z > -1.0$), it is possible to interpret the opinion of correspondents who are not quantitatively judged more in-depth than a Q-study result. It is possible to find the reason or evidence of opinion from a closer look into the representative items. The main cause is that first, network loads and instability due to large traffic of smart TV eventually increase the burden of investment to an existing network business operator; second, smart TV enterprisers are an

out-of-network usage charge burden, which is away from institutional equity. Therefore, they strongly support the items of “Charging on smart TV operators about net usage (applying B.P.P)” (Q5, $z=2.20$) and “Provoking regulatory controversy about how to apply marketing positioning with existing broadcasters” (Q22, $z=1.50$) and emphasize the importance of reorganization of institutional strategy.

Especially, the items explaining a comparison phenomenon that the network load issue created by smart TV contributes to a network investment burden for existing business operators are positively in agreement with the Type 1 respondent. “Aggravated the burden of net investment of existing ISP operators due to increase in smart TV data traffic” (Q23, $z=1.84$), “Smart TV increases the investment burden to ISPs, stopping the network upgradability projects” (Q31, $z=1.60$), and “A mass traffic smart TV transfers causes net load and network insecurity, without extranet charging” (Q12, $z=1.36$) items are about data traffic issues created by smart TV. Moreover, the debate on equity of asymmetric regulation is shown from “As smart TV related enterprises have no intention of paying net subscription fee, it is concerned that ‘a tragedy of the commons’ problem may occur” (Q1, $z=1.33$), and “Smart TVs sell unlimited contents on Internet, which brings commercial conflicts with other broadcasters” (Q8, $z=1.26$). To sum up, Type 1 pursues the “Reorganization of current broadcasting institutional regulation (terrestrial broadcaster-IPTV-smart TV)” (Q6, $z=1.20$).

On the other hand, Type 1 group is in strong disagreement on the items that the Type 2 group strongly agrees with. This is shown from “As smart TV or Internet broadcast are used only if internet works, so other regulations are unnecessary” (Q16, $z=-1.51$) and “Smart TV shows its media status causing broadcasting-contents-communication industry ecosystem” (Q36, $z=-1.51$). This group disagrees with the positive expected effect of smart TV, and items such as “Broadcasting-augmented reality (AR) converging services can provide differentiate contents of smart TV” (Q35, $z=-1.33$), “A converging service era is led by smart TV. e.g. PCs-TVs-game devices” (Q27, $z=-1.17$), “Social or context-awareness information through smart TV will maximize consumers’ media consumption” (Q21, $z=-1.07$), “In addition to existing e-commerce and m-commerce market, t-commerce using smart TV is expanded” (Q15, $z=-1.07$), and “Smart TV creates new business model by developing commercial converging platforms (internet + mobile) in TV broadcasting advertisement” (Q37, $z=-1.02$) are the evidence. Examining the subjective opinion about strongly agree-/strongly disagree items suggested by the correspondents after the survey in the Q-sorting step of the Q-study, it is possible to know the fundamental reason. First, the reasons for agreed items are shown in below [Table 6](#).

4.2.2 Type 2: In the Perspective of Market Impacts

Type 2 is a group of correspondents who positively consider the future potential of smart TV, while not evaluating much on the effect of smart TV in the current Korea market. While the Type 1 group considers important the fair competition and equity of asymmetric regulation between existing similar business operators and smart TV, Type 2 group has high expectation about the synergy effect that the appearance of smart TV would produce a new business model from the changing value chain of media industry and traditional broadcasting service and bringing vitalization to market competition. Surely, they acknowledge the requirement of network neutrality the policy and current traffic issue of smart TV (Q30, $z=1.80$). However, the issue about policy regulation point of view is limited to Q30, and most items the Type 2 group agreed on are about what industry win-win effect smart TV would bring. Smart TV and Internet broadcasts are usable with the Internet; therefore other special regulations such as share or territorial limitation has no meaning to them (Q6, $z=1.44$). The strongly agreed-upon

questions are about the current view of customer need and the market-ripple effect of smart TV are not significant in the current market; another future view that, as various cooperative service models and smart TV app contents increases, the medium status gets higher in broadcasting service industry and is causing competition with similar business operators and therefore contributes to market vitalization.

