WP2 : 2nd Screen, Social Media Vision and Challenges

D2.2.2: Market Opportunities and Challenges (Second Version)

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The purpose of this SAM deliverable D2.2.2 Market Opportunities and Challenges is to deliver an updated description of the potential target market sectors and the prospective customers, in alignment with the SAM vision. The report identifies the current state of the market and its challenges and opportunities, the competitors and incumbents and characterises the market from the perspective of the use case partners.

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Executive Summary

The purpose of this SAM deliverable D2.2.2 Market Opportunities and Challenges is to deliver an updated description of the potential target market sectors and the prospective customers, in alignment with the SAM vision, which is organised around three main pillars: Content Syndication, Social Media and Multi-device Representation and 2nd Screen.

The updated market opportunities and challenges, as defined in the report, will continue to be used to guide the scope of the Research, Technology and Development (RTD) and the purpose of the prototypes, and also to ensure that SAM develops a system that is actually needed by prospective users and that has a position in the business ecosystem which is commercially exploitable.

Innovative technologies, new entrants, emerging business models and a burgeoning connected world means that the marketplace is dynamic and that SAM will need to react to the market variations. Therefore, this deliverable is intended to be a snapshot at Year 2 and will be active throughout the time of the project by detecting and reporting possible market opportunities and threats and will develop dynamically with incremental input including that from WP8 where the user scenarios are being developed.

This document will help to elaborate the overall goals of the project, based on an external view of the market whilst integrating requirements and constraints coming from the use case partners and to create the criteria for the evaluation of WP8 and the exploitation strategies in WP9.

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1 Introduction

SAM – Dynamic Social and Media Content Syndication for 2nd Screen – is a project funded by the Seventh Framework Programme of the European Commission under Grant Agreement No. 611312. It provides a content delivery platform for syndicated data to be consumed in a contextualised social way through 2nd Screen devices.

1.1 SAM Project Overview

Today's generation of Internet-connected devices has changed the way users are interacting with media, exchanging their role from passive and unidirectional to proactive and interactive. Under this new role, users are able to comment on or rate a TV show or film and search for related information regarding characters, facts or personalities. They do this both with friends and wider social communities through the so-called '2nd Screen'.

Another coupled phenomenon is 'Content Syndication' which is a field of marketing where digital content is created once and delivered to many different marketing channels (devices, social media channels, websites and stakeholders) together and so allowing efficient content control, delivery, and feedback.

However, the 2nd Screen phenomenon has grown in an unordered way. Tools are supplied by the media provider companies (e.g. as mobile or tablet apps) which limits outreach and, as a result, users are not stimulated and fed with relevant contextual syndicated information. European enterprises wishing to provide services have limited potential to receive feedback, which restricts the business intelligence that can be extracted and applied therefore to profit from and enrich this market.

SAM will change this disorder by developing an advanced Social Media delivery platform based on 2nd Screen and Content Syndication within a Social Media context. This is achieved by providing open and standardised ways of characterising, discovering and syndicating media assets interactively. Users will be able to consume and prosume digital assets from different syndicated sources and different synchronised devices (e.g. connected TVs), thus creating richer experiences around the original media assets.

SAM's innovative approach means that instead of users reaching out for the data, it is the data which reaches the user through the syndication approach and their 2nd Screen. This is based on the creation of dynamic social communities related to the user and digital asset context (e.g. profiles, preferences and devices connected). These are dynamic hangouts where people share interests, socialise and build virtual communities. SAM will enable syndication of comments, ratings, facts, recommendations and new information that will enrich and energise the community as well as enhance personalised knowledge and satisfaction.

1.2 Deliverable Purpose, Scope and Context

The purpose of this deliverable, D2.2.2 Market Opportunities and Challenges (first version), is to provide some guidelines to the project to help to specify the scope of what the RTD should serve and the development of the prototypes. These prototypes will meet the requirements of the stakeholders and partners and players in the target markets to make sure that the end result for SAM will be a viable system that is actually needed – and used by the target audience.

To achieve this goal, this document provides information about:

- The general positioning of the SAM project in the current Media and Entertainment (M&E) ecosystem,
- Identified business and research/technological objectives,
- Stakeholder and partner perspectives,
- The underlying vision enablers and
- Agreed applicable preliminary usage scenarios
- Applicable market opportunities and challenges

In order to react to the market variations, this deliverable will be used by all partners as a snapshot of the market helping the work of the Technical Tasks of the project to stay focused on the main ideas and goals of the project whilst introducing insights into the 'connected community' which will maximise the potential for commercial exploitation. This document provides high-level information and examples of the current market status of the M&E ecosystem, its players, and the challenges and opportunities that it presents for the project. Deeper insights will be found in two different use cases: T8.2 (Content Syndication and Media Enrichment) and T8.3 (Social Consumption). These are to be implemented to establish the objectives, concepts and ideas of SAM in an environment in which media, content, technology and the consumer are constantly changing. The preliminary use case scenarios described in T8.1 may need to be altered and adapted due to market variations. This may result in slightly modified technical developments which can be further expanded upon, allowing for a high-level, user-driven business basis on which and guide the commercial strategy and exploitation plans for SAM, linked to T9.1 (IPR, Exploitation and Sustainability).

This deliverable will act as a '*placeholder*' and, as the market will be monitored throughout the entire project, all significant changes will be noted and highlighted in the subsequent deliverable which will be presented as an update in month 37.

1.3 Document Status and Target Audience

This document is listed in the DoW as 'public' since it provides an initial description the M&E ecosystem, with a focus on the current market sectors of importance to SAM. These are Content Syndication, Social Media and 2nd Screen and the opportunities and challenges faced by SMEs in that business ecosystem and so may be used by external parties to gain additional business insight.

Whilst the document is primarily aimed at the project partners, this public deliverable may also be useful for the wider business, academic and scientific community including other publicly funded projects, which may be interested in collaborative activities with the SAM project.

1.4 Abbreviations and Glossary

A definition of common terms and roles related to the realisation of SAM as well as a list of abbreviations is available in the SAM Glossary.

Further information can be found at
http://wiki.socialisingaroundmedia.com/index.php/Glossary

1.5 Document Structure

This deliverable is broken down into the following sections:

- **Section 1 (Introduction):** Includes a general overview of the project, and an outline of the purpose, scope, context, status, and target audience of SAM
- **Section 2 (Market Environment):** Presents the current Marketplace and commercial themes of relevance for the SAM platform and its elements and describes SAM's position in the M&E ecosystem and identifies competing platforms
- **Section 3 (Stakeholder Viewpoints):** Presents the current perceived opportunities and challenges that SAM may face in the commercial world based on a SWOT analysis as well as providing a view of future potential enhancements
- **Section 4 (Conclusion):** Provides a high-level view of where SAM sits in the current M&E ecosystem and where it might best maximise its potential for commercial exploitation

Annexes:

- **Annex A: (M&E Companies Relevant to SAM):** Provides an updated list of companies operating in the same M&E space as SAM, identifying the number of new entrants, acquisitions and company closures
- **Annex B. (Sources of M&E Industry Reports):** Presents an updated list of research sources reviewed to identify the market opportunities and challenges.
- **Annex C: (2nd Screen and Social TV Related Companies Similar to SAM):** Provides examples of companies in Europe identified as offering the nearest, similar services as those to be available via the SAM platform

2 Market Environment

Today, the Internet and the Web have transformed commerce, creating entirely new ways for retailers and their customers to make transactions, for businesses to manage the flow of production inputs and market products, and for the consumer to be entertained.

According to ITU World Report 20151, 3.2 billion (43% of the world's population) have internet access and there are more than 7 billion mobile subscriptions worldwide. Mobile broadband is the most dynamic market segment; globally, mobile-broadband penetration will reach 47% in 2015 and coupled with information technology continues to be a driving factor in the process of globalisation as the improvements in computer hardware, software and telecommunications has greatly increased people's access to information.

M&E ecosystem continues to undergo a digital revolution with a continued shift to digital formats across the M&E industry. Revenues continue to be generated by multiple methods shared in an open association with many market segments such as software/video game design, television, radio, and mobile and, particularly, movies, advertising and marketing and the industry seeks to maximise gain from direct dialogue with consumers via the Internet and, increasingly, multiple-device interaction.

SAM positions itself in the middle of the M&E ecosystem and seeks to capitalise on the opportunities presented by consumers who, using myriad of connected devices in an 'always on' environment, have broadly shifted away from engaging in traditional media newspapers, analogue TV and radio to online digital entertainment.

As many consumers switch over to the digital media sector and engage in more digital content, there has been a rise in the number of innovative, agile companies, including small media companies who have identified what the new digitally savvy consumer wants and exploited current gaps in the market. SAM will reduce barriers to entry for such new players bringing disruption to business ecosystems and so encourages new people with new ideas, new money, new tools and new technologies to participate and create new businesses in an 'always on' environment.

The SAM project aims to develop an advanced federated Social Media delivery platform capable of facilitating the adoption and exploitation of the solution by the different stakeholders. SAM will not promote the isolated delivery of 2nd Screen experiences, Content Syndication methods or Social Media tools, but rather exploit them as both challenges and opportunities as they arise in the different SAM related areas. This will be done by facilitating business innovation both for well-established companies and SMEs who currently may not be able to take part in the growth of the new ecosystem.

2.1 Market Themes

The following sections will examine the themes and related areas which are relevant to SAM from the point of view of the partners and stakeholders. Due to the complexity, depth, breadth, and volume of available information it is only possible to provide an updated snapshot of the market environment. The extrapolation of the sections is then shown in Section 3.7 to compare SAM to the different platforms and apps and position it in an ecosystem for multi-media metadata marketplaces, including eLearning, linked content creation, multi-device delivery and social consumption within the SAM environment.

[1] http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf

2.1.1 2nd Screen

Since the launch of the SAM project in October 2013, the 2nd Screen market has had a tumultuous development in the run-up to October 2015 with the industry continuing to be split between hype and disillusion. This report tries to cut through the hype and the disillusionment and focus on clear examples of what has failed, what is working and what is new. The CE industry continues to accelerate the proliferation of devices into the market place, with SmartTV, 4K TV, tablets, smart devices and streaming devices driving continued growth in engagement and monetisation, opportunities around the 2nd Screen companion and viewing experience ecosystem, content creation and syndication and social media.
Usage of laptops and smartphones is outpacing that of STBs and SmartTVs in the connected living rooms of today, according to new global research from Irdeto[2]. The research reinforces a growing consumer trend of multi-screen usage and 2nd Screen devices becoming '1st screens', with PCs or laptops being the most used devices in living rooms in the UK (39%), followed by smartphones (36%), STBs (35%), tablets (32%) and smart TVs (19%).

A number of trends continue to define the 2nd Screen market in terms of consumer engagement and monetisation:

- **Hype and disillusionment:** The 2nd Screen market is in the life cycle stage somewhere between the Hype and Trough of Disillusionment. Both failure and merger and acquisition (M&A) has led to the natural consolidation of such a nascent ecosystem (see Annexes A and C) and previous market hype was likely to generate some negative press. However, what is driving the market is the sheer proliferation of tablets and smartphones and consumers' natural tendency to reach for them while watching "TV" as evidenced by continued consumer engagement and monetisation as shown in Figure 1 which differentiates the activities directly related to the TV programme or associated advertising commercial and highlights the three activity groups, directly related to the programme, related to commercials and unrelated to the programme or commercial.
- **Convergence of companion and viewing experiences:** The majority of content providers, such as linear broadcasters, OTT, VOD etc., are now recognising the need to better monetise their investments. With the continued proliferation of SmartTV, tablets and other smart devices the consumer use cases are found in the living room with mostly companion experience functionality and the millennial consumer on the go who requires primarily streamed video with focus on discovery, sports and traditional social media.
- **Social TV:** Social media activity about live TV programming on the 2nd Screen ebbs and flows depending on several factors: air time, signalling and how engaged the general audience is with what they're watching, according to recent research by Nielsen. Furthermore Facebook and Twitter[3] are battling to be the TV industry's best place where viewers chat about the shows they're watching and increasingly their mobile apps are increasingly popular places to watch video too, with Facebook claiming 4billion daily video views, 75% of them on mobile.
- **Monetisation:** Successful monetisation is taking place as 2nd Screen technology can identify specific items for consumers or redirect a consumer to the retailer's website upon viewing an ad on TV and this market can grow primarily through advertising and

[2] http://irdeto.com/news-and-events/second-screens-are-now-becoming-first-screens-in-living-rooms.html
[3] http://www.theguardian.com/media/2015/oct/09/key-trends-mipcom-social-tv-virtual-reality

e-commerce. According to a new study by Frank N. Magid Associates[4], when in-program ads are employed (whether they be images, text or animations, within the actual video content), consumers not only pay more attention to any given brand, they'll easily invest time with the advertisement itself.

- **The rise of the mobile web:** While PC sales continue to decline they are being supplanted by the smart devices helped by the explosive growth of social media and the 'mobile web' is becoming the preferred method for consuming short form media and entertainment. This trend means that well-known brands can more easily overcome the consumers' inertia to install new apps to enjoy a 2nd Screen experience.
- **Consolidation:** This is a trend familiar to anyone in the technology venture space as it is well understood that the vast majority of new technology ventures fail in the first few years (90%+) and the vast majority of the successful ventures such as Digitalsmiths, Dijit and Unicorn Media are then acquired by larger incumbents. It is therefore important for the SAM project to recognise that a company needs both a successful consumer engagement strategy and a successful monetisation strategy to survive.
- **Discovery:** TiVo believes that discovery is one of the hardest and potentially lucrative facets of the second screen user experience, as shown by its purchase of Digitalsmiths which now places it in the white label discovery service for a huge portion of the US pay TV market. Iris.tv[5] is taking a different approach, providing a service to video publishers that quickly assesses the consumer's viewing habits based on what they are watching to concatenate other desirable clips into a TV-like experience, increasing claimed viewing time by as much as 30% which increases revenue by the same in ad supported models.
- **Ad supported video on mobile and connected living devices:** Evidence continues to reveal itself that the 2nd Screen is becoming (or already has become) the dominant digital video viewing device in the marketplace, with smartphones and tablets being responsible for much of the interaction traffic that is taking place. Many of the major networks are pushing their direct to consumer ad supported services to the same 'Connected Living Room' platforms to attempt to capture that consumer directly. For example, the acquisition of Beamly[6] by the cosmetics company Coty is intended to tap into Beamly's data benchmarking, content creation, content optimisation and consumer engagement tools which have been developed for the 2nd Screen platform. Coty believes this will address the accelerating consumer shift in time spent from traditional media to real time digital and social media channels.
- **The rise of ad blockers:** The challenge presented by video and display ad blockers to the 2nd Screen ecosystem is both a threat and an opportunity. Ad blocking is estimated to have cost publishers nearly $22 billion during 2015[7], and publishers need to keep a close eye on the technology and demographic trends in case they find their most opportune monetisation strategy hijacked by ad blocking services. However, ads that appear in mobile browsers account for just over 25% of mobile ad spend in the US and roughly 13% of digital ad spends overall. That is just under $8 billion this year, according to eMarketer[8].

[4] http://www.watchwith.com/webinar/
[5] http://www.iris.tv/
[6] http://www.digitaltveurope.net/446982/beamly-bought-by-cosmetics-firm-coty/
[7] http://blog.pagefair.com/2015/ad-blocking-repor/
[8] http://recode.net/2015/09/21/good-news-publishers-mobile-ad-blockers-wont-actually-block-much-revenue/

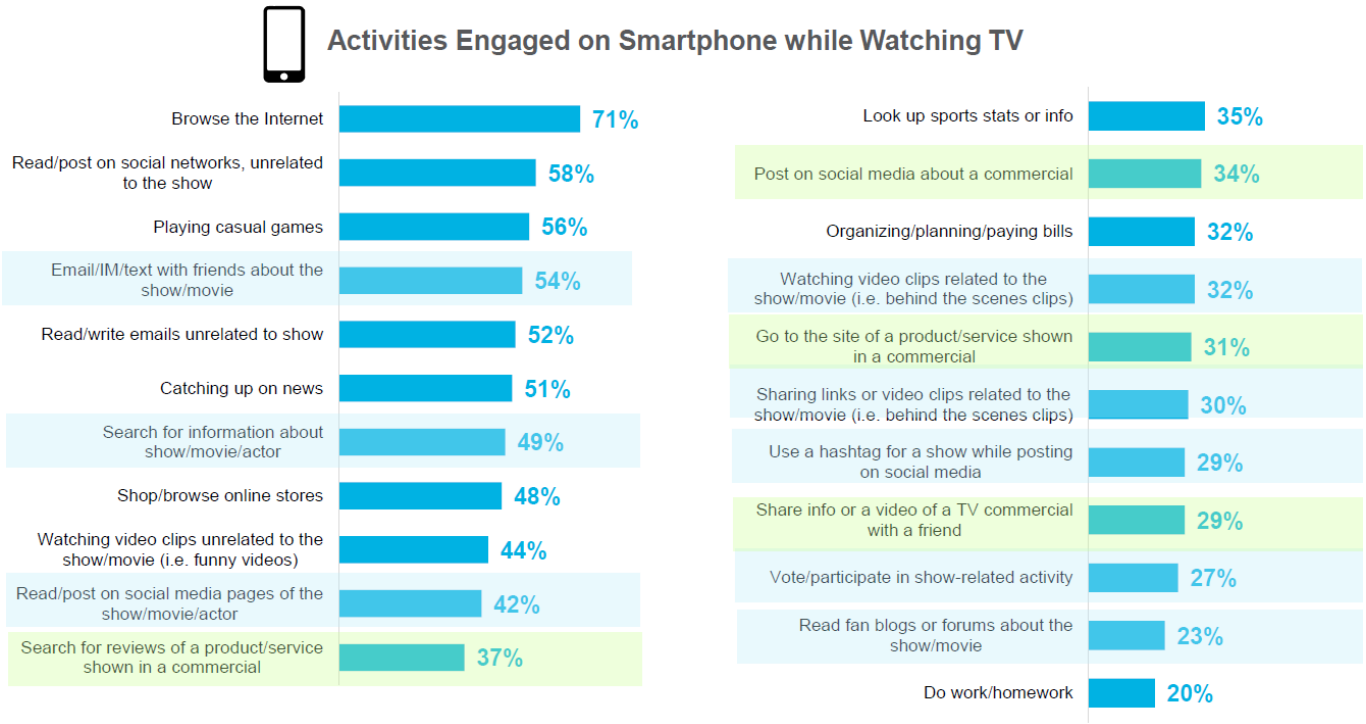

Figure 1The Changing TV Experience: Attitudes and Usage Across Multiple Screens, IAB, and April 2015

2.1.2 Content Syndication

According to the Internet Content Syndication Council[9] definition, "Content Syndication is the sale or controlled placement of the same content on multiple partnering Internet destinations. In this online business model, the content's destinations and placements are selected by the content owner or its syndication agent so as to maximise the content's exposure to desired audiences. The content owner monetises the content through sale, subscription and various revenue-sharing models." For more generic information about Content Syndication, please visit the SAM Wikipedia page[10].

During the last year, the market of Content Syndication has been growing at a faster pace than expected, especially important movement of these techniques has been seen in the area of Through Partner Marketing Automation, where big merges happened in the market (e.g. SharedVue's acquisition by Zift[11]). Additionally, the concept has gained strength and big consultancy companies have started to publish their market research papers (e.g. The Forrester Wave™: Through-Channel Marketing Automation Platforms, Q3 2015, where TIE Kinetix – SAM Coordinator, performs as a strong performer[12]). Acceleration in the market is expected during the next year as a consequence of the momentum gained by these techniques during the last years as well as the increase in the conversion of the new analytics techniques are demonstrating (in some cases around 40%). Aspects that are embedded in SAM as research topics (personalisation of syndicated content, social syndication) are starting to be shown in the market as clear decision criteria for the customer in a near future.

[9] http://www.internetsyndication.org/
[10] http://wiki.socialisingaroundmedia.com/index.php/Content_Syndication
[11] http://ziftsolutions.com/ziftsolutions-sharedvue/
[12] http://tiekinetix.com/en-us/news/tie-kinetix-recognized-as-strong-performer-for-global-through-channel-marketing-automation-for-time-strapped-partners

2.1.3 SmartTV and Connected Devices

Connected TV means that a television is somehow connected to the Internet. This includes Smart TVs where the connection to Internet is built into the TV, or any IP-connected over-the-top (OTT) device/box like Amazon Fire TV, Android TV, Apple TV, PlayStation, Roku, or Xbox that brings an array of content apps directly to a TV screen. When viewers consume television content in this way, they become connected TV users. Both TV programmers and web publishers are increasingly launching their content OTT to connected TV, including Amazon Prime, Crackle, Fox, Hulu, NBCU, Netflix, and many others. The growth of connected TV has been well documented and the popularity of over the top streaming video on demand (OTT SVoD) has also driven the increase of connected media devices in consumers' homes. In turn, connected media devices continue to change consumers' TV/video viewing behaviour by bringing a variety of sources of media and entertainment to the larger screen and content consumption is now firmly in the control of the consumer.

Research by Accenture[13] found that where people are watching TV, they're doing so in combination with at least one other device. 87% of consumers are also using their smart devices – phone, tablet, games console, ebook or laptop whilst watching TV. This clearly shows that the 2nd Screen is firmly established as a key element for consumers and this is substantiated by research by Ampere Analysis, as shown in Figure 2 which shows the device ownership in the European 'big 5'.

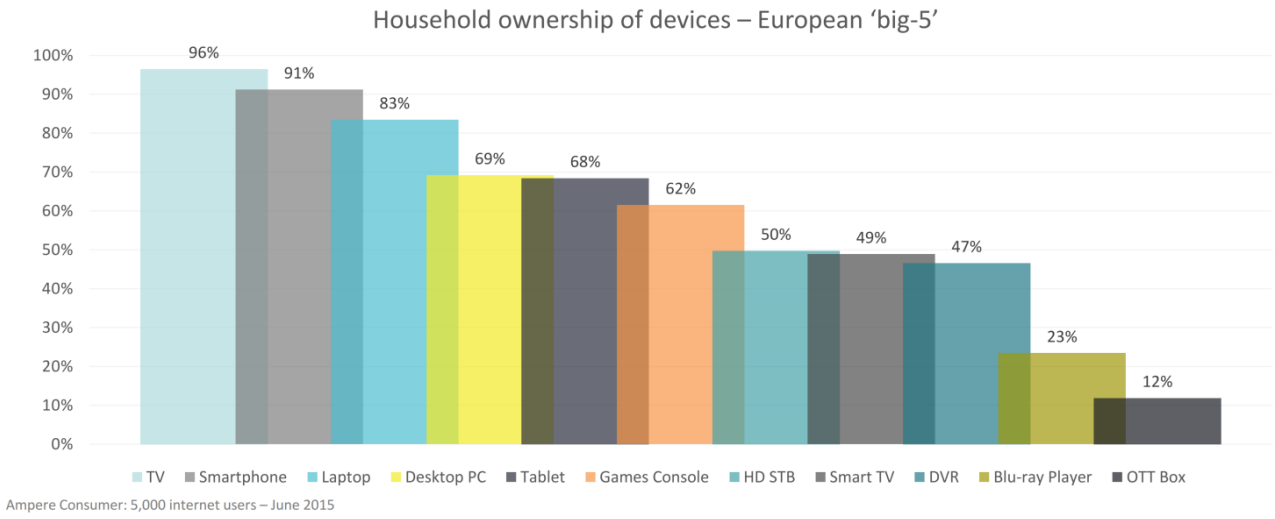

Figure 2 European Household Device Ownership: (Ampere Analysis)

The adoption of connected devices has grown rapidly over the past three years. Integrated WiFi modules in the TV along with a proliferation of domestic WiFi routers have been a major cause for this growth. Ultra HD has been a driver of growth in the recent past. In a relatively stable TV market, growth of the Ultra HD segment has been rapid. Content portfolio on the TV growing both in size and variety create more options for consumers. Over-the-top (OTT) players have started to disrupt the Pay TV market, creating a trend of preferring on-demand & OTT content over linear content.

