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# An Investigation into the Impact of E-commerce, M-commerce and Modern Technology on the Translation Industry in South Africa

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## Abstract

This study sought to investigate how translators are using modern technological tools to enhance their business and the impact of E-commerce and M-commerce has on their work. The research method used was quantitative using a self-administered questionnaire which was generated online via Survey Monkey. The participant sample consisted of SATI members. The major findings of the study were that translators are increasingly using E-commerce and M-commerce to enhance their business and have customers both locally and overseas. Translators have been using new forms of communication for more than five years: most have not personally met their clients, even those based in South Africa, indicative of the prevalence of E-commerce and M-commerce. The mobile phone has enhanced the availability of translators: they have become mobile professionals, not confined by traditional geographical boundaries: they interact with clients at any time and are able to create work spaces anywhere. The study concluded with a set of recommendations to SATI and its members on the use of technological tools to enhance their business. It also provided the translation industry with insight into the current status of the industry and the need to invest in appropriate tools to keep up with modern translation business trends.

**Keywords:** E-commerce, CAT tools, M-commerce, machine translation, work spaces

## 1. Background

With eleven official languages, South Africa has always had a vibrant translation industry. Recently an official language policy was developed stating that government documents must be available in all these languages and, if not feasible, in at least six of them (Pan South African Language Board, 2011:5).

With the inclusion of South Africa in BRIC countries (Brazil, Russia, India and China), the demand for translation will increase (Kelly, DePalma & Hegde, 2012a:29). In another study, Kelly and DePalma (2012b:6) found that in 2012, the global translation industry was worth USD 33,523 billion and has an annual growth rate of 12.17%. Kelly et al. (2012a:1) state that currently Africa accounts for 0.26% of the global market share of language services, with the majority owned by South Africa.

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**Table 1 Language Services Market Share and Annual Growth by Region**

| Region | Market Share | 2011 US$ M | 2012 US$ M | 2013 US$ M | 2014 US$ M | 2015 US$ M |
|---|---|---|---|---|---|---|
| Africa | 0.27% | 81 | 91 | 102 | 114 | 128 |
| Asia | 12.88% | 3,849 | 4,318 | 4,843 | 5,433 | 6,094 |
| Europe | 49.38% | 14,757 | 16,553 | 18,569 | 20,830 | 23,365 |
| Europe - Eastern | 4.39% | 1,312 | 1,472 | 1,651 | 1,852 | 2,077 |
| Europe - Northern | 18.86% | 5,636 | 6,322 | 7,092 | 7,956 | 8,924 |
| Europe - Southern | 3.44% | 1,028 | 1,153 | 1,294 | 1,451 | 1,628 |
| Europe - Western | 22.69% | 6,781 | 7,606 | 8,532 | 9,571 | 10,736 |
| Latin America | 0.63% | 188 | 211 | 237 | 266 | 298 |
| North America | 34.85% | 10,415 | 11,683 | 13,105 | 14,700 | 16,490 |
| Oceania | 2.00% | 598 | 670 | 752 | 844 | 946 |
| TOTALS | 100.00% | 29,885 | 33,523 | 37,604 | 42,182 | 47,317 |

**Source:** Kelly and DePalma, 2012b:7

Citing the International Monetary Fund, Kelly et al. (2012a:29) state that up to 61% of global growth will be provided by BRICS over the next few years, signifying new business opportunities for South Africa and international businesses wishing to expand to South Africa, thus increasing the need for translation services. Kelly et al. (2012a:34) assert that the demand for translation services in Africa will be outstripped by supply. This requires the use of technology to keep up with demand (Kelly and DePalma, 2012b:1). The main problem for South African translators is how to keep up with demand which, with the growth of BRICS, will increasingly place a strain on the industry's capacity to deliver. With globalisation, there is the danger of foreign translators penetrating the local industry, as they are accustomed to using E-commerce, M-commerce and technology tools to enhance their competitiveness. Technology is increasingly becoming part of the translation industry and the use of Computer Aided Translation (CAT) tools has become standard. The challenge for South African translators is to adopt business strategies to remain competitive in an environment that is increasingly becoming technology driven.
The overall aim of the study was to evaluate the impact of technology on the translation industry in South Africa, notably members of the South African Translators Institute (SATI), a body founded in 1956 to support the development of the translation industry (SATI website, 2015).
The following were the research questions for the study:

- What has been the impact of modern technologies on the work systems of translators (members of SATI)?
- How have online, E-commerce and M-commerce tools used by translators impacted on their visibility and availability?
- Which guidelines can be provided for the use of various modern technologies for translators based in South Africa who are members of SATI?

