

# Genesis of Branding: Methodological Framework for Studying Ancient Egyptian Cylinder Seals (3000 BC - 2150 BC)

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The paper is written on the basis of research devoted to the genesis of branding. It seeks the very roots of contemporary branding – the use of brand-like signs within the earliest economic processes in the Ancient Egyptian state. The object of research encompasses the cylinder seals that were put on the top of the ancient amphorae. The text content of these seals is interesting from a branding perspective and that is why a data base of such artefacts was built. The presented paper reveals the methodological framework for studying the seals' texts. A consecutive paper will present the major findings.

**Keywords:** Branding evolution, brands, Ancient Egypt

**JEL:** M31, N00

## I. INTRODUCTION

Over the last two decades, marketing has seen rapid development based on new technologies and digitalization. Communication methods are becoming more sophisticated, marketing strategies are becoming more precise, new forms and methods of marketing for marketing impact are emerging more and more rapidly. These

are trends that are interesting and they should inevitably be studied urgently and their results should be quickly put into practice and marketing theory enriched.

However, parallel with the studies devoted to the digital trends in marketing, one new direction of study is emerging among marketing scholars – the direction of searching the roots of modern marketing. Obviously marketing has become mature enough to turn back and to see the way behind and explore its own history. Recently, there has been an increase in the publication of articles in reputable global journals with a high impact factor that are dedicated to the history of marketing. Moreover, high rank journals are publishing studies connected with marketing history. Even specialized journals focused on the historical development of the marketing approach (e.g. “Journal of Historical Research in Marketing”, <https://www.emeraldgroupublishing.com/journal/jhrm>). The Conference on Historical Analysis and Research in Marketing (CHARM) has been organized and held annually for the past 20 years and is supported by the American Marketing Association (AMA), world-renowned publishers and universities (<http://conferences.academicjournals.org/>

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cat/engineering/19th-biennial-conference-on-historical-analysis-and-research-in-marketing-charm). The present research falls fully in the stream of this trend and as will be elucidated later seeks the genesis of branding at the dawn of human civilization and the links of ancient branding practices with contemporary trends.

## II. PREVIOUS RESEARCH

The question of the genesis of branding has not been subjected to meticulous study in terms of the development of human civilization. Yes - fragmentary scientific reports have been made and opinions have been shared on the origin of branding (marking) of goods and objects. For example, Moore and Reid (2008) published an article in which they examined the presence of commodity markers from the Harappan civilization in the Indus Valley during the Early Bronze Age (2250-2000 BC). The two authors defend the thesis that clay and stone seals were used at this time, as well as tablets (clay and bone) for marking goods. Brief mention is made of the presence of artifacts from the following periods of human civilization - Late Bronze Age (1500-1000 BC) in Cyprus; Iron Age (1000-1500 BC) in Tyre; Iron Age (825-336 BC) in Ancient Greece (Karl Moore, 2008).

In 2016, a collection of articles edited by Andrew Bevan and David Wengrow was published under the title "Cultures of Commodity Branding", which presents facts and arguments for the application of practices similar to today's branding from different geographies and time spans. Archaeological evidence for the marking of Bronze Age commodities in the Mediterranean area is presented (Bevan, 2010).

In 2008, archaeologist David Wengrow published an intriguing article in which he

presented an analysis of a label (on wine) from the time of Ancient Egypt, drawing an interesting historical parallel between it and modern wine labelling (Wengrow, 2008).

Intriguing conclusions can also be found in publications devoted to the genesis of human writing. The scientific works of researchers in this field indirectly promotes the thesis that the marking of goods (branding, labelling) is one of the first functions in the emergence of human writing (Piquette, 2018). Another interesting publication exploring human writing at the dawn of human civilization is "Visible Language: Inventions of Writing in the Ancient Middle East and Beyond". The author analyzes writing on ancient labels from pre-dynastic Egypt, without of course conducting a marketing or economic analysis of these labels (Woods, 2010). Anyway the data as well as the conclusions are inspiring for conducting a deeper analysis of branding genesis.

## III. WHY STUDYING CYLINDER SEALS FROM ANCIENT EGYPT IN THE CONTEXT OF BRANDING GENESIS?

### 1. What is a "cylinder seal"?

Cylinder seals are small cylinders (between 2 and 7 cm long) that are engraved with: (1) text inscriptions; (2) figures and/or scenes; 3) a combination of both (Fig. 1). Cylinder seals have been used since ancient times (they are thought to have appeared around 5,500 years ago in the area we now call the Middle East). From this period, cylinder seals have been found from Ancient Egypt, Mesopotamia, the Harappa civilization, as well as from other places on the territory of today's Iran, Syria, Israel, etc. By rolling the cylinder over a wet

surface - for example, wet clay an image was imprinted.

In ancient times, cylinder seals were used as administrative tools (seals), they served as signatures, they were used as jewelry and magical amulets. They are used for

sealing entrances to buildings, premises and vessels. They are placed on jars and other vessels in order to indicate the type of goods, the quantity, the manufacturer, controlling authorities/persons, the purpose of delivery, etc.



**Figure 1.** Replica of a wooden cylinder seal from Early Dynastic Egypt (reign of Pharaoh Seth Peribsen, Dynasty II). The replica was made by Rumen Kovachev.

On the upper part of the jar (over the lid) a smooth and moist clay was applied, after that the cylinder was rolled over. This clay has was not fired, but dried under the sun. Before consuming the goods (for example, wine, olive oil, honey, grain, etc.), the unbaked clay on the top of the jar was removed. In addition to being a carrier of economic information, such seals also served to certify the inviolability of the contents in the vessel/jar after sealing. Often in Ancient Egypt, cylinder seals also contained fiscal data for the needs of taxation and statistical accounting of revenue in the treasury. In this sense, cylinder seals in Early Dynastic Egypt are close in function to modern banderole. A great proportion of

Egyptian seals contained information about the production center or the owner of the produce.

The cylinder seals themselves were made of stone, wood, bone, glass, ceramic, glass-glazed pottery (Egyptian faience), gold. During excavations, cylinder seals of hematite, obsidian, steatite, amethyst, lapis lazuli, carnelian and other materials were found. Most of the cylinder seals have holes drilled in the middle along the entire length of the cylinder. So they could be worn around the neck or on the arm as an ornament and used when needed. The cylinder seals in ancient times also served for identification (similar to today's identity cards). In case of a loss of

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the personal cylinder seal, it was obligatory to notify the authorities, after which a new one was made (in Mesopotamia). Logically, the individual seals were made of cheaper materials (except for the royal ones) and were smaller in size.

