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Analysis of White Space by Applying Inverse Proportionality Criteria

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ABSTRACT:The white space analysis is the type of technology analysis used to identifying the technology gap in which technology exist the white space gap is become narrow by increasing the number patent in the particular technology domain. The present white space analysis used to identify the technology gap between patentable technologies by applying the mathematical model in which by calculating the numerical value in the equation to determine and identifying the white space or technology gap between the patentable technologies. Furthermore, white space and the technology gap identifying by putting the value in the equation and simultaneously plot the graph which indicate by increasing the number of patent in the particular technology field the technology gap or white space continuously increasing by decreasing or absence of the patenting activity the white space continuously decreasing by increasing the patenting activity therefore the graphical representation has proven that the patenting activity in the particular technology field is inversely proportional to the white space wherein by reducing the patenting activity white space increasing, and by increasing the patenting activity white space decreasing.

KEYWORDS:White Space, Inverse Proportionality Criteria, Patent, Invention

I. INTRODUCTION

The present analysis pertains to identifying the white space analysis more particularly to determine the void space between the technology and in the present analysis, the present equation are trying to analyze the technology gap by applying the inverse proportionality concept due to which it can determine the technology gap or void space in which it is able to identify little or no patenting activity in such area or the void place in which some area is open for further development which is left technology[1]. Present analysis perform by applying the mathematical model in which that are identifying the void space by applying inverse proportionality criteria between patent family and white space in which it has determining the white space is decreasing by increasing the patent family and also in reverse condition white space is increasing by decreasing the patent family. Furthermore, white space increasing or decreasing by the presence of the number of patent increasing or decreasing because invention require novelty, non-obviousness, and industrial applicability so patent technology cannot be repeated or technology is distinctive in nature for granting the patent.so every patented technology is different in nature or it can only in the same scope if it pertains to the same technology field similar like patent of addition in which every technology includes the same scope with incremental or fundamental development in the technology[2].

The present analysis identify by applying inverse proportionality criteria between the patent family/patenting activity and white space wherein white space increase by decreasing patent family or by decreasing the number of patents in that particular field, the present analysis applying by increasing or decreasing the number of the patent or the patent family in that technology field

White space pertains to the technology field in which patenting activity is less or some technology gap present in the given technology field in the white space analysis the patenting activity consider by same or different patentee because in such case inventor or assignee may be different but if the technology is same in that case white space not consider but patenting activity consider by different patentee this white space can be reduced by patent activity proceeding by the same or different patentee in the same technical field.



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Patent family: there is the various type of patent family such as priority-based family in which patent application is filling in multiple countries and claim the priority of earliest patent that type of patent family is legal patent family in which patent application filled in office of first filing and claim the priority date of earliest application by other subsequent patent application. Another type of patent family is a non-legal type of patent families such as technical patent family in which patent family relation exist without claiming the priorities that type of patent family includes domestic patent family PCT patent family and the technical patent family includes an application for the same invention filled in the different country without claiming priority date patent of addition or divisional patent application etc.[3].

Patent of addition: The patent of addition pertains to the national second filling as well as technical improvement of parent patent. The patent of addition grant after by granting the parent patent and the term of the patent of addition is the same as parent patent in the case of present technique most of the white gap reducing by applying the patent of addition in after filling the main application. Patents of addition perform the key role to avoid the void place of the patenting technology[4].

Divisional application: the divisional patent application is filed due to lack of unity of invention in which case a patent application includes more than one invention in a single application which do not link with each other so the application requires to split into two or more application because patent office requires to search more than one invention in fees of one invention due to this patent office not happy to carry out more than one examination in fees of one invention so patent application requires to split require more than one application. The divisional application can be filled at any time on the direction of the controller before the grant of the main patent application[5].

The patenting activity pertains to a number of patent filling in the same technology field due to which a patenting portfolio develop in the same technology domain which is used to restrict other to filing a patent in that particular technology field in the patenting activity anyone can file the patent in the same technology field in the presence of more patenting activity patent white space reducing.

II. RESEARCH QUESTION

- 1) How to present technique can easily be understood by other person who not is person skilled in the art?
- 2) Does the present analysis identify the white space between the technology gaps?
- 3) Does mathematical equation easily establish the white space?

III. REVIEW OF LITRACTURE

The various method present to identify the white space between the technology by including the technology trend analysis and a patent landscaping analysis which is used to analyze the technology and particular belonging technology .the primary factor of white space analysis to identify the gap and then identify how to the technology gap has to be filled the identified gap helps to further research in that particular technology .the white space is the space in the technology where the invention is an absence or little presence of technology in the patenting activity or less patenting activity is present[6]. Due to less patenting activity present, there may be a large possibility to present new technology in that particular white space. White space analysis is used to provide a good competitive advantage by finding less patenting activity in a particular technical field.