The results of the study led to a set of conclusions with recommendations on measures for the adoption of technology innovations, aimed at supporting the progress of South Africa's translation industry in tapping the international market and maintaining the country's status as the top translation service provider in Africa.

## 2. Literature Review

### 2.1 Some Translation Key Concepts

Translation is defined as a process of transforming a text in one language into another language, ensuring that the meaning and original intent of the author are kept the same (Sokolovsky, 2010:286). There are two types of translation: human and, more recently, machine translation (MT), which has taken new prominence in the world of business and is essentially different from the human, intellectual translation process, consisting of "rule and lexicon-based replacement" (Austermühl, 2011:3). MT is most efficient when there is greater access to various types of terminologies, terms databases and translation memories (Austermühl, 2011:16), which helps enhance the "find and replace" functions essential to Computer Aided Translation (CAT) software.

MT has evolved considerably since the introduction of computers – one of the first texts ever translated was from English to Russian: "The spirit is willing but the flesh is weak". When translated back into English, it read "the vodka is good but the meat is rotten". This led to MT being rejected as a solution to aid translators, with the

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common understanding amongst translators that machines do not understand idioms (Hutchins, 1995:17). However, in recent years MT has developed such that it is an accepted new way of enhancing the speed and accuracy of translation, evolving into what are now known as CAT tools. According to Austermühl (2011:18), modern translation requires the use of CAT solutions, such as SDL Trados (Trados website) and Wordfast (Wordfast website).

Kakihara and Sørensen (2004:180) refer to the emergence of a new form of worker, the mobile professional, who utilises information technology in their daily work practices. They further highlight three significant aspects of mobility regarding mobile professionals: locational, operational and interactional (Kakihara & Sørensen, 2004:181). Locational mobility refers to the ability of the professional to move around extensively between various geographical locations, operational mobility refers to the ability to operate flexibility as independent business units, while interactional mobility refers to the intense, fluid interaction of such professionals with a wide number of people (Kakihara & Sørensen, 2004:184). In the study conducted by Kakihara and Sørensen, varying degrees of mobility were discovered among three types of professionals: a town planning consultant, a freelance CG designer and a software entrepreneur and found that they had varying degrees of mobility in these aspects. Table 2 below shows the results of their study:

**Table 2 Mobility of Three Types of Mobile Professionals**

| | Locational mobility | Operational mobility | Interactional mobility |
|---|---|---|---|
| A: Town planning consultant | ++ | + | + |
| B: Freelance CG designer | | ++ | + |
| C: Software entrepreneur | + | | ++ |

Notes: + implies a moderate degree of mobility; ++ implies a high degree of mobility

**Source:** Kakihara and Sørensen, 2004:184

Mobility is defined as the potential of a person to move freely without being affected by the boundaries of space and time, whilst simultaneously utilising a mobile device (Cousins & Robey, 2015:38). Cousins and Robey (2015:38) refer to how mobile workers can take advantage of mobile technology, for instance, travelling to meet with customers and utilising characteristically unconventional work spaces to engage with customers, such as coffee shops. Whilst using this type of technology, a mobile worker reconceptualises the space around them, referred to as "place making", which is defined as the utilisation, management and manipulation of physical space to support activities in relation to mobile computing (Brown & O'Hara 2003, cited in Cousins & Robey, 2015:38). Time management in relation to mobile work can generally be adapted to the needs of the individual, based on the technology in use (Nansen et al. 2010, cited in Cousins & Robey, 2015:39).

Continuity is an important aspect of the work of the mobile professional, with information and communication technologies (ICTs) playing a strong role in boosting their mobility by providing stable access to communications and thus achieving locational as well as interactional mobility (Kakihara & Sørensen, 2004:185). Combining the utilisation of a mobile phone that provides access to the internet and email facilities helps enhance the ability of the mobile professional to manage interactions efficiently (Kakihara & Sørensen, 2004:185). The mobile professional furthermore needs to be in contact with and have appropriate personal networks in order to enhance his/her work practices, as these practices transcend boundaries affecting teams, groups and organisations (Kakihara & Sørensen, 2004:186).