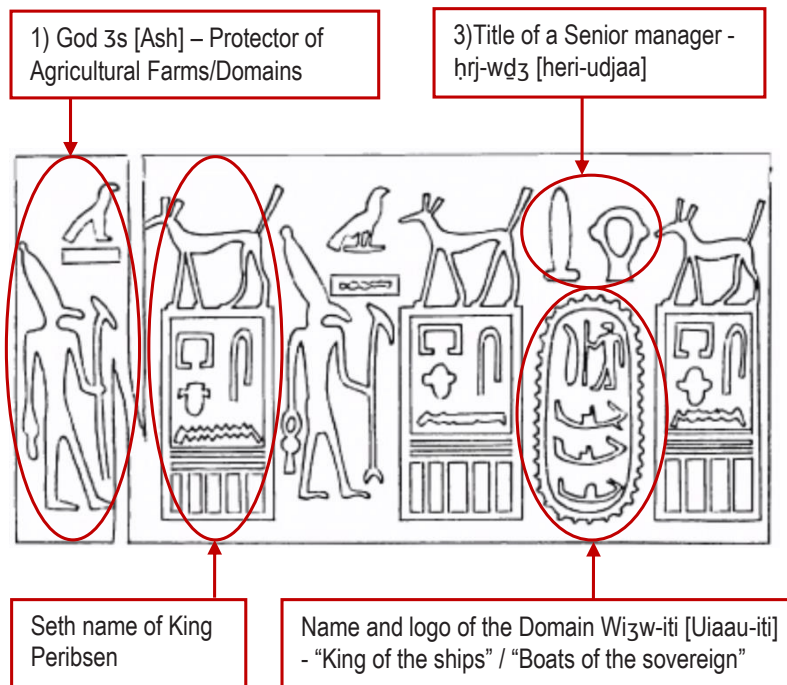
### 2. Why studying cylinder seals when searching the roots of branding?

#### 2.2. Information on a cylinder seal – an example

The analysis of cylinder seals from Early Dynastic Egypt is important because they contain graphic-verbal symbols that are close to what we now call a brand logo. These text-figurative symbols from antiquity in fact could be named “protobrands”. In order to illustrate the importance of studying the texts on the Ancient Egyptian cylinder seals, we will analyze the content of the cylinder seals

shown on Fig. 2. It contains the following text components:

- 1) **God Ash** (3s) - Protector of Domains (big agricultural farms in Ancient Egypt).
- 2) **Name of Pharaoh** Seth-Peribsen (II Dynasty).
- 3) **Title of Senior manager** (ḥrj-wdꜣ [heri-udjaa]) of the Domain “King of the Ships”. Manager with delegated authority to implement decisions (Kaplony, 1963, pp. 98, 118, 133, 142). According to Wilkinson, a person holding this title “may have exercised a more executive power, implementing royal wishes and decrees with regard to the operations of the domain” (Wilkinson, 1999, p. 104). This title seems to be similar to today’s CEO.
- 4) **Name and logo of the Domain (big agricultural farm) “King of the ships”**. This is what we called above “protobrand”.



**Figure 2.** Text components of a random cylinder seal – hieroglyphic, transcription and English language

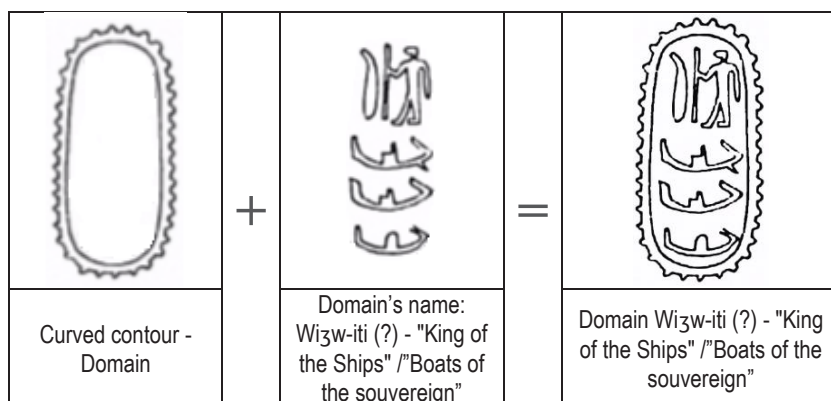
### 2.3. Branding perspective

This cylinder seal (Fig. 1, Fig. 2) carries distinctive features of a brand sign (protobrand). Here comes for any kind of agricultural products – the Domains in Ancient Egypt produced wine, olive oil, beer, honey, milk, meat, grain, fruits, etc. There were a dozen big agricultural holdings (Domains) and each of them has a *label (name)*. In the case of the specific example the name of the agricultural production center is Domain “King of the ships”. Today’s equivalent is a name

of a company or farm. So, the producer is identified by its specific name that is not used by other producers. It is the same as today’s maker’s mark or even a band name.

### 3.2. Logo design perspective

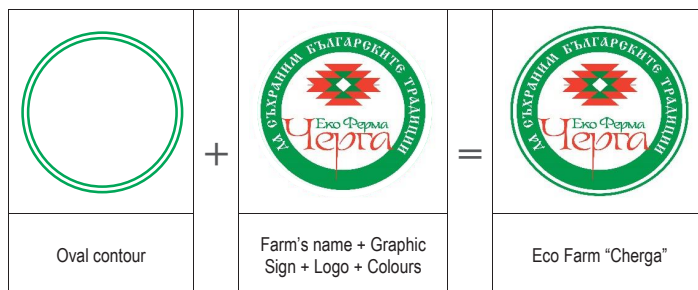
It is important to point out the graphic design characteristics of Domain names. All Domain names are featured by a special design that differentiates them from other text components. Separates the brand names from other hieroglyphs and “puts” the name in an oval contour (Fig. 3).



**Figure 3.** Curved oval contour – an element of the graphic design of a logo of ancient farm (Domain)

This oval contour is curved and is typical of Domain names in Ancient Egypt. No other text components of Egyptian cylinder seals are “inserted” in a similar oval frame. As can be seen later in the text, there several Domains within the period Dynasties I-III and

all of them are presented graphically in the same way. A conclusion can be made: The roots of brand naming and prototypes of its graphic design can be traced back till the Beginning of Antiquity – the dawn of Ancient Egypt (about 5000 years ago).



**Figure 4.** Contemporary parallel – logo of a nowadays farm



A contemporary analogue is presented in Fig. 4. The logo of an agricultural farm can be seen as an ancestor of nowadays' farms (and even other production centers or institutions).