Items reflecting the current situation are, “There are not enough charming smart TV apps in quantity, so no effect on market for the time being” (Q9, $z=1.99$), “Consumers are not reactive with smart TV such as smart phone or tablet PC, so market impact is limited” (Q10, $z=1.78$), and “It is possible as new contents window, but consumer needs is not large and the effectiveness is not high” (Q34, $z=1.54$). On the other hand, correspondents showed high support to that smart TV is already altering the value chain of the traditional broadcasting service industry overall (Q20, $z=.93$), based on items of “Creating new collaborative services. e.g. smart TV manufacturer+ IPTV STB or IPTV STB + Google TV” (Q18, $z=1.18$) and “Inverse condemnation of smart TV function by IPTV or CATV is increasing” (Q33, $z=1.09$). As for accelerating the competition of operators in the market in the future, “Accelerated competition of similar operators in the market will create new collaborative biz models” (Q2, $z=.84$) and “In terms of audiences, ways or chances to use the smart TV service is increasing through existing media” (Q29, $z=.84$), the social welfare value of smart TV is highly evaluated. The policy and regulatory debate that the Type 2 group considers is about the position and labor amount of smart TV (Q22, $z=1.20$) and is open to other regulations; therefore, this type is a market-central policy pursuit, focusing on vitalization of the media market that smart TV would bring.

The items for which the Type 2 expert group show a strong disagreement on are mostly the ones Type 2 strongly agree with. Items such as “Smart TV increases the investment burden to ISPs, stopping the network upgradability projects” (Q31, $z=-.98$), “In addition to existing e-commerce and m-commerce market, t-commerce using smart TV is expanded” (Q15, $z=-1.10$), and “Charging on smart TV operators about net usage (applying B.P.P.)” (Q5, $z=-.61$) are the evidence. In other point of view, the items that Type 2 group shows an opposing opinion reflect their thoughts on smart TV that although it brings competition with existing similar business operators such as IPTV or broadcasting operators, in terms of business there are unique characters for each region; therefore, no problem would occur. In other words, they actively oppose that smart TV is the beneficiary of current asymmetric regulations and would encroach on existing business operators such as IPTV.

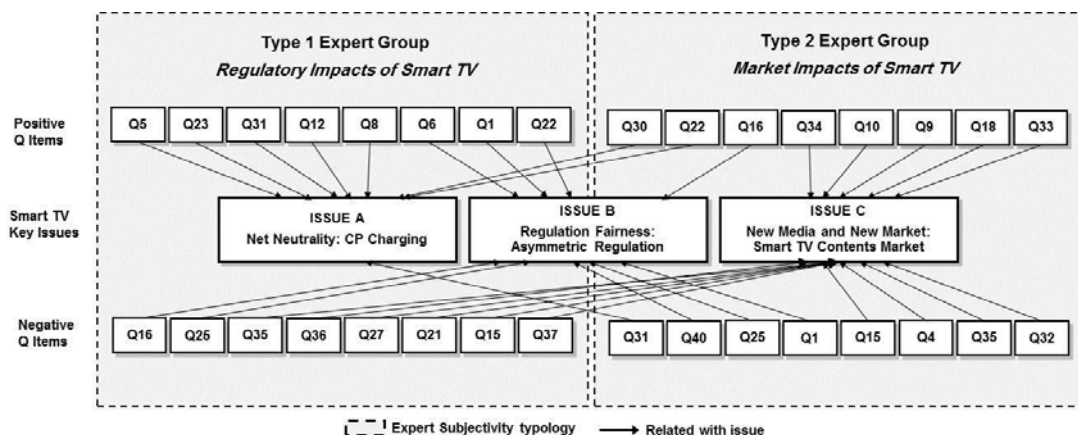


Fig. 2. Interpreting key issues of Korean smart TV market based on Q study

5. Discussion and Conclusions

The dominant issue about smart TV in the Korean media market is the network neutrality between ISPs and smart TV CPs. Concretely, the net neutrality issue concerns calculation for network usage. Smart TV operators have privileges not only as current TV manufacturers, but also actual content providers. However, no network usage fee is paid to ISPs in the Korea market, who deliver contents to the end-user through the network. This conflict with ISPs and smart TV CPs is not only happening in Korea; many other countries are enduring the same problem. For example, Google in France pays a network usage fee to France Telecom to provide mass capacity contents; and US Netflix, the movie contents provider, pays Comcast, the high-speed Internet and cable TV operator. Although most countries do not have a clear solution to this problem, there are a few examples in which CPs pay a network usage fee to ISPs. In January 2014, the D.C. Circuit Court of Appeals in the United States nullified the FCC's "open internet" rules, which prohibit Internet providers from blocking or slowing down access to certain websites intentionally and charging a network usage fee [23]. So there are little regulatory barriers for ISPs to impose on CPs in that country. Considering the U.S.'s impact on net neutrality issues, it is expected that ISPs and CPs are going to make various alternatives for settlement of network fees between them all around the world.