## 2.1 E-Commerce and M-Commerce Technology

E-commerce originated in 1995 when one of the first web portals in existence, Netscape.com, started accepting advertisements from companies, thus introducing the concept of the use of the internet for marketing and transactions, thus transcending organisational and individual boundaries in order to carry out commerce (Laudon and Laudon, 2012:373).

M-commerce is another form of E-commerce and refers to the realisation of transactions using various cellphones and hand-held devices (Niranjanamurthy, Kavyashree, Jagannath & Dharmendra Chahar, 2013:2360). The drivers of M-commerce are the availability of increasingly powerful mobile devices, a mobile workforce, a culture of using handsets, improved performance and price, and greater bandwidth (Niranjanamurthy et al., 2013:2361).

A study describes the two main features of M-commerce as mobility and reachability, with greater freedom to carry out various business tasks without being limited by issues such as time and location (Liang 2002, cited in Liang et al., 2007:1155). The economic value of M-commerce is far greater than that of E-commerce, with economic value

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derived from these aspects: personalisation, ubiquity, instant connectivity, convenience and the localisation of products/services (Liang et al., 2007:1155).
Niranjanamurthy et al. (2013:2368) identify the following M-commerce services and applications: the purchase and delivery of content, mobile banking, information services, mobile marketing. Niranjanamurthy et al. (2013:2363) identify the following advantages of M-commerce and E-commerce: cost, reach, pricing, reduced order time, connectivity. The disadvantages are: constraints with the technology available in mobile devices, such as processing power and display, connectivity issues, limited bandwidth and security (Niranjanamurthy et al., 2013:2363).
In order to develop the reach of small business and aid timeous decision-making, Zhang and Fjermestad (2008:179) highlight the importance of developing strategies for the management of communications technologies. Small businesses are generally constrained when it comes to resources, thus internet-based communication technologies are ideal platforms for communications (Zhang & Fjermestad, 2008:180). The utilisation of technology is therefore important for translators, who need to do all their marketing, business transactions and work on their own, essentially operating as a one-man show.

## 3. Research Methodology

The foundational theory behind the research was based on the mobile professional and their use of M-commerce and E-commerce, in accordance with the literature review. The research thus consisted of collecting data, conducting a statistical analysis and interpreting the data obtained in order to establish if the said causal relationship existed. The method utilised to collect the data was a survey questionnaire conducted with a sample of the population, consisting of the members of the South African Translators Institute, which has 600 members in South Africa. This was the target population of the study and the data collected was analysed with the use of inferential statistics.

### 3.1 Sampling Strategy

A pilot study was conducted with 10 targeted translation agencies representing 10% of the sample for the main study, after which the questions were refined. The study used simple random sampling; the sampling frame consisted of SATI members, being 100. With a potential of at least 233 respondents being accredited members, the sample size with a 5% margin of error would be approximately 132 participants. This study used a sample number of 100 participants. The main data collection instrument consisted of an internet-mediated questionnaire conducted via Survey Monkey, which was sent to the sample population and consisted of closed-ended questions.

**Table 3 Summary of Main Study Questions**

| Section | Description of questions |
|---|---|
| Section A | General demographic data: age, gender, educational level and work status (freelancer or translation agency representative) |
| Section B | Communication methods used by freelancers |
| Section C | Participation of freelancers in online fora |
| Section D | Use of Computer-Assisted Translation (CAT Tools) |
| Section E | Geographical location of clients |
| Section F | Use of E-commerce Tools |
| Section G | Use of M-commerce Tools |

### 3.2 Data Analysis

The data was measured utilising the Likert scale. Correlation coefficients were used to identify the strength of relationships existing between the variables in the study. Statistics were presented in the form of tables, graphs and bar charts for the display of the analysis as well as sets of frequency tables. Frequency tables were developed on each question, with bar graphs presented as appropriate. Furthermore, cross-tabulation was carried out between the variable aspects, such as age, educational level, work status and years of experience.

Test statistics were calculated for each question, which included Chi-square, correlations and ANOVA. The Cronbach's alpha coefficient was calculated in relation to each question and each section of the questionnaire, in order to obtain an indication of reliability in statistical terms.