[13] 2015 Accenture Digital Consumer Survey

There is a constant stream of market information which is relevant to the SAM project in the area of SmartTV and connected devices, with reports highlighting the growth in numbers:

- There were only 31 million connected Smart TV sets by the end of 2010, but this total is likely to quintuple to 150 million by the end of 2015
- The number of TV sets connected to the Internet will reach 876 million by 2020, up from 105 million at the end of 2010 and the 415 million expected at the end of 2015 (Digital TV Research)[14]
- Statista.com research estimates the number of TV sets connected to the Internet around the world by the end of 2018 will be around 759.3 million as shown in Figure 3.
- Connected TV penetration is now 56% of all US homes, up from 44% in 2013 and 24% in 2010 (Leichtman Research Group)[15]
- The global total of connected TV sets via streaming/retail set-top boxes such as Chromecast and Apple TV will reach 207 million in 2020
- In a recent IAB survey, consumers self-reported spending 2.4 hours per day on a connected TV/device compared to 4.4 hours on a regular television[16]
- Viewing on OTT streaming devices grew 380% year-over-year in the first quarter of 2015 (FreeWheel)[17]
- It is predicted that there will be an 82% rise in installed connected devices and 33% of growth in streaming media players between 2014 – 2018 in the US[18]
- 4.3 million Spaniards are regular connected TV viewers[19], with 64% of connected users now access connected TV services through smart TVs
- Research by Park Associates finds 45% of Western European broadband households own a smart TV, with the highest percentage in Germany, where over 50% of broadband households have an Internet-connected CE device[20]

The number of smartphones and smart devices continue to grow globally:

- The smart devices market will be driven by smartphones, whose installed base is projected to reach 5.9 billion units by 2019, against 2.6 billion at the end of 2014
- Smartphones are predicted to outgrow tablets by a significant margin with the smartphone to tablet ratio reaching 9:1 in 2019, compared with 5:1 at the end of 2014
- 53 million new mobile subscriptions were added globally during Q2 2015, bringing the global total to around 7.2 billion[21]
- Around 340 million smartphones were sold in Q2 2015
- Smartphones represented more than 75% of all mobile phones sold in Q2 2015.
- The number of mobile broadband subscriptions grew by around 140 million in Q2 2015 to reach around 3.1 billion.
- According to research from IHS Technology, in 2019 there will be the equivalent of five media-enabled devices per household around the world with US homes predicted to have ten devices, on average

[14] https://www.digitaltvresearch.com/products/product?id=127
[15] Leichtman Research Group, “Emerging Video Services IX,” May 2015
[16] IAB, “The Changing TV Experience: Attitudes and Usage Across Multiple Screens,” April 2015
[17] FreeWheel, “Q1 2015 Video Monetization Report”
[18] http://advanced-television.com/2015/11/09/82-rise-in-installed-connected-tv-devices-by-2018/
[19] http://www.telecompaper.com/news/over-4-mln-spaniards-use-connected-tv-study--1110718
[20] http://www.marketwatch.com/story/parks-associates-45-of-western-european-broadband-homes-have-a-smart-tv-2015-10-20
[21] http://www.ericsson.com/res/docs/2015/ericsson-mobility-report-august-2015-interim.pdf

- In Germany the number of non-traditional screens over which consumers watch video — including PCs, smartphones, tablets, and interactive TVs — is expected to grow from 90 million in 2010 to more than 210 million in 2015[22]

Despite reports that TV viewing was declining TV advertising remains the most important platform for advertisers:

- Spend on Connected TV is set to increase, as almost half of current connected advertisers plan to allocate more funds to the medium in the coming year, according to the ANA/BrightLine 2015 survey report, "*The Connected TV Opportunity*"[23]
- Research shows that TV advertising drives a response through several channels directly, generating 31% of all media-driven sales delivered via telephone, 35% of all media-driven sales via bricks and mortar and 32% of media-driven sales through web traffic driven direct-to-site (including non-paid-for search)[24].
- TV is responsible for driving 44%of all media driven interactions for brands on Facebook (e.g. likes and comments). This effect of TV on Facebook was two-fold. Firstly, exposure to TV advertising prompts consumers to directly engage with Facebook. Secondly, as seen above, TV drives significant volumes of sales and, after purchase, consumers go on to engage with Facebook.
- TV advertising drives the highest volume of cost efficient response because of its reach and scale.
- TV advertising keeps generating a cost efficient level of response at higher levels of spend than other media.

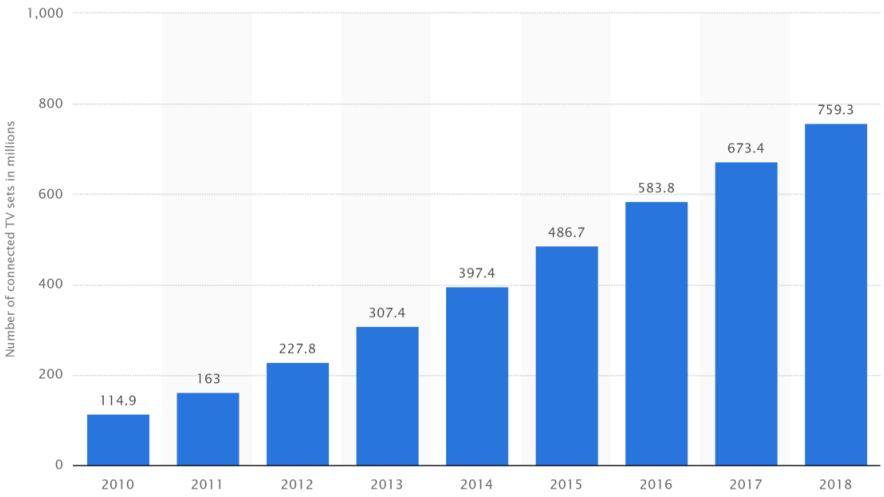

Figure 3 Number of connected TV sets globally from 2010 to 2018 (millions) Statista.com

TV manufacturers now need to find differentiating features to stay competitive. One way of moving forwards would be to look at the growing smartphone and tablet market and create compelling 2nd Screen use cases – such as the SAM Platform. The TV device would therefore remain the central viewing portal, and maintain or even increase market share of Smart TVs.

[22] http://www.strategyand.pwc.com/media/file/Strategyand_2015-A-video-space-odyssey.pdf
[23] http://www.ana.net/content/show/id/connected-tv
[24] Research from GroupM, commissioned by Thinkbox

2.1.4 Social Media

Social Media has become an integral part of the everyday life of many people both in developed and developing markets.

The findings in the area of Social Media which were presented in D2.2.1 are still valid. Social Media platforms have a key role to play in the online and mobile market, and continue to grow and provide additional features to improve the user engagement and satisfy their needs. In the current report, the new trends in this domain are highlighted in order to better understand how SAM, or any other social media-enabled platform, can benefit from the social networks and be better positioned in the online, mobile and entertainment markets.

The demographics of the Social Networks are changing, which will have a considerable effect on the advertising and marketing potential for the SAM platform. According to a report in April 2015, by PEW Research illustrated in Figure 4, 'The Demographics of Social Media Users'[25] in the US:

- Facebook has the most users with "72% of adult internet users/62% of entire adult population"
- Pinterest has "31% of adult internet users/26% of entire adult population"
- Instagram has "28% of adult internet users/24% of entire adult population"
- LinkedIn has "25% of adult internet users/22% of entire adult population"
- Twitter has "23% of adult internet users/20% of entire adult population"

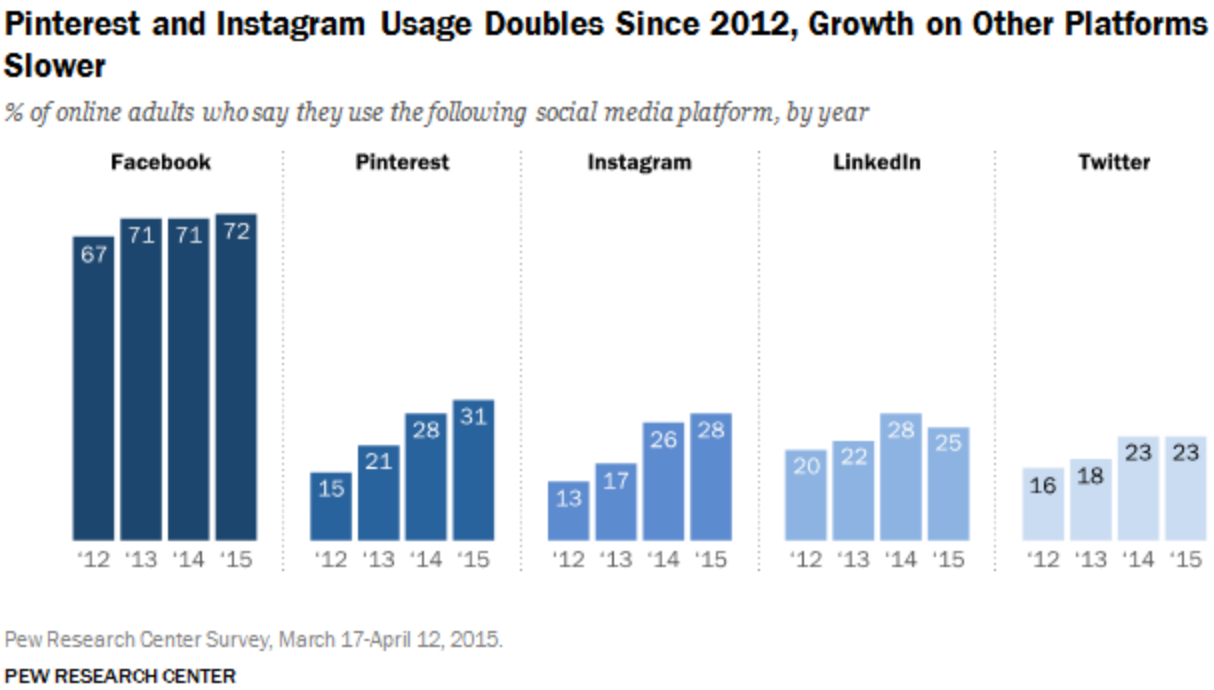

Figure 4.The Demographics of Social Media Users' In the A

Additional findings about demographic change include:

- Users of Pinterest and Instagram have doubled since 2012.

[25] http://www.pewinternet.org/2015/08/19/the-demographics-of-social-media-users/

- Some 31% of online adults use Pinterest (up from 15% in 2012), while 28% users of Instagram (up from 13% in 2012).
- The proportion of Instagram, Pinterest and LinkedIn users who use each respective site daily has increased significantly since September 2014.
- Fully 59% of Instagram users, 27% of Pinterest users and 22% of LinkedIn users visit these platforms daily.
- Those on Facebook remain highly engaged with 70% saying they log on daily, including 43% who do so several times a day as shown in Figure 5.

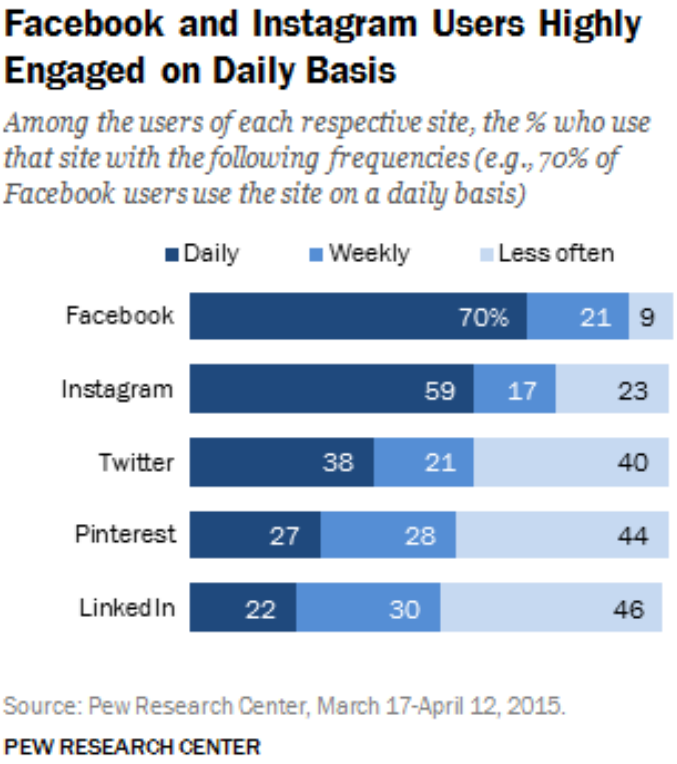

Figure 5.Social Site Engagement (Pew Research April 2015)

There are also some very interesting findings on the new features of the Social Networking platforms regarding their use for messaging and also as search engines. The messaging applications, as part of the Social Networks or independent applications, are being utilised by using the contact lists in the Social Networking platform in order to provide free text messages, usually with enhanced multimedia content and long distance calls for free. Clearly the distinct platforms and services for social networking and communication are converging and there are examples in the market of such 'crossover'. Snapchat, for example, which was initially seen as a messaging application, has become a Social Network in its own right, and Facebook now offers a messaging service as an independent application. According to a recent article in 'Entrepreneur'[26] "the way that users search for services and products has expanded outside simple Search Engine Optimisation (SEO). "88% of consumers online are influenced by reviews and online comments by other consumers." This creates great opportunities for the Social Networking sites to effectively provide the users with products recommendations and personalised search results.

In this direction, both Twitter and Facebook are testing 'buy' buttons, which appear alongside certain tweets and posts and allows users to make purchases with just a click or

[26] http://www.entrepreneur.com/article/249747

two, without ever leaving the network, highlighting the fact that e-commerce and social media integrations are getting more developed. . According to Time Magazine[27], this also has benefits to advertisers: “Connecting individual Tweets and Facebook posts with actual purchases has thus far proved a huge analytical challenge. But with the advent of buy buttons, concrete revenue figures can be attached to specific social media messages in a way that hasn’t been possible until now.”

Another new feature in the Social Networks in 2015 is their integration with smart devices. Sensors are cheap and can be also connected to the Internet, through which they can store the data they generate to the Cloud, but also push directly notifications to Facebook and other social platforms.

2.1.5 Dynamic Contextual Social Media Community Creation

SAM proposes the automated, and timely, dynamic creation and management of Social Media communities related to content being viewed on a 1st Screen device. The authors are currently not aware of any system that provides such functionality related to 2nd Screen experiences. More broadly comparable functionalities such as ‘friend recommendations’ or ‘hashtag recommendations’ are important features for Social Media providers but are commonly directly integrated into the consumer-facing offerings of social media providers such as Facebook or Twitter. However, such functionalities cannot be directly compared with the ‘dynamic communities’ concept of SAM, because they are based on different types of input data and focus on recommending entities (e.g. friends, hashtags) instead of identifying groups of users.

2.1.6 Business Intelligence & Analytics

The concepts of ‘business intelligence’ (BI) and ‘business analytics’ have been defined in many ways, from being interchangeable, to contrasting, through to overlapping. A suitable definition for the context of this document is that the term "business intelligence" can be understood as an umbrella term to describe the concepts and methods which aim to improve business decision-making by using fact-based support systems. In this definition, business analytics is the subset of business intelligence, focusing on statistics, prediction, and optimisation rather than the reporting functionality.

The major recent transformations in the business intelligence market have been towards the analytics aspects of the field.

Earlier BI platforms generations are often less agile. Today BI platforms are scalable and robust, support and promote a single version of the truth, and minimise operational risk. However, these capabilities are complex and inflexible promoting a slow reaction to the constant customer changes in the business requirements. This lack of BI agility promotes some side effects of earlier generation BI systems: only a small percentage of enterprise data is leveraged for business insights and the majority of BI applications are still built by a shadow IT process.

Therefore, the big BI challenge today is to provide an Agile BI as an agile enterprise needs an agile BI platform and the most important objectives to take into account in order to achieve this goal are the following:

[27] http://time.com/3590866/social-media-2015/

- Empowering business users to be self-sufficient. Core Agile BI requires capabilities that empower business users to be self-sufficient in their BI environment with little or no involvement from technology professionals.
- Helping business users get more insights with effective data visualisations. Agile BI wouldn't be complete without advanced data visualisation (ADV) capabilities. Today we look for differentiated ADV capabilities such as richness of ADV content and data visualisation effectiveness.
- Giving BI professionals options to provide additional features such as BI platform features that can empower IT professionals to deploy BI platforms and applications and customise BI applications.

Based on Forrester's 15-criteria evaluation of Agile Business Intelligence (BI) vendors[28], it is possible to identify the 13 most significant software providers in the category: Birst, GoodData, IBM, Information Builders, Microsoft, MicroStrategy, Oracle, Panorama, Qlik, SAP, SAS, Tableau Software, and TIBCO Software. Whilst SAM will feature many BI features, it is not intended that it will compete within the BI market, rather that SAM will utilise the most appropriate tools for the SAM users.

2.1.7 Dialogue Speech Control Systems

Dialogue was previously reported as an area of growth in D2.2.1 and progress has continued. It is expected that the social/mental hurdle for consumers to use voice on top of existing application UIs will soon disappear in our modern societies. Apple has made the most visible move in the area of voice control by including Siri in its devices and recently applied for a patent for “an advanced ring-style wearable that uses voice, motion and touch input to control and interact with large computing devices”[29]. Microsoft is now catching up with the more open Cortana solution. In addition, Amazon has made an unexpected move by placing a voice interactive search assistant into the Internet of Things (IoT) home environment with its Echo product. Google Now’s[30] voice function has become more robust and continues to increase the number of spoken commands with the ability to launch and interact with apps without having to touch the screen and is open for use by developers in third party apps. The enhanced Google Now functions coupled with the Apple acquisition of UK based VocalIQ[31] indicates the belief that the market for Intelligent Virtual Assistants is taking off; a market that according to certain sources will grow to reach a value of over USD 5 billion by 2022[32]. The same can be said for other giants such as Facebook which acquired the speech-recognition start-up Wit.ai[33] in January 2015 and which could herald Facebook’s move into voice messaging or voice control[34]. TV sets, home appliances and cars are increasingly becoming voice enabled. In the consumer world, a number of high flyer home solutions are making their entry such as myvoco[35] whose Voco product line offers voice-controlled, multi-room, music and video streaming. Finally, the connected wrist-watch trend might be the one to really persuade people to expand their technology since the ‘traditional’ eye-hand-screen type and swipe interaction is not possible.

[28] http://blogs.forrester.com/boris_evelson/15-09-26-the_forrester_wave_agile_business_intelligence_platforms_q3_2015
[29] http://appleinsider.com/articles/15/10/01/apple-invents-ring-style-wearable-device-with-voice-control-haptics-cameras-and-more
[30] http://www.greenbot.com/article/2359684/system-software/a-list-of-all-the-ok-google-voice-commands.html
[31] startups.co.uk/uk-artificial-intelligence-start-up-vocaliq-acquired-by-apple
[32] www.industrytoday.co.uk/market-research-industry-today/rapid-rise-in-data-explosion-fuels-intelligent-virtual-assistant-market-in-global-arena
[33] https://wit.ai/blog/2015/01/05/wit-ai-facebook
[34] http://uk.businessinsider.com/facebook-acquires-speech-recognition-startup-witai-2015-1?r=US&IR=T
[35] www.myvoco.com

Within SAM project, users can benefit from both the general improvements in speech technologies and the willingness for using voice while watching TV, and even paying for it. For example, instead of typing search queries or navigating complex menu hierarchies, users should be able to simply ask "*Show other films with Nicole Kidman*" or "*Who directed this movie?*"

The Netflix voice enabled recommendation service 'Max' was rolled out in June 2013, exclusively for the people who watch Netflix on PlayStation 3 and later, PlayStation 4 (See Figure 6 below).[36] However a proposed iPad app failed to materialise and it has been removed from all platforms due to a poor performance and negative user feedback.[37]

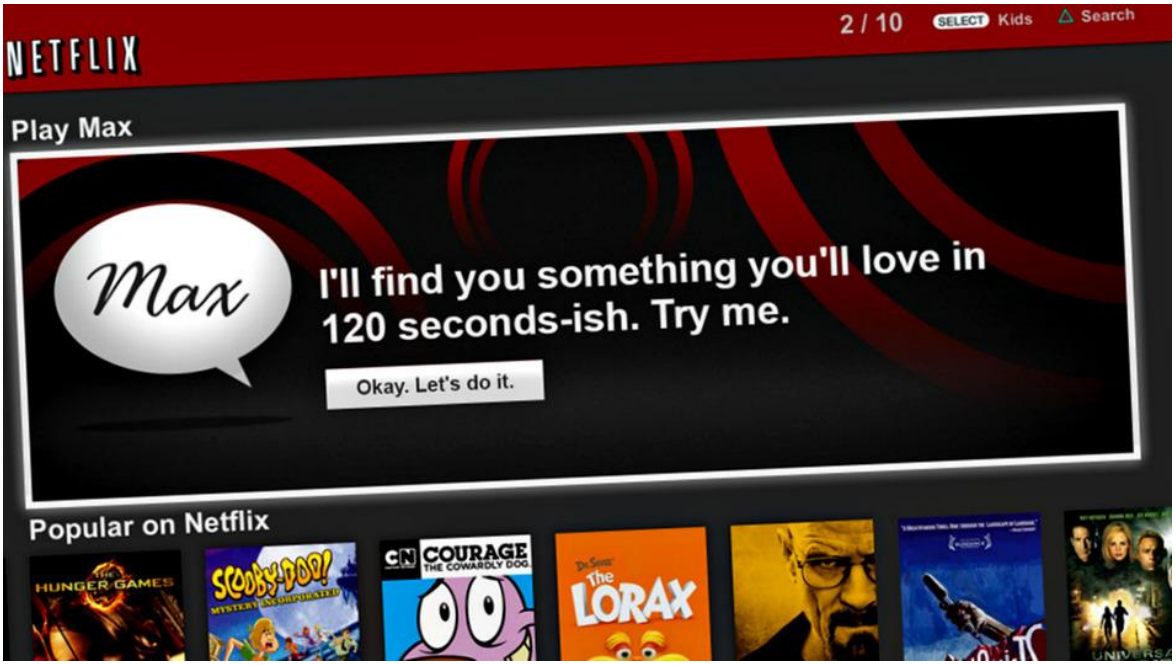

Figure 6 Max – Netflix's Conversational Interface

According to an online survey conducted by Veveo (a Rovi subsidiary) in 2013, 60% of participants felt that voice command and conversational interface systems would significantly improve the way they search for TV content. This indicates that SAM is well placed to take advantage of current consumer aspirations.