### 3. Why cylinder seals from Ancient Egypt?

As mentioned earlier, many cylinder seals from different ancient states were excavated. Apart from Egyptian, many Mesopotamian and Harapian artifacts were found and kept in museums all over the world. So, why study exactly Egyptian cylinder seals? The reasons are as follows:

- 1) Through the 120-130 years a lot of information about Ancient Egypt was gathered. It means a plethora of archeological reports, scientific publications, translations of ancient texts (including a text on cylinder seals), museums' digital collections (including translations, descriptions, bibliographical notes, etc.). Open source digital libraries with free and huge databases were built. All that eases the research process.
- 2) Easy access to flexible education connected with Egyptology (especially Ancient Egyptian language). The case is not the same with Sumerian language and Harapian language (the last is not even fully decoded).
- 3) The existence of distinctive Bulgarian scholars in the field of Egyptology and especially in the field of Ancient Egyptian language. The advice provided by these scholars was extremely valuable in the research process.

When we started searching the roots of branding it was clear that we should devote the attention to the dawn of our civilization, which is also called the Beginning of Antiquity. During this period the process connected with

urbanization, the growth of world population, intensification of labor division, production and trade started. All these circumstances served as premises for the genesis of brands and branding. Because of the reasons mentioned above, we started to investigate the evolution of branding in the context of Ancient Egypt.

## IV. GOAL, OBJECT AND SUBJECT OF STUDY

### 1. Research goal

This research is part of a wider project devoted to the evolution of branding. This first stage deals with the genesis of brands and branding. So, the research goal is to investigate when, where and how the practice of branding started. Also to reveal to common features (parallels) between ancient branding and contemporary branding.

### 2. Defining the object of research

The object of research encompasses archeological artifacts of the type "cylinder seals". These cylinder seals are investigated within this research project but in the following publications the analysis will be enlarged and will include also year labels, rock inscriptions, scratches on pots (before and after firing), etc.

#### 2.1. Time frame of archeological artifacts (object of research)

As the focus of this study is on the genesis of branding, we define the time frame of the artifacts Early Dynastic Egypt and partially the Old Kingdom Egypt. We have followed the approach of previous studies and we have framed the object of research from prehistoric Egypt to the 3<sup>rd</sup> Dynasty. In other words, the object of research incorporates cylinder seals that are manufactured and used during the following dynasties: 1<sup>st</sup> Dynasty, 2<sup>nd</sup> Dynasty

and 3<sup>rd</sup> Dynasty. From the point of periodization of Egypt's history this time frame is equivalent to the following historical periods: Prehistoric Egypt (5000-3000 BC), Early Dynastic Period (c. 3000–2686 BC) and Old Kingdom (2686–2150 BC) (Calvert, 2022). As we fix the time frame of investigation period up to the 3<sup>rd</sup> Dynasty, it means that only one dynasty (the 3<sup>rd</sup> one) belonging to the Early Dynastic Period will be encompassed. We adopted this approach from previous Egyptologist's studies of Egyptian cylinder seals and mainly the approach of Peter Kaplony (Kaplony 1963).

### **2.2. Sources of archeological artifacts**

In the process of tracing and collecting archeological artifacts many previous publications were analyzed as well museums' digital collections.

- 1) Reports on archeological excavations and other publications

Most fruitful were the original archeological reports of the pioneers of Egyptian archeology. The prevailing amount of cylinder seal drawings and pictures (as well as interpretations and discussions) were derived from these sources. A smaller portion of the items presented in the data base of the study were taken from early publications of Egyptologists in specialized scientific magazines – these publications presented cylinder seals bought from intermediaries at the so called “black market” of Egyptian artifacts. The proportion of these items is rather small – under 1% within the whole data base. The list of the publications (archeological reports and scientific papers) is given below.

- 2) Museums' digital collections

The digital transformation of museums opens up new horizons before the present day researchers. It gives the access and

opportunity of scholars from different scientific fields to millions of digitalized artifacts. This is a chance for continuing investigation of human history from different points of view. As Evans and Daly state “Digital archaeology should exist to assist us in the performance of archaeology as a whole. It should not be a secret knowledge, nor a distinct school of thought, but rather simply seen as archaeology done well, using all of the tools available to and in better recovering, understanding and presenting the past” (Evans & Daly, 2006).

A valuable contribution to the data base of cylinder seals was added by the online collections of the following museums: British Museum: Online Collection /BM/; Metropolitan Museum of Art - New York /NY/; Museum of Fine Arts - Boston /Boston/; Petrie Museum: Online Catalogue /UC/.

### **3. Subject of research**

The subject of research in a wider context is the evolution of branding. The narrower perspective is reduced to the genesis of brand and branding. It encompasses the appearance of branding practices and the emergence of “protobrands” in the context of the entire economic life (production, trade, exchange) at the Beginning of Antiquity in the context of Ancient Egypt. In other words, the study analyzes the distinctive branding practices as an essential part of the whole economic system within the Ancient Egyptian state. The specific dimensions of the subject of research include the following:

1. Classification of ancient Egyptian cylinder seals and analyzing the “protobrands” in each type (cluster).
2. Institutional perspective of ancient branding – production centers, royal palaces, treasuries, Domains (huge agricultural producers), Estates (production

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centers – for leather, fabrics, natron, cow farms, pig farms, etc.), fiscal organizations and departments, military facilities, regions (regional branding), cities (city branding), religious and cult centers (branding temples), professional communities, provisioning departments (supplying food, drinks, instruments, etc.), wine presses, Vineyards, Storage centers, etc.

3. Branding perspective – the potential for branding of the ancient approaches analyzed from a contemporary point of view.
4. Logo design perspective – ancient approach to logo design of the “protobrands”. An important part are the parallels between logo design and the logo elements of Antiquity (2000-3000 BC) and the ontemporary 21<sup>st</sup> century approach.
5. Product differentiation - “protobrands” connection.

## V. RESEARCH METHODOLOGY

In order to achieve the research objective, the following research methods will be applied:

### 1. Historical method

This method will be applied in order to better understand the genesis and evolution of branding over time. The historical method is increasingly being applied in contemporary marketing research, as can be seen from the growing number of published papers and books that apply or discuss the historical method in the context of marketing.

The application of the historical method in the context of this research project means the following:

- 1) The study of artifacts - in this case seals, signs and inscriptions on products (content analysis).
- 2) A study of the signs on products in the

context of the period, which means that their meaning should be analyzed in terms of their era.

