



LEF Meeting Minutes

October 18, 2018

Attendees: Rachel Edds, Jon Devries, Ron Buss, Steve Gragg, Alan Nevin, Russell Mathew, and Shelley Lloyd

Introductions

Minutes from April 26, 2018 LEF Board Meeting

- Rachel moved to approve: Approved

Status of Approved Grants

Transformation of St. Michael's Drive

- Senior housing project done
- Received award

Dos Puertas International Trade and Innovation Center Market Study; user demand, feasibility, campus; SDSU and San Diego Chapter members Carl Nettleton, Alan Nevin, \$20,000.

- Accomplished under budget
- 75 hours of interviews

No Small Plans, Phase Two: printing, teacher training, libraries, *Planning Chicago*, Chicago Architecture Fdn., Lyon, \$5,000

- Reader's tool kit/ Teacher training

New Grants

1. *Puerto Rico Spring 2019 LEW – Rio Padres Professional Advisory Delegation (PAD), Project Support*, Cassandra Francis, LAI International VP, Phase II \$10,000
 - Steve moved to approve: approved
2. *Estimating Housing Supply Elasticities for Manhattan from 1870 to 2017*, Professor Jason M. Barr – Rutgers University - \$15,000
 - Jon moved to approve: approved
3. *Emergence of Novel Sensorial Apparatuses in Virtually Enhanced Urban Space: A Case Study of Tokyo*, Elitza Koeva - \$9,750
 - Russ moved to Not move forward: approved to Not move forward

Finances

Rick Whalen = Portfolio Review

- 7.75% Compound Average Annual Rate of Return
- Good position
- Will share some outsource/fundraising companies

Rachel

- 9/30/18 \$570,000 Assets & \$7,700 Cash
- Members contributions only \$15,000 – hoping for big influx with contributions to the end of the year
- Review of 2019 Proposed Budget
 - Rachel moved to approve: Approved

New Business

By-law changes

Section 2 – Director changed from five (5) members to not less than five members.

- Russ moved to approve: Approved

Section 4 – Not less than a simple majority of the Board of Directors shall constitute a quorum.

- Russ moved to approve: Approved

Section 6 – A one-time exemption to the By-Laws which requires 2-year terms to allow one-year terms for 2019.

- Russ moved to approve: Approved

Current members can stay on until 2025

- Ron = President 1 year term
- Jon = Director and Vice President 2 year term
- Rachel = Treasurer 2 year term
- Russ = Secretary 1 year term

Recommending Michele Henries and Alan Nevin as Directors (One for one year term and one for two year term)

Rachel

- Needs to add \$2,000 to budget
- Agrees we need succession planning
- Should think about diversity when bringing new board members on

Steve – Can't have Chapter Presidents on LEF EC

Jon – Recommends Rachel be president

Amendment: For the consideration of the 2020 Officers and Directors, the LEF Nominating Committee in consultation with the Board should give additional consideration to the rotation of officers and the diversity of the Board.

Adjourned

Balance Sheet

Land Economics Foundation of
Lambda Alpha International
As of March 31, 2019
Cash Basis

Account	Mar 31, 2019
Assets	
Current Assets	
Cash and Cash Equivalents	
WF Checking xxx4632	944.98
Total Cash and Cash Equivalents	944.98
UBS Investments	562,721.78
Total Current Assets	563,666.76
Total Assets	563,666.76
Liabilities and Equity	
Equity	
Current Year Earnings	48,798.77
Net Assets	514,867.99
Total Equity	563,666.76
Total Liabilities and Equity	563,666.76

Balance Sheet

Land Economics Foundation of
Lambda Alpha International
As of December 31, 2018
Cash Basis

Account	Dec 31, 2018
Assets	
Current Assets	
Cash and Cash Equivalents	
WF Checking xxx4632	6,594.98
Total Cash and Cash Equivalents	6,594.98
UBS Investments	512,528.01
Total Current Assets	519,122.99
Total Assets	519,122.99
Liabilities and Equity	
Liabilities	
Current Liabilities	
Unearned Revenue	4,255.00
Total Current Liabilities	4,255.00
Total Liabilities	4,255.00
Equity	
Current Year Earnings	(72,214.20)
Net Assets	587,082.19
Total Equity	514,867.99
Total Liabilities and Equity	519,122.99

LEF 2018

	2011		2012		2013		2014		2015		2016		2017		2018		2019	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual as of 12/31/2018	Budget	Actual as of 3/31/2019
Revenue																		
Member's Contributions	\$32,000	\$42,436	\$25,000	\$27,045	\$35,000	\$20,910	\$30,000	\$22,010	\$25,000	\$ 30,210.00	\$25,000	\$ 28,640	\$25,000	\$24,680	\$35,000	\$23,888	\$35,000	\$ 4,255.00
Investment Income	\$8,500	\$9,667	\$6,500	\$9,689	\$10,000	\$27,195	\$10,000	\$11,302	\$10,000	\$ 24,538.66	\$10,000	\$ 19,408	\$10,000	\$29,252	\$10,000	\$35,040	\$10,000	\$ 2,458.20
Change in Value of Investments		\$4,616	\$0	\$35,295		\$39,643		\$16,175		\$ (23,986.30)		\$ 18,808		\$56,493		(\$62,722)		\$ 47,735.57
Restricted Member Contribution										\$ 5,000.00								
TOTAL	\$ 40,500.00	\$ 56,719.00	\$ 31,500.00	\$ 72,029.56	\$ 45,000.00	\$ 87,748.00	\$ 40,000.00	\$49,486.96	\$ 35,000.00	\$ 35,762.36	\$ 35,000	\$ 66,856	\$ 35,000	\$ 110,425	\$ 45,000	\$ (3,793)	\$45,000	\$ 54,448.77
Operating Expenses																		
Admin Services			\$7,500	\$7,500	\$7,500	\$7,500	\$8,000	\$7,500	\$7,500	\$ 7,500.00	\$7,500	\$ 7,500	\$7,500	\$7,500	\$8,100	\$8,100	\$8,335	
Acct & Audit	\$750	\$995	\$5,500	\$3,495		\$0			\$5,000	\$ 2,552.50	\$500	\$ 2,860	\$5,000	\$5,895	\$3,000	\$2,500	\$3,000	
Printing/Copying				\$193		\$96	\$100	\$30	\$100	\$50	\$50							
Postage/Shipping				\$4		\$100	\$4	\$50										
Officer Travel *	\$4,000	\$2,500	\$4,000	\$4,000	\$4,000	\$4,500	\$4,000	\$1,000	\$4,000	\$ 4,000.00	\$4,000	\$ 3,500	\$4,000	\$3,000	\$4,000	\$2,500	\$4,000	
Bank Fees		\$196	\$300	\$236	\$300	\$250	\$300	\$82	\$200	\$ 533.40	\$250	\$ 466	\$600	\$437	\$600	\$16	\$500	
Investment Fees					\$4,000	\$150	\$4,000	\$150	\$200	\$ 150.00	\$150	\$ 150	\$150	\$150	\$150	\$175	\$150	
Committee Member Support			\$2,500	\$124	\$1,000	\$0	\$2,000	\$0	\$1,000		\$1,000							
Website Creation & Fees			\$6,000	\$5,766		\$17	\$2,000	\$595	\$250		\$250			\$19				
Branding Initiative							\$5,000	\$5,000	\$2,000									
LEW Travel for Grantees *															\$2,000	\$872	\$2,000	\$ 500.00
Marketing															\$16,200	\$20,255	\$20,000	\$ 150.00
Misc.	\$1,200	\$1,374		-\$1,389	\$1,000	\$1,434	\$1,000	\$3,134	\$200		\$1,000		\$1,000	\$300	\$1,000	\$1,560	\$1,000	
Taxes									\$ 852.00				\$250	\$150	\$250	\$658		
TOTAL	\$5,950	\$5,065	\$25,800	\$19,926	\$17,800	\$13,951	\$26,500	\$17,495	\$20,500	\$ 15,587.90	\$ 14,700	\$ 14,476	\$18,500	\$17,450	\$35,300	\$36,636	\$38,985	\$ 650.00
Grants (from Investment Fund)	\$25,000	\$17,500	\$0	\$10,000	\$30,000	(\$5,000)	\$30,000	\$5,000	\$25,000	\$ 30,000.00	\$25,000	\$ 69,811	\$40,000	\$11,000	\$26,500	\$31,785	\$28,500	\$ 5,000.00

St. Catherine's
Rescinded

Assumptions:

- (1) travel for 4 LEF Board members two times per year;
- (2) Two grantees attend each LEW

Notes:

- 1. Annual grants are approximately 5% of Investment Funds
- 2. David Lackoff's 2015 Grant applied to 2018 Marketing Initiative.
- 3. 2018 Marketing Budget: \$5,000 approved 9/14/17 + \$7,000 approved 3/14/18 + \$4,200 approved 9/25/18

LEF GRANTS SCHEDULE

as of April 23, 2019

CURRENT PROJECTS		Total Grant			2012		2013		2014		2015		2016		2017		2018		2019	
		Approved	Date Approved	Terms	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid
1	Planning Chicago I - Jon Devries; APA publication; LEF joint funding	\$5,000	Aug-12		\$5,000					\$5,000										
2	Urban Industrial Land Preservation Strategy - Steven Webber	\$10,000	Oct-12		\$10,000			\$10,000												
3	ARES/LEF joint publication on property values & environmental factors; F. Clayton, co-editor	\$30,000	Apr-13	payable on completion			\$30,000					\$30,000								
4	Planning Atlanta	\$5,000	Oct-13	pay in 2013			\$5,000			\$5,000										
5	Transit Real Estate Premiums; Katherine Kittrell, University of Utah	\$5,000	Oct-13	payment on completion of report			\$5,000			\$5,000										
6	Planning Chicago II - Jon Devries; APA publication; LEF joint funding	\$5,000	Oct-14						\$5,000	\$5,000										
7	Transit Accessibility Real Estate Value for Com. & Multi Fam Projects - K. Kittrell	\$5,000	Feb-15								\$5,000	\$5,000								
8	Santa Fe Innovation District; Zia Chapter	\$20,000	Apr-15	\$8,000 unneeded and refunded to LEF (date?)							\$20,000	\$20,000			(\$8,000)	(\$8,000)				
9	Site Plan review guide: Les Pollock with APA	\$12,000	Apr-15	Note: APA declined; check voided 2/3/16							\$12,000	\$12,000	(\$12,000)	(\$12,000)						
10	Land Use Mix for Fiscal Sustainability in Beachfront Communities - Rebecca Harris/U of S. Florida	\$12,311	Apr-16										\$12,311	\$12,311						
11	Empirical Analysis of Central City Decline - Emil Malizia/UNC	\$15,000	Apr-16										\$15,000	\$15,000						
12	Malaga Cove Plaza Enhancement - LA Chapter	\$18,500	Apr-16										\$18,500	\$15,000						
13	Trip & Parking Generation at TOD - Guang Tian, U. of Utah	\$7,500	Apr-16										\$7,500	\$5,000		\$2,500				
14	Preserving Chicago Planning History - Newberry Library	\$15,000	Sep-16	\$10,000 initially; \$5,000 at completion of Digital Phase									\$15,000	\$10,000						

CURRENT PROJECTS		Total Grant			2012		2013		2014		2015		2016		2017		2018		2019	
		Approved	Date Approved	Terms	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid	approved	paid
15	Preserving Mt. Vernon, NY's Historic Downtown	\$20,000	Sep-16	\$12,500 initially; \$5,000 on comp. of public input; \$2,500 with final report									\$20,000	\$12,500				\$7,500		
16	No Small Plans - Chicago Architecture Foundation	\$5,000	Apr-17												\$5,000	\$5,000				
17	Office Building Characteristics & Well Being of Occupants - University of Washington	\$16,500	Apr-17	\$11,500 initially; \$5,000 on completion.											\$16,500	\$11,500				\$5,000
18	Dos Puertas International Trade & Innovation Center Market Study	\$15,000	Apr-18	\$10,000 initially; \$5,000 with complete report													\$15,000	\$11,785		
19	No Small Plans, Phase Two	\$5,000	Apr-18	Reports to all LAI Chapters													\$5,000	\$5,000		
20	Big Data Accessibility Measures & Urban Land Values	\$10,000	Apr-18	\$7,500 initially; \$2,500 with complete report													\$10,000	\$7,500		
21	Puerto Rico Spring 2019 LEW - PAD Support	\$3,000	Apr-18	LAI Match													\$3,000			
22	Puerto Rico Spring 2019 LEW PAD Support - Phase II	\$10,000	Oct-18														\$10,000			
23	Housing Supply Elasticities for Manhattan, 1870 - 2017	\$15,000	Oct-18	\$10,000 initially; \$5,000 on report completion													\$15,000			\$10,000
	TOTALS	\$264,811			\$15,000	\$0	\$40,000	\$10,000	\$5,000	\$20,000	\$37,000	\$67,000	\$76,311	\$57,811	\$13,500	\$11,000	\$58,000	\$31,785	\$0	\$15,000

Land Economics Foundation

<u>GRANT LOG as of April 23, 2019</u>						
			Date	Date		
	<u>Awarded To:</u>	<u>Amount</u>	<u>Approved</u>	<u>Rescinded</u>	<u>Date Paid</u>	<u>Notes</u>
<u>Grants Committed</u>						
Malaga Cove Plaza Enhancement	LA Chapter	\$ 18,500.00	4/21/2016		5/25/2016	Contingent on \$3,500 contribution by local merchants. 1st payment \$15,000
Preserving Chicago's Planning History	Newberry Library	\$ 15,000.00	9/22/2016		10/17/2016	\$10,000 initially; \$5,000 at completion of Digital Phase
Office Bldg Characteristics & Well-Being of Occupants	U. of Washington	\$ 16,500.00	4/27/2017		6/6/2017 & 2/4/19	\$11,500 initially; \$5,000 on completion.
Big Data Accessibility Measures & Urban Land Values	Steven Bourassa, FAU	\$ 10,000.00	4/26/2018		6/18/2018	\$7,500 initially; \$2,500 with complete report
Puerto Rico Spring 2019 LEW - PAD Support	LAI	\$ 3,000.00	4/26/2018			LAI match
Puerto Rico Spring 2019 LEW PAD Support - Phase II	LAI	\$ 10,000.00	10/18/2018			
Housing Supply Elasticities for Manhattan 1870 - 2017	Jason M. Barr, Rutgers Univ.	\$ 15,000.00	10/18/2018		4/23/2019	\$10,000 initially; \$5,000 on report completion
<u>Grants Completed</u>						
Clemson Grant		\$ 10,000.00	10/3/2011		10/31/2013	
Planning Chicago I	APA/Jon DeVries	\$ 5,000.00	8/1/2012		1/28/2014	Book Project
Planning Atlanta	APA	\$ 5,000.00	10/3/2013		12/14/2014	
Property Values & Environmental Factors	ARES	\$ 30,000.00	4/25/2013		7/16/2015	Publication expected in 2014
Transit Real Estate Premiums	Katherine Kittrell/U of Utah	\$ 5,000.00	10/3/2013		12/17/2014	
Transit R.E. Values - Com. & MultiFam	Katherine Kittrell/U of Utah	\$ 5,000.00	2/6/2015		4/3/2015	Publicity for results
Planning Chicago II	APA/ Jon DeVries	\$ 5,000.00	10/17/2014		12/24/2014	E-Book
Land Use Mix for Fiscal Sustainability in Beachfront Communities	Rebecca Harris/U of S. Florida	\$ 12,311.00	4/21/2016		5/25/2016	
Empirical Analysis of Central City Decline	Emil Malizia/UNC	\$ 15,000.00	4/21/2016		5/25/2016	
No Small Plans	Chicago Architecture Found	\$ 5,000.00	4/27/2017		6/6/2017	Chicago school outreach on why design matters.