Possibly one of the most likely areas of major impact lies in voice interaction for the elderly or people with a disability. Examples of this trend, both in voice and streamed video, can be found in the many health related projects throughout Europe, such as the EU project Alfred[38], the Swedish example of the Giraff[39] or the Dutch companion Alice[40]. SoundHound[41] the maker of the popular music identification app, has unveiled Hound, its app combining voice recognition with search technologies available in private beta for Android, and due soon to iOS. It seeks to outperform other voice services by combining voice recognition and natural language understanding in real-time, to deliver faster and more accurate results than those previously available with other services and it appears quite impressive with improved speed of search including inherent logic within the searched data and better voice recognition.

[36] http://mashable.com/2013/06/28/netflix-max-voice-ps3-voice/
[37] http://filmschoolrejects.com/features/netflix-look-back-at-max.php
[38] http://alfred.eu/
[39] http://www.giraff.org/
[40] https://waag.org/en/news/robot-alice-filmfestival-rotterdam
[41] http://www.soundhound.com/hound

However, the initial view of dialogue and speech control in the market may be that it is still merely an added optimisation of a simple search engine using voice for navigation and that true dialogue management is yet to be implemented in any application in the market. This can be seen as Figure 7 shows a comparison of three major provider solutions against the Talkamatic Dialogue Manager (TDM) in the SAM platform.

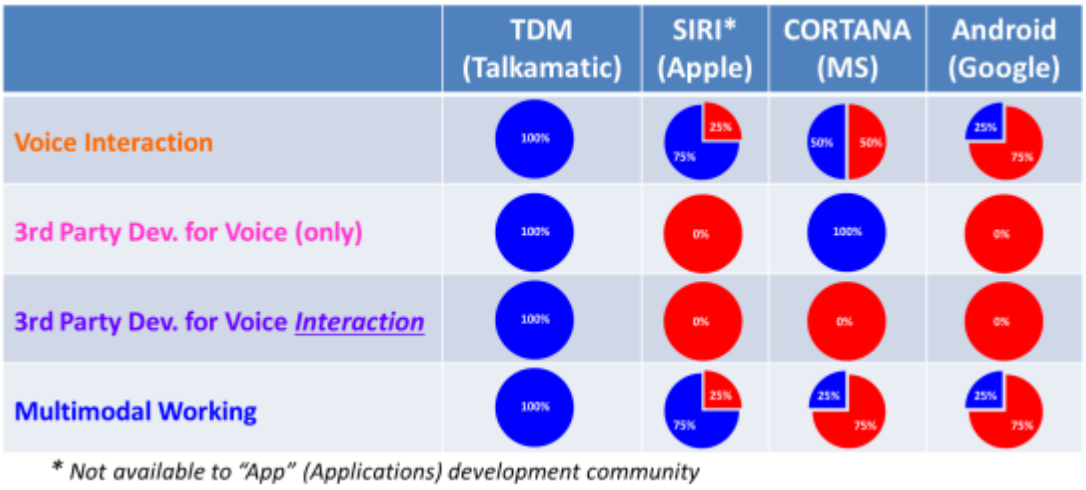

Figure 7 Voice Interaction/Dialogue Management comparison

The other major lacking factor in all other applications lays in the impossibility to add voice on top of the present and available UI. In most instances it is replacing the UI and in the case of Siri, caused by the generic proprietary character and thus closed nature of the whole Apple domain, it is not possible at all to implement Siri's assistance into 3rd party applications.

It is anticipated that by the end of the SAM project in October 2016, the trend for speech recognition and control will be close to a point of change where it will be quite common for humans to speak to machines and receive information back in voice format. The SAM project includes a modern 'voicification' solution, based on the Talkamatic Dialogue Manager. The Talkamatic solution is relatively easy to integrate and implement allowing the other SAM partner applications to take full advantage of voice interaction, leading to an expansion in usage, as new applications using dialogue speech control systems proliferate.

2.1.8 Sentiment Analysis & Social Mining

Social Media is defined as a group of Internet-based applications that allow the creation and exchange of user-generated content, giving users an easy way to communicate with each other. Social Media Mining (or Social Mining) is the task of representing, analysing, and extracting information from Social Media. The primary goal of this data mining process is to effectively handle large-scale data in order to extract patterns and gain insightful statistics.

A group of technologies are closely related to Social Mining is Sentiment Analysis. This research field, also known as Opinion Mining, aims to automatically identify the feelings, emotions, or intents behind a given text using different text mining techniques. Quantifiable Sentiment Analysis has been facilitated by the ready availability of the immense and classifiable body of Social Media data in the Internet. In fact, Social Media has not only facilitated the development of Sentiment Analysis tools, it has actually necessitated it. For any given subject, there exists such a vast amount of information on the Internet as to

make manual reviews and processing infeasible. In this context, Sentiment Analysis is becoming a key feature for any company working in the field of Social Mining, and there is a progressive trend to incorporate such technologies in their products.

The relevance of Social Mining is reflected in the number of companies working on mining data generated in Social Media that have arisen in the last years. The webpage Social Media Analysis[42] provides a list of nearly 600 companies in the business of data mining on Social Media. In 2014, 39 companies in the area of Social Mining changed hands, a notorious increase with respect to the 18 changes in 2013 (See 8). There was a clear trend in these deals: most of them involved specialist firms joining bigger companies to add social mining capabilities to their software solutions.

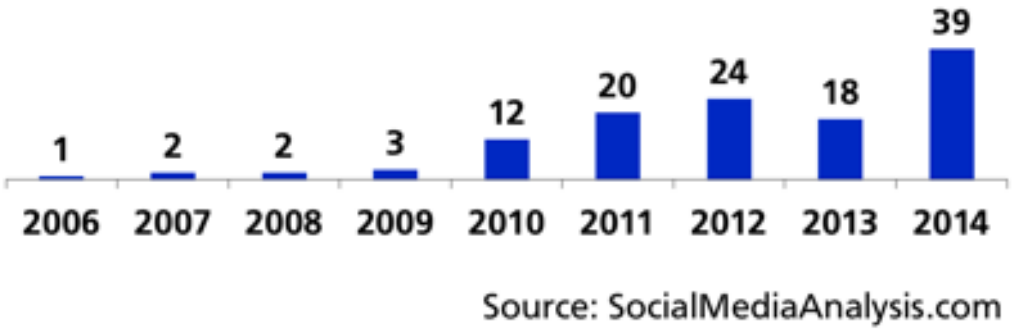

Figure 8 Acquisitions in Social Media Analysis

An acquisition that reflects the aforementioned trend was carried out by Cision,[43] which merged Vocus and added Gorkana and Visible Technologies in a bid to create a one-stop software supplier for public relations. In the same line, Sprinklr[44] bought Dachis Group (analytics and consulting), TBG Digital (paid social) and Branderati (influencer/advocate marketing). Also Hootsuite[45] built out its software portfolio with uberVu (social media analysis), Brightkit (campaign management) and Zeetl (integration with telephone-based customer support).

Another big move in the industry was initiated by Twitter, which changed the landscape of the data market with its purchase of Gnip,[46] the leading provider of social data, extending its moves toward linking Social Media to television viewing with Mesagraph and SecondSync. Another big company, Microsoft, bought Parature[47] to add customer self-service to its Dynamics CRM.

In Europe, Linkfluence[48] bought TrendyBuzz to consolidate its position in France and gained a monitoring platform. Also in France, Akio[49] added social media to its multichannel customer engagement suite with Spotter and expanded its geographic reach.

Other interesting deals related to the business area of SAM are: SeaChange[50] which added elements of social media for its television and video industry customers with Timeline Labs; Socialbakers[51] added content analysis to Social Insider and Facebook

[42] http://socialmediaanalysis.com/
[43] http://www.cision.com/
[44] https://www.sprinklr.com/
[45] https://hootsuite.com/
[46] https://gnip.com/
[47] http://www.parature.com/
[48] http://linkfluence.com/
[49] http://www.akio.com/
[50] http://www.schange.com/
[51] http://www.socialbakers.com/

analytics with Applum; and finally, Unified[52] got activity analytics for its Social Media management platform with awe.sm.

Companies in the business of Social Mining reported taking in over $420 million in new investments in 2014.[53] In the 12 months from October 2014 – 2015, the funds raised by these companies add up to more than $480 million. See Figure 9 for a detailed list of companies and investment obtained.[54]

Company	Investment	Date
Hootsuite	$60 million	October 2014
Geofeedia	$3.5 million	October 2014
Zignal Labs	$10.7 million	October 2014
Rival IQ	$1 million	November 2014
TrackMaven	$14 million	December 2014
Tracx Lands	$18 million	February 2015
Revinate Raises	$15.34 million	February 2015
Bottlenose Raises	$13.5 million	February 2015
Geofeedia	$3 million	March 2015
NetBase	$24 million	March 2015
Dataminr	$130 million	March 2015
Falcon Social	$16 million	March 2015
Augure Raises	$16 million	March 2015
Sprinklr	$46 million	March 2015
Recorded Future	$12 million	April 2015
NetBase	$9 million	April 2015
Percolate	$40 million	May 2015
GumGum	$26 million	May 2015
Twtrland	$1.5 million	June 2015
Ditto	$4 million	August 2015
Wayin	$15.4 million	September 2015

Figure 9. Investment in Social Media Analysis Companies in the Last Year

The most remarkable amount of funds raised in this period was achieved by Dataminr,[55] a company specialising in real-time information discovery, which analyses public tweets and other publicly available data to provide its clients with early warnings for breaking news, real-world events, off the radar content, and emerging trends. Dataminr obtained $130 million in investment, which it plans to use to meet current demand, expand into new vertical markets, and integrate new datasets into its platform.

Another relevant raise of funding was achieved by Sprinklr[56], which obtained $46 million in new funding and brings its valuation to more than $1 billion. Percolate,[57] a software

[52] www.unifiedsocial.com/
[53] http://socialmediaanalysis.com/2014/12/more-than-420-million-invested-in-social-media-analysis-companies-in-2014.html
[54] http://socialmediaanalysis.com/investments.html
[55] https://www.dataminr.com/
[56] https://www.sprinklr.com/

platform for branding and online marketing, also obtained a significant raise of $40 million from venture capital.

All these deals, transactions and investments reflect the relevance and interest on Social Mining technologies in the current Internet ecosystem. SAM will be positioned in this area by combining Social Media and Sentiment Analysis to provide the possibility to enhance both users and content providers' experience in the 2nd Screen ecosystem. Applications such as social conversation monitoring, consumer reviews and services analysis, and monitoring reputation, will be directly applied in the framework of SAM. Other applications such as social recommendations and competitive intelligence, which fall out of the scope of SAM, could be looked at in the future thanks to the technologies developed in the course of the project.

2.1.9 Emerging Areas of Content Monetisation

In their race to understand digital consumers, meet their needs and monetise their evolving demands and behaviours, companies across the M&E value chain have been applying innovation agility and acuity in breaking down the silos between segments and crossing traditional boundaries to compete in each other's core area.

From traditional TV viewers, cable subscribers to millennials and 'cord cutters' multiscreen viewing services are resonating with consumers. For cable companies, 'TV Everywhere' largely started out as a defensive effort against services from the likes of Hulu, Netflix and Amazon but now Multichannel Video Programming Distributors (MVPDs) are be proactive to reduce churn, recruit new viewers that don't fit the traditional viewer demographics and increase revenue from their multiscreen offerings.

Examples of areas of potential for monetisation can be illustrated from the following research results:

- Some 56% of all US households have at least one TV set connected to the Internet, according to new stats by Leichtman Research.
- Watching video entertainment on any device using any platform in any location with an Internet connection is now easily available to the average consumer.
- Content is most likely provided through a traditional Pay-TV provider before it reaches the smartphone or tablet or gaming device or PC.
- Pay TV's other advantage is the fact that most viewing starts with the TV screen and moves out from there. The choice between watching a TV show on a smartphone or on a 70-inch flat screen is slewed to the big screen.
- The ability to start with a TV screen and to deliver properly formatted content to multiple screens will encourage consumers to use traditional service providers.
- According to Digitalsmiths, 71% of consumers say they get frustrated because they can't find something for the family to watch.
- Nearly half of pay TV customers don't use search, saying it takes too long (20%) and is just too difficult to find (18%).
- Monetising TV Everywhere services includes using dynamic ad insertion (DAI) in ads, the use of special mobility charges or transactional charges (such as electronic sell-through) and higher overall subscription fees.
- Comcast is working on an advertising-based digital video service, which is being called "Watchable" for now, that will work on its next gen X1 platform.

[57] https://percolate.com/

- Regular Netflix users in the US watch ten shows and four movies per week via the platform, and 24% of monthly users reported viewing content on the service in the past month via one or more mobile platforms, according to GfK.
- Online video distributors such as Netflix, Amazon and HBO are creating premium content, and using it to drive subscriptions with the future potential for licensing it to traditional broadcast networks in some territories.
- Walt Disney Co. is introducing its first standalone streaming service, Disney Life - a video and music product in the U.K. that highlights the media company's efforts to reach viewers outside of the traditional cable TV package.
- Content companies such as Lionsgate[58] are going direct to consumers via online branded channels, iTunes, Amazon and mobile, bypassing established distributors.
- Outside the home, non-TV-based video offerings such as YouTube will continue to succeed because their content is built for remote smart devices.
- Traditional subscribers report that they tend to remain with their pay TV providers' multiscreen options because they tie in with telephone, mobile and broadband services those providers already supply.
- US content firm Starz will become the latest premium cable network to launch a standalone OTT streaming service as Starz lost about 200,000 subscribers in Q3 2015.
- Twelve European companies feature in the 2014 ranking of the top 50 major world audio-visual groups and five of these are Public Service Broadcasters (ARD, BBC, France Télévisions, RAI and ZDF).[59]
- Mediavision calculates that in Q3 2015, 30% of all Swedish households had an online video subscription with Netflix being by far the most popular service and one in three households subscribing to either Netflix or Spotify.
- Advertisers are creating and distributing their own short-form content on platforms such as YouTube[60] and Facebook.
- Social advertising continues to win marketing budgets – up 33.5% from last year to $23.68 billion predicted globally in 2015.
- Facebook's mobile advertising revenue has continued to grow in 2015, now making up 76% of its total ad revenue of $2.9 billion. [61]
- In July 2015, Twitter posted total revenue of $502.4 million for the second quarter period, compared to analyst estimates of around $481 million.
- Twitter Ad revenue growth slowed from 129% in the same 2014 first quarter, to 72% in the first quarter of 2015 and was 63% in the second quarter due to its struggle to attract new users.
- Research by 4C Insights show that clients' ad spend on Pinterest has more than quadrupled since January 2015 — a rise of 7.7 times and with Pinterest rolling out more buyable pins, that number could climb even higher before the end of the year.[62]
- Zola, working with creative agency Unique Influence, has seen a 44% increase in conversion rate and a 50% increase in click-through rate on Pinterest.
- A report from Adobe and Pagefair concluded that there are now 198 million active adblock users globally which will cost publishers in the region of €20 billion in 2015.[63]

[58] http://www.lionsgate.com/channels
[59] http://www.obs.coe.int/web/obs-portal/home
[60] http://www.youtube.com/user/UKVolkswagen
[61] http://investor.fb.com/releasedetail.cfm?ReleaseID=924562
[62] http://www.4cinsights.com/2015/11/10/pinterest-ad-spend-up-7-7x-since-january/
[63] http://www.fipp.com/news/features/ad-blockers-how-should-publishers-respond#sthash.mFVj78fa.dpuf

The competitive advantage that diverse players are now pushing to achieve is moving beyond the consumer 'experience' to consumer 'relevancy'. It is no longer sufficient to target a consumer segment with an experience designed loosely for a group of people. Instead, companies are looking to drill down to a personal level, engaging and capturing the interest, imagination and spending of a specific individual by delivering the message, the offer or the content that is contextually most relevant to them anytime, anyplace, anywhere to ensure a successful monetisation strategy.

2.1.10 2nd Screen Content Editing and Linking

2nd Screen continues to grow as an area of interest in the digital industry for good reason. It unites mobile and non-mobile access and can enhance entertainment on the bigger TV screen by providing additional information and content on a smaller screen in a truly multi-tasking millennial behaviour. More than two-thirds of TV viewers say they use devices while watching TV while performing largely unrelated tasks in front of a TV screen is fast becoming normal. However, when the content on both screens is linked for an advanced and curated viewing experience, that is when 2nd Screen becomes really rather interesting to the digital world.

Many new technologies have been developed and advanced around the 2nd Screen phenomenon. All of these technologies aim at very specific enhancements of the 2nd Screen experience (i.e. general information, social media delivery, polls and quizzes) but what all these have in common is the enhanced linkage of content between 1st and 2nd Screen. Some of the applications that recently gained popularity are analysed below:

- **LViS** helps broadcasters; marketers and sports rights holders connect traditional media with mobile. LViS provides content creators and developers with a fast, robust platform to deploy live games, voting, competitions and sports experiences that build brands, increase loyalty and drive business objectives.
- **Mufin** specialises in audio fingerprinting technology. It enables the automatic identification of unknown audio material (the content) by comparing a temporary fingerprint to a reference fingerprint database. This technology can provide many enhancements in the 2nd Screen experience such as connect and synchronise the 2nd Screen (smartphone, tablet or laptop) with the TV, VoD and movie. It also detects broadcasted ads, TV shows and even movies on a companion device and synchronise its content using automatic content recognition (ACR). Moreover Mufin creates new ways of storytelling by considering new formats, multiple screens or interfaces from the beginning and measure viewers' interests and participation to improve the programming.
- **Ease Live** integrates with existing broadcast graphics systems and enables interactive, clickable on-air graphics for tablets and other smart devices. With Ease Live the graphics editing of live Sport streams has been taken to a completely new level by simplifying and speeding up the creative process, and minimising resource requirements within the distribution flow. When distributing on-air graphics through a graphics control system, Ease Live enables two-way communication. Viewers use an intuitive interface to quickly customise their own live event with endless graphical options, and enjoy multiple layers of graphics including instant game updates, replays, highlights, Social Media feeds and more. Thanks to Ease Live's dual feed distribution

to smart devices, end users will always be presented with exceptionally sharp on-screen graphics, regardless of changes in video signal quality.

- **LinkedTV4** integrates all necessary functionality for linking television and the Web into a managed workflow for media owners. The Linked Television concept is currently being implemented on the Web; outside of the traditional TV broadcast networks and technologies.
- **Mobovivo** helps content owners capture and measure audience attention, revenue, and engagement. Mobovivo Multi-Platform Network rapidly delivers and measures real-time content and audience engagement across devices and platforms. Mobovivo delivers to users' videos, gamification, synced behind the scenes content, and Social Media extensions to entertain and capture audience data for video producers and brands.
- **Tivin** is the interactive TV platform that enables you to automatically synchronise the broadcast transmission on the air through the TV audio and contextualise the same in an interactive environment as the Internet. It enables a range of interactive services that can be monetised by publishers and broadcasters exploiting the natural channel of return internet through specific apps. Tivin also allows full interaction with the world of social media (ref. Facebook, Twitter, etc.) and the real-time measurement of television audience of that particular program, commented on and discussed by the viewers.

There is a big difference however between the enhancement of the (TV) viewing experience with additional content and the dynamic creation of the viewing experience. The SAM framework and tools produce a new way of creating and also linking content for the viewing experience. Asset descriptions and the respective linking and annotation mechanisms of SAM will establish the technical and technological foundations of a modern environment, for personalised and contextually aware Content Syndication to multi-device platforms supporting extensive Social Media integration and advanced business intelligence.

2.2 SAM's Position in the M&E Ecosystem

This section positions the SAM project in terms of its context of the changing M&E landscape in order to identify not only the challenges but also the business opportunities which SAM presents to the main stakeholders. It provides a description of the current state of the target market sector and will be used as a guide to ensure that SAM develops a commercially viable system that is actually needed by the target audience and that has a niche in the market.

2.2.1 Trends Relevant to SAM Which Are Transforming M&E

The M&E industry is going through an unprecedented change driven by innovative technology, adoption of new devices, the rise of 2nd Screen engagement, streaming media, high-bandwidth networks, Social Media platforms and consumer desire for rich content everywhere. Consumers now access, select, share, and consume compelling content delivered across traditional, digital, social, or any other channel they prefer.

By 2017, at the completion of the SAM project, the Millennial generation will comprise the largest online audience and, with 50% of e-commerce transitioning to m-commerce from smartphones and tablets, by the end of 2015, the need for websites, e-commerce stores,

and mobile app developers to deliver engaging experiences for the consumer will be paramount.

Several key trends exemplify the ways SAM will help M&E companies maintain and increase revenues by providing rich and engaging experiences for the consumer.

2.2.1.1 Accessing Content on Any Device, Anytime, Anywhere

Consumers are adopting a multi-platform, media consumption lifestyle where they expect to have the same high-quality user experience no matter how they're accessing the content. Research findings from Irdeto reinforce the vision of a growing consumer trend of multiscreen usage and 2nd Screen devices becoming 1st Screens, with PCs or laptops being the most used devices in living rooms in the UK (39%), followed by smartphones (36%), STBs (35%), tablets (32%) and smart TVs (19%) respectively. In the UK smartphones are the devices people are most likely to purchase in the next five years (27%), followed by PCs or laptops (23%), tablets (18%), Smart TVs (17%) and games consoles (9%).

2.2.1.2 Consumption of Media across Multiple Channels

Consumers no longer sit at home passively watching TV programmes; the traditional living room viewing experience is clearly evolving and will continue to do so over the next five years. According to a new study, 75% of Millennials have access to an OTT SVoD service and are three times as likely to have an OTT SVoD service. Overall, 40% of Internet users have multichannel and an OTT SVoD service, 42% have multichannel only, 11% have an OTT SVoD service only, and 7% have neither. Among OTT SVoD users, 78% are also multichannel subscribers, suggesting that over the top streaming video on demand (OTT SVoD) services remain a complement to, not a replacement for, traditional pay TV. For many, streaming video is becoming an integral part of the viewing lifestyle and no longer tied to their physical infrastructure, OTT offerings have the potential to offer huge opportunities for distributors to reach beyond their footprint, shaking up the entire pay TV model. Consumers view, listen to, follow, and actively engage with the content being delivered without regard to the medium, company, or channel delivering it. SAM will help companies to extend their brands, content, and audience engagements across multiple channels, through Content Syndication, 2nd Screen and Social Media. SAM's Business Intelligence components will provide business users with analytics to support real-time decision making with respect to programming, marketing (including digital marketing and Social Media), Public Relations PR, and ad sales.

2.2.1.3 Entertainment Decisions Based on Social Media

Social Media networks are increasingly influencing consumers, and their favourite bloggers guide them on how to be entertained, what to read, and what to play, where to watch and how to spend and/or save their money. Social Media has clearly impacted on the entertainment industry, as most television viewers and moviegoers consider it an irresistible form of entertainment. Social Networks have revolutionised the 'traditional' entertainment experience now that Facebook, Instagram, and Twitter are used to supplement viewing.[64] Almost one quarter of Facebook users post about what they are watching while over one fifth of Twitter users post about what they are watching and Figure 10 shows that these numbers are increasing.