A fierce debate about regulation equity surrounding smart TV is a unique case in Korea. Although smart TV service is similar to IPTV, only Korean IPTV operators are controlled under a mighty regulation, the IPTV law. Cable TV, satellite TV, and terrestrial operators are also controlled under complicated regulations, such as commercial regulations or channel organization regulations. In comparison with IPTV, smart TVs are an evolutionary value added to common carriers. As in Europe's case, according to the AVMSD (Audiovisual Media Services Directive, Directive 2010/13/EU), Europe's approach to media services regulation is technology neutrality, which means that the same services are regulated in the same manner irrespective of the device on which they are consumed [24]. The important thing is whether they are linear or non-linear services, not which media is used. So new media service in Europe is under horizontal regulation and the regulation is flexibly applied for any new service that comes into the market; on the other hand, in Korea, new media enters a debate on law or regulation, which is often unproductive and ineffective. This may cause competitiveness or reverse-discrimination issue when a smart TV operator such as Google or Apple enters local market. In other words, whether it is broadcasting media service or broadcasting communication convergence service, it is urgently required to prepare a regulation structure that is applicable for any new media. Therefore, a big picture of horizontal regulation, which can be applied equally to new media operators such as smart TV and existing media operators, must be established, and a mid- to long-term road map about convergence service is urgently required for the current Korean situation.

In the Korea market, smart TV business operators and existing broadcasting operators are focusing on maximizing content revenue through spreading smart TV. However in this research, experts share the common opinion that, despite the smart TV market, the new media does not have high impact, and the smart TV market would be largely formed. The reason why consumer action toward smart TV is more minimal than that toward a smart phone or tablet PC is that the replacement period of TV is comparatively longer; therefore, it needs a longer time to be universally supplied. A cable TV operator provides a set-top-box (STB) strengthened with interactive communication function to give an existing TV a smart TV function. In this way, all business operators are focusing on switching to a smart TV type through STB sales, and dynamically moving in order to secure the content consumer market. The important point

here is, who oversees smart TV vendors entering Korea market? For this, in terms of smart TV industry promotion, it is important to vitalize accessibility to smart TV, while strengthening content regulation of all content including that of other countries so that local business operators do not encounter reverse discrimination. Moreover, cooperating with international standards about content review in ITU or ISO also will be ideal in the long term.

There is a potential charging issue in Korea because ISPs believe smart TV providers generate heavy traffic. Considering overseas traffic dispute cases such as France Telecom-Google, Comcast-Netflix, when smart TV operators generate traffic is significant, debate on charging issues between ISP and smart TV operators will surface and these issues need to be solved commercially. Second, for the regulatory fairness agenda between legacy broadcasters and smart TV operators in Korea, the Korean regulator needs to introduce horizontal regulation with a mid- to long-term roadmap. If so, it can dispel the controversy of the regulatory fairness agenda between legacy broadcasters and smart TV operators. Third, in Korea, traditional broadcasters such as CATV and IPTV are eager to provide similar smart TV services with their subscribers, which mean they disseminate the smart TV platform. This is the reason why they hope to make a profit through content distribution. Finally, as all content on smart TV is able to be distributed over the world through the Internet, the global market needs to collaborate internationally on content regulation and reverse discrimination between local and global regulations. After all, this research proposed the unique and differentiated implications and lessons from the Korean smart TV industry in the political perspective based on the Q-theoretical approach. The results are derived from each expert's psychological tendency or subjectivity on the controversial regulatory and policy issues of the case of smart TV. Therefore, this study has not only academic but also industrial value. With this research as a starting point, future studies involving various converging devices such as smart TV can be performed to expand political or regulatory research.