Land Economics Foundation

			Date	Date		
	<u>Awarded To:</u>	<u>Amount</u>	<u>Approved</u>	<u>Rescinded</u>	<u>Date Paid</u>	<u>Notes</u>
Trip & Parking Generation at TOD	Guang Tian, U. of Utah	\$ 7,500.00	4/21/2016		5/25/2016	1st payment \$5,000; 2nd payment \$2,500 2017
Santa Fe Innov. Dist.	Zia Chapter	\$ 20,000.00	4/23/2015		5/3/2015	Matching donation from Santa Fe realtors. \$8,000 refunded (unneeded) - See below
Preserving Mt. Vernon, NY's Historic Downtown	City of Mt. Vernon	\$20,000.00	9/22/2016		10/17/2016 3/30/2018	\$12,500 initially; \$5,000 on completion of public input; \$2,500 final case study report
Ryerson University	Dr. Steven Webber	\$10,000.00	10/3/2012		2/8/2013	Industrial Land Preservation Strategies in 4 cities: Final report never received.
Dos Puertas International Trade & Innovation Center Market Study	Carl Nettleton, SDSU Foundation	\$15,000.00	4/26/2018		6/18/2018 and 7/12/2018	\$10,000 initially; \$5,000 with complete report (Only \$11,785 needed for entire project. So \$3,215 unspent.)
No Small Plans, Phase Two	Chicago Architecture Found	\$5,000.00	4/26/2018		6/18/2018	Provide reports to LAI Chapters
<u>Grants Rescinded</u>						
Santa Fe	St. Catherine's Indian School	\$ 4,668.46	10/21/2010	4/25/2013		Did not find a match. Invited to reapply in the future. 9/25/13 Rec'd ck from Zia chapter for \$4,668.46 as refund of grant money. \$5,000, less photographer costs of \$337.50, plus interest of \$5.96.
San Francisco	SPUR	\$ 25,000.00	?	10/3/2012		
San Francisco	SPUR	\$ 15,000.00	?	10/3/2012		Money returned around time of Sacramento LEW '11
U. of Toronto	Eric Miller	\$ 15,000.00	4/3/2014 revised	8/19/2014		Study of transportation investment decision making. \$5,000 advance will be paid for lit. search & framework; \$10,000 paid upon completion of initial phase & assurance of sufficient other funds to complete study. Eric Miller declined revised grant offer.
Site Plan Review Guide	Les Pollock	\$ 12,000.00	4/23/2015	2/23/2016		Check voided. Project was not funded by APA
Santa Fe Innov. Dist.	Zia Chapter	\$ 8,000.00	4/23/2015	9/14/2017		Amount unneeded and refunded 2017



UBS Financial Services Inc.
2555 East Camelback Road
Suite 600
Phoenix AZ 85016-9215

ANQ70015119110319 X15 UX 0

Business Services Account

March 2019

Account name: LAND ECONOMICS FOUNDATION

Account number: UX 22585 WH

Your Financial Advisor:

RICHARD WHALEN

Phone: 602-957-5100/800-247-1754

Questions about your statement?

Call your Financial Advisor or the
ResourceLine at 800-762-1000,
account 346022585.

Visit our website:

www.ubs.com/financialservices

Items for your attention

► Help protect yourself from fraud and
review bank, credit card, and brokerage
statements regularly. Also, get your free
credit report annually from
www.annualcreditreport.com.

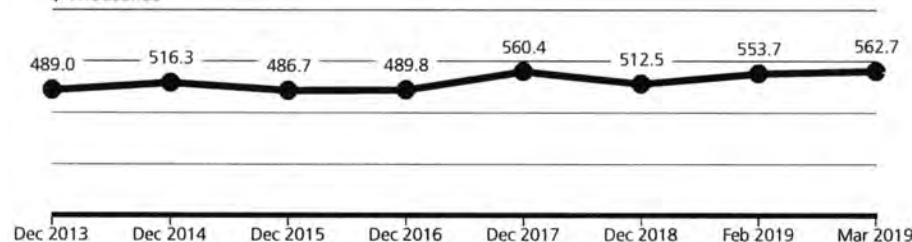
LAND ECONOMICS FOUNDATION
P O BOX 72720
PHOENIX AZ 85050-1029

Value of your account

	on February 28 (\$)	on March 29 (\$)
Your assets	553,843.26	562,721.78
Your liabilities	-175.00	0.00
Value of your account	\$553,668.26	\$562,721.78

Tracking the value of your account

\$ Thousands



Sources of your account growth during 2019

Value of your account
at year end 2018 \$512,528.01

Your investment return:

Dividend and interest income	\$2,458.20
Change in market value	\$47,735.57

Value of your account on Mar 29, 2019 \$562,721.78



Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

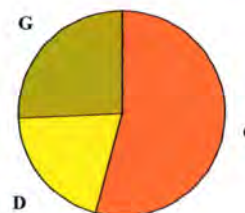
Your account balance sheet

Summary of your assets

	Value on March 29 (\$)	Percentage of your account
A Cash and money balances	0.00	0.00%
B Cash alternatives	0.00	0.00%
C Equities	304,475.28	54.11%
D Fixed income	113,031.40	20.09%
E Non-traditional	0.00	0.00%
F Commodities	0.00	0.00%
G Other	145,215.10	25.80%
Total assets	\$562,721.78	100.00%

Value of your account **\$562,721.78**

Your current asset allocation



Eye on the markets

Index	Percentage change	
	March 2019	Year to date
S&P 500	1.94%	13.65%
Russell 3000	1.46%	14.04%
MSCI - Europe, Australia & Far East	0.74%	10.13%
Barclays Capital U.S. Aggregate Bond Index	1.92%	2.94%

Interest rates on March 29, 2019

3-month Treasury bills: 2.31%

One-month LIBOR: 2.49%



Business Services Account
March 2019

Account name:
Account number:

LAND ECONOMICS FOUNDATION
UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Change in the value of your account

	March 2019 (\$)	Year to date (\$)
Opening account value	\$553,668.26	\$512,528.01
Dividend and interest income	1,860.42	2,458.20
Change in market value	7,193.10	47,735.57
Closing account value	\$562,721.78	\$562,721.78

Dividend and interest income earned

For purposes of this statement, taxability of interest and dividend income has been determined from a US tax reporting perspective. Based upon the residence of the account holder, account type, or product type, some interest and/or dividend payments may not be subject to United States (US) and/or Puerto Rico (PR) income taxes. The client monthly statement is not intended to be used and cannot be relied upon for tax purposes. Clients should refer to the applicable tax reporting forms they receive from UBS annually, such as the Forms 1099 and the Forms 480, for tax reporting information. It is the practice of UBS to file the applicable tax reporting forms with the US Internal Revenue Service and PR Treasury Department, and in such forms accurately classify dividends and/or interest as tax exempt or taxable income. Please consult your individual tax preparer.

	March 2019 (\$)	Year to date (\$)
Taxable dividends	1,860.42	2,138.95
Total current year	\$1,860.42	\$2,138.95
Prior year adjustment	0.00	319.25
Total dividend & interest	\$1,860.42	\$2,458.20

Summary of gains and losses

Values reported below exclude products for which gains and losses are not classified.

	Realized gains and losses		Unrealized gains and losses (\$)
	March 2019 (\$)	Year to date (\$)	
Short term	0.00	0.00	3,495.95
Long term	31.35	31.35	44,411.57
Total	\$31.35	\$31.35	\$47,907.52

Cash activity summary

See *Account activity this month* for details. Balances in your Sweep Options are included in the opening and closing balances value. FDIC insurance applies to deposits at UBS Bank USA and all banks participating in the UBS FDIC Insured Deposit Program. It does not apply to deposits at UBS AG, Stamford Branch. SIPC protection applies to money market sweep fund holdings but not bank deposits. See *Important information about your statement* on the last two pages of this document for details.

	March 2019 (\$)	Year to date (\$)
Opening balances	-\$175.00	-\$175.00
<i>Additions</i>		
Dividend and interest income	1,860.42	2,458.20
Proceeds from investment transactions	175.00	175.00
Total additions	\$2,035.42	\$2,633.20
<i>Subtractions</i>		
Funds withdrawn for investments bought	-1,860.42	-2,458.20
Total subtractions	-\$1,860.42	-\$2,458.20
Net cash flow	\$175.00	\$175.00
Closing balances	\$0.00	\$0.00

Your investment objectives:

You have identified the following investment objectives for this account. If you have questions about these objectives, disagree with them, or wish to change them, please contact your Financial Advisor or Branch Manager. You can find a full description of the alternative investment objectives in *Important information about your statement* at the end of this document.

Your return objective:

Current income & capital appreciation

Your risk profile:

Primary - Moderate

Investment eligibility consideration - None selected



Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your account instructions

- Your account cost basis default closing method is FIFO, First In, First Out.



Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your assets

Some prices, income and current values shown may be approximate. As a result, gains and losses may not be accurately reflected. See *Important information about your statement* at the end of this document for more information.

Cash

Cash and money balances

Holding	Opening balance on Mar 1 (\$)	Closing balance on Mar 29 (\$)	Price per share on Mar 29 (\$)	Average rate	Dividend/Interest period	Days in period
Cash	-175.00	0.00				

Equities

Mutual funds

Total reinvested is the total of all reinvested dividends. It does not include any cash dividends. It is not a tax lot for the purposes of determining holding periods or cost basis. The shares you receive each time you reinvest dividends become a separate tax lot.

Cost basis is the total purchase cost of the security, including reinvested dividends. The cost basis may need to be adjusted for return of capital payments in order to determine the adjusted cost basis for tax reporting purposes.

Unrealized (tax) gain or loss is the difference between the current value and the cost basis and would generally be your taxable gain or loss if the security was sold on this date. The unrealized (tax) gain or loss may need to be adjusted for return of capital payments in order to determine the realized gain or loss for tax reporting purposes.

Investment return is the current value minus the amount you invested. It does not include shares that are not reflected on your statement, including shares that have been realized as either a gain or a loss. It also does not include cash dividends that were not reinvested.

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
AMER FUNDS CAPITAL WORLD GROWTH & INCOME FUND CL A Symbol: CWGIX Trade date: May 16, 13 Total reinvested EAI: \$1,071 Current yield: 1.82% Security total	915.358 312.668 1,228.026	41.984 45.886 42.978	38,431.13	38,431.13 14,347.13 52,778.26	47.810 47.810	43,763.26 14,948.66 58,711.92	5,332.13 601.53 5,933.66	20,280.79	LT
AMERICAN FUNDS SMALLCAP WORLD FUND CL A Symbol: SMCWX Trade date: May 16, 13 Total reinvested	413.806 182.722	46.110 46.628	19,080.86	19,080.86 8,520.03	54.160 54.160	22,411.73 9,896.22	3,330.87 1,376.19		LT

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your assets ▸ **Equities** ▸ **Mutual funds** (continued)

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
Security total	596.528	46.269	19,080.86	27,600.89		32,307.95	4,707.06	13,227.09	
AMERICAN FUNDS									
FUNDAMENTAL INVESTORS									
FUND CL A									
Symbol: ANCFX									
Trade date: May 16, 13	786.791	47.255	37,180.15	37,180.15	58.380	45,932.85	8,752.70		LT
Total reinvested	439.902	53.972		23,742.58	58.380	25,681.48	1,938.90		
EAI: \$803 Current yield: 1.12%									
Security total	1,226.693	49.664	37,180.15	60,922.73		71,614.33	10,691.60	34,434.18	
AMERICAN FUNDS GROWTH									
FUND OF AMERICA CLASS A									
Symbol: AGTHX									
Trade date: May 16, 13	467.221	39.789	18,590.33	18,590.33	48.650	22,730.30	4,139.97		LT
Total reinvested	341.073	42.678		14,556.64	48.650	16,593.20	2,036.56		
EAI: \$246 Current yield: 0.63%									
Security total	808.294	41.009	18,590.33	33,146.97		39,323.50	6,176.53	20,733.17	
AMERICAN FUNDS									
INVESTMENT COMPANY									
OF AMERICA CL A									
Symbol: AIVSX									
Trade date: May 16, 13	526.193	35.008	18,420.99	18,420.99	37.620	19,795.38	1,374.39		LT
Total reinvested	404.617	36.370		14,716.08	37.620	15,221.69	505.61		
EAI: \$578 Current yield: 1.65%									
Security total	930.810	35.600	18,420.99	33,137.07		35,017.07	1,880.00	16,596.08	
AMERICAN FUNDS NEW									
PERSPECTIVE FUND CL A									
Symbol: ANWPX									
Trade date: May 16, 13	1,076.181	35.464	38,165.77	38,165.77	42.910	46,178.92	8,013.15		LT
Total reinvested	496.891	37.469		18,618.09	42.910	21,321.59	2,703.50		
EAI: \$702 Current yield: 1.04%									
Security total	1,573.072	36.097	38,165.77	56,783.86		67,500.51	10,716.65	29,334.74	

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your assets » Equities » Mutual funds (continued)

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
Total			\$169,869.23	\$264,369.78		\$304,475.28	\$40,105.50	\$134,606.05	
Total estimated annual income: \$3,400									

Fixed income

Mutual funds

Total reinvested is the total of all reinvested dividends. It does not include any cash dividends. It is not a tax lot for the purposes of determining holding periods or cost basis. The shares you receive each time you reinvest dividends become a separate tax lot.

Cost basis is the total purchase cost of the security, including reinvested dividends. The cost basis may need to be adjusted for return of capital payments in order to determine the adjusted cost basis for tax reporting purposes.

Unrealized (tax) gain or loss is the difference between the current value and the cost basis and would generally be your taxable gain or loss if the security was sold on this date. The unrealized (tax) gain or loss may need to be adjusted for return of capital payments in order to determine the realized gain or loss for tax reporting purposes.

Investment return is the current value minus the amount you invested. It does not include shares that are not reflected on your statement, including shares that have been realized as either a gain or a loss. It also does not include cash dividends that were not reinvested.

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
AMERICAN FUNDS CAPITAL WORLD BOND FUND CL A Symbol: CWBFX									
Trade date: May 16, 13	1,390.399	20.481	28,477.68	28,477.68	19.630	27,293.53	-1,184.15		LT
Total reinvested	229.228	19.711		4,518.39 ²	19.630	4,499.74	-18.65		
EAI: \$583 Current yield: 1.83%									
Security total	1,619.627	20.373	28,477.68	32,996.07		31,793.27	-1,202.80	3,315.59	
AMERICAN FUNDS AMERICAN HIGH INCOME TRUST FUND CL A Symbol: AHITX									
Trade date: May 16, 13	2,318.297	11.641	26,988.08	26,988.08	10.130	23,484.35	-3,503.73		LT
Total reinvested	1,360.479	10.700		14,558.48 ²	10.130	13,781.65	-776.83		
EAI: \$2,258 Current yield: 6.06%									
Security total	3,678.776	11.294	26,988.08	41,546.56		37,266.00	-4,280.56	10,277.92	
AMERICAN FUNDS BOND FUND OF AMERICA CL A Symbol: ABNDX									

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your assets › **Fixed income** › **Mutual funds** (continued)

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
Trade date: May 16, 13	2,999.720	12.871	38,610.83	38,610.83	12.860	38,576.40	-34.43		LT
Total reinvested	419.575	12.739		5,345.24 ²	12.860	5,395.73	50.49		
EAI: \$1,053 Current yield: 2.39%									
Security total	3,419.295	12.855	38,610.83	43,956.07		43,972.13	16.06	5,361.30	
Total			\$94,076.59	\$118,498.70		\$113,031.40	-\$5,467.30	\$18,954.81	

Total estimated annual income: \$3,894

² Value has been adjusted to include the amount of the disallowed loss as a result of a Wash Sale transaction.

Other

Mutual funds

Total reinvested is the total of all reinvested dividends. It does not include any cash dividends. It is not a tax lot for the purposes of determining holding periods or cost basis. The shares you receive each time you reinvest dividends become a separate tax lot.

Cost basis is the total purchase cost of the security, including reinvested dividends. The cost basis may need to be adjusted for return of capital payments in order to determine the adjusted cost basis for tax reporting purposes.