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Where the reliability coefficient was found to exceed 0.70, this was considered as an indication of a high level of internal consistency as well as stability of the respondents. If the p-value was found to be less than or equal to the statistical significance level at 5%, with the relevant Chi-square value, the response was considered to be statistically significant and thus did not occur by chance. With the 95% confidence interval utilising ANOVA, Chi-square values, p values and degrees of freedom, the general perception of the use of technology was concluded as being the same by the various groups involved in the study.

## 4. Results and Discussion

The main objective of the study was to identify the impact of modern technology such as E-commerce, M-commerce, software and online tools, on the work of freelance translators in the translation industry in South Africa, with focus on the members of SATI. The literature available on M-commerce, E-commerce and generally the work of translators points to the existence of a new body of worker: the mobile worker, one who works from any location, and can adapt any location for use according to his/her work needs, whilst responding to requests from clients in different locations.

A questionnaire consisting of seven sections with a total of 48 questions was generated via Survey Monkey and then sent out to SATI members, aiming for a sample size of 100 participants for the purposes of the study. SATI's email list was used to distribute the questionnaire. The advantage of using SATI's mailing list was that a higher response rate could be received and the target population could be accessed easily. A total of 88 responses were received out of a target of 100, representing a response rate of 88%.

Non-parametric correlations such as Spearman's Rho and Kruskal-Wallis (non-parametric equivalent of ANOVA) were used. Tests of normality were conducted on the specific research questions of the study, with the results indicated in the collapsed table below:

**Table 4Tests of Normality on Research Questions**

**Tests of Normality**

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| E-commerce_COLLAPSED | .080 | 88 | .200* | .987 | 88 | .512 |
| Visibility_COLLAPSED | .115 | 88 | .006 | .984 | 88 | .360 |
| Availability_COLLAPSED | .104 | 88 | .020 | .979 | 88 | .160 |
| Online_tools_COLLAPSED | .095 | 88 | .047 | .976 | 88 | .106 |
| M-commerce_COLLAPSED | .205 | 88 | .000 | .884 | 88 | .000 |

The key elements of the research questions indicated roughly normal significance, with the exception of M-commerce.

The reliability statistics utilised indicated an overall Cronbach's Alpha coefficient of .905, with N = 43. This indicated that the overall instrument was reliable, since Cronbach's Alpha was > 0.7.

The reliability statistics of the research questions were as follows:

- Research question 1 was found to be measured reliably, with the Cronbach's Alpha being > 0.7 ($\alpha = 0.796$, n = 15).
- Research Question 2 was found to be measured reliably, with the Cronbach's Alpha being > 0.7 ($\alpha = 0.856$, n = 28).

The questions falling under Research Question 2 were as follows:

The data was described using median, skewness and kurtosis distributions. Section A of the survey was on general demographic data and the results are summarised below:

- The median age was 55-64 years (N=88). A UK study found that one-fifth of freelancers are over the age of 60 years (Kitching & Smallbone, 2011:4).
- The majority of respondents (about two-thirds) were female. Although Kitching and Smallbone (2011:18) state that six out of ten UK freelance workers tend to be male, this largely depends on the industry in question – for instance, 90% of engineering professionals working as freelancers tend to be male, an indication of the fact that the industry is male-dominated. h
- Most of those with postgraduate qualifications (10%) have more than 20 years of experience.

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- There were three types of respondents: full-time translators, part-time translators and translation agency representatives or owners.

In conclusion, general data about the respondents shows that the majority were over the age of 45 years and had at least a post-graduate qualification as well as 10 years of experience.

### 4.1 Research Question 1

Research question one (RQ1) responses were based on the tools used by translators and the results are summarised below:

**Table 5 Responses to Research Question 1**

| Communications with Clients | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| My clients contact me less telephonically than they did five years ago | 42% | 31% | 8% | 14% | 4% |
| My clients contact me via email more than they did five years ago | 51% | 34% | 4% | 8% | 4% |
| My clients contact me via instant messaging tools more than they did five years ago | 11% | 23% | 15% | 41% | 10% |
| My contacts contact me via desktop communication tools (eg. skype) more than they did five years ago | 14% | 12% | 10% | 42% | 22% |
| My clients contact me through online portals (eg. ProZ.com) more than they did five years ago | 3% | 15% | 13% | 33% | 38% |

| Participation in Online Fora | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I am a paying member of online translator job portals (eg. ProZ.com, Translators Café) | 10% | 5% | 1% | 36% | 48% |
| I participate in online translators fora more than I did five years ago | 9% | 21% | 6% | 36% | 28% |
| I regularly contribute to online terms databases more than I did five years ago | 4% | 25% | 6% | 35% | 31% |
| I participate in crowd-sourced jobs more than I did five years ago | 6% | 14% | 5% | 45% | 30% |

| Use of Computer-Assisted Translation (CAT) Tools | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I work with Computer-Assisted Translation (CAT) tools now more than I did five years ago | 23% | 24% | 6% | 27% | 20% |
| I use localisation software more than I did five years ago | 10% | 15% | 19% | 32% | 24% |
| Using CAT tools has improved the quality and quantity of my work output greatly in the past five years | 27% | 15% | 13% | 30% | 15% |
| Using CAT software has increased my ability to get more work in the past five years | 17% | 20% | 18% | 27% | 18% |
| I prefer to update my skills by taking courses on the latest translation technology | 13% | 40% | 15% | 21% | 11% |
| I use online dictionaries and referencing sources more now than I did five years ago | 44% | 48% | 6% | 2% | 0% |
| My university education as a translator did not equip me for the use of technology | 22% | 47% | 11% | 10% | 10% |
| Translator training courses should include a CAT component | 57% | 33% | 10% | 0% | 0% |

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The following correlations were observed in relation to RQ1:

- There is a significant, moderate correlation between telephonic contacts reducing and email use increasing ($r= 0.609$, $N=87$, $p<0.0001$), thus the more translators are using email, the less they are using telephonic contacts to communicate with their clients.
- It was found that there is a significant, moderate, positive correlation between it becoming more important in the past five years to have the latest technology so as to compete effectively on the market, and working with Computer-Assisted Translation (CAT) tools now more than they did five years ago ($0.463$, $N = 86$, $p < 0.0001$). It can be surmised that having the latest technology would signify an increasing tendency to need to work with CAT tools.

### 4.2 Conclusions on Research Question 1

In conclusion, it was generally found that respondents agreed that there had been an increase in contacts via email by clients, while there was a reduction in telephonic contacts.
It can be surmised that whilst in general telephonic contacts have reduced and email contacts have increased, other modern forms of contact such as instant messaging tools, desktop communication tools and online portals are not in use as much amongst translators in South Africa and there has not been an increasing trend in their use.
Although translators did not agree in that the use of localisation and CAT software has had an increasingly significant impact on their work, they did acknowledge the need to update their skills and that they are increasingly using online dictionaries and referencing sources.
They furthermore acknowledged the need to stay up-to-date with the latest developments, using various strategies such as surfing the internet and SATI email postings.
Translators agreed that it is important to have the latest technology in order to compete effectively on the market. Correlations were found between having the latest technology in order to compete effectively on the market and working with CAT tools now more than they did five years ago.
Thus, it can be concluded in response to RQ1 that translators are impacted by technology and use several forms of technology to enhance their work.
As locational, operational and interactional mobile professionals, this is an indication of how technology has impacted their work, not being confined to the usual places of business or specific geographical spaces.
This leads to RQ2 which studies this aspect of the work of translators in more detail.

### 4.3 Research Question 2

Research Question two (RQ2) was on the impact of the use of online, E-commerce and M-commerce tools on the visibility and availability of translators.
The tables below show the results of the questions:

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**Table 6 Responses to Research Question 2**

| Geographical location | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I have customers based in South Africa | 60% | 35% | 0% | 2% | 2% |
| I have customers based overseas | 30% | 39% | 3% | 22% | 6% |
| I have customers based in South Africa and overseas | 39% | 35% | 0% | 19% | 8% |
| I have more customers from outside South Africa than I did five years ago | 23% | 13% | 10% | 45% | 9% |
| I have not personally met most of my clients | 46% | 36% | 0% | 13% | 5% |
| I can create a work space anywhere due to the use of technology, eg. I can work from the car or an internet café | 45% | 42% | 1% | 8% | 8% |