References

- [1] Korea Communications Commission, *Broadcasting and Communications National Projects*, 2012.
- [2] J.H., Hwang, "Smart TV impacts on broadcasting market," *KISDI Premium Report*, Korea Information Society Development Institute Publisher, vol.10, no.3, 2010. [Article \(CrossRef Link\)](#)
- [3] I.S., Jung, "An analysis of IPTV policy process in Korea based on contingency theory," *Institute of Communication Research*, vol.42, no.2, pp. 67-97, 2006. [Article \(CrossRef Link\)](#)
- [4] D.Y., Kim, *IPTV and Cable TV*, Workshop Proceeding, Korea Association for Informedia Law, Seoul, 2004.
- [5] J.W., Kang and S.W., Lee, "A Convergence-adoption model for IPTV use: functional similarity & media substitution," *Korean Journal of Journalism & Communication Studies*, vol.50, no.2, pp. 5-32, 2006. [Article \(CrossRef Link\)](#)
- [6] J.H., Hwang and S.W., Lee, "Contents regulation in converging era of broadcasting and communications," *KISDI Issue Report*, Korea Information Society Development Institute, pp. 1-46, 2007. [Article \(CrossRef Link\)](#)
- [7] S.K., Choi and J.S., Hwang, and S.H., Yoo, "The Policy of audience welfare and the business fragmentation on value-chain in convergence age," *Broadcasting and Communications Studies*, vol.67, pp. 227-262, 2008. [Article \(CrossRef Link\)](#)
- [8] S.W., Lee et al., "Horizontal convergence regulations of broadcasting and communications," *Korea Association for Telecommunications Policies*, vol.14, no.1, pp. 19-43, 2007. [Article \(CrossRef Link\)](#)

- [9] K.Y., Kim and B.G., Lee, and I.K., Song, "The Typological classification of the participants' subjectivity to plan the policy and strategy for the smart mobile market," *Korean Management Review*, vol.41, no.2, pp. 367-393, 2012. [Article \(CrossRef Link\)](#)
- [10] K.Y., Kim, "Business intelligence and marketing insights in an era of big data: The q-sorting approach," *KSII Transactions on Internet and Information Systems*, vol.8, issue2, February, pp. 567-582, 2014. [Article \(CrossRef Link\)](#)
- [11] J.C., Quan and S.B., Cho, "A Program recommendation system based on Bayesian network and AHP for multi-user in smart TV," *Journal of Korean Institute of Information Scientists and Engineers*, vol.41, no.4, pp. 279-288, 2014. [Article \(CrossRef Link\)](#)
- [12] Y.M., Oh and S.K., No, "A Study on the design guideline of smart TV: focused on multi view display," *Korea Design Knowledge Society*, pp. 135-144, 2013. [Article \(CrossRef Link\)](#)
- [13] S.H., Lee and S.Y., Kim, "Design and implementation of an intelligent system for personalized contents recommendation on smart TVs," *Journal of Korea Industrial Information System Research*, vol.18, no.4, pp. 73-79, 2013. [Article \(CrossRef Link\)](#)
- [14] J.A., Chatman, "Improving interactional organizational research: a model of person- organization fit", *Academy of Management Review*, vol.14, no.3, pp. 333-349, 1989. [Article \(CrossRef Link\)](#)
- [15] Kim, H.K., *Q Methodology*, Communication Books, Seoul, Republic of Korea, 2008.
- [16] K.Y., Kim and B.G., Lee, "Marketing insights for mobile advertising and consumer segmentation in the cloud era: a Q-R hybrid methodology and practice", *Technological Forecasting & Social Change*, In press, pp.1~15 [Article \(CrossRef Link\)](#)
- [17] Schlinger, "Ques on q-technique", *Journal of Advertising Research*, vol.9, pp. 53-60, 1969.
- [18] H.K., Kim, J.C., Kim, and K.S., Oh, "A Study on a legal status and regulation direction about smart TV on global media times," *Broadcasting and Communications*, vol.12, no.2, pp. 79-115, 2011. [Article \(CrossRef Link\)](#)
- [19] B., Minto, *The Pyramid Principle: Logical Writing, Thinking and Problem Solving*, Pearson Education Corporate, Minto Books International Inc., London, UK, 2008.
- [20] W. Stephenson, *The Study of Behavior: Q Technique and Its Methodology*, Chicago: University of Chicago Press, 1953.
- [21] G.C., Thompson, *The Evaluation of Public Opinion*, B. Berelson and M. Janowitz Eds., Reader in Public Opinion and Communication, New York, USA, 1966.
- [22] S.R., Brown, *Q Technique and Method: New Tools for Social Scientists*, W.D. Berry and M.S. Lewis Beck(Eds.), Beverly Hills, CA: Sage, 1986.
- [23] United States Court of Appeals for the District of Columbia Circuit, Verizon vs. FCC, On petition for review and notice of appeal of an Order of the Federal Communications Commission, 2014.
- [24] European Commission, *Green paper Preparing for a fully converged Audiovisual World: Growth, Creation and Values*, 2013.



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