[64] http://www.hollywoodreporter.com/gallery/facebook-twitter-social-media-study-302273#1-social-media-as-entertainment/

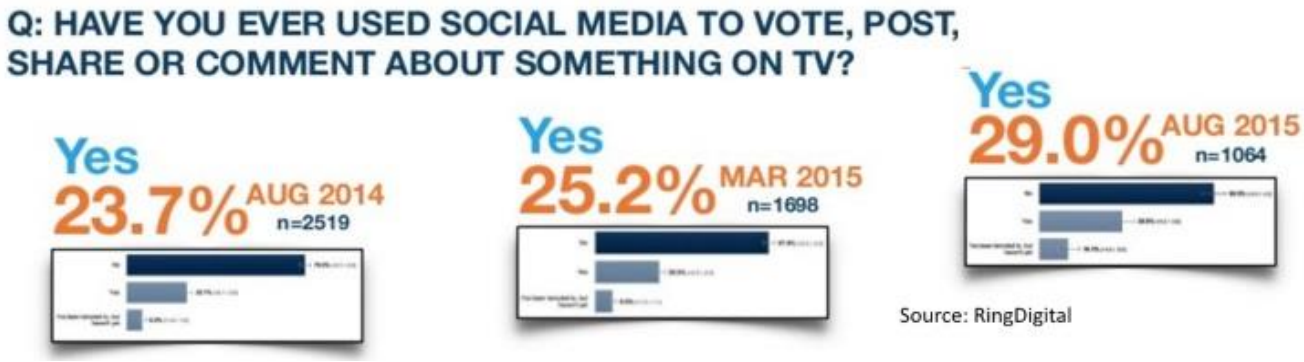

Figure 10 Twitter posts while watching TV

Even more, the mediums by which younger consumers watch TV and films are no longer the 'traditional' mediums, as online streaming sites and recording devices have replaced television sets and in-theatre screenings.

In addition, leading M&E companies are increasingly listening to, analysing, and influencing what is being said online. The SAM platform can help both types of end users by coordinating multiple consumer engagements and applying data analytics to Social Media platforms to create new dynamic communities, promote events, and recruit participants around broadcast content. SAM will be able to correlate social profiles to provide a more holistic view of the audience which can then be used to drive optimised, relevant content and commercial activities to users. This will allow a one-to-one or a one-to-community network basis syndicating personalised content across multiple 2nd Screen and social platforms using only one originating source.

2.2.2 Innovative Ways to Monetise Content

Media companies are seeking alternatives for monetising their digital assets and seeking new ways of distributing content via 2nd Screen, mobile and Social Media platforms. This section looks at key ideas, approaches and services available within SAM which can be provided, particularly to SMEs, and M&E companies in general, and within industry verticals. It also highlights how the rich amount of customer information available for collection and usage can help to make fundamental changes in the operations of those companies willing to embrace new technologies.

This is an era of enhanced recurring revenue potential for companies that create and sell digital assets, such as music, movies, television, games, and published materials. Providers of such content are no longer constrained to sell within the customary, fixed constraints of their own market segments. New technologies and attitudes allow direct connections with consumers (D2C) on many levels, including rewards, customised experience, personalised content and engagement with relevant interests like music, live events and shared interests while simultaneously motivating the consumers to return again and again, accelerating the collection of consumer usage data for the prediction and influencing of future transactions.

M&E companies are beginning to recognise the need to engage with and embrace disruptive, cross-platform engagement techniques if they are to flourish in the new digital economy. In publishing and broadcast media, traditional approaches are being replaced by higher levels of interaction and customer mobility which places the consumer at the centre of the network.[65] While there will be new revenue opportunities, the products and services

[65] http://storydisruptive.com/2015/09/08/4-key-strategic-approaches-the-new-york-times-took-to-save-their-business/#more-1325

that companies actually deliver to the consumer may well need redefinition and refinement.

Digital media producers are now able to deliver to their customers an electronic and proactive interaction, constantly offering media they might be interested in, including content that is convenient, contextual and relevant and experiences that are not annoying or intrusive. This helps elevate loyalty and customer lifetime value while monetising customer activity across all available channels. Historically, many service providers have focused on content reach. But they overlooked improving the monetisation of that reach by offering buying options with flexible subscriptions, metered paywalls, usage- and frequency-based entitlements, and dynamic bundling – combining digital and physical purchases – all with the convenience of self service. Sky UK has launched a successful Buy & Keep service to its connected Sky+ boxes, allowing customers to purchase and re-watch their favourite movies over and over again. As an added bonus, the original DVD version of the purchased movie is sent to the customer at no extra cost.

One of the key differences between this form of monetisation and sales is that this new strategy cuts across the typical paths of action, rather than merely remaining as endpoints or goals. Some call this technique disruptive monetisation and the following is an example that is possible using the SAM platform.

A viewer of ‘Tears of Steel’ digital, on-demand movie might notice that one of the on -screen characters is sitting in a distinctive red chair and is made aware that this ‘placed product’ can be purchased immediately as shown in Figure 11 . On a 2nd Screen device the customer clicks or taps on ‘Red Chair’ as the movie continues to play. A pop-out window appears with information about where the same chair can be bought, creating a commerce relationship with the furniture retailer connected to the movie. Later, the customer learns that the theme song, film soundtrack and a signed DVD can be bought and for an extra three Euros with outtakes and an alternate ending.

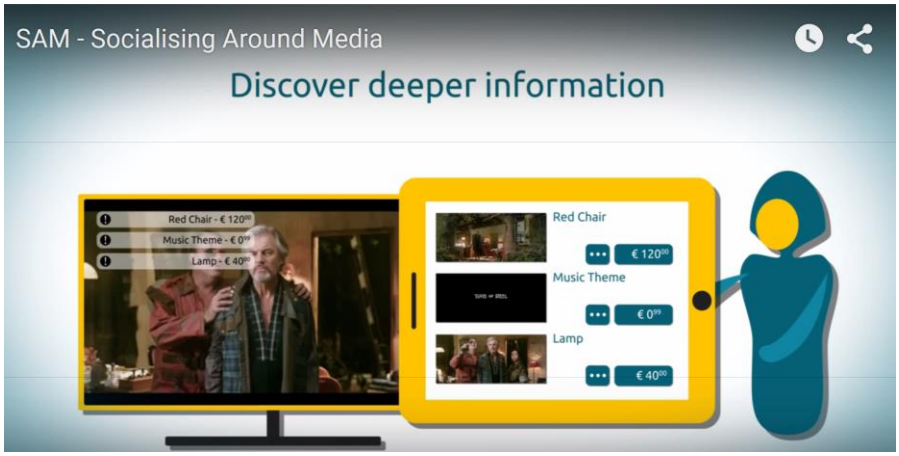

Figure 11 Example of placed products in a video available via SAM

Additional products and services linked to the film appear on the 2nd Screen, such as a watch, poster, action figure and Xbox game as illustrated in Figure 12. The following day, via a Social Media channel like Twitter, the customer learns for a small fee they can attend an exclusive online meet-and-greet with two of the movie’s actors. In choosing to watch the movie through her own digital device, she has already provided information – through SAM – to the media company about her genre preferences, favourite viewing times, and preferred device.

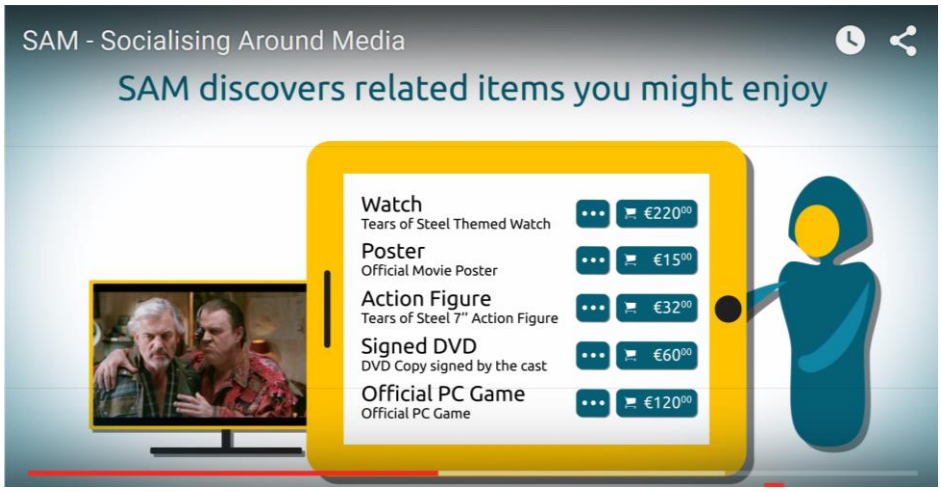

Figure 12 Related items offered via SAM

The data collected through SAM becomes part of an ever expanding awareness of consumer activity that records what has happened. More importantly, it can be used to predict and influence what will happen. In response, the media company seeks to increase revenues and loyalty by providing additional opportunities for this viewer – and millions like them – to add greater value to their lives through a wider selection of purchase options and experiences available across numerous touchpoints.

Today, a difference lies in the enormous power of digital assets as a database of user information – a Big Data engine that extrapolates patterns and trends, and a publicity tool that leverages social media. This technology offers media companies a chance to reach out across a variety of channels. “Old-school” companies and SMEs may find it difficult to change their methods of revenue generation quickly, and may lose out on newer techniques that seem unconventional or unrelated to their established culture; however this is an area where SAM will be able to assist such organisations to develop new ways of working.

The concept of payment on a timeline is crucial. Usage-based pricing is proving to be more acceptable to consumers than a single purchase made at a store, or through a paywall. An example of usage-based pricing is the per-song download prices offered by online music stores including Apple’s iTunes and this was a significant change that allowed consumers to purchase only the music tracks they want, rather than an entire album. iTunes naturally collects purchase data from these customers to create sales opportunities for products that can extend beyond digital music.

Many of these strategies are still at an early stage and are dependent on a range of influences to prove their viability, a main one of which is the consumer. M&E companies are currently experimenting with a range of interactive monetisation techniques all of which can be carried out using the SAM platform:

- **Layered digital assets:** As with the movie-watcher’s red chair example described earlier, sales options are layered on top of a broadcast show and presented to the viewer/customer. Other than direct sales of product placement items, further offerings could include travel to the locations used in the show, extra cast and crew content, director cuts, or exclusive access to additional scenes.
- **Digital subscriptions:** Newspapers and magazines in the physical world once relied on a model based on circulation, subscriptions and ad placement but these models do not translate easily into the digital world. However, personalised digital subscriptions

offer usage and frequency-based entitlements, metered paywalls, product sales from content, and the bundling of services or accessible topic areas with easier online payment and micropayment options.

- **Free trials:** These give users access to full-scale or nearly full versions of a software, game, or service, usually for a limited period of time. The most successful free trial offers make a seamless transition to paid subscriptions, requiring no added labour or downloads. The best vendor of a digital product or content is the product or content itself.
- **Freemium:** This is the limited usage of a program, service, game, or app, often with introductory-level functionality. In a video game, a player may have limited skills or resources in the Freemium version, which expand and improve once payment is made. According to tracking firm Distomo as reported by VentureBeat, micro-transactions from free-to-play games represented 79% of all revenue on the iOS and Google Play app markets in the US in early 2014, representing a 66% increase in market share from the previous year.[66]
- **VIP treatment and regular-visit incentives:** Rewards and upgrades are delivered to frequent users, either on-site or in follow-up marketing communications.
- **Partner-related products or services:** This is very often seen in the link up with a film franchise and fast food outlets where both parties cross-serve the same customer. Starbucks gives free music download coupons to its paying customers, combining the added value of music industry downloadable content with retail beverage and snack sales to create a continuous and contiguous relationship in both the coffee and music channels.

Companies that offer films, music, audio, video games, newspapers, books, magazines, comics, radio, and television shows must implement more productive ways to establish and maintain persistent, frictionless engagement with their audiences. The key enabler of this new approach is the instantaneous two-way nature of new media, which provides intelligence on consumption patterns, preferences, and behaviour in real-time. This is a somewhat revolutionary methodology for a media tradition that has been essentially unidirectional for decades. Seeking to address this for its users, the SAM Project Overview clearly states, *"Today's generation of Internet-connected devices has changed the way users are interacting with media, exchanging their role from passive and unidirectional to proactive and interactive."*

For digital media companies, engagement in this new economy can be achieved by:

- **Offering full video on demand (VoD) across all channels:** Allowing consumption via TV, tablet, mobile, and PC with free trials, flexible subscriptions, metered paywalls, one-time buys, upgrades to existing subscriptions, and usage- or frequency-based entitlements with self-service capabilities. A customer receives notification of their right to access content on their PC, tablet, and mobile along with an offer to try a premium sports package for a month free of charge, or discounted premium movie channels for six months.
- **Marrying online and offline strategies**: By enabling customers to bundle digital and physical products in a single transaction, with a strong focus on persistence and consistency of experience across all channels, including Web, mobile, in-store, and customer service. With IP-based video and IPTV, individual viewer profiles are identified and targeted with relevant promotions or dynamic inserts of contextual video

[66] VentureBeat, February 21, 2014

advertisements and direct offers for click-through purchases. During the upgrade mentioned above, the customer buys a discounted 'Tears of Steel' item of clothing.

- **Providing suggestions:** This is something that both Netflix and Amazon do successfully – suggesting movies to watch or products to buy based on a customer's previous activity. It is an area of increasing sophistication that helps companies get closer to a customer's individual interests, and therefore to actual future sales. SAM will be able to extend this by providing a single source of ratings, reviews and recommendations from Social Media, friends and the dynamic SAM communities.
- **Monetising the entire ecosystem**: This can be achieved by including third party catalogues and the company's own catalogue, by seamlessly weaving them into the consumer experiences. A customer upgrades a subscription after the free trial month and also signs up for free gym sessions. While watching their favourite show, they are prompted to download a 2nd Screen app on their iPad to get more information and to purchase merchandise seen on the show.
- **Helping viewers maximise and simplify purchasing opportunities:** This can be achieved by evolving into a one-click buying experience at every interaction point be that in-app, in-game, at point-of-sale, on a Smart TV, PC or mobile device or set-top box.
- **Contextual, real-time purchase and payment options enabled across all devices:** By utilising the Freemium model leading to micro-transactions, flexible subscriptions with varying entitlements, and dynamic bundling of physical and digital entertainment products, consumers can evolve into paying customers. By using the knowledge of the consumer habits and interactions, gathered with permission, offers to try a new Cloud game based on preferred game genre and role playing, new films based on 'like' or recommendations can be made. A consumer who signs up for a role playing game, after playing for a few hours or minutes, starts buying weapons, outfits, etc. for the game with an instant one-click purchase featuring fully audited micro-transactions such as available with the SAM platform.
- **Offering flexible, tiered pricing and availability rules**: The SAM platform will facilitate options for payments for multi-media content, selling articles, micro-content, archived evergreen content, and allow APIs for large-scale data consumption for enterprise customers, for both B2B commerce and B2C.

2.2.3 Collaboration in Creative Content Production and Distribution

Companies delivering OTT content are pressurising broadcast networks and stations to avoid loss of customers and erosion of revenue. But through 2nd Screen, smart devices, syndication of rich content, and improved mobile and Social Media delivery SAM will help them tap into new revenue streams for their content. SAM's innovative technology, effective tools, rich content metadata and Cloud-based infrastructure will facilitate project collaboration cost effectively through a 'one-stop shop' approach and it will be possible to provide economical solutions to deliver content more efficiently; as SAM will help deliver seamless, connected consumer experiences across multiple channels while monetising content and reaching new customers globally.

2.3 Major Players in the Market

Over the past four years the M&E landscape has been inundated by independent initiatives based around 2nd Screen and SocialTV and there has been a burgeoning of 2nd Screen companies providing a range of platforms and services.

The following subsections will describe the market evolution of the 2nd Screen and Social TV ecosystem which will allow the SAM team to recognise that the market is relatively immature. This will help the partners to appreciate the monitoring required to ensure that the partners become familiar with the most favourable or unique market niches for SAM and identify the areas for potential opportunities for exploitation.

In addition to potential for SAM in the M&E ecosystem, the experience of preparing content for the Prosumption Scenario and its validation of the SAM platform by two Spanish schools has highlighted the prospect for the exploitation of the SAM platform in the e-Learning market and this is outlined in Section 2.4.

2.3.1 2nd Screen and Social TV Ecosystem

Whether in the office, at home, in a café or a bar, topics like weather, breaking news, and TV shows tend to generate the most conversation. TV is a part of our shared cultural experience, with TV shows providing a common ground on which to engage others.

With 2nd Screen came a link to Social Media which led to Social TV. What started as fan-generated conversations has become a networked medium for revenue driven by advertising and paid messages. Innovative networks, understanding the true value and potential of social media began to harness its power, placing ads and paid posts directly where fans are most likely to see and respond to them. Social TV has become an integral part of television. It continues to be a key platform through which networks drive awareness, share additional content, and build and solidify their relationships with fans. TV budgets for Social Media will increase as will the time viewers spend on Social Media 'talking' about TV. However Social TV is still a work-in-progress and as the ecosystem evolves, the winners will not be those who seek to enable it within the context of quantum viewing. The current players in the Social TV arena such as Twitter, Facebook, Instagram, Tumblr, Snapchat, Periscope, and Meerkat may well grow and change over the next decade but success will depend on:

- Continued acquisition of users
- Time spent by fans on Social Networks
- The budgets allotted to Social TV
- How the data collected by Social Networks may change viewer engagement in a multimedia world
- How programming will incorporate Social TV
- How the current players flourish or falter

After the 2nd Screen Society published 'The Second Screen Hype Cycle'[67] companies moved very quickly to try to monetise the 2nd Screen experience through advertising and the exploitation of Social Media which created a blurring between 2nd Screen and Social TV and led to a large number of 2nd Screen apps offering various combinations aligned to the different needs of the companies. Companies foresaw that 2nd Screen applications would have potential to create new revenue streams for broadcasters/operators/CE manufacturers through targeted advertising and enhanced TV viewing measurement services, along with improved consumer experiences and a rich ecosystem developed as companies competed, collaborated, conquered and closed as they carved out their niches. This highlighted, as seen in Figure 13, a rapid rise from 13 companies within six sectors in 2011, to over 85 companies within 20 sectors in 2012, to over 150 companies in 2014.

[67] http://digitalvideospace.blogspot.co.uk/2012/09/the-second-screen-hype-cycle.html

Figure 13 Growth of Companies Operating in 2nd Screen and Social TV (Source: TrendrrTV 2012)[68]

The market has been one of constant change as companies appear, transform, merge, are acquired and close as shown. Companies like IntoNow Miso, Philo, Tapcast and Umami are examples of the dozens of so-called 2nd Screen start-ups that hit the market between 2008 and 2014 and failed to draw the anticipated revenue as everyone fought for the ad marketing spend as marketers shifted their attention to established, broader Social Media platforms like Facebook and Twitter.

However companies like i.TV, Viggle and Beamly (formerly Zeebox) have continued to evolve and grow, with Viggle reaching over one million users, Beamly over four million, and i.tv attracting over 15 million.[69] Despite having reached the critical mass and evolved their business strategies to appeal to consumers and advertisers, which in turn attracted major investors into the companies, their success has been extremely mixed over the last twelve months:

[68] http://www.socialtvswitch.com/?p=306
[69] http://i.tv/blog/

- Viggle expanded through several acquisitions - including SocialTV guide company Dijit and online publisher Wetpaint - to create a bigger presence with the platform rather than the TV network. In July 2015 Viggle announced that with "Over 9.5 million registered users, Viggle expects Fiscal 2015 Revenue to increase more than 40% year-over-year to $25.6 million.[70]
- Beamly continued to provide support for network partners but even with the backing of media companies including Sky, Viacom and NBC Universal, it entered administration in Australia in August 2015. Beamly morphed into social content and tech agency with its technology predominantly focused on measuring Social Media interactions and analysing what consumers are talking about. In October 2015 it was acquired by the cosmetics company Coty which intends to tap into Beamly's data benchmarking, content creation, content optimisation and consumer engagement tools which were developed for the 2nd Screen platform. Coty believes this will address the accelerating consumer shift in time spent from traditional media to real-time digital and Social Media channels.
- Having acquired GetGlue in 2013, i.TV rebranded itself as tvtag, powering 2nd Screen and Social TV experiences for brands such as AOL, DIRECTV, Entertainment Weekly, Huffington Post and Nintendo. GetGlue was closed down in December 2014 and its customer database was acquired by the Dutch Company, Voice of TV, which will be launching 'Telfie' in late 2015/2016 for Web, iOS, Android & Windows Phone.

In the updated Annex C it can be seen that of 40 deemed to be '2nd Screen and Social TV Related Companies Similar to SAM', 11 have closed down within the last twelve months. Similarly in the updated Annex A, it can be seen that of 130 identified as being 'M&E Companies Relevant to SAM', 29 have closed down and 6 have either closed down, and/or been acquired.

Those remaining are developing by broadening their focus, moving beyond TV to categories including movies, music and live events and almost all are rethinking existing media models to allow marketers to buy audiences rather than programming and running online display ad campaigns and choosing between direct channels and Real-Time Bidding (RTB) platforms, cross-channel experiences and private marketplaces.

But perhaps the most interesting opportunity for these platforms and SAM is the ability to act as data companies as they have insights into communities, fans, super fans and super-niches and allow networks and advertisers to understand those consumers better. There is potential market benefit in the data collected as users watch, listen to and interact with as well as the brands and ads they engage with and what they redeem; SAM will seek to maximise the opportunities this provides.

The 2nd Screen space is only a few years old and as a result, many aspects are still in a state of flux, but SAM is well-placed for success due to:

- The functions and features offered
- The technologies and infrastructures involved
- The business and revenue models of the 2nd Screen for SAM users.

West10, part of the BDS group constantly monitors the M&E industry market and has updated the list of players in the ecosystem which are relevant to SAM (see Annexes A and C) and these will be used to help monitor changes to the market during the duration of the SAM project. However any conclusions in this report can only be based on a snapshot

[70] http://viggleinc.com/fiscal-2015-results/#sthash.jFMVCEuh.dpuf

of this fast-changing market and the updates resulting of this observation will be presented in month 37 at the conclusion of the project.

2.4 Living and Learning with Smart Devices

The use of smart devices in education is a hot topic and many advocates believe that smart devices could transform the learning experience by engaging students and extending and personalising learning. This section will examine attitudes to e-Learning, explain how SAM will make a contribution and how SAM will be evaluated and carried out with two Spanish schools in a representative school environment.

2.4.1 Attitudes to the Use of Smart Devices in Education

In 2014 the UK Department for Education set up the Education Technology Action Group (ETAG),[71] to *"advise on how digital technology might empower teachers and learners by enabling innovation across schools, further education and higher education sectors for the benefit of students, employers and the wider economy,"* chaired by Professor Stephen Heppell.[72] Fundamentally, ETAG concluded that *"the use of digital technology in education is not optional. Competence with digital technology to find information, to create, to critique and share knowledge, is an essential contemporary skill set. It belongs at the heart of education. Learners should receive recognition for their level of mastery; teachers and lecturers should too."*

In the US in 2012, a report by Grunwald[73] into the attitudes of parents to the use of smart devices found that when it comes to mobile devices and education, most parents believe that these devices open up learning opportunities, benefit students' learning and can engage students in the classroom. Many parents also believe that mobiles and apps teach academic skills. Along with parents whose children are required to use devices in school, and parents of children who regularly use multiple devices, parents of younger children and parents of girls have the most positive attitudes and this is highlighted in Figure 14.