Unrealized (tax) gain or loss is the difference between the current value and the cost basis and would generally be your taxable gain or loss if the security was sold on this date. The unrealized (tax) gain or loss may need to be adjusted for return of capital payments in order to determine the realized gain or loss for tax reporting purposes.

Investment return is the current value minus the amount you invested. It does not include shares that are not reflected on your statement, including shares that have been realized as either a gain or a loss. It also does not include cash dividends that were not reinvested.

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
AMERICAN FUNDS									
AMERICAN BALANCED FUND									
CL A									
Symbol: ABALX									
Trade date: May 16, 13	1,673.691	22.792	38,147.79	38,147.79	26.770	44,804.70	6,656.91		LT
Total reinvested	644.672	25.133		16,202.72	26.770	17,257.87	1,055.15		
EAI: \$927 Current yield: 1.49%									
Security total	2,318.363	23.443	38,147.79	54,350.51		62,062.57	7,712.06	23,914.78	
AMERICAN FUNDS CAPITAL									
INCOME BUILDER FUND									
CL A									
Symbol: CAIBX									
Trade date: May 16, 13	327.986	57.893	18,988.19	18,988.19	60.440	19,823.47	835.28		LT
Total reinvested	97.132	58.954		5,726.36	60.440	5,870.66	144.30		

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Your assets ▸ Other ▸ Mutual funds (continued)

Holding	Number of shares	Purchase price/ Average price per share (\$)	Client investment (\$)	Cost basis (\$)	Price per share on Mar 29 (\$)	Value on Mar 29 (\$)	Unrealized (tax) gain or loss (\$)	Investment return (\$)	Holding period
EAI: \$850 Current yield: 3.31%									
Security total	425.118	58.136	18,988.19	24,714.55		25,694.13	979.58	6,705.94	
AMERICAN FUNDS INCOME FUND OF AMERICA CL A									
Symbol: AMECX									
Trade date: May 16, 13	1,938.534	19.962	38,697.59	38,697.59	22.080	42,802.82	4,105.23		LT
Total reinvested	663.749	21.368		14,183.13	22.080	14,655.58	472.45		
EAI: \$1,717 Current yield: 2.99%									
Security total	2,602.283	20.321	38,697.59	52,880.72		57,458.40	4,577.68	18,760.81	
Total			\$95,833.57	\$131,945.78		\$145,215.10	\$13,269.32	\$49,381.53	

Total estimated annual income: \$3,494

Your total assets

		Value on Mar 29 (\$)	Percentage of your account	Cost basis (\$)	Estimated annual income (\$)	Unrealized gain or loss (\$)
Equities	Mutual funds	304,475.28	54.11%	264,369.78	3,400.00	40,105.50
Fixed income	Mutual funds	113,031.40	20.09%	118,498.70	3,894.00	-5,467.30
Other	Mutual funds	145,215.10	25.80%	131,945.78	3,494.00	13,269.32
Total		\$562,721.78	100.00%	\$514,814.26	\$10,788.00	\$47,907.52

Account activity this month

For more information about the price/value shown for restricted securities, see *Important information about your statement* at the end of this document.

Date	Activity	Description	Your expense code	Quantity/ Face value	Price/Value (\$)	Cash amount (\$)	Cash and money balance (\$)
Feb 28		Cash and money balance					-\$175.00
Mar 1	Dividend	AMERICAN FUNDS AMERICAN HIGH INCOME TRUST FUND CL A AS OF 02/28/19 SYMBOL: AHITX				178.95	

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
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602-957-5100/800-247-1754

Account activity this month (continued)

Date	Activity	Description	Your expense code	Quantity/ Face value	Price/Value (\$)	Cash amount (\$)	Cash and money balance (\$)
Mar 1	Reinvestment	AMERICAN FUNDS AMERICAN HIGH INCOME TRUST FUND CL A DIVIDEND REINVESTED AT 10.10 NAV ON 02/28/19 AS OF 02/28/19 SYMBOL: AHITX		17.718		-178.95	
Mar 1	Dividend	AMERICAN FUNDS BOND FUND OF AMERICA CL A AS OF 02/28/19 SYMBOL: ABNDX				78.36	
Mar 1	Reinvestment	AMERICAN FUNDS BOND FUND OF AMERICA CL A DIVIDEND REINVESTED AT 12.66 NAV ON 02/28/19 AS OF 02/28/19 SYMBOL: ABNDX		6.190		-78.36	-175.00
Mar 13	Sold	AMERICAN FUNDS FUNDAMENTAL INVESTORS FUND CL A FB0ID 90702031843 SYMBOL: ANCFX		-3.040	57.570	175.00	
Mar 14	Dividend	AMERICAN FUNDS AMERICAN BALANCED FUND CL A SYMBOL: ABALX				230.97	
Mar 14	Reinvestment	AMERICAN FUNDS AMERICAN BALANCED FUND CL A DIVIDEND REINVESTED AT 26.52 NAV ON 03/13/19 SYMBOL: ABALX		8.709		-230.97	
Mar 14	Dividend	AMERICAN FUNDS CAPITAL INCOME BUILDER FUND CL A SYMBOL: CAIBX				210.79	
Mar 14	Reinvestment	AMERICAN FUNDS CAPITAL INCOME BUILDER FUND CL A DIVIDEND REINVESTED AT 59.69 NAV ON 03/13/19 SYMBOL: CAIBX		3.531		-210.79	
Mar 14	Dividend	AMER FUNDS CAPITAL WORLD GROWTH & INCOME FUND CL A SYMBOL: CWGIX				244.57	
Mar 14	Reinvestment	AMER FUNDS CAPITAL WORLD GROWTH & INCOME FUND CL A DIVIDEND REINVESTED AT 47.06 NAV ON 03/13/19 SYMBOL: CWGIX		5.197		-244.57	
Mar 14	Dividend	AMERICAN FUNDS INCOME FUND OF AMERICA CL A SYMBOL: AMECX				426.17	

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Business Services Account
March 2019

Account name: LAND ECONOMICS FOUNDATION
Account number: UX 22585 WH

Your Financial Advisor:
RICHARD WHALEN
602-957-5100/800-247-1754

Account activity this month (continued)

Date	Activity	Description	Your expense code	Quantity/ Face value	Price/Value (\$)	Cash amount (\$)	Cash and money balance (\$)
Mar 14	Reinvestment	AMERICAN FUNDS INCOME FUND OF AMERICA CL A DIVIDEND REINVESTED AT 21.94 NAV ON 03/13/19 SYMBOL: AMECX		19.424		-426.17	
Mar 18	Dividend	AMERICAN FUNDS FUNDAMENTAL INVESTORS FUND CL A SYMBOL: ANCFX				201.83	
Mar 18	Reinvestment	AMERICAN FUNDS FUNDAMENTAL INVESTORS FUND CL A DIVIDEND REINVESTED AT 58.38 NAV ON 03/15/19 SYMBOL: ANCFX		3.457		-201.83	
Mar 18	Dividend	AMERICAN FUNDS INVESTMENT COMPANY OF AMERICA CL A SYMBOL: AIVSX				143.68	
Mar 18	Reinvestment	AMERICAN FUNDS INVESTMENT COMPANY OF AMERICA CL A DIVIDEND REINVESTED AT 37.27 NAV ON 03/15/19 SYMBOL: AIVSX		3.855		-143.68	
Mar 25	Dividend	AMERICAN FUNDS CAPITAL WORLD BOND FUND CL A SYMBOL: CWBFX				145.10	
Mar 25	Reinvestment	AMERICAN FUNDS CAPITAL WORLD BOND FUND CL A DIVIDEND REINVESTED AT 19.68 NAV ON 03/22/19 SYMBOL: CWBFX		7.373		-145.10	
Mar 29		Closing cash and money balance					\$0.00
		Proceeds from investment transactions					\$175.00
		Funds used for investment transactions					-\$1,860.42



Business Services Account
March 2019

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Realized gains and losses

The estimated realized gains and losses shown below are not for tax purposes. Please note that gain or loss recognized on the sale or redemption of certain Structured Products, like Contingent Debt Securities, may be ordinary, and not capital, gain or loss. Please check with your tax advisor. To calculate gains and losses, we liquidate the oldest security lot first. This is known as the first-in, first-out or FIFO accounting method. We use this method unless you specified which tax lot to close when you placed your order. This is known as a versus purchases or VSP order. See *Important information about your statement* at the end of this document for more

information. We may not adjust gains and losses for all capital changes. We automatically adjust cost basis for tax-exempt and AMT coupon municipal securities for estimated amortization of bond premiums and for accreted OID for securities issued at a discount. If you requested that UBS adjust cost basis for the bond premium amortization on taxable debt securities then cost basis reflected for these securities has been adjusted. Estimates in the *Unclassified* section can not be classified as short term or long term because information is missing, or the product is one in which the gain/loss calculation is not provided.

Long-term capital gains and losses

Security description	Method	Quantity or face value	Purchase date	Sale date	Sale amount (\$)	Cost basis (\$)	Wash sale cost basis adjustment(\$)	Loss (\$)	Gain (\$)
AMERICAN FUNDS FUNDAMENTAL INVESTORS FUND CL A	FIFO	3.040	May 16, 13	Mar 11, 19	175.00	143.65			31.35

Important information about your statement

UBS Financial Services Inc. (the Firm or UBS Financial Services), is a member of all principal security, commodity and options exchanges. UBS Financial Services and UBS Bank USA are indirect subsidiaries of UBS AG and affiliates of UBS Securities LLC. The Firm's financial statement is available upon request. The Firm's executive offices are at:

UBS Financial Services Inc.
1200 Harbor Boulevard
Weehawken, NJ 07086

This statement represents the only official record of your UBS Financial Services account. Other records, except official tax documents, containing conflicting data should not be relied upon. If you believe there is an error or omission, please report it immediately in writing to the Branch Manager of the office serving your account.

Although all figures shown are intended to be accurate, statement data should not be used for tax purposes. Rely solely on year-end tax forms, (i.e., Form 1099, 5498, 1042S, etc.) when preparing your tax return. The Firm is required by law to report to the IRS all taxable dividends, reportable non-taxable dividends and taxable interest earned on securities held in your account, net proceeds on sale transactions, and cost basis on certain covered securities.

Communications with the Firm

- Please re-confirm any oral communications in writing to further protect your rights, including your rights under the Securities Investor Protection Act (SIPA).
- If the financial institution on the top left of the front of this statement is not UBS Financial Services, UBS Financial Services carries your account as clearing broker by arrangement with the indicated institution. We informed you of this relationship when you opened this account. In this case, your funds and securities are located at UBS Financial Services and not the introducing broker, and you must make a report of any error or omission to **both** firms.
- As described in the account agreements, you must notify us of any errors or fraud involving checks reflected on your statement within 30 days after it was mailed or made available.
- Please direct customer complaints or inquiries to the Firm's Client Relations Department at 201-352-1699 or toll-free at 800-354-9103, 8:00 A.M. to 6:00 P.M. ET Monday through Friday, or in writing to UBS Financial Services Inc., Client Relations Department, P.O. Box 766 Union City, NJ 07087.
- All statements shall be deemed complete and accurate if not objected to in writing within 60 days.
- For TTY services: Call 844-612-0986 or from outside the U.S.: Call 201-352-1495
- In case of errors or questions about an electronic funds transfer (EFT), bill payment or UBS Visa® debit card transactions, call 800-762-1000, or write to UBS Financial Services Inc., 1000 Harbor Blvd., 6th floor, Weehawken, NJ 07086, Attn: RMA/BSA Services.

Call or write as soon as you can, if you think your statement or receipt is wrong or if you need more information about a transfer on the statement or receipt. The Firm or Card Issuer (as applicable) must

hear from you no later than 60 days after the Firm sent you the first statement on which the error or problem appeared.

- Provide your name and account number (if any).
- Describe the error or the transfer you are unsure about, and explain as clearly as you can why you believe it is an error or why you need more information.
- Provide the dollar amount of the suspected error.

The Firm or Card Issuer will investigate your complaint and will correct any error promptly. For alleged errors involving UBS Visa® debit card transactions, if we take more than 10 business days to do this, we will credit your account for the amount you think is in error, so that you will have the use of the money during the time it takes us to complete our investigation.

Please make all checks payable to the Firm or the financial institution indicated on the front of this statement. In addition to regular account fees, accounts may be subject to maintenance fees, charges for late payment for securities purchases and charges for unpaid amounts in cash accounts. Accounts that are transferred to other institutions may be subject to a transfer fee.

UBS Sweep Options

UBS offers options for sweeping cash balances to bank deposit accounts at non-affiliated banks and affiliated banks and money market mutual funds (Money Funds). Deposit accounts at UBS Bank USA and non-affiliated banks participating in the UBS FDIC-insured Deposit Program are FDIC-insured in accordance with FDIC rules. For more information, please visit www.fdic.gov. Deposit accounts at UBS AG Stamford Branch and shares of Money Funds are not insured by the FDIC.

Bank deposits are not protected by SIPC. Money Fund shares are protected by SIPC. See "UBS Financial Services Account Protection" below.

Upon your request, balances in the bank deposits may be withdrawn, and shares of a Money Fund may be liquidated, and the proceeds returned to you or your securities account.

Further information about available sweep options, including current interest rates and yields, is available at www.ubs.com/sweepyields, from your Financial Advisor or by calling 800-762-1000.

UBS Financial Services account protection

The Firm is a member of the Securities Investor Protection Corporation (SIPC), which protects securities customers of its members up to \$500,000 (including \$250,000 for claims for cash). Explanatory brochure available upon request or at www.sipc.org. The SIPC asset protection limits apply to all accounts that you hold in a particular capacity.

The Firm, together with certain affiliates, has also purchased supplemental insurance. The maximum amount payable to all eligible clients, collectively under this protection is \$500 million as of December 10, 2016. Subject to the policy conditions and limitations, cash at the Firm is further protected for up to \$1.9 million in the aggregate for all your accounts held in a particular

capacity. A full copy of the policy wording is available upon request.

Neither the SIPC protection nor the supplemental protection apply to:

- Certain financial assets controlled by (and included in your account value) but held away from UBS Financial Services. For example certain (i) insurance products, including variable annuities, and (ii) shares of mutual funds registered in the name of the account holder on the books of the issuer or transfer agent;
- Investment contracts or investment interests (e.g., limited partnerships and private placements) that are not registered under the Securities Act of 1933;
- Commodities contracts (e.g., foreign exchange and precious metal contracts), including futures contracts and commodity option contracts; and
- Deposit accounts (except certificates of deposit) at UBS Bank USA, UBS AG U.S. branches and banks in the FDIC Insured Deposit Program.

The SIPC protection and the supplemental protection do not apply to these assets even if they otherwise appear on your statements. The SIPC protection and the supplemental protection do not protect against changes in the market value of your investments (whether as a result of market movement, issuer bankruptcy or otherwise).

Dividend Reinvestment Program (DRIP)

The price reflected is an average price. You may obtain the actual price from your Financial Advisor. Only whole shares are purchased under DRIP, partial shares will be sold and the cash will be deposited in your account. The dividend reinvestment price supplied by the issuer may differ from the market price at which the partial shares are sold.

Cash-in-lieu

Only whole units may be held in your account. If you are entitled to a partial unit as a result of a dividend payment or otherwise, the Firm will either sell partial units at market price or accept an amount determined by a registered clearing agency, and credit your account.

Investment objectives

The investment objectives and risk profile are specific to each account and may vary between your accounts.

Please advise the Firm promptly in writing of any significant change in your financial situation or investment objectives. For each account held, you choose one of the following investment objectives:

- **Produce Current Income:** Investments seeking the generation of income only.
- **Achieve Capital Appreciation:** Investments seeking growth of principal rather than the generation of income.
- **Produce Combination of Income and Capital Appreciation:** Investments seeking both the generation of income and growth of principal.

Overall risk profiles

- **Conservative:** Seeks to maintain initial principal, with low risk and volatility to the account overall, even if that means the account does not generate significant

income or returns and may not keep pace with inflation.

