PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
LINSONG CHU	04/23/2018
KARINA ELAYNE KERVIN	04/09/2018
MICHAEL KHAYYAT	04/09/2018
HONGFEI LI	04/24/2018

RECEIVING PARTY DATA

Name:	INTERNATIONAL BUSINESS MACHINES CORPORATION	
Street Address:	NEW ORCHARD ROAD	
City:	ARMONK	
State/Country:	NEW YORK	
Postal Code:	10504	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16445574

CORRESPONDENCE DATA

Fax Number: (512)370-2850

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 512-370-2832

Email: rvoigt@winstead.com

Correspondent Name: IBM CORP. (WSM) C/O WINSTEAD P.C.

Address Line 1: P.O. BOX 131851

Address Line 4: DALLAS, TEXAS 75313

ATTORNEY DOCKET NUMBER:	SVL820160181US02	
NAME OF SUBMITTER:	ROBERT A. VOIGT, JR.	
SIGNATURE:	/Robert A. Voigt, Jr./	
DATE SIGNED: 06/19/2019		
This document serves as an Oath/Declaration (37 CFR 1.63).		

Total Attachments: 6

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PATENT REEL: 049518 FRAME: 0146 source=SVL820160181US02_IBMAssignmentDeclaration#page2.tif source=SVL820160181US02_IBMAssignmentDeclaration#page3.tif source=SVL820160181US02_IBMAssignmentDeclaration#page4.tif source=SVL820160181US02_IBMAssignmentDeclaration#page5.tif source=SVL820160181US02_IBMAssignmentDeclaration#page6.tif

PATENT REEL: 049518 FRAME: 0147

DECLARATION (37 C.F.R. § 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76) AND ASSIGNMENT

Title of Invention: IDENTIFYING GEOGRAPHIC MARKET SHARE OF BUSINESSES

As a below named and undersigned inventor, I hereby declare that:
This declaration is directed to the attached application, or (if following box is checked):
[] United States application or PCT international application numberfiled on
The above-identified application was made or authorized to be made by me.
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.
I have reviewed and understand the contents of the application, including the claims.

known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the

I am aware of the duty to disclose to the United States Patent and Trademark Office all information

IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

Page 1 of 2

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Linsong Chu	Date: 04/23/2018
(1) Legal Nam	e of Inventor: Linsong Chu	
Signature:		 Date:
Signature:		 _ Date:
	ne of Inventor: Michael Khayyat	Date:
Signature:(4) Legal Nan	ne of Inventor: Hongfei Li	 Date: 4/24/20/8

Page 2 of 2

PATENT REEL: 049518 FRAME: 0149

DECLARATION (37 C.F.R. § 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76) AND ASSIGNMENT

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The above-identified application was made or authorized to be made by me.
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.
I have reviewed and understand the noments of the application, including the claims.
Fam aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 17 C.E.R. 5, 1.56.
Whereas (# 4650 CNOR*) have made details inventions, improvements and discoveries therein referre

to as the "Invention") disclosed in the above identified patent application and further identified by the IDM Discles Number provided above in the beader of this document.

Whereas, International Business Machines Corporation (herein referred to as the "ASSICNE") and interporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to great to the ASSICNES, my entire worldwide right title, and interest in and to the Internation and many to any and all patent applications and patent directed hereto:

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all dissistance continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Insdemark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, fille, and interest in and to the same to be held and enjoyed by the ${\sf ASSIGNEE}_{
m clis}$ successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made, and I agree to execute any and all documents and instruments and perform all Inwful acts reasonably related to recording this Assignment or perfecting title to the invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns. whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

IBM DOCKET NUMBER: SVL820160181US01

I acknowledge my prior and one one obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unconcumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court stred in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both

Suparting	Date
(1) Legal Name of Engelor Limong Cha	
Supplied (2525)	Date (4)
2) Legal Name of Inventor Korina Elevne Kervin	
	Date
(2) Legal Name of Inventor Michael Khayyat	
Signature	Lute
(4) Legal Nemecal Inscrine Honglei Li	

DECLARATION (37 C.F.R. § 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76) AND ASSIGNMENT

Title of Invention: IDENTIFYING GEOGRAPHIC MARKET SHARE OF BUSINESSES

As a below named and undersigned inventor, I hereby declare that:
This declaration is directed to the attached application, or (if following box is checked):
[] United States application or PCT international application number
The above-identified application was made or authorized to be made by me.
I believe that I am the original inventor or an original joint inventor of a claimed invention in the
application.
I have reviewed and understand the contents of the application, including the claims.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

I am aware of the duty to disclose to the United States Patent and Trademark Office all information

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Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

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IBM DOCKET NUMBER: SVL820160181US01

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

Thereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Linsong Chu	
Signature	Date:
(2) Legal Name of Inventor: Karina Elayne Kervin	
Signature: Michael Khayyat (3) Legal Name of Inventor: Michael Khayyat	tone 04/09/2018
Signature:	Date:

Page 2 of 3

(4) Legal Name of Inventor: Hongfei Li