Some of the findings with regards to smart devices in schools were:

- By high school, more than half of all students (51%) carry a smartphone to school with them every day; so do more than one in four middle school students (28%). Overall, 25% of all K–12 students take a smartphone to school every day, according to their parents, including 8% of students in grades 3–5.
- 16% of all K–12 parents, and almost one in four parents of high school students (24%) report that their child's school allows students to use family-owned mobile devices in the classroom — often called a 'bring your own device' (BYOD) approach. Given that half of all high school students take a smartphone to school every day, however, some students seem to be powering down their devices in the classroom, or using them under the radar.
- Some schools require students to use portable or mobile devices — which could be school- or family-owned — in the classroom. This could be a signal that technology that can move between homes and schools could become essential for academic learning. Overall, 17% of K–12 parents report that their child's school requires students to use at

[71] http://etag.report/etag-2016/
[72] Felipe Segovia Chair of Learning Innovation at Universidad Camilo José Cela, Madrid, Chair in New Media Environments, CEMP, Bournemouth University.
[73] Living & Learning with Mobile Devices: What Parents Think About Mobile Devices for Early Childhood and K–12 Learning (www.grunwald.com/reports).

least one portable device (such as a laptop, notebook, netbook or ultrabook) or mobile device in the classroom.

- More than half of parents believe that schools should make more use of mobile devices in education. At the same time, many parents look to teachers and schools for guidance on helping children use mobiles and apps for educational purposes.
- Parents aren't waiting for schools to make the move to mobile learning. Already, 45% of parents' report that they plan to buy, or have already bought, a mobile device to support their child's learning. 56% of parents say they'd be willing to purchase a mobile device for their child to use in the classroom if the school required it.

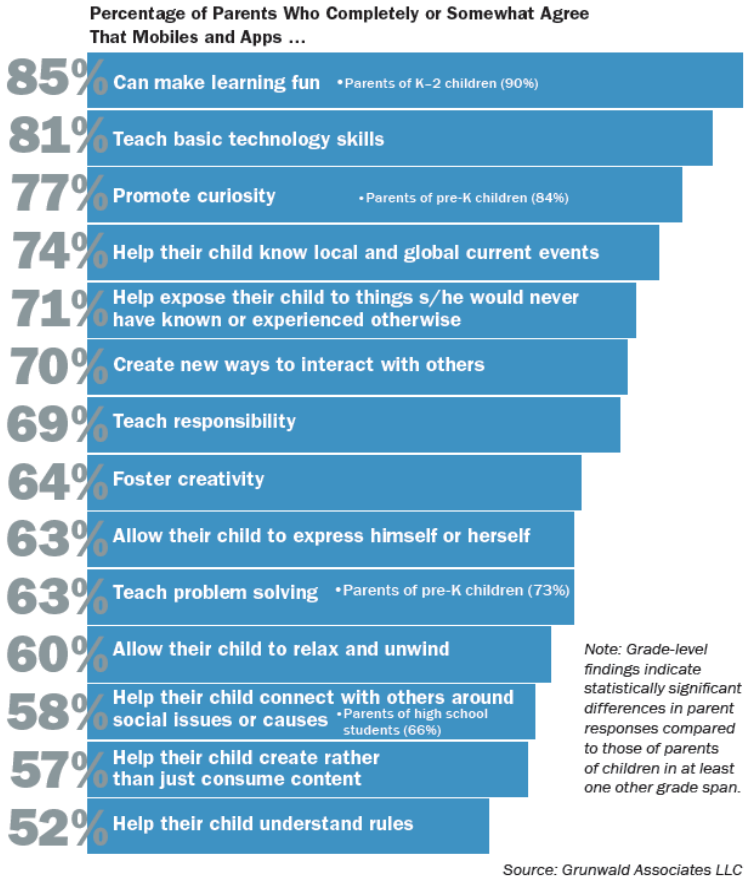

Figure 14 Parental attitudes to the use of technology in education

Given the fast-changing mobile landscape, especially the increasing functionality of mobile and hybrid devices, parent preferences and school requirements and policies will need to change just as rapidly. Whatever the device, it could be that schools are approaching a tipping point in their acceptance of and readiness to productively use mobile devices for learning.

European schools are taking an increasing interest in engaging students with mobile learning during and beyond the school day and in 'bring your own device' (BYOD) models, parents more than ever could be key partners in contributing to this new frontier in learning. This will be examined further in T8.3 Use Case: Social Consumption, the final set of 2nd Screen experiences to be employed in the user trials with Spanish pupils. The validation scenario involves multi-device Content Syndication based on the 1st Screen experience and 2nd Screen devices such as tablets and smartphones, being presented according to the educational parameters set in either the content (e.g. related to brand integrity) or the context.

2.4.2 e-Learning and SAM

Computer aided learning has been a well-known area in academia since the mid-1960s when Stanford University experimented with using computers to teach arithmetic and spelling to elementary school students in the Palo Alto Unified School District in California.[74] One of the most advanced outcomes in this area is so-called Intelligent Tutoring Systems (ITS) that can replace an expert-teacher in certain domains. Less intelligent but more widely spread are different Learning Management Systems due to their support of the wide spectrum of tasks that any educational organisation meets in everyday life as well as due to the simplicity in implementation and maintenance.

The e-Learning market started booming with the rise of accessibility of the Internet because the Internet helps to reach the audience anytime, anywhere. The potential audience for various e-Learning services is huge spanning from the children of elementary schools to Universities and life-long learning, business and professional trainings, etc. Thus, the e-Learning market has become a very dynamic and profitable market. Vendors are rapidly adding new functionalities getting inspirations from various CMS, CRM, and Intelligent Tutoring Systems, integrating them into holistic learning environments that cover needs of service providers (electronic University), teachers, and students.

The SAM project gathers together two User Partners whose interest in e-Learning is dictated by their position in the market. For instance, BDS is Europe's largest provider of bibliographic data, cataloguing books for the British Library. BDS is particularly strong in the area of library quality records and academic publications and their partners include many UK Universities and academic publishers'.[75] Deutsche Welle has an interest in the distribution of educational media services and also runs its own learning platform.[76] TIE has been exploring this market already with the FP7 project INTUITEL and is trying to find the right approach to enter this market. Needless to say that all academic partners of the SAM project are naturally interested in exploring the opportunities of using SAM as an e-Learning domain.

We can see in Figure 15 that the e-Learning market is growing rapidly and globally and platforms such as Coursera and Udacity are actively exploring these market opportunities providing Cloud self-service points for providers and consumers of the educational content. New entrants, e.g. Docebo, are stepping forward with appealing promises to deliver "disruptive Cloud e-Learning solutions". In a response to the growing market pressure, even the world's top traditional universities have started proving free access to their courses online in order to secure their future positions in this area, for instance MIT and Harvard via edX platform.

[74] http://suppes-corpus.stanford.edu/articles/comped/54-5.pdf
[75] http://www.bibliographicdata.co.uk/index.php/library_content/bds-for-academics/
[76] *http://www.dw.com/en/learn-german/german-courses/s-2547*

Figure 15 Global e-Learning Market 2014-2016 forecast (graphics from http://pom.nu/1MvAXdb based on Docebo report)

Based on the widely quoted and respected analytical report by Docebo company (http://pom.nu/1MvAOGL) and other sources, the e-Learning market trends for the coming years will be the following:

- Students will choose with whom they study not where, meaning the content delivery (form, personalisation, language, etc.) becomes of the utmost importance
- Courses will be available from everywhere and at any time (e.g., via mobile/tablet devices) in the right format tailored for the device, context, and users' model (learning history, style, and achievements, demographics, etc.)
- Solutions should be delivered as a service (SaaS model) for all groups of users including students as well as large corporations and SMEs, which are switching to SaaS learning management systems from in-house solutions
- MOOCs (Massive Open Online Courses, an abbreviation that covers all of the currently available computer-aided learning facilities) will soon need a Sales Channel to penetrate the B2B market.

The consortium believes that the SAM project has a unique selling point for this market covering two major needs for any modern e-Learning solution, namely integration and personalisation. First of all, the SAM platform meets all of the aforementioned trends and requirements (refer to the functional and technical specifications for more details). What the SAM platform offers for e-Learning can be summarised as follows:

- Packaged content that can be copyrighted and signed for tracking unauthorised usage that can fit different user context (including devices, bandwidth, etc.)
- SaaS based syndication of learning objects (and objects that can be used within learning objects such as drawings, videos, tests, etc.) through a digital pipeline from content providers to consumers (teachers and then to students) via redistributors

- Transformation of metadata standards for describing learning objects, e.g. in Americas and Europe different standards are used for describing learning objects
- Transformation of user models/profiles to avoid cold start problems when users start training within new solutions. This will help in users' mobility in terms of vendor(s) of e-Learning selection.

There is another strong selling point that SAM can offer to this market, which is unique (to best of our knowledge and does not exist in other e-Learning platforms so far): a 2nd Screen experience. It can be used for educational purposes, for instance, for life-long and continuous learning settings. Testing this feature in the real life environment is one of the goals of the upcoming trials in Spanish schools.

The SAM platform will be tested at the K12 level in Spanish schools. Based on that evaluation there will also be feedback received for the marketing and business planning.

2.4.3 Validation of the e-Learning Experience

A unique aspect of SAM in the sphere of e-Learning is the 2nd Screen experience to be contextually syndicated for potential presentation on the end user's dashboard. This educational information will be consumed in a social way through the 1st and 2nd Screens as the Prosumption Scenario, which is a near-realistic consumption and interaction scenario involving various end users including pupils from Spanish schools who are involved in the project in order to provide an end user evaluation.

This enables content partners within the SAM consortium to provide 2nd Screen experiences, using educational content linked to the SAM Platform in order to create rich 2nd Screen applications that enhance, complement and supplement initial short-form video content and services creating an engaging, interesting and informative experience based on educational and age criteria following the school curriculum, whilst taking into consideration the suitability of the content. The End User will then see the original content on the 1st Screen and related educational content on the 2nd Screen.

Whilst the material for the initial validation will be pre-selected it is intended that SAM will eventually be able to produce an educational 2nd Screen experience using any selected video, with related content, to a large extent through automated linking from different sources. Rules on user access as well as social communities will also be available at this stage, and the experience for the end user will be considerably richer, with the full extent of envisaged uses, including social community participation, enriched didactic content and user protection.

2.5 SAM: Europeana and Cultural Heritage

An issue which is important for public bodies such as libraries, schools, museums, etc. is the obligation to provide an audit trail to ensure that public money is spent appropriately. Hence, identifying exactly what was bought, the physical description of the item and the price has always been a vital requirement and so SAM standards will ensure that it is able to engage with institutions interacting with the Europeana Data Model.

Media Assets are among the main entities of the SAM Platform with the asset related functionality playing a key role in the realisation of the overall SAM features and vision. This functionality refers to various interdependent processes across the asset lifecycle, from importing media content into SAM and its semantic annotation, to the creation of asset compositions and their social aware syndication to end users. This requires a robust, semantically and socially enabled, dynamic and, at the same time, efficient schema for the

description and representation of media assets. In addition, this schema needs to be extendable and compliant with the popular and widely adopted approaches available nowadays in order to simplify the asset importing process. This will thereby allow for the effective exploitation of assets through syndication of the contents in the SAM Marketplace and link to entities such as Europeana and Linked Heritage.

Europeana's Strategy 2015-2020 boldly states its aim to "become the largest trusted repository of cultural heritage in Europe as research tells us this is what users want – unobstructed access to credible, quality material".[77] With over 2,500 institutions currently contributing to its digitised cultural heritage content, this ever growing network of connected cultural institutions (including libraries, museums, archives) and commercial organisations (including software developers) is working together to preserve our shared heritage through the digitisation and digital curation of millions of images, texts, objects, audio and video resources.[78] To date, the aggregated content reaches over 30 million entries but this only constitutes 10% of European cultural heritage. Of that 10%, "only 34% is currently available online, and barely 3% of that works for real creative re-use (e.g. in social media, via APIs, for mash-ups, etc.)".[79]

The SAM approach is to build on top of well-established media representation standards, which may be extended to accommodate the specific functional and technical requirements of the SAM environment. Analysis of state-of-the-art in this domain concluded that the main specification candidate for the foundation of the asset description in SAM should be the Europeana Data Model (EDM) together with ontologies from Schema.org. According to Europeana, EDM is "*a more developed data model that brings more meaningful links to Europe's cultural heritage data*". Data from partners or external information resources with references to persons, places, subjects, etc., will be able to connect to other initiatives and institutions. This will result in sharing enriched content, adding to it and thereby generating more content in ways that no single provider could achieve alone, which is one of SAM's foundation principles. In addition, one of the key features of EDM is the fact that it supports most of the well-known and established models as namespaces, such as Dublin Core, FOAF, OWL and RDF. The latter is of high importance for SAM since it allows for high flexibility on the model and also ensures compliance with other models and specifications.

Europeana is of great relevance to the library sector, utilising library standard metadata within the Europeana Data Model (EDM) to ensure a data-rich resource which is compatible with other standards and schema. Contributors to the portal provide digitised content and metadata. Many are also aggregators of content and the opportunities presented through Linked Open Data developments can increase traffic to contributing cultural organisations[80], thus increasing individual institutions' visibility, having a positive economic and social impact.

The provenance of the data embedded in EDM is important to the aggregators, contributors and users of Europeana.[81] EDM attempts "to transcend the respective perspectives of the various communities constituting Europeana, such as museums,

[77] EUROPEANA. (2015) Europeana Strategy 2015-2020. [Online] Available from: http://pro.europeana.eu/files/Europeana_Professional/Publications/Europeana%20Strategy%202020.pdf [Accessed: 9th September 2015]
[78] ibid.
[79] ibid.
[80] EUROPEANA. The Europeana Data Model for Cultural Heritage. [Online] Available from: http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_Documentation/EDM_Factsheet.pdf [Accessed: 9th September 2015]
[81] We want better data quality: NOW! - http://pro.europeana.eu/page/data-quality-etech15-roundtables

archives, audio-visual collections and libraries... adopting an open, cross-domain Semantic Web-based framework that can accommodate particular community standards...".[82] The new cataloguing standard, Resource Description and Access (RDA), is one such standard that can be accommodated in Europeana's data model which also supports schema including MARC21 and Dublin Core.

BDS was one of the first adopters of RDA in the UK and is able to provide RDA records to SAM which adds value to bibliographic records through its interoperability, flexibility and compatibility amongst libraries, institutions and commercial metadata providers across the globe.

The need to create meaningful, consistent and authoritative metadata for non-print resources is addressed in RDA's use of controlled vocabulary for describing content, media and carrier types[83], and facilitates end-user access to non-print resources such as objects, multimedia and e-content. Europeana's collection includes 17,833 3D objects whose attributes can be transcribed using RDA's content, media and carrier types to create enriched metadata.[84] The SAM Asset Description "refers to the characterisation of the media content... at both the meta-level... and the content level"[85] and the proposed schema links to the WEMI concepts embedded in RDA and the controlled vocabulary used to describe content, media and carrier types. The structure of the SAM Asset Description Schema is intrinsically linked to the FRBR WEMI model and the identification and transcription of relationships through linked data.[86]

The granularity of RDA adds value to bibliographic records and enables the linking of abstract ideas to physical items. Relationships are also established by incorporating other industry standards such as the Name Authority Cooperative Program (NACO). NACO, ISNI, VIAF and other authority control identifiers are now made available on Wikipedia pages, linking authority data about individual artists, authors, musicians, actors, etc.[87] Linked data is the key concept in creating syndicated data for end users. Using, for example, the digitised image of the Mona Lisa available on Europeana, the following linked data cloud as shown in Figure 17, is an example of the types of entities and relationships which can be linked using WEMI[88]:

[82] EUROPEANA. (2013) European Data Model Primer. [Online] Available from: http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_Documentation/EDM_Primer_130714.pdf [Accessed: 9th September 2015]
[83] RDA Registry (2015) About the RDA Registry and Vocabularies. [Online] Available from: http://www.rdaregistry.info/rgAbout/rof.html [Accessed: 9th September 2015]
[84] EUROPEANA. Facts & Figures. [Online] Available from: http://pro.europeana.eu/page/factsfigures [Accessed: 9th September 2015]
[85] ASSET DESCRIPTION –SAM. (2015) [Online] Available from: http://wiki.socialisingaroundmedia.com/index.php/Asset_Description [Accessed: 9th September 2015]
[86] ibid.
[87] SUBJECT WIKI for STEPHEN HAWKING-WIKIPEDIA. (2015) Stephen Hawking. [Online] Available from: https://en.wikipedia.org/wiki/Stephen_Hawking
[88] EUROPEANA. (2013) European Data Model Primer. [Online] Available from: http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_Documentation/EDM_Primer_130714.pdf [Accessed: 9th September 2015]

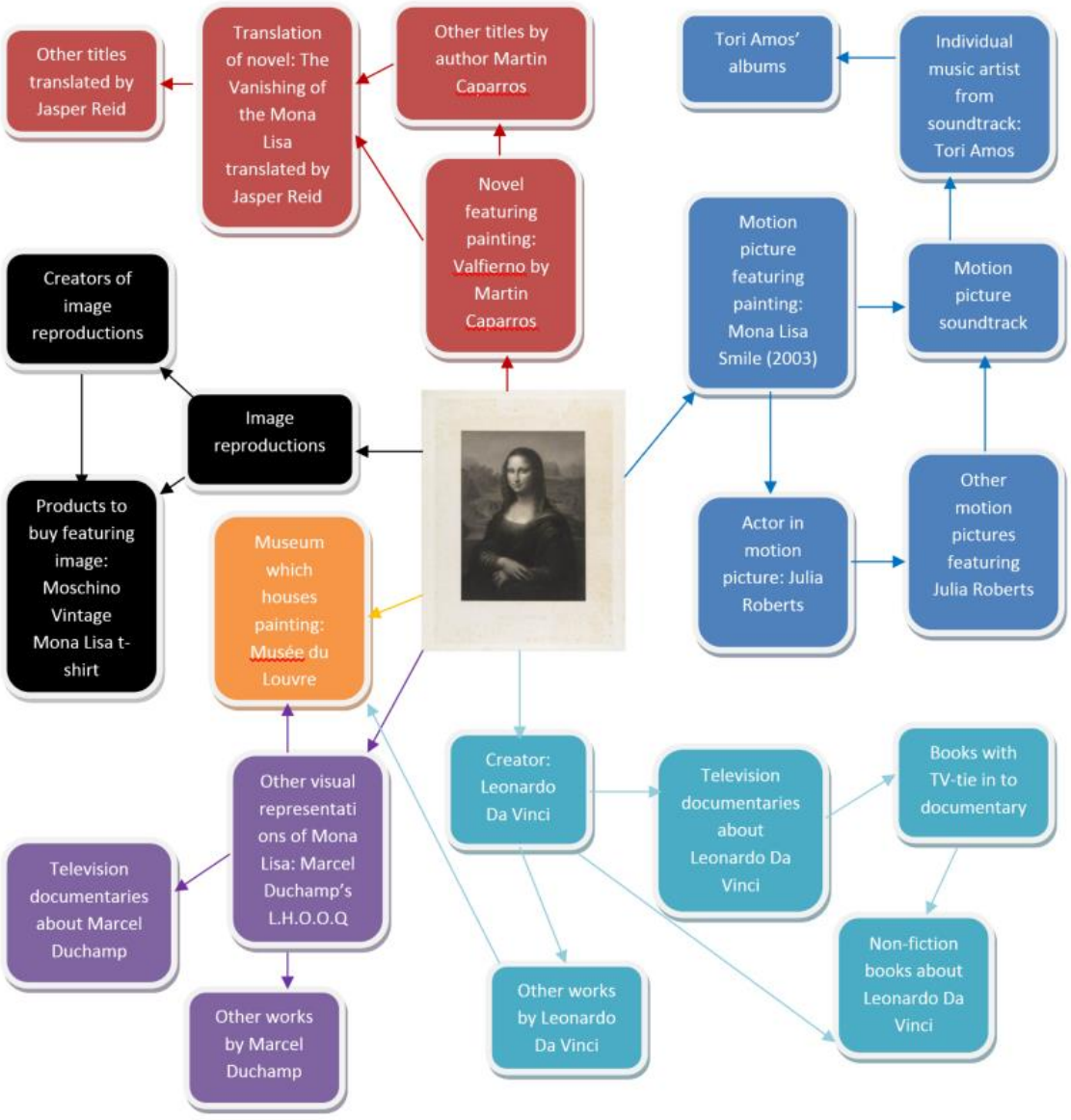

Figure 16 The Mona Lisa – an example of a linked data cloud

Using the digitised image of Mona Lisa available on Europeana, as an example, the linked data cloud illustrates the types of entities and relationships which can be deployed through SAM to be commercially exploited by organisations holding cultural heritage linked-data.

The entities and relationships of the Mona Lisa could be presented on 2nd Screen devices:

- As a virtual guide to the Musée du Louvre and its collections
- Providing a resource identifying where to stream, download or buy legal copies of the film or soundtrack
- Linking to booksellers where the novels and related academic or travel books could be bought
- Linking to relevant social media pages including the Twitter page of the Musée du Louvre
- Via a virtual reality guide app to Paris created from the data by an app development company

This not only adds value to bibliographic records and enriches the information for cultural heritage, but also has a potential for positive economic impacts for SMEs in the media sector through cost-effective, easily accessible and commercially valuable meaningful linked data for end-users.

3 Stakeholder Viewpoints

The objective of the following sections is to take advantage of the stakeholders' experience, expertise and industry knowledge and to elicit ideas, thoughts and goals and to identify the key benefits that the features of SAM will provide.

Each stakeholder point of view follows a similar structure as they broadly define their area of interest, describe how they believe SAM will be of commercial benefit to them and their sector, identify the competitors that SAM will face and pinpoint the opportunities, trends and scenarios which might be expected when SAM results are commercialised in 2017.

This was consolidated in D2.2.1 in a comprehensive SWOT Analysis of the internal and external environment and this formed an important part of the strategic planning process applicable to SAM.

The individual stakeholders' carried out a SWOT analysis assess any major changes which may affect SAM's development and exploitation by identifying the potential opportunities and challenges and help in matching SAM's resources and capabilities to the competitive ecosystems in which it will operate from 2017.

The results of changes to the SWOT are highlighted in section 3.6 An Updated SAM SWOT Analysis.

3.1 Broadcasters

The following subsections describe changes to the market from the SAM Broadcaster perspective that have been observed since D2.2.1 in November 2014. It covers new developments related to the market environment, 2nd Screen services from broadcasters and via Social TV apps. The chapter also highlights changes related to the assumptions made for the period after project completion and the SWOT table that defines SAM's Strengths, Weaknesses, Opportunities and Threats.

3.1.1 Summary

The general multiscreen consumer behaviour in the living room, including 2nd Screen usage while watching TV, generally continues at the same level as in previous years. With the increase in smartphone penetration this form of TV consumption may increase, causing more concerns for broadcasters in terms of keeping the viewer's attention for primary programming. At the same time the proportion of on-demand viewing and the consumption of short form video increases. For this reason it remains essential for broadcasters and TV channels to find multiscreen content approaches that address and direct multiscreen viewing behaviour in their favour, including on-demand distribution platforms and short form video. Key aspects are engagement, interaction, monetisation, content re-use and attention management. As the multiscreen and on-demand viewing environment evolves it won't be sufficient in the coming years to limit strategies to live TV interaction for specific genres and the creation of tailored video content for multiple devices, platforms and user groups.