- **Moderate:** Willing to accept some risk to principal and tolerate some volatility to seek higher returns.
- **Aggressive:** Willing to accept high risk to principal and high volatility to seek high returns over time.
- **Investment Eligibility Consideration:** If selected, a portion of the portfolio for that account may include complex strategies, limited liquidity and greater volatility.

Statement "householding"

We may consolidate all related account statements with the same address in the same envelope, e.g. because they have owners who also maintain joint account relationships with other clients at the same address. If you prefer to receive individual statements mailed in separate envelopes, you may decline householding by calling your Financial Advisor.

Friendly account name

The Friendly account name is a customizable "nickname" chosen by you to assist you with your recordkeeping. It has no legal effect on your account, is not intended to reflect any strategy, product, recommendation, investment objective or risk profile associated with your accounts, and is not a promise or guarantee that wealth, or any financial results, can or will be achieved. All investments involve the risk of loss, including the risk of loss of the entire investment. You can change your Friendly account names through Online Services or by contacting your Financial Advisor.

Account overview

- **Value of your account/portfolio.** Net of assets and liabilities.
- **Assets.** Includes available cash balances, values for restricted security (est.), and Global Time Deposits, unrealized marks to market, and certain assets not held by the Firm. Does not include unpriced securities/assets at the end of the prior and current statement periods, or private investments, unvested stock options and exercisable stock options.
- **Liabilities.** Includes debit balances, outstanding margin loans, credit line, short account balances.
- **Cash/money balances.** Total of uninvested available cash balances, plus deposit balances at affiliated and non-affiliated banks, and money market mutual fund sweep balances, at the close of the statement period. Non-commodity free credit balances in your account are not segregated from other balances and the Firm may use any of these funds in the ordinary course of its business. These funds are payable upon your demand. This total is included in the current period closing value.

Lending information

For detailed information on the Firm's lending practices and disclosures, refer to your Client Relationship Agreement or Account Agreement and the General Terms and Conditions. UBS Statement of Credit Practices available in *Agreements and Disclosures* at www.ubs.com/accountdisclosures.

Important information about your statement (continued)

Your assets

Your statement itemizes securities and other assets held in the account at the end of the statement period. You may ask for delivery of fully paid securities at any time. You may receive securities used as loan collateral after paying any balance due on them. Any securities transferred to the Firm during the statement period are listed at market value as of the end of the statement period.

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 - Less actively traded securities may be priced using a valuation model or the most recent price we obtained and may not reflect an actual market price or value.
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- Third party estimates of value are as of a certain date and are supplied to UBS Financial Services on a regular basis by an independent valuation firm.
- Issuer, general partner or sponsor estimated values, if any, are supplied to the Firm by the issuer, general partner or sponsor and may be calculated based on different information from that used by third parties to derive their estimated values.
- You can obtain additional information regarding the methodology used to determine the estimate of value and the date of the information that is the basis for the estimate by contacting your Financial Advisor.
- Third party estimated values may be reflected as "Not priced" in several situations: when an independent valuation firm has not supplied or is unable to assign a value, when we become aware that a material event has occurred that may call a previously reported value into question, or when a value would be highly speculative due to the nature of the security.
- When neither an issuer, general partner or sponsor estimated value nor a third-party estimated value is provided, the value of the security will be different from its purchase price.
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- "Original unit size" represents the initial offering price per unit and may not reflect your cost basis.
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- Estimated annual income and current yield and the actual income and yield might be lower or higher than the estimated amounts.
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- In addition to commissions on sales and 12b-1 fees received in connection with the distribution of mutual funds to our clients we and/or our affiliate receive revenue sharing payments from distributors and/or advisors of the mutual funds that we sell. These amounts are based on two different components: (i) the amount of sales by UBS of a particular mutual fund family to our clients; and (ii) the asset value of a particular mutual fund family's shares held at the firm.
- We and our affiliate also receive networking and omnibus processing fees in consideration for transfer agent services that we provide to the mutual funds. These fees generally are paid from investor assets in the mutual fund and are a fixed dollar amount based on the number of accounts at the broker-dealer holding mutual funds of that fund family.
- In addition to commissions received in connection with the sale or distribution of annuity contracts and unit investment trust units to our clients, we and/or our affiliate receive revenue sharing compensation from many of the insurance companies underwriting the annuity contracts, affiliates of the insurance companies or sponsors of the unit investment trusts we distribute.
- In addition to commissions received from the purchase and sale of NextShares funds, we and/or our affiliate receive an asset-based revenue sharing payment from NextShares distributors, as well as funding for technology development, training and education.
- Our affiliates also receive trading commissions and other compensation from mutual funds and insurance companies whose products we distribute.

– We receive compensation from UBS Bank USA, UBS AG Stamford Branch and non-affiliated banks through our cash sweep programs. This compensation may be a monthly per account fee or may be a percentage of average daily deposit balances.

Activity

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Short selling

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Regarding open or "good-till-cancelled" orders that were not executed by the statement date, open buy and sell stop orders are reduced by the amount of dividends or rights on an ex-dividends or ex-rights date unless instructed otherwise by you. You are responsible for orders that are executed due to your failure to cancel existing open orders.

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UBS Financial Services Inc.

Rev. 201810



Piyush Tiwari
University of Melbourne,
Faculty of Architecture, Building and Planning,
Parkville Campus,
Melbourne,
Victoria, 3010
Australia

21 January 2019

sent by e-mail: Piyush Tiwari <piyush.tiwari@unimelb.edu.au>

Dear Professor Piyush Tiwari,

Project 518: Reconstructing land-based losses of disaster affected victims

Following the Trustees' meeting held 5 December 2018 and our communications following the meeting, I am pleased to confirm the award of £ 10,000 for your research project.

I enclose the RICS Research Trust Agreement which sets out the terms and conditions of your award. Please would you read this carefully, and sign both copies, returning one to RICS Research Trust. This will also need to be signed by the university research office.

The Research Agreement should be read in conjunction with the following four documents:

- A a copy of your completed application form
- B copyright material permission form
- C research report to show style and format (copy)
- D guidelines for writing Executive Summary

Payment of the grant is made in response to invoices addressed to RICS Research Trust and they should quote the Trust's reference number for this project which is 518. The grant will be paid to the university in three stages as set out in the contract.

I will work with you to achieve a satisfactory outcome for the project and respond to any concerns that you may have on the administration of your grant. I would stress that we do require you to respond in a timely and appropriate manner for requests for information and failure to do so may result in the withdrawal of the grant.

I wish you all the best with your research.

A handwritten signature in black ink, appearing to read "Katherine Pitman".

Katherine Pitman

RICS Global Research Project Manager
kpitman@rics.org

Title of Project:

Reconstructing land-based losses of disaster affected victims

Dollar Amount Requested * \$:

13500

Submitted By *

Professor Piyush Tiwari

Address*

Faculty of Architecture, Building and Planning, University of Melbourne, Parkville, VIC 3010 Australia

Phone Number*

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piyush.tiwari@unimelb.edu.au

Concept of Project *

Identification and estimation of economic losses associated with land and property for disaster affected victims

Overview *

Summary of proposed work:

A component of the post-disaster resilience process is to estimate and compensate for the loss of land and/or property to the victims. Though disaster-related public expenditures have increased, the approach for determination of compensation is criticized for inadequacy, as evident during the triple disaster of 2011 in Japan; and Chennai floods of 2015 in India. Despite Japan being a disaster-prone country, there is absence of a structured program for compensation and the legislation is limited to providing token compensation to the victims. Compensation, usually in monetary form, is marred with challenges of identification of compensable disasters; identification of eligible claimants (ibid); identification of compensable losses; and valuation of losses. By using Rao et al (2017, 2018) methodological adaptation of Sen's capability approach, this research aims at identifying personal, social, economic, and physical losses, in terms of 'capabilities' and 'functionings' associated with land and property, that are borne by disaster-affected victims in Fukushima (Japan); residents of post-flood resettlement colonies of Kanagi, Perubakkam, Chennai (India) and propose compensation mechanism through which victims are enabled to reconstruct their original condition, as it was before the disaster. Survey of affected households will be conducted to identify losses in Chennai and Japan.

Relevance:

Rebuilding capabilities of disaster-affected communities is an integral component of 'inclusive, safe, resilient and sustainable' cities. By applying 'capability approach', this research provides an innovative theoretical framework using which, compensable losses during disasters can be identified, and compensation strategies can be designed. A primary survey will be used to answer three questions: What are valuable 'functionings' of land to landowners? For disaster affected landowners, what aspects

of 'functionings' of land does existing compensation mechanism compensates? How can their tangible and intangible losses (of 'functionings' of land) be valued and operationalized in compensation mechanisms? Expanding existing knowledge in the area of disaster compensation, this research will provide evidence for initiatives such as International Land Measurement Standard, UN FAO 'Valuing land tenure rights', International Valuation Standards, SDG target 1.5; and help in policy making by identifying losses that are not covered by insurance and in developing public insurance mechanism where markets fail.

Relevant previous work:

Sen's 'capability' theory argues that individual's well-being is defined by her 'capability' to access valuable 'functionings' (or the state of 'being' and 'doing') such as being well-nourished, being well-sheltered, and so on. Towards building resilient communities, the first step is to recreate basic 'functionings' for human survival and good life. This research focuses on victims who depend on land and/or property for accessing basic 'capabilities' and 'functionings'. Rao (2018) has applied Sen's 'capability theory' to create a list of 'fundamental functionings' of land at the global level. Rao (2017) applies capability approach to examine losses due to compulsory acquisition of land in Scotland. This research expands on Rao (2018) to identify 'functionings' of landowners affected by disasters in Japan and India. Kawaguchi & Yukutake's (2017) work on hedonic price estimation of residential land damage of the Fukushima nuclear accident will be useful reference for economic evaluation of compensable losses.

Research Method:

Research utilizes subjective understanding of functionings to derive an objective model for valuation of these functionings. Mixed method involving qualitative and quantitative techniques are proposed: (i) in-depth interviews of disaster affected landowners to inquire set of valuable functionings that were derived from land prior to the disaster and those that have been reconstructed using compensation received post-disaster. Analysis will be conducted using qualitative content analysis (QCA). Rao (2018) use QCA for identification of land based fundamental 'functionings', which will be an important reference. (ii) 'Assessing the value of 'functionings' offered by land using quantitative methods of experimental economics and hedonic price approach. Kawaguchi & Yukutake (2017) provide hedonic price estimation of residential land damage of the Fukushima nuclear accident and will be an important reference for this research.

Practical Application:

This research would result in following outcomes: (i) A comprehensive list of 'functionings' offered by land that are valuable to landowners; (ii) An understanding of 'functionings' that are reconstructed in existing post-disaster management processes; (iii) An understanding of 'functionings' that are not reconstructed in post-disaster management processes and that lead to dissatisfaction among disaster affected landowners; (iv) Mechanism to assess the economic value of all valuable 'functionings'. These findings should pave the way for designing a fair and comprehensive mechanism for addressing uncompensated functionings. This may require legal, policy and program design, and implementation level interventions. This will be important contributions towards building disaster 'resilient' communities. Scope for the expansion of this research to other jurisdictions will also be examined.

Target Audience:

Policy makers in India and Japan, Multilateral agencies such as UN GLTN, the World Bank and Asian Development Bank; Land and property professionals (valuers in particular); Members of RICS; Academics at universities and researchers working with policy think tanks.

Dissemination of Findings:

Two/three Journal Articles in venues such as Urban Studies, Land Use Policy, World Development.

Newspaper/Media articles

Presentation at conferences such as World Bank Land and Poverty Conference.

Timetable *

Work Plan:

Oct – Nov 2019: Preparation for primary survey and development of questionnaire.

Dec 2019 – Feb 2020: Face to face interview with disaster affected landowners (Fukushima and Chennai)

Mar – Apr 2020: QCA and identification of valuable functionings of land for disaster affected landowners

Apr – May 2020: Conducting experiments to assess the value of 'functionings'.

June 2020: Analysing information collected through experiment and from other secondary sources on land values

July – August 2020: Dissemination of research findings

Budget *

Payment Type – provide details of requirements in each category	Justification	Total Amount Requested	Funded by RICS	Request from LEF
Equipment Experimental set up for lab-in-the-field randomized control experiments in Chennai, India and Tokyo, Japan	Estimation of value of functionings will require in-field facility hire, two recorders and two computer hire	2600	0	2600
Travel For one researcher (local travel in India to to conduct focus group interviews) and For one researcher (to conduct interviews in Japan)	Airfare Two cities local travel: USD 700 per city = USD 1400 Hotel and incidentals: @10 nights per city x USD 100 per nightx 2 cities = USD 2000	3400	0	3400
Staff 3 Research Assistants (Architects/Planners: 1 at World Vision, India (to conduct interviews and collect data); 1 at Nihon U. to conduct interviews; 1 at University of Melbourne (to assist in statistical analysis and report writing).		20000	13000	7000
Other expenses Telephone, post, print outs	To set up interviews and follow up on surveys	500	0	500
	TOTAL	26500	13000	13500

Responsible Parties*

Professor Piyush Tiwari, Professor in Property, University of Melbourne, Australia

Jyoti Rao, Graduate Researcher, University of Melbourne, Australia

Sustainability *

This project will contribute to long term research initiative on understanding land and property related losses associated with natural and man-made disasters. There are two funded projects currently underway. The first, examines the losses of 2009 bush-fire victims in Victoria (Australia) funded by Faculty of Architecture, Building and Planning, University of Melbourne. The second, aims to analyze

losses of affected persons due to Chennai floods (India) and triple disaster in Fukushima (Japan). The second project has secured part-funding of GBP 10,000 (against budgeted GBP 20,000) from Royal Institution of Chartered Surveyors Research Trust. These researches will build an understanding of vulnerabilities of disaster affected victims. The future plan is to examine land and property related losses in conflict affected regions such as Cote d'Ivoire.

Together these researches would provide inputs for policy formulation concerning design of resilient compensation mechanism (as discussed above).

Alliance Partners *

University of Melbourne (through Professor Piyush Tiwari and Jyoti Rao)

RICS Research Trust (through Professor Piyush Tiwari and Jyoti Rao)

Submission information Form: *LEF Application for Funding a Research Project*

Submitted by Visitor (not verified)

March 30, 2019 - 4:56pm

98.230.160.167

Title of Project Capturing flexible attitudes and behaviors towards Land Value Capture

Dollar Amount Requested \$ £21,021.07

Submitted By Velma Zahirovic-Herbert

Address 1508 CAMBRIDGE AVE

Phone Number 4045450394

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Concept of Project Global Approaches to Land Value Capture

Overview Advocates of Land Value Capture (LVC) usually present their argument through either the use of hypothetical scenarios in which the attitudes and behaviors of actors are assumed (e.g. landowners will sell land at existing use value) or through the use of existing examples where LVC behavior has become institutionalized (i.e. the practices of developers have adapted to the norms of the specific LVC mechanism). Yet LVC examples suffer from non-transferability between countries because of weak conceptualizations of actors' attitudes and behavior. Accordingly, the ability of governments to diversify LVC policies to account for market complexity, and convince the electorate of their efficacy, remains constrained.

This international comparative research seeks to understand key stakeholders' attitudes and behaviors in light of existing and alternative LVC mechanisms, exploring the degree of flexibility within existing market frameworks to permit the realization of new LVC policies and institutional learning take place. We propose contrasting stakeholder attitudes and behaviors towards existing and alternative hypothetical LVC mechanisms in three global comparative case studies. The case studies are the Beltline in Atlanta (USA) focusing on Tax Increment Financing; the Crossrail underground railway station in Ealing, London (UK) focusing on negotiated planning obligations and Shanghai (China) focusing on rail transit Integrated Development.

Overview

Research question: to what extent do the attitudes and behaviors of key stakeholders reflect the extant institutional context of Land Value Capture mechanisms and to what degree are they open to alternatives?

Research rationale: Despite the significant role that market actors play, whether landowners, developers, planners or land agents, in constructing and reflecting the prevailing mechanisms for Land Value Capture (LVC) within their development context, their attitudes and behaviors are not well documented. The behavior of private businesses and government planning professionals is often considered as a form of opposition to the efficient extraction of value rather than as enabling and making market value (Watkins et al., 2014; Payne, 2013; Lord and O'Brien, 2017) that enables public value to be captured.