- 3) Interpreting the artifacts from today’s point of view must necessarily proceed after we have “looked with the eyes of the people of the ancient time” (comparative analysis).

### 2. Method of content analysis

The method of content analysis is “one of the classical procedures for analysing textual material, forms of communication and images” (Nunan, et al., 2020), which makes it highly relevant to the object of research (texts on cylinder seals). The text of each cylinder seals is divided into components. As explained bellow the text components with all cylinder seals are not much (7) which makes easier the description and registration of each text component. Further the methodology goes on with statistical analysis that will be discussed later.

### 4. Method of comparative analysis

The method of comparative analysis will be applied to highlight the similarities and differences between branding approaches in different eras. The contemporary branding approach will serve as a benchmark.

### 5. Registration method

It will indicate the elements of the commodity designations. A list of the elements of these labels will be prepared and each commodity label or sign will be adjusted in terms of its information content. Each individual component of information (manufacturer, region of production, graphic sign of a production unit, titles of controlling bodies, names of supervisors and managers, etc.) will be registered in a specially developed checklist. After that these elements will be



coded (binary) and that will let us perform statistical analysis.

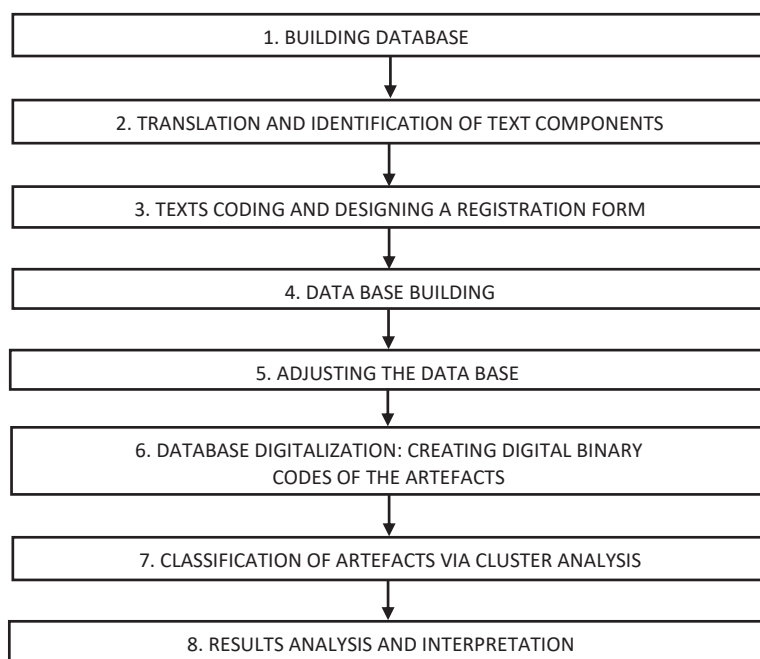
## 6. Statistical methods

In order to analyze and better understand the business practices related to branding in different historical periods, statistical methods of analysis will be applied in the course of the research process - the most important is cluster analysis. It will be used to derive a scientifically based classification of commodity designations (cylinder seals' texts). This will enable the study of the characteristics of the branding of goods at the beginning of Antiquity. The rationale for the application of cluster analysis as well as the procedure of its application within the present study have their own specificities and are presented

below. Another statistical method that will be applied is the Analysis of Variance for binary data. The analysis Between group variance and Within group variance will give valuable insights concerning the assessment of cylinder validity. This analysis is not presented here because of volume limitations. For practical application of Analysis of variance for binary data, one may consider an interesting case study in the context of marketing (Kiranchev, 2021)

## V. METHODOLOGICAL PROCEDURE

The research process followed 9 steps (Fig. 5). *In the first step* we studied the archeological reports and museum's collections in order to collect relevant artifacts (cylinder seals).



**Figure 5.** Methodological procedure for applying cluster analysis

*In the second step* the texts were translated – we used the translations of previous Egyptological studies – mainly the translations

of Peter Kaplony (Kaplony, 1963) and Toby Wilkinson as well as the consultancies of Egyptologists and the author's humble

knowledge of Egyptian language (after 4 semesters of study).

## 1. Database

### 1.1. Database formation

At the first stage of the research process we built a data base of archeological artifacts corresponding to the following descriptions: cylinder seals or imprinting of cylinder seals on commodities (containers). All artifacts were counted and all unique findings were included in the data base. For example, if a printing of a cylinder seal was found numerous times all these artifacts were presented as one unique unit into the data base. The total number of all artifacts equals 942 units (Table 1). Due to obsolescence or wear-out 165 of them are not readable. The readable artifacts are 777 but 119 are parts of broken units – these 119 units are readable but they represent smaller or bigger parts of the original artifacts. As they contain important information we will analyze them separately, which means that these artifacts will be removed from the data base.

### 1.2. Database adjustment

As mentioned above, the total number of all artifacts equals 942 units (Table 1). Finally, the data base contains *658 readable artifacts*. Later these artifacts will be used as a foundation of the statistical analyses.

**Table 1.** Data base formation

ARTIFACTS	QUANTITY
<b>1. Readable artifacts</b>	777
<i>1.1 Well preserved readable artifacts</i>	658
<i>1.2 Partial or fragmented but readable</i>	119
<b>2. Not readable artifacts</b>	165
<b>Total</b>	<b>942</b>

However, an important issue connected with the duplication of artifacts has to be explained here. It should be clearly understood that some artifacts represent multiple imprinting of one and the same cylinder seal. Obviously the markings of goods with cylinder seals leads to the existence of artifacts with one and the same content. As shown in *Table 1*, the number of all readable artifacts (duplications included) equals 658 units. *The duplications are 43 and the number of unique artifacts equals 615*. We have created a Catalog of these unique artifacts.

As mentioned earlier, we analyzed the whole readable data set (658 units, duplications included) statistically. This approach was chosen due to the following reasons:

(1) After classifying (clustering) the artifacts, one expects to receive a better picture of clusters' sizes;

(2) This approach will give information about the frequency of usage (findings) of certain types of seals.

Of course this approach could be criticized and accused of biasing the results in favour of the more frequently met seals. But from another point of view it adds a precision to the interpretation of the results. Realizing the strengths and weaknesses of both approaches and especially the fact that both of them could be criticized or favoured, finally a decision of adopting the first approach (including duplications) was taken.

### 1.3 Sources of archeological artifacts: Reports on archeological excavations and other publications

In the process of tracing and collecting archeological artifacts many previous publications were analyzed as well as museums' digital collections.