| Use of M-Commerce Tools | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I update my online translator profile using my mobile phone | 6% | 5% | 5% | 63% | 21% |
| I use my mobile phone to check my emails for work purposes now more than I did five years ago | 38% | 39% | 4% | 14% | 5% |
| My mobile phone has become an extension of my office over the past five years | 35% | 34% | 7% | 20% | 4% |
| I often work beyond normal working hours (08:00-17:00) in order to meet deadlines for customers based in other time zones | 39% | 38% | 4% | 13% | 6% |
| My mobile phone helps me to be available 24/7 to my clients | 40% | 39% | 4% | 15% | 2% |

| Use of E-commerce Tools | Strongly agree | Agree | Don't know | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I use online translation tools to speed up my work more than I did five years ago | 20% | 32% | 11% | 30% | 7% |
| Internet speed is more important for my work now than it was five years ago | 46% | 42% | 7% | 5% | 0% |
| I participate in online fora in order to stay up-to-date with the latest developments | 14% | 34% | 12% | 33% | 7% |
| My clients regularly use online revenue models (eg. Paypal, Skrill) more than they did five years ago | 18% | 25% | 21% | 29% | 7% |
| I use cloud technologies for translation memory storage/access more than I did five years ago | 8% | 22% | 15% | 44% | 11% |
| I hardly ever need to print out my work now, it is mostly delivered online or via email | 48% | 38% | 3% | 6% | 5% |
| Five years ago most of my work was presented in printed form | 7% | 23% | 11% | 43% | 16% |
| Five years ago most of my work was presented mostly on flashdisk/CD | 4% | 32% | 11% | 38% | 15% |
| I submit my invoices to clients using online tools more than I did five years ago | 34% | 34% | 5% | 17% | 10% |
| Five years ago, it was not as important as it is now to have an online presence | 37% | 32% | 13% | 12% | 6% |
| I own a website or have several online translator profiles | 18% | 27% | 4% | 35% | 16% |
| I market myself online more than I did five years ago | 23% | 28% | 11% | 28% | 10% |
| I stay up-to-date with the latest developments through SATI email postings | 35% | 48% | 5% | 7% | 5% |
| I stay up-to-date with the latest developments in the translation industry by surfing the internet | 19% | 39% | 11% | 24% | 7% |
| It's become more important in the past five years to have the latest technology so as to compete effectively on the market | 25% | 62% | 4% | 8% | 1% |

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The following correlations were found in relation to RQ2:

- There is a significant, moderate, positive correlation existing between visibility and the use of M-commerce tools (0.418, N=88, p<0.0001), thus, the more M-commerce tools such as mobile phones are in use, the greater the visibility of translators. There is equally a significant, moderate, positive correlation existing between M-commerce and the use of online tools (0.410, N=88, p<0.0001), showing that the more M-commerce tools are in use, the more translators will be likely to use online tools.
- There is a significant, moderate correlation between M-commerce and visibility increasing ($r = 0.418$, $N = 88$, $p < 0.0001$). Visibility relates to the ability to be present and available beyond the normal confines of time and space, and is a significant aspect of the way that mobile professionals work, not being confined by traditional time and space boundaries.
- There is a significant, moderate correlation between online tools being used, and availability increasing ($r = 0.532$, $N = 88$, $p < 0.0001$).
- There is a significant, moderate, positive correlation existing between visibility and the use of M-commerce tools (0.418, N=88, p<0.0001), thus, the more M-commerce tools such as mobile phones are in use, the greater the visibility of translators. M-commerce thus facilitates the visibility of translators to their clients who are able to interact with them in a dynamic format.
- There is a significant, moderate, positive correlation existing between M-commerce and the use of online tools (0.410, N=88, p<0.0001), showing that the more M-commerce tools are in use, the more translators will be likely to use online tools.
- There is a significant, strong, positive correlation existing between E-commerce and the use of online tools (0.776, N=88, p<0.0001), showing that the more translators use online tools, the greater their participation in E-commerce practices. The two are closely related. Thus it can be concluded that translators are increasingly submitting their invoices to clients online.
- There is a significant, moderate to strong, positive correlation between translators marketing themselves online more than they did five years ago, and owning a website or having several online translator profiles ($r = 0.745$, $N = 85$, $p < 0.0001$). This means that as translators increasingly market themselves online, they will start investing in websites or setting up online translator profiles. There is a significant, moderate correlation between E-commerce and visibility increasing ($r = 0.698$, $N = 88$, $p < 0.0001$), thus, the more translators use E-commerce tools, the greater their visibility.
- There is a significant, moderate correlation between E-commerce and availability increasing ($r = 0.505$, $N = 88$, $p < 0.0001$). This is consistent with the literature on the mobile professional, which points to the establishment of new workspaces and greater use of E-commerce tools in order to operate.