During the last year, the market activity related to 2nd Screen services from broadcasters and TV channels as well as social TV services via stand-alone Social TV apps has slowed down. The Dutch consultancy ComingNextTV summarises the current market status in a blog post in September 2015 as follows: "*The social TV hype and the buzz around second screen applications are over. When we ask experts the question if social TV is 'hot' or 'not', they tend to say 'not' "*. The article titled "Social TV – Hype at its low point?" also

shows the position of Social TV in the Gartner Hype Cycle for Digital Marketing 2015, where it is located at the “Trough of Disillusionment” with an estimated time of reaching the plateau of productivity in five to ten years. ComingNextTV points out that this does not mean that multiscreen approaches or the connection between the Internet and television are becoming less relevant.

Most 2nd Screen services observed in the market provide live TV interaction functions for major entertainment formats, game shows, talent shows or sports events (e.g. voting, quiz, gamification or play-along). This represents one part of the potentially wider 2nd Screen service offering. However, a new service launched by ZDF in 2015 also offers related content and communication. The main provider of watermarking technology for 2nd Screen apps, Civolution, has sold its SyncNow Product to the audience research solution provider Kantar Media. They primarily use SyncNow to enable synchronised advertising for brands and multiscreen audience research approaches for TV. It appears that for 2nd Screen services from TV channels and broadcasters both the project cost and the level of consumer interest remain unsatisfactory.

The market for stand-alone Social-TV-Apps has almost disappeared, with a few players diversifying and moving into EPG-related services. Even the remaining large player, Beamly, has entered administration in Australia in August 2015. Social Media platforms such as Facebook and Twitter continue to be highly popular for TV programming related social conversations. For example, 85% of people active on Twitter during prime-time hours say they tweet about TV. For TV shows with an integrated hashtag there is a 20% increase in Tweets per minute (Source: Adweek - quoting Research from Twitter). Both Medias, Facebook and Twitter, are now providing dedicated services to the TV industry, supporting social engagement with TV programming.

3.1.2 Definition and TV Market Update

For the purpose of the SAM project the term “Broadcaster” refers to both television and radio broadcasters, but the project focuses on TV Channels and TV Broadcasters. The detailed definition for the term “broadcaster” provided in the previous version of this deliverable D2.2.1 still applies.

In the last version of the deliverable it was stated that the global television industry continues to grow despite severe market disruption this has since been reinforced. Despite the fact that viewers increasingly turn to OTT TV on-demand services there is continued interest in television programming as such. Although the set of delivery options for TV programming becomes more diverse and on-demand oriented, the often cited demise of the television industry – or even the “death of TV” – is so far not visible. Instead, some observers argue that a golden age for television has emerged. Advertising revenues are broadly satisfactory but new business models such as Native Advertising and Content Marketing are playing a stronger role than last year in the TV industry.

The previous document D2.2.1 described that OTT on-demand services are growing rapidly. This trend has further accelerated in the last year with some cable TV providers and broadcasters launching their own OTT services in order to compete with new market entrants such as Netflix and Amazon. During the last year Netflix has rapidly expanded on a global scale and is now recognised as a major global television company. The growth of the number of OTT services has led to the emergence of more specific OTT/Multiscreen solution providers (technology, delivery and TV related apps).

The role of Social Media platforms in multiscreen viewing behaviour, in particular Twitter, has become even more important as Twitter and Facebook remain the key platforms used

for programme-related social commenting. Twitter's live streaming app Periscope is now beginning to have an impact on live TV and event programming such as sports or news.

The previous document included a list of other industry sectors closely related to TV broadcasters. This list needs to be extended by three categories, representing emerging market players that are generally of interest to SAM.

- OTT/Multiscreen solution providers
- Content Marketing Companies/Agencies
- Native Content Companies/Agencies

Content Marketing specialists create and distribute valuable and relevant content to attract an audience in the pursuit of marketing objectives. Native advertising specialists create high quality targeted content for a specific audience without directly promoting products or services. This content is closely matched to and delivered within a media company's channel and hence does not disrupt the user experience. Media companies receive payment for placing this native content and have to label it clearly as paid content.

3.1.3 SAM Use

The previous chapter in D2.2.1 detailed the multiple ways as to how television broadcasters could use the entire SAM platform or single (customised) technology components in the context of 2nd Screen systems. It also described related strategic objectives, i.e. the potential reasons for interest in SAM technologies. This is summarised below.

"*Developing own branded 2nd Screen offerings with a view to improve the viewer's experience of TV content, facilitating new revenues, controlling multiscreen viewing behaviour, competing with social TV apps, obtaining social feedback and promoting TV programmes*."

The strategic background described in D2.2.1 for broadcasters being interested in SAM solutions still applies. This has been described in the summary of this chapter and is based on the continued need to address multiscreen viewing behaviour and a rapidly evolving TV environment with generational. The competition from Social TV apps is now largely limited to Facebook and Twitter.

In practical market terms, what has changed is the level of strategic interest TV companies and broadcasters have shown in the development of their own 2nd Screen apps related to specific TV programmes. Both the project cost and the level of consumer interest appear to remain unsatisfactory. Prohibitive costs are related to the set of required elements: from the editorial creation and production efforts, to technical app development, app promotion as well as the licencing cost for synchronisation and 2nd Screen solutions. From the consumer side, only a small proportion of viewers are likely to download or access the dedicated app and even fewer might actually use it during the scheduled TV programme. As a result there is a gap between costs and benefits. The business model for 2nd Screen services beyond live TV interaction remains so far undefined. Experience has shown that mainstream 2nd Screen offerings only work for specific scheduled TV programmes, e.g. sports events, major entertainment formats, talent shows or pre-school children's programming.

During 2013 and the first half of 2014 a range of 2nd Screen apps had been launched by TV companies and broadcasters related to specific scheduled TV programmes offering aspects of related content, social TV or live interaction.

- Stand-alone HTML or proprietary mobile apps for one major programme (or programme brand)
- 2nd Screen services embedded – and launched as required - in the central mobile app from the TV Channel or Broadcaster, which covers the entire content portfolio
- 2nd Screen functions embedded in the companion mobile app of a major TV format which also entails large volumes of other content/services

At this point in time most 2nd Screen related services appear to offer mainly live TV interaction functions related to entertainment formats, game shows, talent shows or sports events (e.g. voting, quiz, gamification or play-along). This represents one part of the potentially wider set of 2nd Screen service offerings. This type of live interaction is designed to drive viewing engagement and can be paid for by brands in the context of TV sponsorship packages. There are special solution providers for this type of real-time and often large-scale service.

In contrast, the German broadcaster ZDF launched a 2nd Screen service in early 2015. It offers synchronised 2nd Screen services related to selected programme brands, consisting of own editorial content, a moderated chat and related short form videos. Unlike the above live-interaction functions the focus is here on related content and audience communication, also for factual programming formats and this 2nd Screen service is embedded in ZDF's main mobile app, which offers a range of on-demand services.

Following the closure of its dedicated 2nd Screen companion app "4NOW" the UK broadcaster Channel 4 has launched a new central broadcaster app "ALL4" in April 2015. This aims to include "engagement with programmes through various interactive formats".

3.1.4 Post SAM

In the previous version of this deliverable it was predicted that, following the 2nd Screen hype in 2013, many television broadcasters would now approach 2nd Screen services with more cost/benefit realism and as an integrated, branded digital service element in the rapidly changing television consumption environment. It can now be observed that cost/benefit analysis is probably the key concern. It seems to prevent most TV channels and broadcasters from launching dedicated 2nd Screen services for their general or selected TV programming – above and beyond live TV interaction functions with specific genres. The wider launch of 2nd Screen services as an integrated content portfolio element (based on sustainable 2nd Screen business models) has not yet occurred.

However, the general trends described in the last document D2.2.1 for 2017, when SAM results would come to market, are still applicable. Given recent market developments it is more uncertain whether:

- TV channels and broadcasters will have regained confidence in providing dedicated 2nd Screen offerings beyond live TV interaction
- A more solid business model can be found that supports dedicated services/apps from TV Channels and Broadcasters

Future developments will largely depend on 2nd Screen solutions that reduce the production/delivery cost of 2nd Screen services. Apps need to be easy to access by TV viewers, being attractive enough to be considered while users are pursuing their general, diverse multiscreen activities while watching TV, e.g. via Google Search and Twitter/Facebook apps.

3.2 Content Providers

The following subsections describe any changes to the market from the Content Provider's point of view since D2.2.1 in November 2014.The stakeholder of the Content Provider is introduced and its use of SAM is described. Also, the competitors of SAM Content Providers are shown, as well as an evaluation of SAM against possible competitors from the point of view of the Content Providers. In summary, the change of the Content Providers market after SAM will be outlined in the coming sections.

3.2.1 Summary

Accurate and up-to-date information linked to Home Entertainment (HE) products and digital content is essential to search and discovery tools. Content Providers such as broadcasters and film studios rely on correct metadata to ensure their customers find what they are looking for, whilst information suppliers and retailers, such as IMDb, Amazon, HMV, Netflix etc. rely on accurate metadata and unique identifiers to allow links to the correct products and pages. Entertainment information and content for HE products used by major online retailers, wholesalers, retail outlets, specialist sites, library systems, trade organisations and leading trade publications, is aggregated from many different data feeds and tens of thousands of prime-source content providers such as publishers, film studios, games developers and music companies. Extended content can be added to this information including images, sound and video clips, screenshots, descriptions, contents pages and artist biographies but this is reliant on quality metadata.

Working with a trusted metadata supplier and industry trade and standards organisations is therefore essential to ensure that a consistent approach to the unique identification of assets and creation of deeply linked rich content is based on authority control, cooperative cataloguing, data normalisation and 'name disambiguation'.

3.2.2 SAM Use

Within the M&E ecosystem new technologies have exposed the difficulties caused by the current poor state of content metadata collection, curation and standardisation. Through SAM, SME content providers will be able to link to high quality metadata on demand rather than unwieldy and expensive data feeds. This will, in turn, increase sales opportunities, which will then prove attractive to clients who want to increase internal efficiency and reduce costs, produce revenue enhancements through rich consumer experiences, and create intelligent and engaging connected experiences for consumers.

Adding to its starring role in traditional TV programme guides, entertainment services and websites, content metadata is also crucial for making the link between viewers' interactions, brands and other content to do with particular viewing events. Major entertainment companies, online services and Social Media entities are beginning to take a second look at how it can be applied within their processes.

Consumers now want fast access to content no matter what device they are using and where they are viewing it. With virtually instant access to compelling entertainment data, they can engage in deeper conversations about their favourite shows, further driving engagement and discovery. For TV entertainment brands, metadata offers tremendous opportunities to interact with viewers, promote additional targeted content, and offers excellent value to advertisers.

West10 continues to work to enrich and enhance its metadata to engage the consumer by adding rich content for film/DVD/TV, music, games and books such as artist biographies,

trivia and quizzes. Through SAM this will be extended to be semantically linked across the M&E ecosystem, so for example from ‘Skyfall’ a consumer will be able to use West10 data to find all James Bond films, all books by Ian Fleming, all music by Adele, all films starring Daniel Craig, all ‘Quantum of Solace’ games, the ‘Skyfall’ soundtrack, Adele’s discography, film locations, or holiday guides from the film locations, as seen in Figure 16. Connecting consumers to content means more engagement and commitment and through SAM West10 content metadata can take consumers across that entertainment ecosystem allowing purchase points along the way increasing the opportunities for real revenue generation.

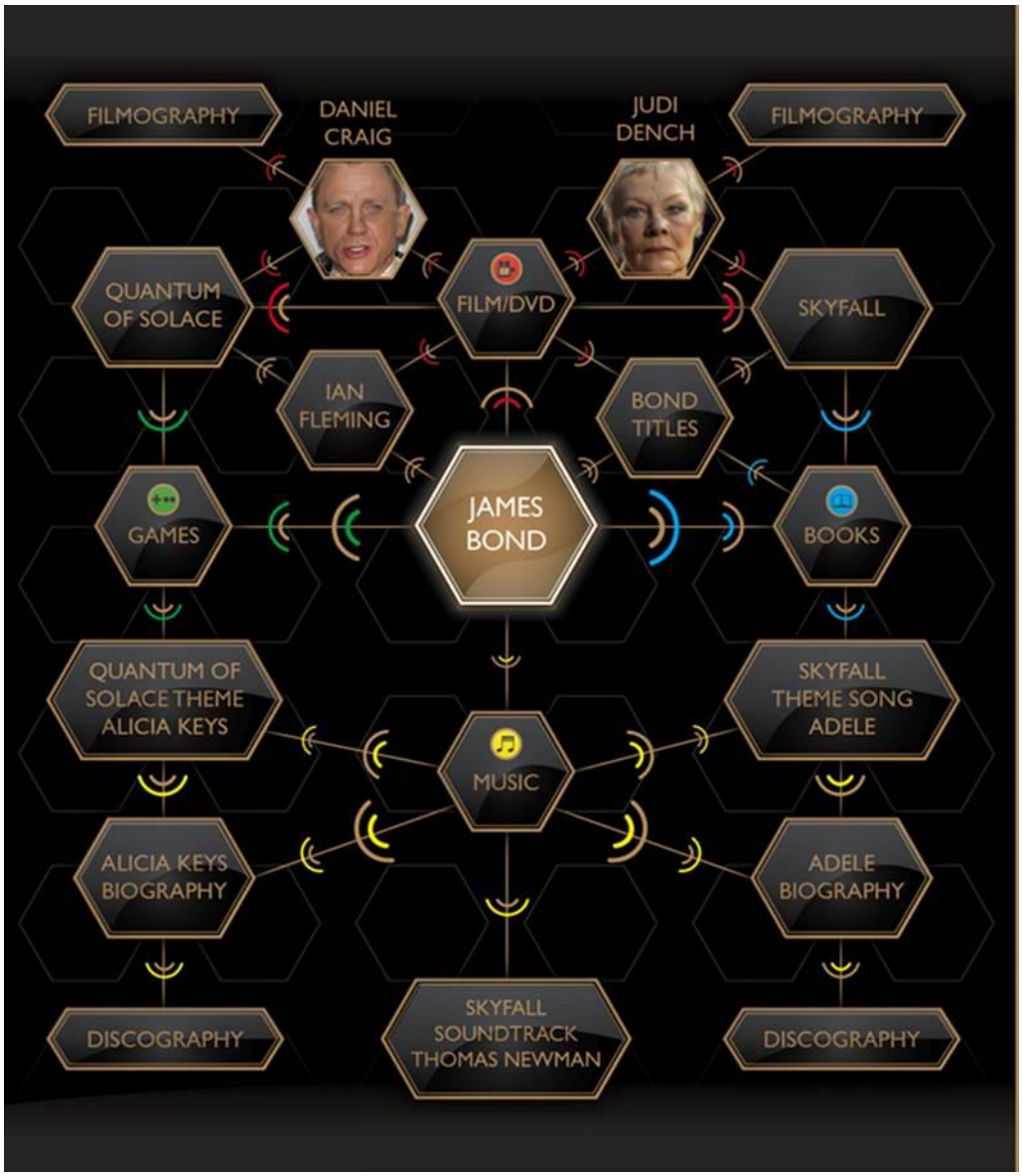

Figure 17 Linked data around James Bond

The potential of the SAM platform for providing the user or consumer with access to rich entertainment content syndicated in a social context will create an opportunity to offer a real differentiation strategy with innovative, useful and exciting tools that will make engagements with TV, film, music and games, making discovering experiences more interesting, convenient and personalised. Facebook, for example, uses entertainment metadata to improve the search and discovery process across its network.

SAM understands the power of metadata for connecting to conversations and targeting specific interests, and semantic search tools will allows users to search for interests such as “TV shows my friends are watching”, and gather results based on answers collected from their social connections’ shares on the network.

Content metadata isn’t simply creating a better framework for social interactions; even more it is helping to direct and organise the consumers, content producers, brands, and advertisers who engage in those conversations. It’s the belief of SAM partners that contextual metadata will play a major role in the future of social entertainment in the M&E ecosystem.

3.2.3 Competition

The market for the provision of Home Entertainment metadata continues to be dominated by two large American corporations: Rovi Inc. and Gracenote. Tribune Media Company acquired Gracenote in 2014 and integrated it with Tribune Media Services (TMS) under the Gracenote brand. Both companies have been very acquisitive of rivals and hold a dominant position especially with large consumer electronics manufacturers, cable and satellite companies, device manufacturers, digital music providers, Social Media networks and online retailers. However, anecdotal evidence reports that their metadata licensing fees are a barrier for SMEs; furthermore both companies have technologies which compete with many start-up companies. Whilst there are also a number of smaller content providers who tend to work in niche areas such as cinema and TV listings, events listings, the gaming market, and celebrity news. In addition, wholesalers of physical products provide skeleton ‘trade data’ for the supply chain, but not the rich data that will engage the consumer.

- **Rovi:** US-based Rovi provides a suite of technology products, software, and entertainment metadata to the digital home entertainment market. It has recently introduced a standalone product called the Rovi Knowledge Graph that combines its traditional curated data sets with dynamic, machine-generated information. At IBC 2015 it demonstrated Rovi Conversation Services, which provides, what claims to be a fluent, error-tolerant, natural language voice solution that delivers an entertainment discovery experience. Similar applications are available with the more open SAM platform. However, as the Rovi services are based on proprietary data and technology, many innovative companies needing metadata and technologies to supplement their own feel that there is a conflict of interest when working with Rovi given that it has been involved in a number of legal disputes about technology patents.
- **Gracenote:** US-based Gracenote is a subsidiary of Tribune Media Company, and maintains and licenses an internet-accessible database of music and video metadata. It provides content recognition and metadata services to major digital music storefronts and streaming media services and its technologies let TV viewers discover shows across devices and platforms. In 2014 Gracenote acquired Baseline, a provider of film and television information and services, for $50 million meaning its entertainment data and products will now cover the full entertainment ecosystem from content creation to distribution. As it is a provider of both metadata and technologies, many companies with innovative competing technologies feel unable to work with Gracenote metadata.
- **Baseline:** Acquired by Gracenote in 2014.
- **Press Association (PA):** PA is a UK and Ireland content provider. Predominantly news focused it provides celebrity news, interviews, entertainment reviews, red carpet premieres and weekly lists of DVD releases/charts, cinema listings and TV listings. It

has no presence in the commercial entertainment supply chain as the data lacks product focus, industry identifiers and can't easily be used for commercial retail exploitation. The music and book information is selective, linking interviews to album releases, reviews and tour dates and author interviews linked to book launches.

- **Global DataPoint:** Global Datapoint Limited was set up on 24 March 1999 and has its registered office in London. Its current status is listed as "Dissolved" and it has no subsidiaries.
- **West World Media, LLC:** US-based West World Media operates in more than 50 countries and syndicates film showtimes, listings and film-related data as well as event listings for music, sports, live theatre, art and special events. It also provides entertainment venue and marketing services. The company does not provide commercial supply chain identifiers and has no retail presence. It doesn't supply any other entertainment information.
- **Linked Open Data (LOD) Services:** Free and publicly available, LOD services such as Freebase (owned by Metaweb), Wikidata, FactForge etc. are promoted as providing an easy point of entry for would-be consumers of linked data and providing a wealth of information. However such sources are not suitable for commercial use as they are not necessarily up-to-date or correct, as they are community fostered. In September 2014,The Business 2 Community report identified numerous data problems,[89] furthermore a solicited review of a research paper on FactForge by Thorsten Liebig[90] describes **"**a general problem where LOD data sets which mostly follow a quantity, not quality paradigm". Also, most LOD services are data access points providing no customisation or special interfaces or data formats, as it's not their core focus to sell the data they have gathered. Unlike the SAM W3C approach to the semantic web, which starts with controlled ontologies, Metaweb adopts a 'folksonomy' approach, in which people can add new categories (much like tags), in a messy sprawl of potentially overlapping assertions.

3.2.4 Post SAM

Following the proliferation of new technologies, connected devices and a more discerning consumer seeking richer experiences, the importance of standardised, normalised, name-authority controlled metadata is now recognised as essential for the delivery of the best experiences. The M&E industry's need for quality, linked data will enable the SAM project to benefit from entering the market as a trusted third party at a time when it can serve successful, established and sustainable companies, as well as the innovative companies who need rich M&E data. When the SAM results are commercialised in 2017 the following features may be key for commercialisation:

- The current plan is that the West10 English language will be used however the provision of translations of the data into multiple languages through automated translation components would create a new revenue stream and facilitate the sales of content metadata throughout Europe.
- The initial metadata will be based on UK product information however future enhancement would be to create a pan-European database of cultural products by linking to European content providers.
- Whilst it is intended that SAM will derive its Social Media input solely as shared information sent through the SAM Platform, it would be a major improvement to be able to access filtered comments from the major Social Media networks.

[89] http://www.business2community.com/big-data/open-data-risk-poor-data-quality-01010535#4RbzAD7HkMXwWc5l.97
[90] http://www.semantic-web-journal.net/content/factforge-fast-track-web-data

- Automatic summarisation which is able to analyse social communities and identify and then aggregate trends in SAM user communities will improve the potential for revenue creation through reviews, ratings and recommendations.
- Through future developments of SAM, it should be possible to create a digital assets repository based on a core metadata standard for the digital value chain with EIDR and other trade identifiers as the key links; thus creating an efficient value chain for digital assets which can also be exploited as a revenue stream.
- SAM will implement basic media synchronisation techniques and so it was believed that ACR synchronisation functionalities would be a requirement in the future if SAM is to be successful in the 2nd Screen ecosystem. Whilst it may still be possible through third party pluggable components, ACR is now less likely to be a weakness as watermarking technologies have not proven to be the key solution for all 2nd Screen experiences and, in addition, they necessitate high licencing costs for broadcasters.

3.3 SmartTV and Device Providers

The following subsections describe any changes to the market from the SAM SmartTV and Device Provider's point of view since D2.2.1 in November 2014. Also, the competitors of SAM SmartTV and Device Providers' are shown, as well as an evaluation of SAM against possible competitors from the point of view of the SmartTV and Device Providers. In summary, the change of the SmartTV and Device Providers market after SAM will be outlined in the coming sections.

3.3.1 Summary

In the SAM ecosystem (see Section 2.2) different types of user devices will co-exist: both TV devices as well as personal devices such as notebooks, tablets and smartphones will be interacting on the user/consumer side of SAM. For the latter group, the personal devices, the SAM ecosystem will normally be an application that can be installed like any other application and the involvement of the manufacturers of these devices will be low to non-existent.

For TV manufacturers however, the SAM ecosystem can be a differentiator and value creator because SAM can be provided with built-in functionality.

In the context of SAM, TV devices can be roughly divided into two main categories: SmartTVs and non-SmartTVs.

- SmartTVs, or connected TVs, are connected to the Internet and provide access to Cloud and local applications, mostly modifiable by the user. These will have the minimum requirements to allow the integration of Smart systems such as SAM.
- Non-SmartTVs are not connected and don't allow the installation of additional user-choice applications, making them unable to support SAM.

As such, only SmartTV devices are of any interest to the SAM project. Compared to TV devices, any tablet or smartphone is by definition a connected device and should be able to integrate in SAM.

TP Vision, as a device provider and licence holder of Philips branded TVs for Europe, is only targeting the TV business and products.