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Most fruitful were the original archeological reports of the pioneers of Egyptian archeology. The prevailing amount of cylinder seal drawings and pictures (as well as interpretations and discussions) were derived from these sources. A smaller portion of the items presented in the data base of the study were taken from early publications of Egyptologists in specialized scientific

magazines – these publications presented cylinder seals bought from intermediaries at the so called “black market” of Egyptian artifacts. The proportion of these items is rather small – under 1% within the whole data base. The list of the publications (archeological reports and scientific papers) is shown at Table 2:

**Table 2.** List of sources – archeological reports and papers containing photos and sketches of cylinder seals (dated within the period Dynasties I – Dynasty III)

Nº	SOURCES OF ARTIFACTS	Abbreviation
1	Amèlinau, E., Le Tombeau d'Osiris, Monographie, De la Découverte Faite En 1897-1898, Ernest Leroux, Paris 1899	TO
2	Amèlinau, E., Les Nouvelles Fouilles d'Abydos: Compte Rendu in Extenso des Fouilles, Description des Monuments et Objects Decouverts, Paris 1902	NF II
3	Amèlinau, E., Les Nouvelles Fouilles d'Abydos: Compte Rendu in Extenso des Fouilles, Description des Monuments et Objects Decouverts, Paris, 1899	NF I
4	Amèlinau, E., Les Nouvelles Fouilles d'Abydos: Compte rendu in Extenso des Fouilles, Description des Monuments et Objects Decouverts, Paris, 1904	NF III
5	Annales du Service des Antiquités de l'Egypte, Tome 3, Cairo, 1902	ASAE 3: Maspero
6	Delaporte, L. Catalogue des Cylindres Orientaux: Et Des Cachets: Assyro-Babyloniens, Perses et Syro-Cappadociens, De La Bibliotheque Nationale, Paris, 1910	Delaporte
7	Emery, W. B., Hor aha (Service des Antiquites de l'Egypte. Excavations at Sakkara 1937-1938). Cairo 1939	Hor Aha
8	Emery, W. B., The Tomb of Hemaka (Service des Antiquites de l'Egypte. Excavations at Sakkara), Government Press “Bulaq”, Cairo, 1938	Hemaka
9	Emery, W.B., Great Tombs of the First Dynasty I: Excavations at Saqqara, (Service des Antiquites de l'Egypte), Cairo 1949	GT I
10	Emery, W.B., Great Tombs of the First Dynasty I: Excavations at Saqqara, Egypt Exploration Society & Oxford University Press, London, 1954	GT II
11	Emery, W.B., Great Tombs of the First Dynasty I: Excavations at Saqqara, Egypt Exploration Society, London, 1958	GT III
12	Fondation Egyptologique Reine Elisabeth. Fouilles de El Kab III. Bruxelles 1954	El Kab III
13	Garstang, J., Sethe, K., Mahasna and Bet Khallaf, Egyptian Research Account, Memoir 7, London, 1903.	Bet Khallaf
14	Leclant, J., Clerc, G., Fouilles et travaux en Égypte et au Soudan, 1990-1991, Orientalia, NOVA SERIES, Vol. 61, No. 3 (1992), pp. 214-322	Leclant 1992
15	Leclant, J., Fouilles et travaux en Egypte, Orientalia, Vol. 21, 1952, (pp. 233-249)	Leclant 1952

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Nº	SOURCES OF ARTIFACTS	Abbreviation
16	Morgan, J., Recherches sur les Origines de l'Egypte, Ethnographic Prehistorique et Tomb Royal de Negada II, Paris 1897	Orig II
17	Naville, E., Peet, T.E., Loat, W.L.S., The Cemeteries of Abydos - Part 1: 1909-1910, 33rd Memoir of Egypt Exploration Fund, London, 1914	Cem Ab I
18	Newberry, P.E., Scarabs: An Introduction to the Study of Egyptian Seals and Signet Kings, London 1908.	Newberry
19	Peet, T.E., The Cemeteries of Abydos - Part II: 1911-1912, 34th Memoir of Egypt Exploration Fund, London, 1914	Cem Ab II
20	Percy, E., Newberry, M.A., Impressions of Seals from Abydos, Annals of Archeology and Anthropolgy, Institute of Archeology, University of Liverpool, Vol. II, London, 1909	AAA
21	Petrie, F., Petrie, H., Murray, M., Tombs of the Courtiers and Oxyrhynkhos, British School of Archeology in Egypt and Egyptian Research Account 37, London, 1925	TC
22	Petrie, W.M.F. Griffith, F.L., The Royal Tombs of the First Dynasties, PART I, Egypt Exploration Fund, London, 1900	RT I
23	Petrie, W.M.F. Griffith, F.L., The Royal Tombs of the First Dynasties, PART II, Egypt Exploration Fund, London, 1901	RT II
24	Petrie, W.M.F., Ayrton, E.R., Currelly, C.T., Weigall, A.E.P., Abydos III, Special Extra Publication of the Egypt Exploration Fund, London 1904	Ab III
25	Petrie, W.M.F., Griffith, F., Abydos II, 24th Memoir of The Egypt Exploration Fund, London 1903	Ab II
26	Petrie, W.M.F., Wainwright, G.A., Gardiner, A. H., Tarkhan I and Memphis V; Tarkhan II, British School of Archeology in Egypt and Egyptian Research Account, London 1913	Tarkhan I
27	PSBA: Newberry, P., Proceedings of the Society of Biblical Archeology, 1906, Vol 28, To What Race Did the Founders of Sais Belong? pp. 68-75	PSBA vol.28
28	PSBA: Sayce, A., I Objects from the Tomb of a Predynastic Egyptian King; II. Some Early Egyptian Seal-cylinders, Proceedings of the Society of Biblical Archeology, 1900, Vol 22, pp. 278-280	PSBA vol.22
29	PSBA: Sayce, A., Proceedings of The Society of Biblical Archeology, 1898, Vol. 20, The Beginnings of the Egyptian Monarchy, pp.96-101	PSBA vol.20
30	Quibel, J.E., Archaic Objects, Catalogue Général des Antiquités Égyptiennes du Musée du Caire, Tome II, Le Caire, 1904	A0
31	Quibel, J.E., El Kab, Egyptian Research Account: 1987, London, 1898	El Kab
32	Quibell, J.E., Excavations at Saqqara 1912-192: Archaic Mastabas, (Service des Antiquites de l'Egypte), Cairo 1923	AM
33	Quibell, J.E., Hierakonpolis I, Egyptian Research Account, Memoir 4, London, 1900.	Hierakonpolis I
34	Quibell, J.E., Hierakonpolis II, Egyptian Research Account, Memoir 5, London, 1902.	Hierakonpolis II
35	Reisner, G., The Early Dynastic Cemeteries of Naga-ed-Der I, University of California Publications: Egyptian Archeology, volume II, Leipzig 1908	Naga-ed Der I
36	Saad, Z. Y., Royal Excavations at Saqqara and Helwan 1941-1945 (Supplement ASAE Cahier 3), Cairo, 1947	Heluan I
37	Saad, Z. Y., Royal Excavations at Helwan 1945-1947 (Supplement ASAE Cahier 14-), Cairo 1951	Heluan II