The absence of new patenting technology or less technology patenting activity there may be large gap present in between the technology field in order to identify the particular technology in particular white space so if the one technology having the large scope in the field so by identifying white space for that technology the competitive advantage can be identified by analysis of white space in the technology[7].

IV. METHODOLOGY

The present analysis pertains to determining the white space or technology gap by applying the inverse proportionality criteria in which it has to be determine that white space or void space are decreasing for the particular technology by increasing the patenting activity or by increasing the patent family on that patented technology field .the present technique is used to identify the white space in the particular technology domain by analyzing the number of patenting



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activity present or not present in that technology domain if a large number of patenting activity present in that technology domain then the presence of white space will be less which is identifying by analyzing the number of patent filing present in technology domain and number patent family present. In the present calculation it is need to also analyze the patent filled by another inventor in the same technology field to determine the white space because inventor or assignee may be different but technology domain may be the same

Instrument:

The terms such as presence or absence of the patenting activity is determined in form of patent family or patenting activity done in the same technology field by same or different inventor defined as “y” if patenting activity present it should be mention of in term of presence of technical patent family or patenting activity as “y” and if patenting activity not present it should be mention in term of –“y” similarly if the white space present it should be mention in term of “x” which belongs to the absence of patent family and patenting activity and if white space is not present it should be mention in term –“x”.

$x_{white\ space}$ = indicate presence of white space.

$-x_{white\ space}$ = indicate absence of white space.

$y_{patent\ family}$ = indicate presence of patenting activity (patent family).

$-y_{patent\ family}$ = indicate absence of patenting activity (patent family).

Data analysis:

The present analysis pertains to white space analysis by identify the white space present or not between the technology field if the white space or technology gap present that is indicated by positive term of “x” and if white space not present in the technology that is mentioned with –“x” similarly if the patenting activity of technology field present or patent family present that is mentioned as “y” and if patenting activity not present or patent family not present that is mentioned as –“y”.

$$(-x_{white\ space} + x_{white\ space})\ White\ space = (-y_{patent\ family} + y_{patent\ family})\ Patent\ family$$

Equation 1

If the white space is present so $x_{white\ space}$ will be present and $-x_{white\ space}$ not present.

So $x_{white\ space} = x$ white space present

$-x_{white\ space} = -x = 0$ white space not present

And if patent not present $y_{patent\ family}$ not present ,and $-y_{patent\ family}$ present

$-y_{patent\ family} = -y$ patent family or patenting activity not present

$y_{patent\ family} = y = 0$ patent family or patenting activity present

By putting value in equation 1

$(-x + x)$ white space = $(-y + y)$ patenting activity (patent family).

Condition 1

White space present and the patent family or patenting activity not present.

$(-0 + x)$ white space = $(-y + 0)$ patent family or patenting activity.

So, x white space = $(-y)$ patent family or patenting activity not present

Both side add 1

$(x+1)$ white space = $(-y+1)$ patent family or patenting activity -----equation 2

So assume $x = n-1$, $y = n-1$

Put the value of $x = n-1$, $y = n-1$ in equation 2

$(x+1)$ white space = $(-y+1)$ patent family or patenting activity

$(n-1+1)$ white space = $(-(n-1)+1)$ patent family or patenting activity

$(n-1+1)$ white space = $(-n+1+1)$ patent family or patenting activity -----equation 3

n is indicating the number of patenting technology in that field in presence of 1 technology field.

Assume $n=0$

So result for $n=0$

$(0-1+1)$ white space = $(-0+1+1)$ patent family or patenting activity

0 white space = 2 patent family or patenting activity

Assume $n=1$

$(n-1+1)$ white space = $(-n+1+1)$ patent family or patenting activity



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$(1-1+1)$ white space = $(-1+1+1)$ patent family or patenting activity

1 white space = 1 patent family or patenting activity

Assume $n=2$

$(n-1+1)$ white space = $(-n+1+1)$ patent family or patenting activity

$(2-1+1)$ white space = $(-2+1+1)$ patent family or patenting activity

2 white space = 0 patent family or patenting activity

Assume $n=3$

$(n-1+1)$ white space = $(-n+1+1)$ patent family or patenting activity.

$(3-1+1)$ white space = $(-3+1+1)$

3 white space = -1 patent family or patenting activity.