Landowners and developers have at times prevented planning and public value objectives. For example in the UK it has been argued that developers currently negotiate away public contributions (Shelter, 2017) and in the 20th century regularly opposed new forms of LVC (Crook, 2016), providing a negative argument against the adoption of new LVC mechanisms. Yet, in many countries existing LVC mechanisms are being reviewed in light of alternative options. For example, in the UK the government is reconsidering the Community Infrastructure Levy (Peace et al., 2017). Therefore understanding the roles that private and public actors play in constructing effective LVC mechanisms in extant market contexts and the potential fluidity of their behavior in light of new policies is of great policy significance internationally.

The introduction or extension of an existing LVC mechanism occurs at a particular moment in the legal, economic and political history of the land in context. This context ensures that perceptions of the mechanism and institutional norms of taxation influence the impact that alternative mechanisms have upon land and real estate markets and upon tax receipts. For example, Goodfellow (2015) found that both the cultural attitudes towards taxation and the behavior of officials and landowners influenced the impact of LVC in different African contexts. Therefore, policy and theoretical contributions require contextualization within their constituent institutional frameworks to enable successful comparative research and evaluation of the potential efficacy of alternative LVC mechanisms.

This behavioral-institutional research will explore key stakeholders' perceptions of practices and attitudes in relation to existing LVC mechanisms and as hypothetical attitudes towards alternative LVC mechanisms.

Whitehead (2016) identifies three alternative types of LVC: taxation of development; purchasing land at existing use, provision of infrastructure and planning permission followed by a sale to the market; and requiring planning obligations at the point of permission. We have selected one interesting (rather than comprehensive) case study from each of these three types: the creation of a Tax Allocation District for the Atlanta BeltLine (USA); the Integrated Development of rail transit projects in Shanghai (China); and planning obligations with Community Infrastructure Levy around the Crossrail underground rail station in Ealing, London (UK).

Atlanta Beltline is the most comprehensive transportation and economic development effort undertaken in the City of Atlanta. It will connect 45 Atlanta neighborhoods via a 22-mile loop of trails, parks, and eventually a streetcar, all of which follow abandoned railroad tracks. Its main LVC funding mechanism, a tax increment financing district, called a tax allocation district (TAD) in Georgia, redirects increases in property tax revenues that arise after the establishment of the TAD towards project-related expenses rather than to the regular general revenue budgets of the city, county, and school district. These funds can be used as they accrue for ongoing development activities in the TAD, or to pay off bonds or front-fund major capital investments – including the construction of parks, trails, real estate developments, and other projects in the TAD. The TAD runs from 2005 when it was adopted to 2030 when the project is expected to be fully built out. Immergluck and Balan (2017) examined trends in housing values (2011–2015) within a half mile of the Beltline TAD, and found that housing values increased ranging from 17.9 to 26.6 percent compared to other areas of the city. They conclude that communities considering large-scale adaptive reuse projects that generate environmental amenities can count on the benefits of these projects to surrounding neighborhoods to rapidly capitalize into housing values.

The rail transit programme in Shanghai is a good example of Integrated Development as an LVC mechanism in China. The expansion of urban rail infrastructure in China has contributed to the inflation of property prices along rail routes since the late 1990s. However, the current LVC mechanisms, mainly land use tax and land value increment tax represent either small proportions of construction costs or lack stability due to institutional constraints and barriers. Moreover, property tax, another alternative, is under-developed in China despite lengthy discussions and debates on legislation since the 1980s, and remains rather small with limited coverage, failing to adequately target the rail transit surroundings where the most significant price appreciation is seen. In addition, the heavy reliance on land use right sale is not sustainable due to the limited total stock of land and is unreliable in the long term as a stable tax base. Shanghai realized much earlier than many other cities in China the need to seek long-term and stable financing for such projects through LVC mechanisms and therefore has gathered rich experiences in this regard since 2005. By 2015, it expanded its urban rail transit network by 41 stations through an integrated development mode. Such comprehensive developments have been carried out by successful bidders in a joint development manner along the rail routes. With another 45 Chinese cities either currently constructing or having obtained central approval for urban rail projects, the integrated development for value capture in the context of rail construction in Shanghai emerges as a useful case study in this comparative study.

The immediate vicinities surrounding Crossrail Underground stations in London are examples of areas that benefit from land value uplift through the creation of new public transportation. The model to capture a portion of this uplift is interesting, in that it occurs through the granting, and development, of planning permission

from the local authority and combines both negotiated (planning obligations) and structured tariff style taxation (community infrastructure levy). Approximately £600m of the £14.8bn cost of Crossrail will be funded by obligations and levies, with the remainder grant funded by national government and as secured loans against future rail fares. This case study will focus on the area around Ealing Broadway Crossrail station, a London borough situated within the functional travel-to-work-area of central London. The borough has witnessed increasing housing demand in the 21st century and uplift in property prices through the anticipation of the new Crossrail station opening in 2019 (Comber and Arribas-Bel, 2017).

Each of these three case studies is, to an extent, a successful example of LVC within their national contexts. Yet, they do not remain the only possibilities or necessarily the optimum form of LVC for public sector recovery of land value increases.

Research Methods:

International comparative analysis is customarily used when considering alternative land value capture mechanisms in academic research (e.g. Monk and Crook, 2016) and in policy-focused institutions (e.g. Dye and England, 2010; Centre for Cities, 2017). Yet, theoretical frameworks for analysis remain only rudimentary and in planning research are susceptible to misinterpretation of embedded meanings of mechanisms within their contexts (Booth, 2011). Through the explicit process of creating a framework of comparative analysis, we will attempt to provide space for both analysis within and between the case study contexts. Within this comparative approach, we adopt a behavioral-institutional approach. We believe that both behavioral and institutional accounts of planning are insufficient on their own in explaining land and taxation policy outcomes, but where combined, they afford a complimentary account of both structure and agency. Property professionals both reflect and enact the market (e.g. Smith et al., 2006; Munro and Smith, 2008) and as such land value capture is performed by these actors according to their attitudes and perceptions of the market and legal structure. Combining a comparative and behavioral-institutional approach, we propose an interview-based case study approach to explore with key stakeholders the core attitudes and behaviors in current and hypothetical LVC mechanisms. Key stakeholders are likely to include planning officers, developers, land agents and property professionals (consultants). Approximately 12 interviews will be undertaken in each case study, but the precise number will depend upon interviewing until exhaustion. After analyzing the interviews, we will provide all interviewees with a four-page summary of the comparative findings with a request that they provide further reflections. This is a hybrid approach to data generation and research dissemination aimed at encouraging reflexivity of planners and private practitioners in the construction of markets and public value (Adams et al., 2016).

Research Outcomes: As a result of the research we expect three main outcomes:

- Create a framework for institutional and behavioral comparative analysis of LVC, including identifying core issues to consider when comparing case studies. This will provide a platform to enhance the rigor of future comparative research and avoid some of the limitations of direct LVC theory and policy transfer.
- Explain the similarities and variations in key stakeholder attitudes to LVC within the three alternative case study contexts. This will provide empirical evidence for policy-makers and practitioners of the relationship between institutional structure and development behaviors.
- Describe the similarities and variations in key stakeholder attitudes to alternative LVC mechanisms. This will support understanding of potential policy transfer between countries whilst existing behavioral norms and institutional structures apply and the likely degree of flexibility of actors to new LVC practices.

In addition to sharing our findings with the LEF, we will disseminate the research findings through three academic presentations (American Real Estate Society, European Real Estate Society, and the Asian Real Estate Society) and submission of a journal article to *Land Use Policy*. In the UK a presentation will be given to One Public Estate, a national government and Local Government Association body with responsibility for identifying the use of public land. A blog post will be written for the UK Collaborative Centre for Housing Evidence, which will be further publicized nationally through the universities of Sheffield and Liverpool mailing lists. The results will be shared with communities participating in the Georgia Initiative for Community Housing. In China, a presentation will be given to China Real Estate Association and China Institute of Real Estate Appraisers and Agents, the leading semi-governmental real estate institutions for real estate professionals in China. This dissemination plan will make both public and private stakeholders in all three countries aware of the research and make available the findings internationally.

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Timetable Stage One: Literature review of actors' attitudes towards LVC mechanisms (Dunning, Zahirovic-Herbert), July-August 2019

The attitudes and behavior of development actors are a complex phenomenon; the literature review will focus on exploring them both generically and specifically in relation to the USA, the UK and China.

Stage Two: Comparison of international settings for land value capture (Xu and Lord), August 2019

It is important to create a common framework to assess the institutional context for each of the case studies. Xu and Lord will use their expertise in analyzing institutional composition to create this framework (for example how to compare land laws; property and land taxation regimes; planning and development control powers; and land ownership and real estate market contexts). The framework will allow for both within a culture and between culture analysis.

Stage Three: Case studies, including key stakeholder interviews (Zahirovic-Herbert, Dunning and Xu), August-December 2019.

Each case study lead will identify key stakeholders (e.g. landowners; planners; property developers; and real estate consultants/land agents) contact details and invite them to interview. Approximately 12 interviews will be undertaken in each case study area, according to an interview schedule which will identify the institutional context, LVC mechanism under consideration, perceptions of key stakeholder attitudes and behaviors within the recent development process and attitudes towards alternative LVC mechanisms. Atlanta interviews will be conducted in partnership with the local chapter of Lambda Alpha International.

Stage Four: Case study and comparative findings with interviewee reflection (Zahirovic-Herbert, Lord, Xu and Dunning), January-April 2020.

One page summaries of each case study will be written up by case study leads, these will then be disseminated within the research team and a one page summary of comparative findings produced. We will email these four-page reports to each of the interviewees, with a request for written (anonymous) feedback.

Stage Five: Report writing and presentation of research (Dunning, Zahirovic-Herbert and Xu), April-July 2020.

Dunning will be responsible for writing up the final report, including analysis of the interviewee's reflections on the one-page national findings. At the additional support of the Lincoln Institute for Land Policy, we could undertake a presentation within the USA on the research findings.

We anticipate presentations at the following academic conferences: American Real Estate Society (Zahirovic-Herbert); European Real Estate Society (Dunning); and the Asian Real Estate Society (Xu) as well as joint submission of a journal article to Land Use Policy on the comparative research findings.

Budget see attached

Responsible Parties Dr Dunning will manage the project with responsibility for the day to day administration and for overseeing the comparative research. Whilst all members of the team will contribute he will be responsible for editing and delivery of the final report and dissemination in Europe.

Prof Lord and Dr Xu will be responsible for writing the comparative framework for the analysis, drawing on their expertise in institutional and property market analysis.

Dr Zahirovic-Herbert will be responsible for the Atlanta case study and for dissemination in North America.

Dr Xu will be responsible for the Shanghai case study and dissemination in Asia.

Dr Dunning will be responsible for the London case study.

Sustainability The research team will apply for the UGA/UoFL faculty exchange program to help support Travel expenses. Faculty Research Exchanges is an initiative sponsored at UGA by the Office of International Education (OIE), and at the University of Liverpool by the International Development Office (IDO). The purpose of the exchange is to facilitate collaborations between the institutions that will result in additional external funding and the generation of high-quality scholarly output.

Considering the LVC models have impacted housing affordability in all 3 case studies, the research team hopes to expand this research question.

The impact of suburban densification on affordable housing and liveability project will be submitted for funding from:

ESRC New Investigator Grant, open call (target February 2020), £200,000

Alliance Partners Dr. Velma Zahirovic-Herbert will work closely with the Atlanta chapter of LAI. Dr. Dunning will work closely with the London chapter.

Supplementary Materials [richard_dunning_18.03.19_lambda_alpha_international.xlsx](#)

Source URL (retrieved on Apr 3 2019 - 2:14pm): <https://www.lai.org/node/1659/submission/9460?destination=node/1659/submission/9460>

Staff costs WITHOUT FEC

Professor Alex Lord (University of Liverpool)	£ 1,943.04
Dr Richard Dunning (University of Liverpool)	£ 3,532.03
Dr V Zahirovic-Herbert (University of Georgia Atlanta)	£ 5,286.00
Dr Yunqing Xu (XJTLU)	£ 3,000.00
	£ 13,761.07

Travel costs

2 x return flights from the UK to Atlanta, Georgia	£ 2,500.00
1 x return flight from Suzhou, China to Atlanta, Georgia (USA)	£ 1,510.00
1 x return flight from Atlanta, Georgia to Manchester	£ 1,250.00
3 x accommodation in Atlanta, Georgia for 4 nights	£ 2,000.00
	£ 7,260.00

Total £ 21,021.07

Budget

Activity/Item	Cost	Total (£)	Total (\$)	Claimed from Land Economic Foundation
<p>KG Baffour Awuah travels to Accra, Ghana to host stakeholder workshops for 5 days</p> <p>1-day Workshop for about 70 participants</p>	<p>£1,235/1 = £1,235</p> <p>Accommodation £156/1/night = £780</p> <p>Subsistence @ £1,300.00</p> <p>Sub-total = £3,315</p> <p>Workshop package @1/day =£60</p> <p>£4,200</p>	7,715	9,994.95	£7,715/\$9,994.95
<p>Data Collection</p> <p>Semi- Structured Interviews – 10 Interviews</p> <p>Fieldwork for 10 days by 2 surveyors</p> <p>Archival data collection – Assemble of comparables and examination of the records of the lands Commission by 3 Research Associates for 60 days</p>	<p>Interview administration & transcription @£140/1 = £1,400</p> <p>Identification and compilation of plots of land @£90/1/day</p> <p>£1800</p> <p>Rate/1/day = £55</p> <p>£9,900</p>	13,100	17,423	£13,100/\$17,423

	Sub-total £13,100			
Dissemination	One international Conference registration & attendance @ £3000	£1880	2500	£1500/\$2500
Staff Cost				
KG Baffour Awuah (UoS) 15 days at £	£4,366	£4,366	5,806.78	
Chika Udeaja (UoS) 5 days @ £	£1,742	£1,742	2,316.86	
F Gyamfi-Yeboah (KNUST) 12 days @ £300/day	£3,600	£3,600	4,788	£0/\$0
Prince Anokye (KNUST) 12 days @ £250/day	£3000	£3000	3,990	
Overhead:				
(University of Salford), Manchester, UK	£4,193	£4,193	5,576.69	£0/\$0
		£39,396	\$52,396.68	£22,495/\$29,918.35

I propose that the Trustees of Lambda Alpha International underwrite the project summarized below:

Start Complete

Title of Project * Financing Urban Infrastructure through Development Charge

Dollar Amount Requested * \$ (\$29,918)

Submitted By * Dr Kwasi Gyau Baffour Awuah

Address * School of the Built Environment (SoBE), University of Salford

Phone Number * +44 -7909087082; +44 161 295 5279

Email Address *

Concept of Project * Please see attached.

Overview *

The provision of adequate infrastructure remains a major challenge in many developing countries even though it is considered critical to the sustenance of the socio-economic wellbeing of these countries. Infrastructure financing appears to be the main obstacle in solving the huge infrastructure deficit faced by developing countries particularly those in Sub-Saharan Africa (SSA).

Land value capture (LVC) has been touted in the literature as a useful tool to mobilise additional financial resources to support urban infrastructure development especially in cities that have experienced substantial growth in real estate markets and rising land values. However, the mechanics for the application of LVC instruments have not been adequately examined and applied within the context of SSA. This proposal aims at examining the development charge, an instrument that has been operated in Accra, Ghana by the country's public institution responsible for the management of public lands. It is unclear whether the application of the instrument has been effective particularly in terms of generating optimum financial resources for infrastructure development. This proposed research, therefore, seeks to evaluate the application of development charge to finance urban infrastructure development in Ghana.

Using North Legon, one of the Government residential areas in the capital city of Accra as a case study, the research will evaluate the existing development charge practices in Ghana and the likely revenue from the current practices, as well as the potential revenue achievable under alternative framework that will be devised.