#### 1.4. Sources of archeological artifacts: Museums' digital collections

The digital transformation of museums opens up new horizons before the present day researchers. It gives the access and opportunity of scholars from different scientific fields to millions of digitalized artifacts. This is a chance for continuing the investigation of human history from different points of view. As Evans and Daly state "Digital archaeology

should exist to assist us in the performance of archaeology as a whole. It should not be a secret knowledge, nor a distinct school of thought, but rather simply seen as archaeology done well, using all of the tools available to and in better recovering, understanding and presenting the past" (Evans & Daly, 2006).

A valuable contribution to the data base of cylinder seals was added by the online collections of the following museums (Table 3):

**Table 3.** Museums' digital collections

Nº	MUSEUMS
1 (38)	British Museum: Online Collection /BM/ <a href="http://www.britishmuseum.org/research/collection_online/search.aspx">http://www.britishmuseum.org/research/collection_online/search.aspx</a>
2 (39)	Metropolitan Museum of Art - New York /NY/ <a href="https://www.metmuseum.org/">https://www.metmuseum.org/</a>
3 (40)	Museum of Fine Arts - Boston /Boston/ <a href="https://www.mfa.org/">https://www.mfa.org/</a>
4 (41)	Petrie Museum: Online Catalogue /UC/ <a href="http://petriecat.museums.ucl.ac.uk/search.aspx">http://petriecat.museums.ucl.ac.uk/search.aspx</a>

After searching the sources mentioned above we gathered 942 artifacts (cylinder seals and imprints of cylinder seals). Some of them are well preserved, others are not (broken, worn out, not readable, etc.). On later stages of the methodological procedure the data base was adjusted and we kept artifacts that are readable.

#### 1.5. Geographical distribution of artifacts

The sources of the database (archeological reports, books, papers, museum catalogues, etc.) were checked not only for cylinder seals belonging to the period between the beginning of the 1<sup>st</sup> Dynasty and the end of the 3<sup>rd</sup> Dynasty as well as the Predynastic period. We put efforts into identifying, systematizing and presenting the geographical origin of the cylinder seals.

As one might see in Fig. 6 the literature sources have been identified with their consecutive number (1-37) on the corresponding geographical location of the map of Ancient Egypt. The cylinder seals that are found in museums' digital collections are not indicated on the map. Generally, these collections are gathered in many years from different sources – one part of the cylinder seals has come into museums from expeditions sponsored by the museums themselves, another part has been donated, a third part has been bought from dealers or private collectors. So, the geographical origin of the cylinder seals belonging to museums' collections is either known or unknown. The places of excavation of the first group of cylinder seals belong to the areas already indicated on the map. The discussion of the geographical origin of the second group of cylinder seals is not possible. That is why



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we do not mention the geographical origin of museums' cylinder seals here; neither have we showed any indication on the map below. However, the tracing of the geographical origin of each museum's artifact included in the data base is rather easy: we have included a detailed description of each cylinder seal, the museum's number and individual links.

The geographical analysis of the origin of the cylinder seals belonging to the investigated time frame shows that there are three major areas the artifacts came from. The first is Lower Egypt and encompasses places where the tombs of royal representatives and high administrative officials have been built. Plenteous artifacts have come from the region of Saqqara. The regions of Memphis, Tarkhan and Helwan also ought to be mentioned. The second geographical area with high concentration of cylinder seals belonging to the above mentioned time period is connected with the city of Abydos as well as the area and cities around it – Bet Khalaf, Mahasna, Nagada-Ed-Dèr and Tukh. The third location is situated south-east from Abydos and includes the cities Hierakonopolis and El-Khab. Most of the artifacts have been excavated near the cities of Abydos (Upper Egypt) and Saqqarra (Lower Egypt).

The numbers in the cells indicate the relevant number in the list of the literature sources. Two publications are not shown on the map – 6 and 27. The first publication (6. Delaporte, L. *Catalogue des Cylindres Orientaux: Et Des Cachets: Assyro-Babyloniens, Perses et Syro-Cappadociens*, De La Bibliotheque Nationale, Paris, 1910. /Delaporte/) contains 5 cylinder seals (№406, №407, №408, №409, №410) that belong to the observed time period in this study. Four of these cylinder seals are cited

as belonging to a private collection. The fifth one is described only by its date of acquisition but not as place of excavation. The second source (27. PSBA: Newberry, P., *Proceedings of the Society of Biblical Archeology*, 1906, Vol 28, To What Race Did the Founders of Sais Belong?, pp. 68-75. / PSBA vol.28/) contains sketches of cylinder seals that have been bought from dealers or are a part of private collections. The author indicates the place of the deal (where the cylinder seal has been bought) but not the location of the excavation or finding.

And finally we owe an explanation of the fact that some sources have been mentioned several times on the map (on several locations simultaneously). In fact, this is an archeological report that contains archeological findings from two sites – Saqqarra and Helwan (38. Saad, Z. Y., *Royal Excavations at Saqqara and Helwan 1941-1945* (Supplement ASAE Cahier 3), Cairo, 1947. /Heluan I/). That is why this source has been mentioned twice on the map.

## 2. Translation and identification of text components

The translation of an ancient text is a responsible and not an easy task that is sometimes connected with contradictions and counter arguments. Although the help of Egyptologists was used, we were lucky enough to step on the valuable previous works of Peter Kaplony and mainly - *Kaplony, P., Die Inschriften der Agyptischen Frühzeit, Otto Harrassowitz, Wiesbaden, Band I, II, 1963*. In spite of the fact that many years have passed since the publications of Peter Kaplony and some improvements of his translations have been made by several generations of Egyptologists, his contribution to the translation of cylinder seals (belonging



Figure 6. Geographical locations of artifacts

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to pre-dynastic and early dynastic period) is so considerable that many institutions (museums, etc.) and researchers rely on it. In the context of this study his translations are relevant and acceptable because the research goal is to analyze the genesis of the protobrands and branding practices of our civilization. It means that we seek for the major text components in the cylinder seals, especially those connected with branding, the economic functions and administrative management of Ancient Egypt. So, later improvements and clarifications (for example the Horusname of King Nebre: R<sup>c</sup>-neb (Kaplony 1963) instead of Neb R<sup>c</sup> (present day transcription)) of some translations do not harm the reliability of the study results.