Assume $n=4$

$(n-1+1)$ white space = $(-n+1+1)$ patent family or patenting activity.

4 white space = -2 patent family or patenting activity.

So from the above equation it is find that white space increasing by reducing patenting activity or technical patent family.

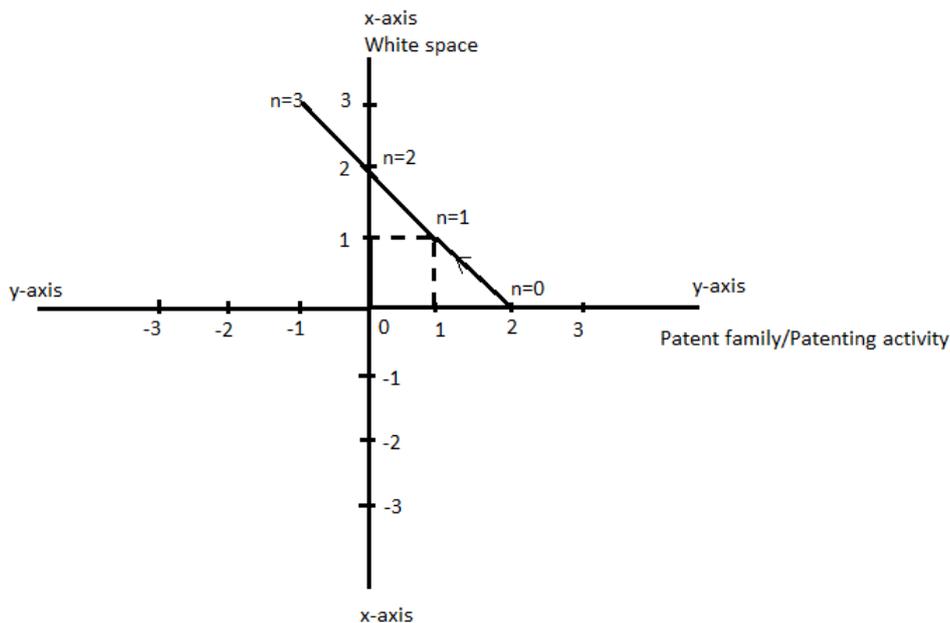


Figure 1: White Space Present but Patent Family/Patenting Activity not present

Condition 2

White space not present and patent family or patenting activity present.

$(-x +x)$ white space = $(-y+ y)$ patenting activity (patent family)

$(-x+0)$ white space = $(-0+y)$ patent family or patenting activity present.

$-x$ white space = y patent family or patenting activity present.

Both side add 1

$(-x+1)$ white space = $(y+1)$ patent family or patenting activity.

Put $x= n-1$ or $y= n-1$ wherein n pertains to number of patent present or not present in particular technology domain.

$(-(n-1) +1)$ white space = $(n-1+1)$ patent family or patenting activity.

Assume $n=0$

$(-(0-1)+1)$ white space = $(0-1+1)$ patent family or patenting activity.

2 white space = 0 patent family

Assume $n=1$



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$-(n-1) + 1$ white space = $(n-1+1)$ patent family or patenting activity.

$-(1-1)+1$ white space = $(1-1+1)$ patent family or patenting activity.

1 white space = 1 patent family or patenting activity.

Assume $n=2$

$-(n-1) + 1$ white space = $(n-1+1)$ patent family or patenting activity.

$-(2-1)+1$ white space = $(2-1+1)$ patent family or patenting activity.

$-(2+1)+1$ white space = $(2-1+1)$ patent family or patenting activity.

0 white space = 2 patent family or patenting activity.

Assume $n=3$

$-(n-1) + 1$ white space = $(n-1+1)$ patent family or patenting activity.

$-(3-1)+1$ white space = $(3-1+1)$ patent family or patenting activity.

$-(3+1)+1$ white space = (3) patent family or patenting activity.

-1 white space = 3 patent family or patenting activity.

Assume $n=4$

$-(n-1) + 1$ white space = $(n-1+1)$ patent family or patenting activity.

$-(4-1)+1$ white space = $(4-1+1)$ patent family or patenting activity.

$-(4+1)+1$ white space = (4) patent family or patenting activity.

-2 white space = 4 patent family or patenting activity.