### 4.4 Conclusion on Research Question 2

Translators indicated that it is becoming increasingly important to have an online presence and that they are marketing themselves online more. The questions sought to find out the impact of online tools, M-commerce and E-commerce on visibility and availability and it was generally noted that there has been such an impact. Translators are having more customers outside of the country, working beyond normal hours to meet deadlines for other time zones, and generally doing business without necessarily having face-to-face contacts with their clients. It was found that translators are mobile professionals with locational mobility, with the ability to create work spaces anywhere and using their mobile phones as an extension of their offices. Thus the impact of using these tools has been an increase in visibility and availability.

## 5. Conclusion and Recommendations

### 5.1 Conclusions

The following were the main findings of the research and the linkage with the literature review:

- Translators in South Africa are accustomed to using technology to enhance their work productivity. Tools such as printers and flash disks have already become obsolete in this industry, which relies strongly on online tools such as email and online portals to deliver jobs to clients.
- CAT tools are becoming increasingly prevalent in use in South Africa, although crowdsourcing which is commonly used overseas is not used as much in South Africa.
- Translators use email as their main form of communication with clients, to the extent that they have not met personally with their clients. Translators are already communicating with overseas clients and it can thus be surmised that they are equally penetrating the overseas market as well as bringing business to South Africa.

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- Translators are essentially mobile professionals who do not need to be in a specific location in order to do business. They can create a work space anywhere, consistent with the literature on the mobile professional.
- There is a gap in translator education, in that translators identified that they did not feel equipped to deal with technology which has become an essential part of their business.
- The literature on the translation industry was consistent with the study results. It can be said that translators are using modern innovative technologies to do their business and are trying to keep up to date with the latest developments.

The conclusions of the study led to a set of recommendations to be used by both translation professionals and the translation industry, as well as service industries which are becoming reliant on technology for their business needs.

### 5.2 Recommendations

The recommendations are thus as follows:

- **Be equipped with the latest technology:** For mobile professionals to be successful, it is necessary to be equipped with the latest technology and understand the latest trends in the industry.
- **Have a strong online presence:** It is important to have a stronger online presence by owning a website or purchasing membership of portals which provide free website access as well as other features such as the ability to bid for jobs immediately they are posted instead of having to wait until they can bid for jobs as non-members, by which time the job might not be available. In order to enhance online visibility and be more readily available to overseas clients, it is important to be a paying member of online as it helps obtain more jobs.
- **Take advantage of the expertise available on online portals:** Participate more in online portals which add to online visibility and help them as mobile professionals stay up-to-date with the latest developments. A real danger of being a freelancer or mobile professional is that you can become redundant and lose touch with the latest developments in the industry. Thus it is greatly important to stay up-to-date with the latest developments.
- **Obtain free membership of online revenue models to gear yourself for the future:** The findings revealed that most translation agencies operating internationally are using such online revenue models and have made it a condition of working with them, thus it would be important to obtain membership of such models such as Skrill and Paypal, which is free.
- **Invest in the latest CAT tools:** With the increasing need for greater speed and greater accuracy, the use of CAT tools has become paramount.
- **Ensure you have fast broadband connectivity:** It is of vital importance to be equipped with new technologies such as faster broadband and smartphones with advanced functionalities.
- **Have a communications strategy:** The more forms of communication available, the greater the impact on the translator's availability to clients, thus having a communications strategy is important.
- **Equip yourself with the latest smartphones and tablets:** Translators must invest in technologies such as smartphones and tablets which help enhance their mobile presence.
- **Get an understanding of the latest technology:** Perhaps universities could consider this to be a component of translator training and degrees. It equally presents a business opportunity for translation agencies to offer courses on how to use modern technologies.

In conclusion, as the translation industry is constantly growing and developing just as much as new technologies are produced, it would be of interest for translators to continue developing their skills, learning about new technologies and increasingly interacting with those who are using these tools.

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