Most other important TV manufacturers have a broader product portfolio of Consumer Electronics and below is an overview of the currently most important SmartTV providers in the European market:

- TPVision, HQ The Netherlands: a dedicated company in the world of visual digital entertainment; fully committed to the renowned Philips TV brand.
- Samsung Electronics, HQ South-Korea: besides TV devices, it is also a manufacturer of Audio/Visual devices, tablets, smartphones, photo and video devices, PC products, home appliances; also a big semi-conductor manufacturer.
- LG Group, HQ South-Korea: besides TV devices, also a manufacturer of Audio/Visual devices, tablets, smartphones, photo and video devices, PC products, and home appliances.
- Sony Corporation, HQ Japan: besides TV devices, also a manufacturer of Audio/Visual devices, tablets, smartphones, photo and video devices, and PC products; also very active in gaming industry and has a big content portfolio (movies and music).
- Panasonic Corporation, HQ Japan: besides TV devices, also a manufacturer of Audio/Visual devices, phones, photo and video devices, and home appliances.

Below is an updated list of the current, important smartphone and tablet manufacturers (however this is ever-changing as more and more brands enter the tablet and smartphone market):

- Samsung Electronics, HQ South-Korea
- HTC, HQ Taiwan
- Apple, HQ US
- LG Group, HQ South-Korea
- Sony Corporation, HQ Japan
- Huawei, HQ China
- Nokia, HQ Finland
- Acer, HQ Taiwan
- Xiaomi, HQ China
- Motorola, HQ US

3.3.2 SAM Use

Providing devices with built-in support for the SAM ecosystem will be a value creator and differentiator at the selling point, which is still by far the main source of revenue for SmartTV device providers. However, SAM can be used as much for up-selling as for brand differentiation. So, whilst connecting with the consumer is important, SAM has the potential to not only increase existing opportunities but also create new opportunities for after sales revenue.

3.3.3 Competition

Most SmartTV manufacturers are currently stepping into the field of multi-screen and 2nd Screen interaction models and use cases by introducing new SDKs. Although they are currently not incorporating the social and data providing concepts as they will be done by SAM, they could still evolve in that direction. These current initiatives are about providing environments with a low threshold towards app and business developers.

3.3.4 Post SAM

SAM will use high quality metadata as input towards its data and Social Media syndication provisions. Adding technologies supporting ACR, e.g. from a third party, will increase the knowledge and accuracy of the SAM ecosystem with respect to what an end user is actually watching or doing. This would not only improve the end user experience but also

drive higher revenues for content providers and other SAM stakeholders by seamlessly providing engaging content.
The SWOT analysis is conducted by each stakeholder but whilst subjective, reflects different perspectives and stakes in the project. Moreover, the SWOT analysis process provides an opportunity to identify the relevant factors in each category and an opportunity to identify any changes in the market since month 13. In the case of SmartTV and Device Provider's point of view, there are no changes identified.

3.4 App Developers

The following subsections describe any changes to the market from the app developer's point of view since D2.2.1 in November 2014. Also, the competitors of SAM for app developers are shown, as well as an evaluation of SAM against possible competitors from the point of view of the app developers. In summary, the change of the app developers market after SAM will be outlined in the coming sections.

3.4.1 Summary

App developers are third party companies who specialise in the field of mobile software creation and/or development and either market the app themselves or, more likely, act as a consultancy for a party interested in having some kind of software or app designed for them. Examples would be specialised media-related apps, such as an app created for a new blockbuster movie (a new 'James Bond' or 'Transformers' movie etc.) or public TV shows with a big audience ('The Eurovision Song Contest', 'Germany's Next Superstar' etc.) that need to have a unique look and feel or additional features to keep the user engaged.

3.4.2 SAM Use

As the first version of this deliverable, D2.2.1, described, third party app developers will use SAM because of its rich content offerings and the interlinking between the content. The dashboard which SAM will provide can be integrated into a mobile application with ease and the developers do not need to create the presentation logic themselves therefore saving and releasing both time and cost resources to invest in the creation of the application itself. Developers will be able to use the SAM Marketplace to change the style of the dashboard and the style of the content presented.

When retrieving content to be linked to media assets such as videos or images, app developers will be able to select by using keywords. Based on the keywords, content will be suggested by the SAM platform. App developers can use the suggested content to stay in control of the experience to select the content, with which the particular media asset should be enriched.

When changes occur or new data becomes available, the app developers will not have to add or change the data themselves, as the SAM platform will allow dynamic links to metadata and content. Another important value proposition for app developers is the accuracy of the SAM managed metadata, as the SAM content providers will take responsibility for keeping the data current and without errors.

Examples for the usage of SAM content are manifold: Starting from the traditional enrichment of consumed movies at home over the enrichment of experiences for cultural institutions like museums up to providing helpful and interesting information for tourists as they are exploring a new city. Taking into account the user's location, content can be

syndicated and provided to the customer to boost their knowledge and to make them curious about their surroundings.

3.4.3 Competition

At the time of producing the first deliverable D2.2.1 there were no direct competitors found in the market that had all of the features, capabilities and the facilities that SAM will provide. Monitoring of the market has confirmed that this is still the case. Whilst there are other content services and databases for film and DVD such as Rotten Tomatoes or IMDb, they cannot offer a dashboard to retrieve the wealth of information from other product sets such as music, books and games. SAM is unique in offering the breadth and depth of rich curated information accessible all in one place. Whilst free and publicly available LOD services such as Freebase (owned by Metaweb)[91], Wikidata and FactForge etc. are promoted as providing an easy point of entry for would-be consumers of linked data and providing a wealth of information, such sources are not necessarily up-to-date or correct, as they are community fostered. Also, as all of the mentioned services are data access points not commercial entities, they provide no options for customisation, special interfaces or standardized authority controlled metadata formats as it's not their core focus to sell the data they have gathered. Unlike the SAM W3C approach to the semantic web, which starts with controlled ontologies, Metaweb adopts a 'folksonomy' approach, in which people can add new categories (much like tags), in a messy sprawl of potentially overlapping assertions.
For app developers it is very important to connect their own apps to the data ecosystem provided via an API and whilst some of the platforms monitored and shown in Section 3.7 do present some of the features provided by SAM, not all specified platforms provide an API for external applications. The platforms, Couchfunk, Horizon, Monterosa, Tellybug and Tivin, only provide access for their own applications and only ContentWise and Leankr offer APIs to enable external applications to access their platform. Examining the table in Section 4.7 shows that it is apparent that these competitors fail to realise the majority of the features that SAM will provide. Such benefits such as being open source, offering an asset marketplace, providing curated content with brand and consumer protection, creating social communities, offering a 2nd Screen platform and providing the potential for content syndication are missing, all of which confirms that SAM will offer a much better fit for app developers.

Monitoring of the market has indicated that the majority of 2nd Screen applications related solely to film and TV, which have been produced since 2013 have ceased, typically because they were limited to a specific media entity, i.e. a TV show. However SAM is designed for being used for many different media entities and provides a high reusability in terms of the application.

3.4.4 Post SAM

The following trends and scenarios are expected for 2017 when SAM results will be commercialised:

- SAM will be the one-stop go-to place for all kinds of data and metadata about media for app developers. Open APIs, permanent access to linked and up-to-date information will be a definitive advantage over purchasing of static information.

[91] On 16 December 2014, Knowledge Graph announced that it would shut down Freebase over the succeeding six months and help with the move of the data from Freebase to Wikidata

- Clear cost structures and easy access will make the advantages of using SAM apparent, especially given that it requires time investments from app developers to find out pricing, access policies and if and how APIs are accessible from competitors.
- SAM will provide developers with not only an API, but also enhanced content with metadata, linked data and even dynamic features like social community creation and analysis, that usually app developers have to create themselves, saving even more time investment.

Future features not yet planned in SAM that are being considered and which would enable exploitation by app developers are:

- SAM to provide client-side APIs for third party developers on different platforms, providing another huge gain in productivity for third party developers. It will be easy for the client-side APIs built for the 2nd Screen OS if encapsulation of APIs is kept in mind. The opening of APIs for all platforms will make SAM the go-to place for all types of developers.
- In order to be attractive for small developers/websites, SAM may provide a cheap or even free starter (freemium) set of limited data or functionality to allow developers a chance to test the platform and share advertisement revenue in exchange for limited access.
- As well as the syndication of content for media entities, SAM's features would be beneficial for cultural and public institutions like educational institutions, libraries, museums and tourist centres by allowing links to cultural products. SAM would be able to syndicate rich cultural content for pre-defined places and using geo-location, show the content based on the user's setting.

3.5 Service/SaaS Provider

The following subsections describe any changes to the market from the SaaS Providers' point of view since D2.2.1 in November 2014. The stakeholder of the SaaS Providers is introduced and its use of SAM is described. Also, the competitors of SAM for SaaS Providers are shown, as well as an evaluation of SAM against possible competitors from the point of view of the SaaS Providers. In summary, the change of the SaaS Providers market after SAM will be outlined in the coming sections.

3.5.1 Summary

Software as a Service (SaaS) is a licensing and delivery model in which software is licensed on a subscription basis from a centrally hosted platform and it has become a common delivery model for many business applications. The initial setup cost for SaaS is typically lower than the equivalent enterprise software as there is usually a subscription fee, most commonly a monthly fee or an annual fee rather than a capital cost. A SaaS environment allows vendors opportunities to charge per transaction, event, or other unit of value or price their applications based on some usage parameters, such as the number of users exploiting the application. Another great benefit is that many SaaS applications offer features that allow users to collaborate and share information through a common platform, so offering new application developers an opportunity to quickly develop and deploy new applications.

Service providers are defined in SAM the DoW as: "*An entity that provides organisations or individuals with commercial services, usually in the context of a third party or outsourced supplier usually in telecommunications, application service suppliers, storage*

service suppliers (Cloud) or Internet service supplier, or in the case of the SAM Platform for users, both end users and business users."

Software companies that provide services such as payment means providers - shopping cart providers, recommendation providers, etc. - can be linked to SAM content or facilities, and their services can be registered at the SAM Marketplace component level and linked to specific Assets in the SAM Linker component.

For these companies, SAM can provide access to a wider range of uses (apart from the original ones) with the advantage that the services can be provided in the correct end user context, facilitating its usage and conversion rates (e.g. in the case of a 'Buy' button service).

Additionally, SAM can also provide as services different parts of its architecture for contextualisation, semantic analysis, content distribution, etc., which although not the main goal, may be exploited through the individual partners exploitation and so this area will focus on third party service provided through SAM.

3.5.2 SAM Use

Service Providers will register through the SAM Marketplace to sell their services. A service can be considered a dynamic Asset, linked to the external service, and it needs to be configured for its usage. An example of such a provider could be the Dutch company Ex Machina, which has its roots in three domains: games, Social Media and TV which offers games, polls, quizzes, voting etc., that could be re-configured, reused and sold through SAM so that content providers can deploy them as part of their shows in a simple way.

3.5.3 Competition

Whilst vendors such as IBM currently offer over 100 SaaS applications, the related-to-media services marketplace is organised in a way in which companies offer their products in a one-to-one approach through their websites, spending significant amounts of money on marketing campaigns, basically selling their recommendation system, rating databases, etc. to a larger company. At this current time, no outstanding specific competition has been identified in this sector, as per the specific open approach of SAM and the one-by-one case still existing in the market, especially when it is in reference to 2nd Screen applications.

3.5.4 Post SAM

During the project timeframe, SAM will implement simple services with low levels of integration and constrained functionalities.

However, in a post-SAM commercial environment, the following features will be needed in order to make SAM a marketable product:

- Further security services scenarios
- Richer services and interfaces description
- Advanced service usage log for accountancy
- Native service deployment into the SAM Interconnection bus

The Services Brokerage is not one of the main features for SAM and as such, this aspect will offer only basic integration functionalities. In any case, the novel approach for it must

be enhanced and commercially exploited as one of the possible differentiators with other platforms in the market that can offer a subset of SAM functionalities.

3.6 An Updated SAM SWOT Analysis

This the SWOT Analysis updated at month 25 of the SAM project.

Strengths	Weaknesses
• Suitability for on-demand video content enhancement • Uses EDM and schema.org to create standardised data allowing interoperability with cultural organisations	• The decline in SocialTV apps may remove a potential area of exploitation
Opportunities	**Threats**
• Offering solutions for diverse types of 2nd Screen offerings from television broadcasters beyond live interaction TV • An increased requirement in the market for data to link to multiple sources of extended content. • An increased demand for maintenance of brand consistency across all platforms in style and functionality is a complex task". • Increased demand in the market for an open-source, multi-device platform rather than a closed proprietary platform • Open approach to synchronisation mode • SaaS provision of 'Linked Content' to SMEs that cannot afford an asset and distribution structure themselves • The provision of 2nd Screen educational experiences • Able to provide a repository of data about academic books • Ability to interface with Linked Heritage Data and Europeana • The use of EDM will enable the sale of SAM data into the Travel & Culture applications and services market with high commercial potential • SAM will create a 'Linked Content' ecosystem which will store or point to external content and content stores which are either open or usage agreement can be put in place	• The 2nd Screen hype has failed to live up to the expectations

Figure 18 Updated SAM SWOT Analysis

The SWOT analysis continues to provide strong evidence that the partners consider that the Strength and Opportunities outweigh the Weaknesses and Threats (Challenges) and the SWOT identifies that there is great potential for success for SAM, as it remains central in the convergence of three large markets:

- Multi-device Representation and 2nd Screen: Delivery of multi-media related content into multiple devices allowing maximum use and commercial exploitation
- Content Syndication: Creation and distribution of rich, engaging, context related content for enrichment and maximum use
- Social Media: Contextually related groups, dynamically created to maximise user adhesion providing ratings, reviews and recommendations to the user

The partners continue to believe that SAM will provide a solution for European SMEs that will make them more competitive and provide increased revenue opportunities in key areas based on the three main pillars of SAM.

3.7 Comparison of SAM Rivals

The initial report regarding the monitoring of the market uncovered a number of companies which were relevant to SAM's market of already offering similar features as those to be found in the SAM platform. In the updated Annex C it can be seen that of 40 deemed to be '2nd Screen and Social TV Related Companies Similar to SAM' and 11 have closed down within the last twelve months. Similarly in the updated Annex A, it can be seen that of 130 identified as being 'M&E Companies Relevant to SAM' 29 have closed down and six have either closed down and/or been acquired

The research found a number of companies based in Europe offering similar features or services and each company was researched and analysed and the features of the particular service were placed in a comparison table to provide an easy visualisation of the available features, functions and themes of each system with Red representing 'Lacks' and Green the 'Offers'.

	Contentwise	Couchfunk	Horizon	Leankr	Monterosa	**SAM**	Tellybug	Tivin
2nd Screen Apps								
2nd Screen Platform								
Asset Marketplace								
Brand and Consumer Protection								
Business Intelligence Systems								
Content & Services Marketplace								
Content Composition & Enhancement								
Content Detection and Matching								
Content Syndication Service								
Cross Media Links								
Data Aggregation from Multiple Sources								
Data Standardisation Procedures								
Dialogue Speech Recognition Systems								

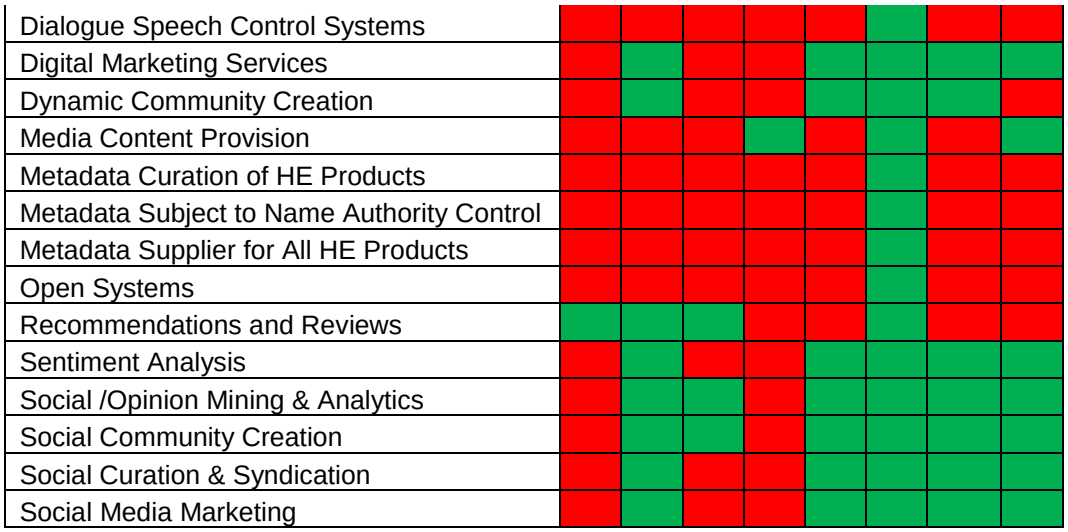

Figure 19 Comparison of SAM Rivals

The market activity related to 2nd Screen services from broadcasters and TV channels as well as social TV services via stand-alone Social TV apps has slowed down and so the companies were researched once again and compared with SAM once again and their status updated as below:

- **Contentwise:** Update – Continues to develop services. Content personalisation system offering recommendations and predictive browsing for broadcast, cable, satellite, IPTV, OTT and video streaming companies, improving user engagement and monetisation. Uses third party data to create an information-rich experience for users. Data is pulled from TMS, Rovi, IMDb, Wikipedia, and Social Media websites like Facebook and Twitter.
- **Couchfunk:** Update – Uses a combination of web, TV, Social Media and self-produced content to create a one-stop shop for users to discover the most relevant content for them and also to directly watch live TV channels on their mobile devices.
- **Horizon:** Update – Not available in UK, currently Ireland only. Accessible with a Virgin Media account. Integrated apps accessible through TV and other screens including YouTube, Facebook and Wikitrivia. The platform also includes news, weather and traffic apps.
- **Leankr:** Update – no new press stories since October 2014 and last company Tweet is dated March 31 2015. There is no key executive or board member information via Bloomberg Business.
- **Monterosa:** Update – Now utilising their LViS platform to incorporate real-time tailored interaction with brands over consumer's social feeds and connecting traditional media with mobile. Have recently secured £1.2 million in investor funding and the opportunity to develop 2nd Screen app for 'Dancing With The Stars'.
- **Tellybug:** Update – Have won awards for their apps for 'The Voice' and 'The X Factor'.
- **Tivin:** Update - New features include live events and targeted advertising. Through the 2nd Screen users are also able to access additional cameras for sports events.

Careful consideration of the current services being offered in the marketplace continues to show that no other company is able to offer the 'one-stop-shop' approach proposed in SAM and this continues to be the case. SAM remains unique in that it supports content providers, broadcasters, information brokers, 1st Screen manufacturers, 2nd Screen

services and end users in the emerging multi-screen consumption and multi-device world. An additional area for potential exploitation has also been uncovered, that of e-Learning where SAM will be able to exploit its content and technologies.

Most companies analysed still provide 2nd Screen resources which are proprietary and cannot be shared in a generic way by other apps or platforms, and links or relationships with the content of these are not possible. However, SAM will deliver on the promise of open and standardised formats for the description of media assets and a framework for their configuration and use that could be used by third party software companies to easily build 2nd Screen, social and education orientated apps.

SAM continues to be unique in being able to offer:

- Asset management, characterisation and syndication
- Application of Business Intelligence
- Brand and consumer protection
- Content and services marketplace
- Context based dynamic social communities' creation
- Context and social mining for further exploitation
- Creation of a 'Linked Content' ecosystem which will store or point to external content and content stores which are either open or usage agreement can be put in place
- Device Awareness
- Dynamic content discovery based on context
- EDM and schema.org standardised data allowing interoperability with cultural organisations
- e-Learning 2nd Screen experiences
- e-Learning resource catalogues
- Geo-marketing
- Interface with Linked Heritage and Europeana
- Open approach to synchronisation mode
- Personalisation through Customisation
- Private social groups' participation
- Provision of 2nd Screen educational experiences
- Provision of SaaS 'Linked Content' to SMEs that cannot afford their own asset and distribution structures
- Repository catalogue of academic books and multi-media content
- Speech recognition and goal elicitation
- Use of EDM to enable the sale of SAM data into the Travel & Culture applications and services market with high commercial potential

The SWOT analysis and comparison of the European competitors shows that SAM is well positioned for commercial success in the M&E marketplace. Furthermore SAM will provide a solution for European SMEs that will make them more competitive and provide increased revenue opportunities in key areas based on the three main pillars of SAM:

- Multi-device Representation and 2nd Screen: Delivery of multi-media related content into multiple devices allowing maximum use and commercial exploitation
- Content Syndication: Creation and distribution of rich, engaging, context related content for enrichment and maximum use
- Social Media: Contextually related groups, dynamically created to maximise user adhesion providing ratings, reviews and recommendations to the user

4 Conclusion

Of course, making precise predictions in this report on the ultimate success of the SAM platform is impossible and our vision for the project is not an exact science. There is little doubt that, subject to the vagaries of the M&E marketplace, success will differ greatly from region to region, but the report does make clear the trends and directions which are taking hold across the TV and media ecosystem — a new era of entertainment has arrived, and the dawn of the Networked Society is fast approaching.

The PWC report "Signposts of an Emerging Landscape"[92] stated:

"Changes in consumer behaviour, driven by new technologies, will reshape the TV and video ecosystem profoundly, and its new competitive dynamics will challenge every player involved to rethink how and where it can capture the ecosystem's new sources of value or defend the position it has already staked out. We believe that there are a number of important signposts that can guide all players as they craft their strategies for future growth.

- *In most markets, the supply of distribution will outgrow the supply of high-quality content.*
- *Reach — the ability to capture the largest potential audience possible — will remain a critical success factor.*
- *Combining reach with consumer insight and interactivity will unlock real value for advertisers.*
- *Providing a seamless user experience across devices and video formats will become an important differentiator in the consumer market.*
- *Alliances and partnerships will be critical to success."*

It is evident that the SAM platform addresses the elements signposted in the report which, along with the SWOT analysis and comparison of the European competitors, demonstrates that SAM is well positioned for commercial success in the M&E marketplace. Furthermore SAM will provide a solution for European SMEs that will make them more competitive and provide increased revenue opportunities in key areas based on the three main pillars of SAM:

- Multi-device Representation and 2nd Screen: Delivery of multi-media related content into multiple devices allowing maximum use and commercial exploitation
- Content Syndication: Creation and distribution of rich, engaging, context related content for enrichment and maximum use
- Social Media: Contextually related groups, dynamically created to maximise user adhesion providing ratings, reviews and recommendations to the user

The task will be active throughout the project by detecting and reporting possible market opportunities and threats. In the further course of the project this document will be used as a guideline to ensure that the partners are following the same goals and will help to synchronise ideas for the strategic commercial exploitation of SAM from Q1 2017.

[92] http://www.strategyand.pwc.com/media/file/Strategyand_2015-A-video-space-odyssey.pdf

Annex A: M&E Companies Relevant to SAM

This table provides an update on the updated status of the companies deemed to be relevant to SAM in October 2014. It highlights the new entrants, acquisitions and closures which have occurred in the ensuing twelve months.