The research will use mixed-methods and a variety of data collection methods. These will comprise literature review, stakeholder workshop, semi-structured interviews with relevant officials and experts, field inspection and survey of the case study, and examination of the administrative database of the Lands Commission, as well as selected real estate valuation firms and developers.

The research will: bring to the fore the existing development charge practices in Ghana; devise alternative analytical framework to estimate revenues from development charge; and provide quantitative evidence of the potential of development charge as LVC instrument to contribute additional source of infrastructure financing and insight into the modalities for implementation of development charge. These expected outcomes and experiences will contribute to the national and international debate in the literature. They will also be relevant for policy formulation and practice especially at a time when Government of Ghana and its counterparts across SSA are

carefully considering LVC as additional source of infrastructure financing albeit without empirical studies and evidence on the modalities for its implementation. Further, the study will provide useful and practical lessons for policy formulation, strategies and alternative framework for revenue generation for urban infrastructure development to SSA and other developing regions undergoing rapid urbanisation with huge infrastructure deficits but experiencing consistent growth in urban land and property values. Thus, the study will benefit academics, students, academic and research institutions, such as the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana (KNUST), University of Salford (UoS); institutions and professional bodies like the Land Economics Foundation, the Ghana Institution of Surveyors; built environment professionals like land economists; government policy makers and implementers, such as Ghana's Lands Commission, urban governments and local authorities; land and property owners; and ultimately urban residents in Ghana and other SSA countries.

The overall cost for the project is Fifty-two Thousand and Three Hundred and Ninety-seven United States Dollars (\$52,397). However, an amount of Twenty-nine Thousand and Nine Hundred and Eighteen United States Dollars (\$29,918) is being requested from the Land Economics Foundation (LEF) by Dr Kwasi Gyau Baffour Awuah (University of Salford, Manchester) in collaboration with the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. This amount will cover the cost for data collection, stakeholder workshop(s) organisation, travels and subsistence and dissemination. UoS and KNUST will make in-kind contribution to cover the difference in the budget.

Timetable *

The proposed research project will span approximately one year and one month – June 3, 2019 to July 1, 2020. Please see attachment for flow chart/table for details.

Budget *

The estimated cost for the project is \$52,397.00 (£39,396). \$29,918 (£22,495) out of the cost is being requested. This is to cover:

Travel, accommodation, subsistence, organisation of workshops	\$9,994.95 (£7,715)
Data Collection	\$17,423 (£13,100)
Dissemination	\$2,500 (£1,880)

The above costs were estimated based on open market rates.

The remainder of the cost is in-kind support from the University of Salford (UoS), Manchester and the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. This covers:

Staff cost	\$16,901.64 (£12,708)
Overheads	\$5,576.69 (£ 4,193)

The rates for the assessment of the costs were based on UoS and KNUST cost rates. The detailed budget is attached for perusal

Responsible Parties *

The proposed research project will span approximately one year and one month – June 3, 2019 to July 1, 2020. It will be carried-out by an international research team from the School of the Built Environment, University of Salford (UoS), Manchester, the UK and the Departments of Land Economy and Planning, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. The team will comprise Drs Kwasi Gyau Baffour Awuah and Chika Udejaja (UoS), and Dr Frank Gyamfi-Yeboah and Mr Prince Anokye (KNUST).

The research will be managed and co-ordinated by Dr Baffour Awuah. He will also help with the literature review, partake in the stakeholder workshops, data analysis and co-write the research report, and the research/working papers. Dr Udeaaja will mainly ensure that the research deliverables meet the required standard. Thus, he will regularly review the research activities and output. Dr Gyamfi-Yeboah will help with the co-ordination of research activities in Ghana including making the necessary arrangements for contacts to be made with government agencies and other stakeholders, as well as the stakeholder workshop. He will have oversight over the data collection activities, assist with the data analysis and co-write the research report and working papers. Mr Prince Anokye will assist with the literature review, the workshops' organisation, data collection and analysis, and the report writing. Three research associates/assistants will be engaged for the actual data collection. In addition, two land surveyors will be employed for field inspection and survey of the case study site.

The profile of the members of the research team is contained in their CVs submitted as part of this proposal. The schedule of activities and their time for completion are set out as a work plan, which is attached.

Sustainability *

It is intended that a platform of stakeholders will be created to engage and build partnerships and collaboration after the completion of the research to investigate further LVC instruments and other land economics issues, generate new ideas, share experiences and promote collective action for positive change. This is to ensure the sustainability of the ideals of the project. As part of this, the UoS, KNUST, Ghana Institution of Surveyors and the LEF who are in one way or the other involved in the proposed project are considered initial partners. Discussions are also ongoing with the Ghana Institution of surveyors to the possibility of the Institution creating a session at yearly seminars for the discussions of issues that will be at the centre of these collaborations and partnership. The creation of virtual platform for discussion of issues is also envisaged.

Alliance Partners *

1. University of Salford, Manchester, UK
2. Kwame Nkrumah University of Science & Technology, Kumasi, Ghana
3. Ghana Institution of Surveyors
4. I am also pursuing collaboration and education opportunities with the LEF London Chapter. I will send the specifics later.

Supplementary Materials *

Financing Urban Infrastructure through Development Charge in Ghana

Executive Summary

The provision of adequate infrastructure remains a major challenge in many developing countries even though it is considered critical to the sustenance of the socio-economic wellbeing of these countries. Infrastructure financing appears to be the main obstacle in solving the huge infrastructure deficit faced by developing countries particularly those in Sub-Saharan Africa (SSA).

Land value capture (LVC) has been touted in the literature as a useful tool to mobilise additional financial resources to support urban infrastructure development especially in cities that have experienced substantial growth in real estate markets and rising land values. However, the mechanics for the application of LVC instruments have not been adequately examined and applied within the context of SSA. This proposal aims at examining the development charge, an instrument that has been operated in Accra, Ghana by the country's public institution responsible for the management of public lands. It is unclear whether the application of the instrument has been effective particularly in terms of generating optimum financial resources for infrastructure development. This proposed research, therefore, seeks to evaluate the application of development charge to finance urban infrastructure development in Ghana.

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The research will use mixed-methods and a variety of data collection methods. These will comprise literature review, stakeholder workshop, semi-structured interviews with relevant officials and experts, field inspection and survey of the case study, and examination of the administrative database of the Lands Commission, as well as selected real estate valuation firms and developers.

The research will: bring to the fore the existing development charge practices in Ghana; devise alternative analytical framework to estimate revenues from development charge; and provide quantitative evidence of the potential of development charge as LVC instrument to contribute additional source of infrastructure financing and insight into the modalities for implementation of development charge. These expected outcomes and experiences will contribute to the national and international debate in the literature. They will also be relevant for policy formulation and practice especially at a time when Government of Ghana and its counterparts across SSA are carefully considering LVC as additional source of infrastructure financing albeit without empirical studies and evidence on the modalities for its implementation. Further, the study will provide useful and practical lessons for policy formulation, strategies and alternative framework for revenue generation for urban infrastructure development to SSA and other developing regions undergoing rapid urbanisation with huge infrastructure deficits but experiencing consistent growth in urban land and property values. Thus, the study will benefit academics, students, academic and research institutions, such as the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana (KNUST), University of Salford (UoS); institutions and professional bodies like the Land Economics Foundation, the Ghana Institution of Surveyors; built environment

professionals like land economists; government policy makers and implementers, such as Ghana's Lands Commission, urban governments and local authorities; land and property owners; and ultimately urban residents in Ghana and other SSA countries.

The overall cost for the project is Fifty-two Thousand and Three Hundred and Ninety-seven United States Dollars (\$52,397). However, an amount of Twenty-nine Thousand and Nine Hundred and Eighteen United States Dollars (\$29,918) is being requested from the Land Economics Foundation (LEF) by Dr Kwasi Gyau Baffour Awuah (University of Salford, Manchester) in collaboration with the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. This amount will cover the cost for data collection, stakeholder workshop(s) organisation, travels and subsistence and dissemination. UoS and KNUST will make in-kind contribution to cover the difference in the budget.

1. Background and Objectives

Adequate provision of infrastructure is critical to sustainable cities and their role in socio-economic progress (African Cities Centre, 2015). However, Ghanaian cities like many cities in Sub-Saharan African (SSA) have huge infrastructure deficits (GSS¹, 2012). For example, the majority of the over one billion of the world's population living in inadequate housing are found in SSA where 70% of the urban population resides in slums and suffers from more than two deprivations compared to 31% in Latin America, 55% in India and 60% in South-Central Asia (Gilbert, 2014).

Concurrently, the country is undergoing rapid urbanisation, which is occurring under weak economic conditions. More than 50% of Ghana's population live in urban areas and as at 2010, the country's urban population as a percentage of the national population was 50.9% with an annual growth rate of 4.25% (GSS, 2012). This means that the existing infrastructure is currently under severe pressure. Low levels of infrastructure financing is a major cause of the deficit (GoG², 2012).

Experts have proposed that land value capture (LVC) can be a useful tool to mobilise additional financial resources to support urban infrastructure development and Government is considering it for adoption (Cities Alliance, 2015). This is against the background of growth in real estate markets and rising urban land and property values. Further, relevant studies, such as Baffour Awuah (2016), Mabe and Kuusaana (2016) recommend the adoption of LVC in Ghana.

Although LVC is yet to be an official Government policy, and modalities for its instruments developed for operationalisation, several LVC instruments are already in operation in Ghana. One of such instruments is development charge, which has existed since the colonial epoch and used by the country's Lands Commission. The Lands Commission is the Government agency responsible for land administration and management in the country, and directly manages all public lands, which constitute about 20% of land holdings in the country. Public lands are also the prime lands in urban areas in the country.

¹ Ghana Statistical Service

² Government of Ghana

Nevertheless, the mechanics for the application of development charge by the Lands Commission over the years appears quite arbitrary and it is unclear whether it is suitable in its current application as a LVC instrument particularly in terms of generating optimum financial resources for infrastructure development. This proposed research, therefore, seeks to evaluate the application of development charge to finance urban infrastructure development in Ghana using North Legon, one of the Government residential areas in the capital city of Accra as a case study to contribute to building a suitable framework and robust comprehensive evidence to support the quest to implement LVC in the country.

The proposed research will build on the practice experience and research carried-out by the proposed research team, in particular, Baffour Awuah on real estate markets, urban development processes and infrastructure financing in Ghana and SSA for the past 21 years, as well as other relevant studies, such as Smolka (2013), Sandroni (2010) and Walters and Rosengard (2012). Specifically, the objectives of the research are:

1. Examine Ghana Lands Commission's development charge regime;
2. Devise analytical framework to estimate development charge based on consultation with local industry experts and international best practices;
3. Estimate the likely revenue from development charge based on the Lands Commission development charge practices and that from the devised analytical framework;
4. Compare development charge revenue estimate based on the Lands Commission's development charge practices and the estimate from the devised framework; and
5. Submit recommendations for policy formulation and practice.

1.1 Relevance of the Proposed Research

The proposed research responds to the LEF funding call on land economics. In particular, the research will bring to the fore the existing development charge practices in Ghana and the likely revenue from the current practices, as well as the potential revenue achievable under alternative framework. Apart from bringing to bear the Ghanaian lessons and experience, and contributing to the debate in the literature, it will provide quantitative evidence of the potential of development charge as LVC instrument to contribute additional source of financing for urban infrastructure development in Ghana. It will also provide insight into the modalities for the implementation of development charge, which lies at the heart of policy formulation and practice. This is even more compelling at a time when Government of Ghana and indeed those across SSA are carefully considering LVC as additional financing source for infrastructure albeit without empirical studies and evidence on the modalities for its implementation.

2. Conceptual Framework/Key Studies

The literature is replete with several studies (Medda, 2012; Mathur and Smith, 2013; Mathur, 2013, 2015; Cho and Choi, 2014; Burge, 2014; Mittal, 2014) on LVC especially in the developed world, such as the USA and emerging economies, such as India, China and Brazil. However, two main studies namely: African Cities Centre (2015) and Baffour Awuah (2016) are critical to this proposed research given that the studies related to SSA and Ghana respectively. This also corresponds with Medda (2012) and Squires and Lord (2012) observations that different locations may require different LVC models as the application of a standard LVC could have different implications for different categories of people in different cities thereby affecting its smooth implementation.

The African Cities Centre (2015) study sought to investigate whether LVC will succeed in SSA. In so doing the study identified several LVC instruments including land re-adjustment, negotiations and voluntary contributions, land sales, land acquisition and resale, public land leasing, property tax, betterment tax, joint development mechanism, sale of development rights and development charge. Further, the study noted that successful implementation of LVC is dependent on effective and efficient real estate market, and the institutions that underpin LVC operation. In particular, the study identified effective land administration and management system, and good land information, planning and land valuation systems as critical to the successful implementation of LVC. Other critical factors included good urban governance and the need for urban authorities to be somewhat autonomous and responsible for infrastructure provision, as well as state support for implementation of LVC as, for example, the enactment of LVC relevant laws. Examining these critical factors in the context of the situation in SSA, the study concluded that it is difficult for LVC to thrive in the region. Nevertheless, the study noted that given the difficulties in the region, development charge is one instrument that has the greatest chance for successful implementation. That said, the study focused greatly on Southern Africa to the neglect of other parts of SSA particularly West Africa.

Baffour Awuah (2016) focused solely on Ghana using Accra as a case study and investigated the potential to leverage rising urban land property values to finance urban infrastructure development. The study found increasing levels of land and property value growth in Accra. For example, a land value growth rate of not less than 15% and a highest growth rate of 47% for the period 2011-2016 was found in the USA dollar (\$) segment of the market. A similar situation was recorded for the Ghanaian Cedi³ (GH¢) market areas with even slight increases in their growth rates compared to the USA (\$) market areas. The growth rates for the Ghanaian Cedi market areas were between 30% and 50%. Several similar LVC instruments like the previous study were identified as tools that can be used to leverage the rising land values to finance infrastructure development. In addition, the study noted that LVC has a potential as a tool to leverage rising urban land property values to finance infrastructure development particularly in prime areas. However, there are equally several constraints to its success, one of which is the lack of modalities for implementation.

The study did not examine the individual LVC instruments. It also, like the previous study, did not investigate the modalities for implementing the LVC instruments. However, the previous study clearly notes that development charge has the greatest chance of successful implementation in SSA. It is, therefore, because of the foregoing that this proposed research focuses on development charge. The questions it seeks to address are:

1. What are the current development charge practices in Ghana?

³ The Ghanaian currency

2. Can development charge make a meaningful contribution as a source of additional financing for urban infrastructure development in Ghana? and
3. What are the possible modalities for its successful implementation?

3. Methodology/Approach and Data Needs

The proposed research will employ mixed-methods. There will be four phases to the envisaged approach. These are: 1. Inception; 2. Data Collection; 3. Data Analysis; and 4. Report Writing and Submission phases.

Inception Phase:

This phase of the research will entail:

- ✦ Co-defining the scope of the project by the project partners. It will also seek to identify project success variables and galvanise project implementation support from the wider stakeholder community. The phase will commence with initial skype and conference call meetings between the UK and their Ghanaian partners, and extensive background preparation for the project.
- ✦ Literature search and review. This will focus on LVC and development charge especially its conceptual basis, practical applications including modalities for its applications with case studies and methodologies for assessing development charge. The literature review will also draw insights from international best practices from the developed world, such as the USA and UK, as well as emerging economies, such as India, China and Brazil. Further, there will be examination of the literature on Ghana's development charge regime.

The relevant literature will be drawn from the Lincoln Institute of Land Policy database and other databases, such as Google Scholar, Science Direct, Emerald and Web of Knowledge. There will also be extensive use of the databases of websites of Government ministries, agencies and departments, professional bodies such as the Ghana Institution of Surveyors (GhIS) and Royal Institution of Surveyors (RICS), as well as international development agencies like the World Bank, the UK's Department of International Development (DFID) and the Cities Alliance.