What about the artifacts (cylinder seals and imprintings) that were discovered after the publication of Peter Kaplony (Kaplony 1963)? First of all, these ARTIFACTS (at least the publicized ones) are not many. Second, they (or at least these that we found) were not of new kinds and did not contain unfamiliar texts, which means that they coincide with already studied and translated cylinder seals. So, it was easy to identify the text components and to translate them – the cylinder seal imprintings of that kind is Leclant 1992.

The thorough analysis of the text content of Egyptian cylinder seals showed that all texts contain some of the following components:

1. **God** (name of a Deity).
2. **King's name**.
3. **Personal name** (not the King).
4. **Title** (manager, scribe, sealer, priest, worker, gatekeeper, educator, hunter, etc.).
5. **Geographic location/origin** (city, region, area, etc.).
6. **Institution** (domain, estate, workshop, treasury, storehouse, temple, palace,

professional organization or community / weavers' union/, animal pharm, tax office, etc.)

7. **Product category** (golden products, flint knives, cattle fat, etc.)

These text components serve as a base or a frame for the coding of each cylinder seal and conducting the statistical analysis.

### 3. Texts coding and designing a registration form

After the texts on the cylinder seals were translated, it was necessary to find a way how to systemize all text components for all cylinder seals. For the purpose we invented a simple registration form (*Table 4*), the construction of which includes 8 columns.

*The first column* contains information about the publication of the relevant seal (most frequently archeological reports after excavations). The abbreviation RT II:200 means that this is seal №200 in the following archeological report (book): Petrie, W.M.F. Griffith, F.L., *The Royal Tombs of the First Dynasties, PART II, Egypt Exploration Fund, London, 1901 /RT II/*. The first two columns are more or less formal and they serve for the identification of each cylinder seal/imprinting. The core information about the text components however is inserted in the next columns of the registration form (3-9).

*Column 2* is named "God/message" and it is designed to include divine information which means name of a God or Goddess in case there is such a component in the text. Part of the texts with God's name contain some kind of a divine message (for example: *God Ash - Life, Prosperity (salvation) and Longevity (permanence) Gives Forever!*). The God's name and the (divine) message are closely connected – that's why these elements are coded together in one and the

same column. Sometimes on the cylinder seal only God's name is put. Sometimes the God's name is accompanied by a message. These

peculiarities will be measured and analyzed in details later. But for the sake of registering - these components go together.

**Table 4.** Registration form for systematization and coding of all text components for al cylinder seals

Source	God/Message	King	Name	Title	Location	Institution	Product
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RT II: 200	"Domain protection God 3s [Ash]"	Khasekhemwy	-	ʿnd-mr [anedj-mer]	-	Domain H-r-sb3-b3w [her-sebaa-baaui]	-

*Column 3* is designed to carry information about a King's name. In this case this is the name of Khasekhemwy. Part of the cylinder seals contain the name of the King, which is an important attribute – in the context of cylinder seals it is equivalent to the contemporary *state coat of arms*. As it will be shown later, the presence of a King's name differentiates a major type of cylinder seals (Official seals).

*Column 4* includes personal names of people different from the King. The King's name is so important in Ancient Egypt that one cannot find together the King's name and the name of another person on one and the same seal (except Princes' names and Princess' names). Personal names often appear on cylinder seals carrying information about the names of officials, managers, workers, etc. There is a considerable proportion of cylinder seals (Official Personal seals) that contain the name of ordinary people which are not officials, managers or something of the kind. These seals served for human identification (mainly) – they are not an object of the present study because their purpose is not an economic one. Another part of cylinder seals with names belongs to the type of Civil Servant Seals that do not contain the name of the King but contain names of administrative officials/servants. This broad type of cylinder seals will be discussed in details later.

*Column 5* is designed to carry information about the presence of a title. On many cylinder seals there are designations of different titles. Sometimes there are personal names that correspond to these titles, sometimes only titles are written on the seal. These peculiarities will be discussed and analyzed later but now it is important to point out that the presence of a title is important in the context of Ancient Egypt's cylinder seals. Within the text components of cylinder seals one can find titles of managers, scribes, sealers, priests, workers, gatekeepers, educators, hunters, bodyguards, governors, tax collectors, etc. In the case of Table 2.2 the title is ʿnd-mr (anedj – mer) which is a high managerial position (something like a contemporary CEO or President).

*Column 6* contains information about a geographical location or geographical origin. These locations may be rather broad – for example Upper Egypt or Lower Egypt. In some cases, part of Ancient Egypt may have been designated – for example the Northwestern District. In other situations, the location is more specific – for example cities, fortresses, oases, etc. In the context of branding the geographical place of origin is important and it is written on the commodities. As the analysis will reveal, all markings with cylinder seals on wine containers carry information about the geographical location of the wine.

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So, this text component is very important for the analysis of ancient branding practices and a special focus will be put on it.

*Column 7* carries information about names of institutions. This text component is closely connected with the branding practices – no matter if we speak about ancient times or about the present. Many cylinder seals from pre-dynastic and early dynastic times carry important information about the commodity producer or owner. As one can see later in the analysis, there are markings of Domains (big farms), Estates, workshops, cow farms and other kinds of production centers. There are also administrative divisions as a treasury, different treasury departments, tax offices, etc. Professional communities – weavers' communities, different priests' organizations, etc. Institutions connected with the King – palaces, dining tent (department for supplying the King and its entourage mainly with food and drinks), etc. In the specific case of Table 2.2 there is an institution as a text component of the cylinder seal – this is the Domain Hr-sb3-b3w (Her-sebaa-baau).

*Column 8* contains information about the product/product category. It is curious that the exceptional designation of the type of product is too rare in the texts of the cylinder

seals. Especially for everyday consumed and popular products. A logical explanation of this situation maybe is hidden in the fact that the most common (most frequently used products) are recognized by the form of the container (amphorae, pots of different shapes and sizes, etc.). The amphorae containing wine has one shape, the pot containing beer another and so on. That is why one cannot find in the texts of the cylinder seals extrinsic designations of common products, i.e. wine, beer, milk, honey, etc. Instead of that, one can find some specific products or product categories: golden products, flint knives for everyday use, cattle fat, etc.