Company	Website	Product
ACTV8.me	ACTV8.me	2nd Screen platform **Update – Advertising platform allowing users to purchase items through 2nd Screen using their digital wallet.**
Aereo	Aereo.com	Live TV streaming service - suspended awaiting court appeal **Update – Acquired by TiVo**
Airtime	Airtime.com	Video social network
Amazon Prime Instant Video	Amazon.com	Online video service
Angry Bytes	Two-Screen.com	2nd Screen platform
Apple	Apple.com	Tech company (iPads, iPhones, Apple TV)
Applicaster	Applicaster.com	2nd Screen platform and video management
Arktan	Arktan.com	Real-time social conversations platform
Audible Magic	AudibleMagic.com	Automatic content recognition
Axonista	Axonista.com	Audience engagement platform and app development
Beamly (formerly Zeebox)	Beamly.com	SocialTV/2nd Screen app and community **Update - The Australian arm of Beamly, has entered voluntary administration in August 2015.** **Update – Cosmetics company Coty acquired Beamly 21 October 2015 to market to "provide enhanced *digital marketing campaigns"***
Beetv	Beetv.me	Social TV recommendation engine
Bipop	Bipop.it	Community platform and marketing tools
Blinkbox	Blinkbox.com	UK based online service for video, music and books
Bluefin Labs	BluefinLabs.com	Social TV data and analysis **Update – Acquired by Twitter**
BridgeMediatech	BridgeMediatech.com	2nd Screen platform
BuddyTV	BuddyTV.com	Social programme guide and community
Chatterbox	Chatterbox.mobi	2nd Screen app in Asia
Civolution/**Nexguard.com/**	Civolution.com/**Nexguard.com/**	Automatic content recognition and management. **Update - Civolution sold its expertise, technologies, solutions and its extensive TV monitoring infrastructure in July 2015 and will focus entirely on content protection through its NexGuard forensic watermarking**

		business.
Clicker (CBS) now **TV.com**	Clicker.com now renamed '**Tv.com'**	**Social program guide and community. Update – Acquired and operated by CBS Interactive**
ClipSync	ClipSync.com	Social TV conversation and sharing platform **Update – Closed down.**
ComparTeVe	ComparTeVe.com	2nd Screen platform **Update – Closed down.**
ConnecTV	ConnecTV.com	2nd Screen platform **Update – Closed down.**
Couchfunk	CouchFunk.de	TV check-in app and 2nd Screen community
Cover It Live	CoverItLive.com	Real-time social conversations platform
Crimson Hexagon	CrimsonHexagon.com	Social Media data and analysis
Dijit	Dijit.com	Social programme guide and universal remote **Update – Closed down.**
Echo	AboutEcho.com	Real-time social conversations platform **Update – Closed down.**
ExMachina	Exmachinagroup.tv	Social TV & game platform and app
Facebook	Facebook.com	Social network and platform
Fanhattan	Fanhattan.com	Social programme guide for TV and movies
Fans.tv	Fans.tv	Social TV programme guide and conversations platform **Update – Closed down.**
Fanatix	Fanatix.com	Social messaging platform for sports fans **Update – Allows users to create news snippets to share and engage with.**
Fantuition	Fantuition.com	Social prediction game for reality TV and sports **Update – Closed down.**
Fav.tv **(TVGuide)**	**TVGuide.com**	Social programme guide – **Update – Closed - folded into TVGuide**
Function X	FunctionXinc.com	Social TV loyalty platform (parent Viggle and Loyalize) **Update – Closed down.**
GetGlue (Formerly i.TV)	GetGlue.com	TV check-in app and 2nd Screen community **Update – Closed down in December 2014 (See Telfie.com)**
Gracenote	Gracenote.com	Entertainment media & management technology
HyperTV	HyperTVX.com	2nd Screen platform
HMS Media Solutions		German provider of fully integrated end-to-end solution for live TV, video-on-demand (VOD) and community interaction.
Hulu	Hulu.com	Online video service
iBubblr	iBubblr.com	Conversation and curation platform
Insticator	Insticator.com	Social TV prediction platform
i.TV	i.tv.com	2nd Screen platform **Update – Closed down.**
IntoNow	IntoNow.com	2nd Screen app and community

		Update – Closed down - technology acquired for Yahoo Smart TV and the Loops feature in the Yahoo Sports iOS7 app.
Ipowow	ipowow.com	2nd Screen and participation TV.
Ixonos	ixonos.com	Technology company creating 2nd Screen and mobile apps
Jinni	Jinni.com	Semantic taste & mood discovery engine
Joiz Global	**Joizglobal.com**	**New Entrant - Advertising platform offering targeted ads across multiple devices using user viewing data/habits etc. Also offering rewards for consumer interaction.**
Kwarter		SocialTV and mobile games developer
Leankr	Leankr.com	2nd Screen platform
LiveScreens	Livescreens.tv	2nd Screen and social TV platform **Update – Website is static and last updated in September 2015**
Loyalize	Loyalize.com	2nd Screen loyalty platform **Update – Closed down.**
Matcha	Matcha.tv	Social programme guide and community **Update – Closed down.**
Mass Relevance – now Spredfast	MassRelevance.com –now Spredfast.com/	Social curation and integration platform **Update – Closed down - redirects to Spredfast.com – specialising in social marketing**
Miso – now **Viggle/**	GoMiso.com – now **Get.viggle.com/**	TV check-in app and 2nd Screen platform **Update – Acquired by Dijit Media and rebranded as Viggle**
Mobivivo	Mobivivo.com	2nd Screen and social TV platform **Update – Closed down. Brand name for sale.**
Mufin	Mufin.com	Automatic content recognition
Networked Insights	NetworkedInsights.com	Social TV data analysis and media planning
Monterosa	Monterosa.co.uk	2nd Screen platform for games, Social Media and TV.
Netflix	Netflix.com	US based online video service, serving
Never.no	Never.no	Social TV and 2nd Screen platform
Numote	Numote.com	2nd Screen platform
OneTwoSee	OneTwoSee.com	2nd Screen platform
OneUp Games	1up.me	2nd Screen gaming apps for sports
Peel	Peel.com	2nd Screen platform and universal remote
Philo (LocalResponse)	PlayPhilo.com	TV check-in app (folded into LocalResponse)
Piksel (Kit Digital)	Piksel.com	Video asset management and social video platform
PlayUp	iPlayup.com	2nd Screen sports experience with live hangouts
Pluk	Pluk.co.nz	Content recognition and rewards app **Update – Closed down.**

PrePlay Sports	PrePlaySports.com	Predictive gaming platform that ties to live TV
RedBee Media	RedBeeMedia.com	2nd Screen app and multi-platform distribution developer **Update – Acquired by Ericsson in May 2014 and rebranded on June 2015 as Ericsson Broadcast and Media Services (EBMS)**
Rovi	Rovi.com	Metadata, recommendation, analytics, advertising solutions
Samba TV (Flingo)	Samba.tv/- (formerly Flingo.t)	Social TV app platform for smart TVs **Update - Samba TV acquires Filmaster, boosting its capabilities in Artificial Intelligence, Content Recommendations and Marketing Automation**
ScribbleLive	ScribbleLive.com	Real-time social conversation platform
ScreenTribe	ScreenTribe.com	Social TV community and loyalty program **Update – Closed down.**
SecondSync	Bought by Twitter	Social TV data and analysis (UK)
Seevibes	Seevibes.com	Social TV Insights company
Showcaster	Showcaster.com	Social live video provider for web and devices **Update – Closed down.**
Sidecastr	Sidecastr.com	2nd Screen app and community
Simulmedia	Simulmedia.com	Real-time TV viewing data and ad targeting
SocialGuide	SocialGuide.com	Social TV data, analysis and programme guide **Update – Closed down - URL redirects to Nielsensocial.com.**
Social Samba	SocialSamba.com	Social storytelling platform for fan fiction **Update – Closed down.**
Sofanatics	Sofanatics.com	2nd Screen service for sports fans
SnappyTV	SnappyTV.com	Real-time social sharing service for video **Update – Acquired by Twitter June 2014.**
Squrl	Squrl.com	Social video discovery app **Update – Closed down.**
StatsForce.TV	StatsForce.tv	Social TV data and analysis **Update – Closed down.**
Tapcast	Tapcast.tv	2nd Screen platform
Telescope	Telescope.tv	Audience interaction platform
Telfie	**Telfie.com/**	**Update – GetGlue closed down and was acquired by the Dutch Company Voice of TV and will be launching in late 2015/2016 for Web, iOS, Android & Windows Phone.**
Tellybug	Tellybug.com	2nd Screen platform
Tivin	Tivin.it	2nd Screen platform
Tomorrowish	Tomorrowish.com	Social Media integration and time-delayed playback

Trendrr	Trendrr.tv	Social TV data and analysis **Update – Closed down.**
TunedIn	GetTuned.in	Social programme guide and 2nd Screen app **Update – Closed down.**
Tunerfish (Comcast)	Tunerfish.com	TV check-in app and community
TVBuzz	TVBuzz.nl	Social programming guide (owned by UPC)
TVCheck	Orange.com	TV check-in app owned by Orange (France Telecom) (Closed 2014)
TV Dinner	TV-Dinner.com	2nd Screen social gaming app **Update – Social interaction platform allowing users to interact with other viewers through their 2nd Screen.**
TVGuide	TVGuide.com	Social programming guide and community
TVPlus	TVPlus.com	2nd Screen platform
TVSync	TVSync.com	2nd Screen, SmartTV, app developer **Update – Closed down.**
TVTak – now **Idscreen.tv**	TVTak.com/ **Idscreen.tv/**	Automatic content recognition **Update – Closed down – redirects to iDscreen – TV content recognition, attribution monitoring and analysis. Owned by Nantworks**
Tweek.tv	Tweek.tv	Social programme guide
TweetTV	TweetTV.com	Social programme guide and community
Twitter	Twitter.com	Social network and platform
Two-Screen	two-screen.tv	2nd Screen app developer
Umami	Umami.com	2nd Screen platform (closed down)
Viggle	Viggle.com	2nd Screen loyalty app (owned by Function X)
Viki	Viki.com	Social TV translation app
Visiware	Visiware.com	2nd Screen platform and tools
Watchitoo) – **now Newrow**	Watchitoo.com - **Newrow.com/**	Social live video streaming and chat **Update – Closed down – redirects to Newrow.com which works in area of education, events and training. Clients include Yale University for off-campus interaction and engagement.**
Watchwith	Watchwith.com	Advanced TV/2nd Screen platform
Wayin	Wayin.com	Social curation, data measurement
Xbox	Xbox.com	Living room entertainment hub and community
Yap.TV	Yap.tv	2nd Screen platform and social programme guide
YouNow	YouNow.com	Social TV video network
YouToo	YouToo.com	Live reality TV network **Update – Encourages viewer interaction through personal social media accounts.**
Vidpresso	Vidpresso.com	On-air Social Media curation tool

Annex B. Sources of M&E Industry Reports

New sources added since October 2014 are highlighted in bold.

Sources of Research White Papers	Subscription Source	LinkedIn Groups
2nd Screen Society	2nd Screen Today	British Retail Consortium
Accenture	Advanced -Television.com	CDN Industry
Akamai	Bookbrunch	Copyright Protection for Media
Alliance For Intellectual Property	CEA Smartbrief	Digital Media
Beenius	CUE Entertainment	Digital Media: Video Content
Civolution	Digital Content Smartbrief	Digital Music Professionals
comScore	Digital Media	Digital TV Professionals
Deloitte	DTVE Daily	Dublin Core Metadata
Digitalsmiths	EContent Magazine	Ebooks, Ebook Readers
Digital TV Group	eMarketer	Entertainment Industry
Digital TV Europe	Entertainment Matters	Film Industry Network
Entertainment Merchants Association (ERA)	ET Centric	HbbTV
EC DG Communications Network	Fierce Big Data	Home Entertainment
Ernst&Young (EY)	Fierce Cable	Intellectual Property Professionals
Forester Research	Fierce CIO	IPTV
Futurescape	Fierce Mobile IT	Mobile Content
FutureSource Consulting	Fierce Online Video	Mobile Entertainment
Gartner Research	Fierce Wireless	Music & Copyright
GfK International	Frank N Magid Associates	Music & Entertainment PROs
HbbTV	Home Media Magazine	Music Industry Forum
IHS	Internet Retailing	Over The Top Video
Informa Telecoms & Media	Just Digital	TV Connect London
International Video Federation	M&E Daily	VOD Content
Jinni	M&E Europe	VOD and Media Professionals
Kantar WorldPanel	MusicBiz	
KPMG	Music Week	
MESA	Park Associates	
MusicBiz	Paste	
NeoTechnology	Rapid TV News	
Neustar Aggregate Knowledge	The Raygun	
Nielsen	Social Business	
Parks Associates	Streaming Media	
PwC	Tech Cocktail	
Tata Consultancy Services	TFM&A Insights	
UK Film Council	Unlimited Media	
UK Government: IP Report 01/09/14	Useful Social Media	
Watchwith	The Wrap	
YuMe-Gracenote	**CTA SmartBrief**	
Zenterio	**Digital Trends**	
Conviva	**LinkedIn Pulse**	
	Mediatel	
	Newscred	
	TV[R]EV	

Annex C: 2nd Screen and Social TV-Related Companies Similar to SAM

This table provides the updated status of the 2nd Screen and Social TV related companies deemed to be similar to SAM in October 2014 and it highlights the company developments and any closures, which have occurred since October 2014.

Company	Website	2 Screen Product
BridgeMediatech	BridgeMediatech.com	Based in Spain, the 2nd Screen platform provides contextualised communication to viewers, including advertising based on their viewing habits. **Update – Now using audio-recognition software to sync screens.**
ConnecTV	ConnecTV.com	US-based 2nd Screen platform which allows users to share TV clips and comments with other app users and send to their preferred social networks. **Update – Closed down - Webpage unavailable.**
Contentwise	Contentwise.tv	**Update – Continues to develop services. Content personalisation system offering recommendations and predictive browsing for broadcast, cable, satellite, IPTV, OTT and video streaming companies, improving user engagement and monetisation. Uses third party data to create an information-rich experience for users. Data is pulled from TMS, Rovi, IMDB, Wikipedia, and social media websites like Facebook and Twitter.**
Couchfunk	CouchFunk.de	TV check-in app and 2nd Screen community based in Germany which provides additional content, advertising and ways of measuring a brand's performance based on user interaction with their social TV platforms. **Update – Uses a combination of web, TV, social media and Couchfunk produced content to create a one-stop shop for users to discover the most relevant content for them also to directly watch live TV channels on their mobile devices.**
Cover It Live	CoverItLive.com	Real-time social conversations platform which provide solutions for consolidating social and multimedia content related to any live event in a single interface. **Update – Focus is on live chat and blogging for a variety of live events including sport, award shows and premieres, product launches and Q&A events with manufacturers and designers.**
Echo	AboutEcho.com	Real-time social conversations platform which provide solutions for consolidating social and multimedia content related to any live event in a single interface that can be accessed across multiple devices. **Update – Closed down - Webpage expired.**
ExMachina	Exmachinagroup.tv	Social TV & game platform and app. ExMachina provide 2nd Screen-enabled devices which supply relevant content and allow users to interact with it on any smart device **Update - Delivered through their PlayToTV platform.**

Fan TV (formerly Fanhattan)	Fan.tv	US-based Social programme guide for TV and movies began as an iOS app to which provide, a unified discovery experience around live, VOD and streaming allowing users to interact, find out what's trending, make recommendations, compile watch lists etc. **Update - Fanhattan rebranded as Fan TV and created a new device with touch remote to bring the service to the TV screen.**
Horizon Go (formerly TVBuzz)	TVBuzz.nl/horizon.tv	Netherlands-based social programming guide (owned by UPC) offering users the ability to watch a selection of channels over any connected device (smartphones, tablets, TV). **Update – Not available in UK. Currently Ireland only. Is accessible with a Virgin Media account. Integrated apps accessible through TV and other screens including YouTube, Facebook and Wikitrivia. The platform also includes news, weather and traffic apps.**
HyperTV	HyperTVX.com	2nd Screen platform which has contextual awareness of the user environment (location, time of day etc.) and uses that information to provide a personalised experience (targeted offers, advertising etc.) within the app. **Update – Launching HyperTV4, Connected Stories on November 4 2015**
iBubblr	iBubblr.com	Social conversation and curation platform providing interaction with friends about TV programming. **Update – Site still available but appears that the platform isn't up and running and states "Join us in 2013"**
Insticator	Insticator.com	Social TV prediction platform that allows users to interact and gain points through polls quizzes etc. and redeem them for awards. Users are given the opportunity to distinguish themselves from other viewers through their engagement. **Update – Allows brands to boost revenue and engagement through their sites by using the Insticator advertising tool.**
i.TV	i.TV	Acquired GetGlue and rebranded as tvtag powering 2nd Screen & social TV experiences for major brands. **Update – Closed down in December 2014**
KienVe (formerly ComparTeVe)	Kienve.com	Based in Uruguay, the KienVe 2nd Screen platform allows viewers to become involved in a real-time social network while watching their favourite shows. Uses sound-recognition software to synchronise with what is shown on the first screen. **Update – Closed down - Domain name for sale. Ceased trading.**
Leankr	Leankr.com	Based in France, Leankr's platform offers 2nd Screen content from third party sources including web, videos, editorial content, Social Media and using context matching algorithms, based on semantic analysis of keywords detected on MYTF1 TV broadcasts. **Update – no new press stories since October 2014 and last company Tweet dated March 31 2015**

LiveScreens	Livescreens.tv	2nd Screen platform which allows broadcasters ways to create, edit and share content in real-time over multiple screens with consumers engaging with programming, allowing for targeted and current advertising, commercial messages etc. **Update – The website is 'static' with no contact information.**
Viggle (Formerly Miso)	**Get.viggle.com** (Formerly GoMiso.com)	TV check-in app and 2nd Screen platform allowing users to interact with other viewers in real-time while engaging with TV content. App links to third party apps or sites where the viewer can access music tracks, cast info, quotes, trivia etc. **Update – Now offering rewards to consumers through their own Vigglestore, allowing points to be redeemed for TV, Film, Music etc.**
Monterosa	Monterosa.co.uk	2nd Screen platform for games, Social Media and TV providing solutions to brands looking to engage their audience in real-time, as they access exclusive promotions, games etc. Responsible for the successful 'Million Pound Drop' play along app. **Update – Now utilising their LViS platform to incorporate real-time tailored interaction with brands over consumer's social feeds and connecting traditional media with mobile. Have recently secured £1.2 million in investor funding and the opportunity to develop 2nd Screen app for 'Dancing With the Stars'.**
Story. (by Never.no)	Never.no	Social TV and 2nd Screen platform providing solutions to brands looking to integrate online social commentary and viewer contributions into live programming.
Numote	Numote.com	2nd Screen platform which allows TV networks and content providers to increase audience engagement. They also provide analytical reports of audience viewing habits, demographic etc. to gain better understanding of the brand's reach. **Update – Closed down. Webpage unavailable, ceased trading.**
OneTwoSee	OneTwoSee.com	US-based sports-centred 2nd Screen platform which aims to engage audiences over multiple screens, providing commentary, analytics, statistics, scores etc.
Peel	Peel.com	2nd Screen platform and universal remote control, available worldwide, which allows users to turn their 2nd Screen into a remote that can be used to control and interact with TV programming as well as engage with other viewers, receive personalised recommendations etc.
ScribbleLive	ScribbleLive.com	Real-time social conversation and end-to-end content engagement platform which allows brands to build relationships with their consumers through the creation of engaging content.
Showcaster	Showcaster.com	Social live video provider for web and devices, allowing broadcasters the opportunity to stream live events and curate Social Media related to them and enhance the experience of the viewer.

		Update – Closed down, webpage unavailable. Ceased trading.
Sidecastr	Sidecastr.com	2nd Screen companion app and community that synchronises in real-time through audio-recognition software to make sure the viewer only receives information about the scene they are watching. **Update – Closed down, webpage unavailable. Ceased trading.**
Sofanatics	Sofanatics.com	2nd Screen service for sports fans which provides 'virtual stadiums' for sport fans to meet and share their views on the events in real-time. **Update – Closed down, webpage unavailable. Ceased trading.**
Spredfast (formerly Mass Relevance)	Spredfast.com	US-based social curation and integration platform with offices offering brands a solution for engaging audiences through digital advertising and marketing and strengthening the relationship between consumer and brand. **Update – Have acquired 'Shoutlet', a similar social marketing platform.**
Tellybug	Tellybug.com	Award-winning 2nd Screen platform providing companion apps that encourage viewer participation in TV programming. Through votes, polls and play along features the viewer is able to contribute to the shows as data is then fed through to show producers etc. Tellybug produced apps for X Factor, The Voice, and Britain's Got Talent. **Update – Have won awards for their apps for The Voice and the X Factor.**
Thismoment	Thismoment.com	Social marketing platform which allows brands to curate all user-generated Social Media posts related to their products and create targeted media to be shared around the web. Has raised more than $50 million so far working with companies such as Levi's, Coca-Cola, Kia and Gillette.
Tivin	Tivin.it	Based in Italy, their 2nd Screen platform and apps provide interactive synchronised (through audio-recognition) services for TV programming **Update - New features include live events and targeted advertising. Through the 2nd Screen users are also able to access additional cameras for sports events.**
Seeit (Formerly Tunerfish) (Comcast)	See.it (Formerly Tunerfish.com)	Social TV check-in app and community providing a social discovery engine for TV, VOD and movies. Users can share what they are watching, discover new content and earn awards. **Update – Now allows users to link their TV provider accounts to gain instant access to OD content and link schedules.**

TVPlus	TVPlus.com	US-based social TV and 2nd Screen platform which delivers synchronised content experiences to TV programming. Can also deliver scene-by-scene time-based metadata relating to characters, music, products etc.
tvtag	Tvtag.com	tvtag was a social networking website and mobile app for television fans powering 2nd Screen & social TV experiences for major broadcasters and brands. **Update – Closed down in December 2014, despite VC investment of over $25 million.**
TVTak/iDTV)	Idscreen.tv (formerly TVTak.com)	Automatic content recognition app which allows users to point their smart device at the 1st screen and, through video-recognition software, receive offers to shop, bet and engage with polls etc. on their 2nd Screen-enabled device. **Update –Closed down – redirects to iDscreen – TV content recognition, attribution monitoring and analysis. Owned by Nantworks**
TweetTV	TweetTV.com	Social programme guide and community which shows current 'trending' shows/content, allowing the viewer to become engaged with the web-based conversation around TV programming. **Update – Closed down, webpage unavailable. Ceased trading.**
Visiware	Visiware.com	2nd Screen platform and tools providing solutions to TV networks looking to exploit the increasing use of 2nd Screen companion apps and engage viewers. **Update – Focus has moved on to casual interactive TV games available on multiple platforms.**
Watchwith	Watchwith.com	US-based advanced TV/2nd Screen platform which delivers timed content to viewers' devices that include advertising, bonus content, backstories, flashbacks etc. **Update – Focus has moved to advertising and delivering contextually-intelligent targeted ads.**
Yap.TV	Yap.tv	US-based 2nd Screen platform and social program guide. **Update – Closed down and now trading as Yap studios creating 2nd Screen apps.**
YouNow	YouNow.com	Social TV video network which allows users to explore chat rooms and live streams by topic. **Update – Now allows users live experience of broadcasting, gaming, performing and social networking, and create new kinds of interactive content in real-time. It raised $15 million in new funding in October 2015 and has now collected $30 million altogether from investors since 2013.**