From the above results it is identify that the white space is decreasing by increasing the patent activity or patent family

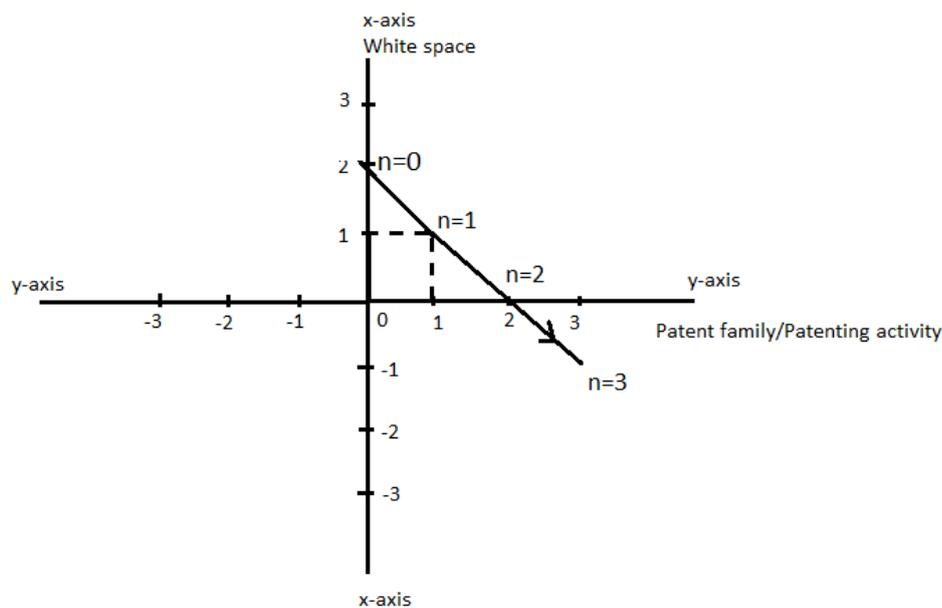
Assume $n=5$

$-(n-1) + 1$ white space = $(n-1+1)$ patent family or patenting activity.

$-(5-1) + 1$ white space = $(5-1+1)$ patent family or patenting activity.

$-(5+1)+1$ white space = (5) patenting activity or patent family or patenting activity.

-3 white space = 5 patenting activity or patent family or patenting activity.



White space not present but patenting activity/patent family present

Figure 2: White Space Not Present but Patent Family/Patenting Activity present



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From the above analysis of the equation, it is identify that white space is inversely proportional to the patent family or patenting activity by means of if the technical patent family increasing white space are reducing.

White space \propto^{-1} Patent family (Patenting activity)

V. RESULT

The present technique pertains to white space or void space analysis in which identify the void space in the absence of patenting activity in the particular technical field or by the absence of patent family in that technology. from the above analysis it is determined the by increasing the number of the patent in any technology the white space on that technology are reducing .from the above calculation and analysis it is also proved that white space reduced by increasing the patenting activity in any particular technology field in an above graph shown that x-axis is assumed to be for white space analysis and the y-axis is assumed for the patenting activity or for patent family.

From the above graphs 1 it is indicated that the white space is present which is shown by the x-axis and patenting family is not present which is shown by y-axis wherein n indicated that presence or absence of patenting activity or white space for both white spaces and patenting activity the n having the same value for each case assume for graph 1 value of n is increasing 0,1,2,3 which indicate the white space is present and increasing and same time patenting activity not increasing or reducing which means if the patenting activity not present than white space present. Similarly, another graph indicated that white space reducing by increasing the patenting activity in which the x-axis indicates the white space and y-axis indicate the patenting activity or patent family and value of n still increasing in order as like 0,1,2,3 so that show the white space reducing by increasing the patenting activity. Hence from the above equation it is identifying the white space are reducing by increasing the patenting activity in the particular technology domain and the white space is increasing in the absence of patenting activity in that particular field.

VI. CONCLUSION

The present analysis is used to identifying the presence or absence of white space in any particular technology domain by implementing the present technique .the present technique performs by applying the numeric value of $n=0, n=1, n=2, n=3$ in the given equation to identify the white space wherein the white space is decreasing by increasing the patenting activity in the particular technology field or by increasing the technical patent family in form of patent of addition or divisional patent which increase the scope of the patent technology.

The present technique pertains to the numeric calculation for the white space analysis by the presence or absence of patenting activity or the patent family in the particular technology field if any white space is identified so that can perform the patenting activity in that particular white space to fill the technology gap between the white space.

The present technique subject to many changes and modification by the person skilled in the art for determining the more accurate results to identifying the white space .the present white space analysis technique pertains to identifying the patenting activity present or not present in the given technology field if the patenting activity present in the given technology field even if patent filled by the different person such as inventor or assignee so the white space reduced or technology gap is very less or if the patenting activity not present in that technology field then the white space is present.

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