## 6. Database digitalization: creating digital binary codes of the artifacts

After creating and adjusting the database the artifacts were coded. *Table 5* illustrates the coding with 0 and 1. The example given in Table 5 is based on the same cylinder seal from *Table 2.2*. The digital coding means designation of presence (1) or absence (0) of each text component for a specific cylinder seal: 0 means absence (no); 1 means presence (yes). In this way the registered text components (see *Table 5*) are transformed into a specific binary code.

**Table 5.** Registration form for systematization and coding of all text components for al cylinder seals

Source	God/Message	King	Name	Title	Location	Institution	Product
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RT II: 200	1	1	0	1	0	1	0

*Table 5* shows an example of coding the text of a cylindrical seal, whose binary code is 1101010. In this case the coding 1101010, means that the text of the cylindrical seal contains information about: God/Message (1),

King (1), Title of employee (1) and Institution (1). The rest of the components Personal name (0), Location (0) and Product (0) are not included in the text of the cylinder seal. Each artefact in the database received a binary code.



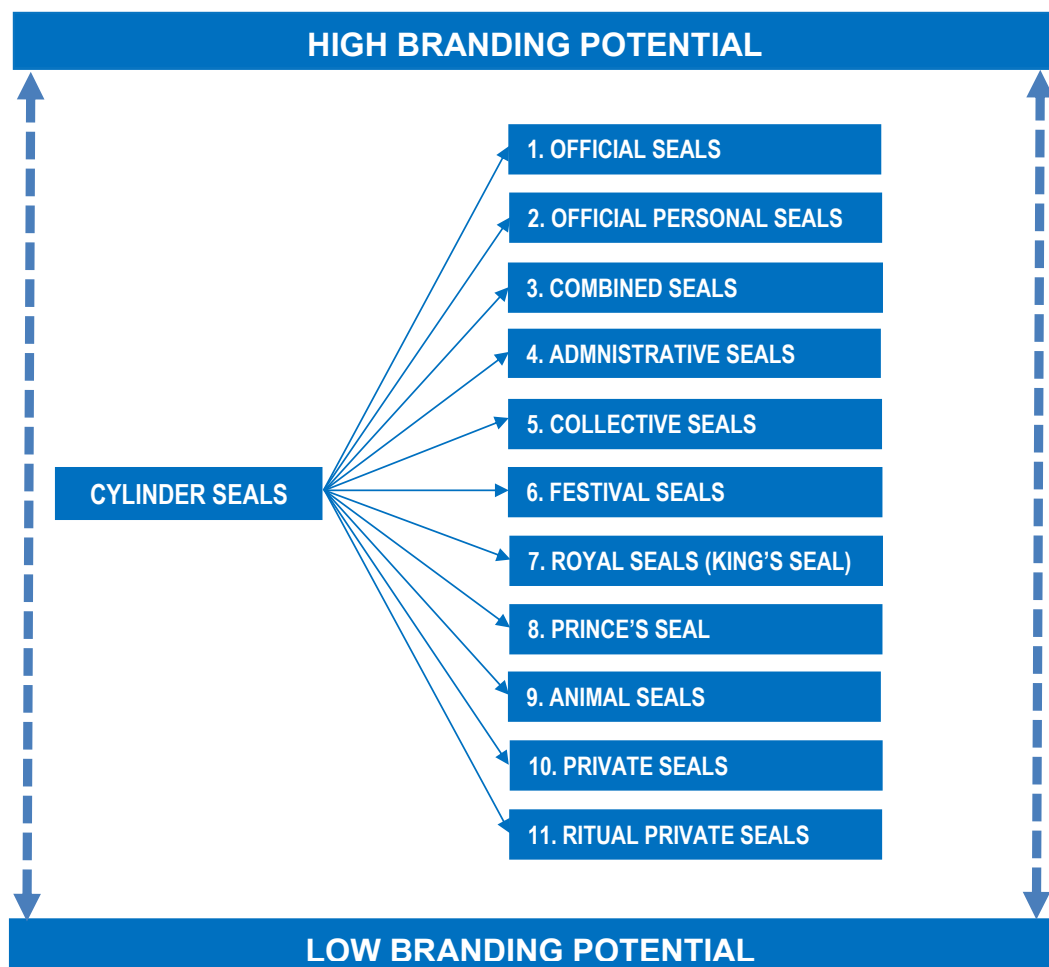
Exactly these binary codes served as an input into the statistical software for performing cluster analysis and analyzing the classification of cylinder seals.

## 7. Classification of cylinder seals via cluster analysis

### 7.1. A priori clustering

We started the classification using an *a priori* approach and stepped on ideas of Peter

Kaplony (Kaplony, 1963). He mentions 10 types of cylinder seals. One of these types was named by him “seal”. This type, named just “seal” in fact contained two subgroups: (1) private/personal seals and ritual private/personal seals. Both of them possess very little, if any, branding potential. In spite of that, these two types are presented as separate groups (for instance in Kaplony’s classification). This was done for the sake of comprehensiveness.



**Figure 7.** An a priori classification of cylinder seals connected with the first 3 Dynasties

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After analyzing the content of each type (cluster) of cylinder seals, we arranged the 11 *a priori* clusters as is shown at Fig. 7. Most important are the first 2 clusters: 1) official seals and 2) official personal seals. Both of them have been frequently excavated and the number of artifacts with these 2 clusters is prolific (compared to other clusters). Something more – these two types of seals did play a very important role in the economic life of Ancient Egypt (Dynasties I-III). Many of them contained information concerning branding. That is why these two types of cylinder seals will be given special attention in other publications. In fact, when speaking about genesis of branding these two clusters are the corner stone of analysis.

## VI. CONCLUSION

The evolution of branding could be traced back till the beginning of Antiquity. In this study we investigate the cylinder seals data from Early Dynastic Egypt. The application of cluster analysis will reveal the typology of the cylinder seals, which will help the process of analysis. The initial study of the texts on the seals indicated the presence of brand-like signs (“protobrands”). Not being exhaustive here, we found logos of production centers (wineries, domains, workshops, etc.), military facilities (fortresses), temples, cities, regions, fiscal institutions (Treasury of Upper Egypt, Treasury of Lower Egypt), palaces, supplying/logistical departments, cow farms, etc. These findings served as motivators to investigate the cylinder seals from the point of view of branding. The rest of the results will be published in a separate paper.

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