- ✦ In addition to the literature review, a two-day stakeholder consultation workshop will take place in Accra. The workshop is to consult with key stakeholders in the local real estate market, urban development and governance. These will include: relevant Government institutions and urban authorities, such as the Lands Commission, Town and Country Planning Department, Central Revenue Authority; professional bodies like the Ghana Institution of Surveyors, Ghana Institute of Planners; utility agencies; academia; real estate developers; land and property owner; and built environment professionals, such as valuers, planners; engineers and quantity surveyors. Eighty stakeholders will attend the workshop.

The rationale of the literature identification and review is to obtain background insights to aid a systematic implementation of the research. The stakeholder

workshop is also to provide additional insights, court support for the implementation of the project, as well as provide a platform to facilitate empirical data collection.

Data Collection

Three methods of data collection will be employed. These are semi-structured interviews, field inspection and examination of administrative databases.

Fifteen semi-structured interviews will be conducted with officials of the Lands Commissions, developers, land/property owners, and selected urban development experts, and infrastructure and utility providers. The rationale is to obtain first-hand information and in-depth understanding of the existing development charge regime. The fifteen interviews will be adequate to deliver the relevant segment of data required to implement the research.

The North Legon residential area was purposively selected as a case study for this proposed research. As stated previously, the neighbourhood is one of the Government residential areas in the capital city of Accra where the Lands Commission implemented the concept of development charge. Apart from that, the area was selected because the area is relatively new residential area compared to other Government residential areas, such as Cantonments, Airport and East Legon residential areas. Therefore, data relating to the North Legon residential area will be more accessible compared to the other older residential areas. Nevertheless, due to poor development control and land management practices what pertains on the ground, in terms, of actual developments and land sizes is sometimes different from what is in the records of the Lands Commission. Accordingly, field inspection and surveys of the case study area will be carried out to obtain information on current development trends, nature of developments and number of plots among others. The field inspection and survey will be conducted with the help of two land surveyors.

In addition to the above, an extensive examination of the database of the Lands Commission will be undertaken to obtain data on the development charge for the case study and other related issues. Data to be collected will include:

- Policy prescriptions, and other administrative instructions and guidelines on development charge;
- History of the case study;
- Land size of the case study;
- Planning and land utilisation for the area,
- infrastructure and services earmarked for connection to the area and those actually connected,
- number of plots and their utilisation,
- Lease agreements,
- Development charges paid, their basis and purpose,
- Current land values for the area and land values as at the time the residential area came into being among others.

Examination of the administrative databases of purposively selected main valuation and estate agency firms and real estate developers in Accra to obtain current land value comparable, as well as those that existed as at the time the case study came into being. The selection of the main valuation and estate agency firms and real estate developers will be based on factors, such as period of existence, specialisation and reputation among others. It is expected that the examination of the databases will take 70 days and three research associates/assistants will be used.

Data Analysis

The qualitative data obtained will be analysed with the help of Nvivo to establish common themes. Analysis relating to revenue generation from the development charge will proceed with the development of alternative analytical framework for estimation of development charge to the current regime used by the Lands Commission.

The comparative method or market approach to real estate valuation will be used to estimate current land values and those that existed at the time the case study came into being. Subsequently, with the aid of statistical packages such as SPSS and Microsoft Excel, the generated data will be further analysed by putting them into the devised analytical framework to provide outcomes. In addition, a comparative analysis will be carried out on the revenue outcomes from the Lands Commission development charge regime and the revenues generated using the alternative framework.

Report Writing and Submission

This phase will focus on drafting the full research report and submission of a draft to the LEF upon completion for review and comments. A finalised version of the report will be submitted to the LEF after redress of the comments.

Expected Deliverables

An overall research report will be produced. Working and journal papers will be produced from the project. These working papers will be well illustrated and tuned to stimulating policy discussion on development charge and LVC not only in Ghana, but also across both the developing and the developed worlds. Two working papers will be produced.

In addition, as stated previously, the lessons and experiences, as well as the alternative analytical framework that will be devised and used to estimate development charge could be useful for application in other developing and emerging economies. The research outputs will also generate useful contributions to national and international debates aimed at fashioning-out modalities for the implementation of LVC to finance infrastructure development in rapidly growing economies with challenged formal urban land development and governance systems such as those of SSA. Further, it is expected that the study will create a platform for stakeholders engage and build partnerships and collaboration even after the completion of the research to investigate further LVC instruments and other land economics issues, generate new ideas, share experiences and promote collective action for positive change. Already by the design of the project, collaboration and partnership have been established between the UoS, KNUST, Ghana Institution of Surveyors and the LEF.

Dissemination

Findings from this project will be published on the LEF website. The research team will also participate in webinars organised by the LEF for disseminating findings from the project. That said, the research team in agreement with LEF intends to present some of the findings at an international land and infrastructure related conferences and develop journal articles for publication in peer reviewed Journals.

Budget

The estimated cost for the project is \$52,397.00 (£39,396). \$29,918 (£22,495) out of the cost is being requested. This is to cover:

Travel, accommodation, subsistence, organisation of workshops **\$9,994.95 (£7,715)**

Data Collection	\$17,423 (£13,100)
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Staff cost	\$16,901.64 (£12,708)
Overheads	\$5,576.69 (£ 4,193)

The rates for the assessment of the costs were based on UoS and KNUST cost rates. The detailed budget is attached for perusal.

Research Management

The proposed research project will span approximately one year and one month – June 3, 2019 to July 1, 2020. It will be carried-out by an international research team from the School of the Built Environment, University of Salford (UoS), Manchester, the UK and the Departments of Land Economy and Planning, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. The team will comprise Drs Kwasi Gyau Baffour Awuah and Chika Udejaja (UoS), and Dr Frank Gyamfi-Yeboah and Mr Prince Anokye (KNUST).

The research will be managed and co-ordinated by Dr Baffour Awuah. He will also help with the literature review, partake in the stakeholder workshops, data analysis and co-write the research report, and the research/working papers. Dr Udejaja will mainly ensure that the research deliverables meet the required standard. Thus, he will regularly review the research activities and output. Dr Gyamfi-Yeboah will help with the co-ordination of research activities in Ghana including making the necessary arrangements for contacts to be made with government agencies and other stakeholders, as well as the stakeholder workshop. He will have oversight over the data collection activities, assist with the data analysis and co-write the research report and working papers. Mr Prince Anokye will assist with the literature review, the workshops' organisation, data collection and analysis, and the report writing. Three research associates/assistants will be engaged for the actual data collection. In addition, two land surveyors will be employed for field inspection and survey of the case study site.

The profile of the members of the research team is contained in their CVs submitted as part of this proposal. The schedule of activities and their time for completion are set out as a work plan, which is shown below:

Work Plan

[illegible]

Sustainability of the Project and Partnership

As stated under the expected deliverables it is intended that a platform of stakeholders will be created to engage and build partnerships and collaboration after the completion of the research to investigate further LVC instruments and other land economics issues, generate new ideas, share experiences and promote collective action for positive change. This is to ensure the sustainability of the ideals of the project. As part of this, the UoS, KNUST, Ghana Institution of Surveyors and the LEF who are in one way or the other involved in the proposed project are considered initial partners. Discussions are also on-going with the Ghana Institution of surveyors to the possibility of the Institution creating a session at yearly seminars for the discussions of issues that will be at the centre of these collaborations and partnership. The creation of virtual platform for discussion of issues is also envisaged.

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Education & Qualification

- PhD Degree in Economic Analysis of Spatial Planning & Management Systems - University of Wolverhampton, UK
- PG Cert. in Academic Practice in Higher Education (PGCAP) - University of Wolverhampton, UK
- MA Degree in Development Studies - University of Ghana, Legon, Accra, Ghana
- BSc (Hons) Degree in Land Economics - Kwame Nkrumah University of Science & Technology (KNUST), Kumasi, Ghana
- Certificate in Project Planning & Management - Ghana Institute of Management & Public Administration (GIMPA), Accra, Ghana
- Professional Diploma in Real estate surveying & valuation - Ghana Institution of Surveyors (GhIS), Accra, Ghana
- Professional Diploma in Real estate surveying & valuation - Royal Institution of Chartered Surveyors (RICS), UK
- Professional Certificate in Alternative dispute resolution - Ghana Association of Certified Mediators & Arbitrators (GHACMA)

Professional Membership

- Royal Institution of Chartered Surveyors
- Federation of International Surveyors
- Ghana Institution of Surveyors
- Ghana Association of Certified Mediators & Arbitrators
- Higher Education Academy, UK (HEA)

Profile

Dr Baffour Awuah is an academic with a strong focus on teaching, research and consultancy in the built environment. Kwasi's expertise covers: land administration and management; land use planning and urban development processes; urbanisation, urban growth; housing; infrastructure development and financing; environment and sustainable development; real estate and development economics; property valuation and management; and sustainable urban development and management particularly governance, natural resources management, and disaster risk and flood management. He has extensive knowledge and experience spanning over 22 years in international urban development and real estate projects as a lecturer, researcher and a practitioner. Kwasi is currently a central figure in the on-going CAD 1 million International Development Research centre (IDRC) funded Integrated Climate Smart Flood Management for Accra research project in Ghana. This project is co-ordinated by the Regional Institute of Population Studies at the University of Ghana, Legon, Accra and it is a collaborative project involving stakeholder institutions, such as the Cities Alliance, Ghana's National Development Planning Commission, Ministry of Local Government, Ministry of Environment, Science, Technology and Innovation, National Disaster Management Organisation and the Ga Mashie Youth Association. He is also the joint PI of the Eco-health field building at the nexus of climate change, urban sustainability and resilience of cities in Africa project funded by the Academy of Medical Science and the co-investigator of the Art and Humanities Research Council funded Application of digital technologies to the Indian tangible and intangible heritage project. Prior to that, he was part of the international team of researchers working on the £3million DFID funded urbanisation and infrastructure research and evaluation manager research programme in Nigeria. This is a collaborative programme involving institutions, such as ICF International, Development Planning Unit (University College of London (UCL)), Benue State University (Makurdi, Nigeria), the City Institute at the University of the Witwatersrand (Wits), Johannesburg, South Africa, Centre for Architecture and Built Environment Research (UWE), and the Foundation for Development and Environmental Initiatives (FDI) (Ibadan, Nigeria). Kwasi was the Principal Investigator (PI) and lead researcher for the project titled: "Urban land, planning, management and governance of informal urban developments in Nigeria". Further, He was the PI and lead researcher for the RICS funded "Evaluation of property valuation practice in SSA" research project, as well as the "leveraging of rising urban land and property values to finance urban infrastructure development in Ghana" project. More recently, Kwasi was a key member of the research team at the University of Wolverhampton that researched into the development of methodology (ies) to estimate the economic incentives for the incorporation of cradle-to-cradle (C2C) credentials into business site developments in North-Western Europe. This was a €6million European Union (EU) funded urban project; component of C2C BIZZ Project and part of the Interreg IVB NEW Programme. The programme comprised eight distinct project partners from northwestern Europe – the UK, France, Germany, the Netherlands, Luxembourg and Belgium.

Dr Baffour Awuah has previously been an assistant lands' officer/ lands officer/senior lands officer at Ghana's Lands Commission, chair of the sub-technical planning committee of the Ga East Municipal Assembly, Accra-Ghana and worked with the Corporate Estates of the Volta River Authority (VRA), Ghana as an estate officer (intern). He was part of the team that worked on the 2009 fee fixing resolution for Ghana's Lands Commission and represented the same institution at the inter-agency statistical group – Ghana Statistical Service, which was constituted for devising strategies to capture data. He worked in collaboration with the Greater Accra Second-Hand Spare Parts Dealers Association (GASSDA) and the BUSAC Fund in 2006 on the relocation of the second-hand spare parts dealers at Kokompe to Anyaa Light Industrial Area in Accra. Furthermore, he was involved in the implementation of multi-donor built environment projects such as the Accra Bus Rapid Transit Project and Ghana's Land Administration Project. Between 2002 and 2009, Dr Baffour Awuah worked with firms, such as Property Investment Consultancy (PIC), Haldrup Consultancy and Valuation & Investment Associates all in Accra on projects, such as the asset valuations of National Investment Bank (Ghana Ltd.), Agricultural Development Bank (Ghana Ltd.) and Central Bank of Ghana. He also consulted for Atryon Drugs Co. Ltd, Accra on land acquisition, land title perfection and property valuation, and was the coordinator and team leader for the inventory and appraisal of Ghana's low cost houses' project in Eastern Region in 2008. Kwasi has also been a researcher and teaching fellow at the University of Wolverhampton, and research/senior research fellow at the University of the West of England, Bristol.

Kwasi has strong relationships with professional institutions, such as the GhIS, RICS and Commonwealth Association of Surveyors and Land Economy (CASLE). He is a member of the International Land Measurement Standard Coalition (ILMS), and RICS Global Land and Resource Board. He is also involved in knowledge transfer and capacity development. He has held several workshops and capacity programmes on urban development and management issues particularly in cities and urban areas across Africa. He served on the continuous professional development (CPD) committee of the Valuation and Estate Surveying Division of the GhIS between 2002 and 2009, and was the secretary of the Young Surveyors Association of the GhIS between 2006 and 2008. He has been on several organising committees for conferences/workshops, the most recent one being the CASLE/GhIS AGM, which took place in March 2015 at Takoradi. He has delivered several research papers at international research conferences, such as the 2016 RICS-COBRA Conference in Toronto, Canada where he chaired a session on PPP and Infrastructure Financing, and 2016 Sustainable City Conference in Alicante, Spain. Kwasi has contributed to book chapters and published widely in peer-reviewed journals including Journal of Property Research, Geoforum, Habitat International and Property Management. He reviews for several Journals and conferences, such as International Development Planning Review and Development in Practice, Journal of Planning Education, International Journal of Housing Market and Analysis, Water Journal and RICS-COBRA. He is a book reviewer for Bentham Science, and Routledge publishers. Kwasi has won grants from institutions, such as the DFID, AHRC and the RICS Research Trust.

Kwasi's key strengths are knowledge and experience in the use of quantitative and qualitative research methods; ability to conceptualise, design and implement high quality projects; and development of predictive research framework and models for urban policies. The rest include in-depth knowledge in devising bespoke methodologies to calibrate impact of urban policies; experience in interdisciplinary and collaborative research projects; and knowledge and experience in stakeholder and community engagement. He also has in-depth knowledge and experience in urban development issues as well as public service and private sector procedures and processes. Dr Baffour Awuah, thus, has built a notable consultancy and research experience with network of renowned researchers and research institutions- Government, industry, academia, and civic and community groups both national and international.

Areas of Expertise

- Land & natural resource administration and management
- Land use planning and urban development
- Real estate & development economics
- Urbanisation, urban growth, governance and housing
- Environment and sustainable development
- Infrastructure development and financing
- property valuation and management

Some Professional Engagements & Summary of Selected Recent Project Experience

- Worked on the multi-donor Ghana's Land Administration Project between 2003 and 2009.
- Part of a team of valuers at Haldrup Consultancy, and Valuation and Investment Associates (Ghana) that worked on the asset valuations of National Investment Bank (Ghana Ltd.), Ghana Commercial Bank, Agricultural Development Bank (Ghana Ltd.), and Central Bank of Ghana respectively between 2003 and 2007.
- Undertook value analysis and title perfection of properties for Aryton Drugs Co. Ltd, Ghana between 2003 and 2007.
- Worked on Accra Bus Rapid Transport Project – World Bank project between 2005 – 2008
- Chaired the sub-technical planning committee of the Ga East Municipal Assembly, Accra between 2006 and 2008.
- Worked in collaboration with the Greater Accra Second-Hand Spare Parts Dealers Association (GASSDA) and the BUSAC Fund in 2006 on the relocation of the small scale and informal second hand spare parts dealers at Kokompe to Anyaa Light Industrial Area, Accra, Ghana.
- Undertook valuations for Commercial Investments Ltd. in 2007.
- Co-ordinator and team leader for the inventory and appraisal of Ghana's low cost houses' project in Eastern Region in 2008.
- Played a key part of the team that worked on the 2009 fee-fixing resolution for Ghana's Lands Commission, and represented on the same institution at the inter-agency statistical group, Ghana Statistical Services for devising strategies to capture data.

Ecohealth field building at the nexus of climate change, urban sustainability and resilience of cities in Africa (2018-2019)

Kwasi is the co-lead of the collaborative research project on eco health building, and climate change and urban sustainability and resilience in African cities involving the Regional Institute for Population Studies at the University of Ghana, Legon and the School of the Built Environment, University of Salford, Manchester. The project seeks to create a network of researchers from diverse background in Africa and the UK to investigate the ecohealth, climate change and urban sustainability nexus to contribute to finding solutions to the emerging challenges at the intersection of health, environment and development. The project is part of the Global Challenges Research Fund Networking Grants Scheme delivered by the Academy of Medical Sciences on behalf of all the four National Academies including the Royal Academy of Engineering, the British Academy and the Royal Society

Application of digital technologies to the Indian tangible and intangible heritage (2018-2020)

Kwasi is a co-investigator of this £200,000 project, which is funded by AHRC.

Integrated climate smart flood management for Accra research project (2016 -2019)

This project is co-ordinated by the Regional Institute of Population Studies at the University of Ghana, Legon, Accra. Canada's International Development Research centre (IDRC) funds the project. The overall objective of the project is to improve the management of the flooding risks and enhance resilience in Accra's readiness for future floods by developing an integrated climate smart flood management framework and catalysing evidence-based policy action. Kwasi is the main advisor on the urban planning and adaptation component of the project.

A quantitative analysis of the economic incentives of Sub-Saharan Africa land use planning systems (2009-2013)

Kwasi was the Principal investigator (PI) for this project. The project developed a bespoke analytical framework and used it to measure economic Incentives (cost-benefit) of the planning systems in the region based on empirical data from Ghana. The University of Wolverhampton (Lady Wulfruna Fellowship) and Ghana's Lands Commission funded the project.

Cradle-to-Cradle (C2C) Research Project (2012-2015)

This project was a 4-year European Union funded research project; component of C2C BIZZ Project and part of the Interreg IVB NEW Programme. Eight distinct project partners from North- Western Europe – the UK, France, Germany, the Netherlands, Luxemburg and Belgium, who perform different aspects of the project, implemented the project. Kwasi worked on the

economic component of the project. Kwasi was responsible for developing the research implementation plan, conceptualising the research, developing instruments for data collection, collecting data, collaborating with the other project partners, attending project meetings, writing project reports, developing methodologies and undertaking business case analysis.

Urbanisation and Infrastructure Research & Evaluation Manager Programme (UIREM)/Urbanisation Research Nigeria (URN): Theme 'D' – Urban Land, Planning and Governance Systems in Nigeria Baseline Study (2014)

This baseline study was a precursor to the six research projects under Theme 'D' of the 4-year Urbanisation Research Nigeria Programme, which is funded by the UK's Department for International Development (DFID). Kwasi managed the project and provided key insights into the direction of the research, designed the instruments for data collection and was the major contributor to the research report preparation.

Urbanisation and Infrastructure Research & Evaluation Manager Programme (UIREM)/Urbanisation Research Nigeria (URN): Theme 'D' – Planning and Governance of Informal Urban Developments in Nigeria (2013-2017)

This project is one of the six research projects under Theme 'D' of the Urbanisation Research Nigeria Programme. The project sought to examine the system of urban land acquisition, planning and governance for informal land development in Nigeria with the view to providing a deeper understanding of the operations of the informal urban development system to aid policy formulation and practice. Kwasi was the Principal and Lead Investigator.

Evaluation of Property Valuation Practice in Sub-Saharan Africa (2014-2015)

The Royal Institution of Chartered Surveyors (RICS) funded this research project, and Kwasi was the Principal Investigator and the lead researcher for this project.

Leveraging rising urban land/property values to finance urban infrastructure development in Ghana/Sub-Saharan Africa (2015- 2016)

This was an exploratory study to investigate the potential to leverage rising urban land/property values to finance infrastructure development in Ghana/Sub-Saharan Africa. Kwasi was the Principal Investigator and the lead researcher for this project.

Employment

Lecturer/Senior Lecturer

- School of the Built Environment, University of Salford, Manchester, UK

Research/Senior Research Fellow

- Centre for Architecture & Built Environment Research, UWE, UK

Research Assistant & Teaching Fellow

- University of Wolverhampton, UK

Lands/Senior Lands Officer/Valuer/Estate Surveyor

- Ghana's Lands Commission [Accra, Ghana]

Assistant Lands Officer/Valuer/Estate Surveyor

- Ghana's Lands Commission [Accra, Ghana]

Estate Officer (Intern)

- Volta River Authority (Corporate Estates) [Accra, Ghana]

National Service Person/Assistant Lands Officer Trainee

- Ghana's Lands Commission [Sunyani, Ghana]

Teaching & Supervision

I am driven by the teaching philosophy, which promotes organic learning and learning by doing, and places students at the epicentre of teaching and learning to facilitate debate and stimulate input. I have:

- In-depth knowledge and experience in design of modules & programme.
- Excellent capabilities to connect research to teaching.
- Ability to incorporate technology into teaching and learning (blended teaching & learning) Capability to mentor students & demonstrate knowledge and skills that link teaching aims to learning outcomes.
- I have taught built environment modules such as property valuation, development appraisal, property development, property finance & investment, real estate economics & research methodology among others at both undergraduate and post-graduate levels since 2012.

- I have been a module leader for several different modules
- I have examined students at both undergraduate and postgraduate students since 2012.
- I have supervised over 30 undergraduate and postgraduate dissertations, have been involved in eight PhD supervisions, & currently supervise two PhD candidates.
- I have examined PhD candidates, and chaired PhD examinations.

IT Skills

- My IT skills include MS Word, Excel, Visio etc.; Endnote; Ref-Works; SPSS; Stata; Power points and Nvivo

Grant and Other Personal Scholarship

- 2009 - Lady Wulfruna studentship award to pursue PhD study at the University of Wolverhampton - £30,000.
- Part of the team that won CIDA funding for global sub-urban research project in 2009] – CAD 500,000.
- 2014 - RICS grant to evaluate property valuation practice in sub-Saharan Africa - £10,000
- 2013 – 2016 DFID grant to research into "Urban land, planning, management & governance of informal urban developments in Nigeria" - £125000
- Won early career research grant – British Council Researcher Links to participate in a workshop on sustainable infrastructure development in Bangkok, Thailand in January 2015 - £3000
- 2015 -Won University of the West of England (UWE) Vice Chancellor's Early Career Research Development grant - £14000
- 2017/18 - Academy of Medical Sciences on behalf of all the four National Academies including the Royal Academy of Engineering, the British Academy and the Royal Society [Eco-health field building at the nexus of climate change, urban sustainability and resilience of cities in Africa] - £250000
- 2017/2018 – Art and Humanities Research Council [Application of digital technologies to the Indian tangible and intangible heritage] - £150000
- Reviewer for RICS-COBRA Conference, and International Development Planning Review, Geography and Regional Planning, Development in Practice, Journal of Planning Education and Research and Water Journals. I am also a book reviewer for Routledge and Bentham Science Publishers
- RCUK GCRF panel member for evaluating bids/grant applications
- Panelist and discussant of international built environment programmes – example: where chair of PPP and Infrastructure Financing session at the 2016 RICS-COBRA Conference in Toronto, Canada; chair of the plenary session of the 2018 International Population and Climate Change Conference held at the University of Ghana, Accra

Research Techniques

- I am capable of using both the quantitative and qualitative research methodologies including action research. My research techniques include:
- Expertise in development of predictive research framework and models for urban land use, planning, governance, housing and real estate policies;
- In-depth knowledge in devising bespoke methodologies to calibrate economic impact of land use planning and real estate policies;
- Versatile with the use of wide range of research analytical tools;
- Experience in interdisciplinary and collaborative research projects; and
- Excellent writing and presentation skills.

CPD Programmes

- Served on the continuous professional development committee of the Valuation and Estate Surveying Division of the Ghana Institution Surveyors between 2002 and 2009.
- Secretary of the Young Surveyors Association of the Ghana Institution of Surveyors between 2006 and 2008.
- Member of International Land Measurement Standard Coalition (ILMS)
- Member of RICS Land and Resource Global Board.
- RCUK GCRF GE Networks Panel Member/Reviewer

Some Publications

- Baffour Awuah, K.G. and Gyamfi-Yeboah, F. (2019). The effect of ground rent and unexpired lease term on property values in Ghana , *International Journal of Housing Markets and Analysis*. [In Press]
- Baffour Awuah, K.G. (2018) Urban Development and Governance in Nigeria: Challenges, Opportunities and Policy Direction. *International Development Planning Review*, 40(1), 27-49.
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- Baffour Awuah, K.G. (2016). Can land value capture support urban infrastructure financing in Ghana? Paper presented at the Royal Institution of Chartered Surveyors- Construction and Built Environment Conference, September, Marriott Courtyard Hotel, Toronto, Canada.
- Baffour Awuah, K.G. (2016). Leveraging rising land values to finance urban infrastructure development in Ghana: A case study of Accra. Final Report: UWE/GLGS.
- Baffour Awuah, K.G. and Lamond, J.E. (2015).The concept of affordable housing in the developing world: "is it a Trojan horse" or worth trying" Paper presented at the Royal Institution of Chartered Surveyors- Construction and Built Environment Conference, July, University of Western Sydney, Australia.
- Lamond, J., Baffour Awuah, K.G., Bloch, R., Lewis, E. and Falade, J. (2015). Baseline study on urban land, planning and governance in Nigerian cities. Final report submitted to DFID.
- Baffour Awuah, K.G., Hammond, F.N., Lamond, J.E. and Booth, C.A. (2014). Benefits of land use planning in Ghana. *Geoforum*, 51, 37-46.
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- Baffour Awuah, K.G., Hammond, F., Booth, C., Lamond, J., Proverbs, D.G., Bloch, R. (2011). A conceptual analysis of the role of human action theory in Sub-Saharan Africa urban land use Planning. *Journal of International Real Estate and Construction Studies*, 1(2), 147-165.
- Baffour Awuah, K.G., Hammond, F., Booth, C., Lamond, J. (2011). Improving the performance of the construction industry: The urban land use planning factor. Paper submitted to & accepted at the ARCOM and LCI, UK Doctoral Workshop, 2 March, School of the Built Environment, University of Northumbria, Newcastle, UK.
- Baffour Awuah, K.G., Hammond, F., Booth, C., Lamond, J. (2011). Urban land use planning in Ghana: A policy input discussion. Paper presented at the West Africa Built Environment Research (WABER) Conference, 19-21 July, British Council, Accra, Ghana.
- Baffour Awuah, K.G. (2010). Land use planning in Ghana – Recent salient findings from a state residential area in Accra. *The Journal of Business & Estate Management Research*, 1(2), 18-35.
- Baffour Awuah, K.G., Hammond, F., Bloch, R., Proverbs, D., Booth, C. and Lamond, J. (2010). Sub Saharan Africa urban land use planning systems: The need for an economic appraisal. Paper presented at Royal Institution of Chartered Surveyors- Construction and Built Environment Conference, 2-3 September, Dauphine University- Paris, France.
- Baffour Awuah, K.G. (2009). Property valuation and methodological issues. Paper presented at the workshop for newly recruited officers of Ghana's Lands Commission, 3-5 March, Kingsby Hotel, Accra- Ghana.
- Baffour Awuah, K.G. (2007). The socio-economic impact of unauthorised land use conversions in state residential areas in Accra: A case study of Ofankor Sector One Residential Area. MA Thesis, University of Ghana, Legon, Accra.

Referees

- Available upon request

Frank Gyamfi-Yeboah, PhD

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Kumasi, Ghana

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+233 24 1264 599

AREAS OF SPECIALIZATION

Real Estate Finance, Valuation, Real Estate Markets and Investments, Mortgage Markets, Asset Pricing and Financial Economics.

EDUCATION

- 2006 - 2010 PhD in Real Estate, Robinson College of Business, Georgia State University, Atlanta, Georgia, USA
- 2002 - 2003 MPhil Real Estate Finance, University of Cambridge, UK
- 1997 - 2001 BSc. Land Economy (First Class), Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

PROFESSIONAL AFFILIATION: Member, Ghana Institution of Surveyors (Gh.I.S) since 2006.

AWARDS

- 2010 Clyde Kitchens/Thoben Elrod/Delta Sigma Pi Doctoral Fellowship
- 2006 Fulbright Scholarship to pursue a PhD program
- 2002 Shell Centenary Scholarship to pursue Masters Program
- 2001 Ebenezer Acquaye Award (given by the Gh.I.S) for the Best Student in Land Economy

EMPLOYMENT HISTORY

- 2014 - Date Department of Land Economy, KNUST, Kumasi – **Senior Lecturer and Head of Department (since August 2018)**
- Teaches undergraduate courses in Real Estate Finance, Real Estate Investment Analysis, Real Estate Economics and Real Estate Marketing and Brokerage.
- 2010 - 2011 Department of Finance, Insurance and Real Estate, Warrington College of Business, University of Florida – **Post Doctoral Research Associate**
- Taught two sections of Graduate Principles of Real Estate and an undergraduate Real Estate Valuation courses.
 - Taught undergraduate Real Estate Principles and Real Estate Finance and Mortgage Banking classes.

- 2003 - 2014 Department of Land Economy, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi – **Lecturer**
- Taught undergraduate courses in Real Estate Finance and Financial Mathematics.

RELEVANT PROFESSIONAL EXPERIENCE

- 2011 – Date Carried out valuation exercises for institutions such as Databank Financial Services, Yedent Agro Processing Ltd, Sunyani and several individuals and institutions.
- 2003 - 2006 Centre for Property Investment, Kumasi – Valuer and Investment Analyst
- Responsible for the day-to-day running of the office,
 - Carried out a number of valuation assignments, feasibility studies and prepared business plans for clients including the Teachers Fund, Methodist Church, Ayum Forest Products and Naja David Veneer & Plywood Co. Ltd, Twifo Oil Palm Plantation.
- 2005 - 2006 Databank Financial Services Ltd, Ghana: Principal Consultant
- Developed the concept and carried out feasibility study into a proposed Housing Project in Accra, Ghana
- 2005 - 2006 Newmont Ghana Gold Ltd: Consultant
- Member of a team of consultants put together by the Department of Land Economy, KNUST
 - Played a key role in the valuation of crops for compensation purposes
 - Member of a team that facilitated negotiation between the company and affected farmers.

ACADEMIC PUBLICATIONS

1. The Effect of Ground Rent and Unexpired Lease Term on Property Values in Ghana,” (with Kwasi Baffour Awuah). Forthcoming in *International Journal of Housing Markets and Analysis*.
2. Sources and Reliability of Property Market Information for Property Valuation Practice in Ghana, (with Kwasi Baffour Awuah, David Proverbs and Jessica Lamond). *Property Management*, 2017, 35(4), 448-466.
3. The Role of Task Complexity in Valuation Errors Analysis in a Developing Real Estate Market, (with Kwasi Baffour Awuah), *Journal of Property Research*, 2017, 34(1), 54-76
4. Dispositional Joint Ventures as REIT Financing Strategy (with Julia Freybote and Alan Ziobrowski). *Journal of Property Research*, 2014, 31(2), 87-107.
5. Institutional Ownership and the Dynamics of Trading Volume around FFO Announcements (with Alan Ziobrowski and Philip Seagraves). *The Journal of Real Estate Finance and Economics*, 2013, 49(1), 73-90.

6. Information, Uncertainty, and Behavioral Effects: Evidence from Abnormal Returns around Real Estate Investment Trust Earnings Announcements (with Andy Naranjo and David Ling). *Journal of International Money and Finance*, 2012, 31(7), 1930-52.
7. REITs' price reaction to unexpected FFO announcements (with Alan Ziobrowski and Lisa Lambert). *The Journal of Real Estate Finance and Economics*, 2012, 45(3), 622-644.
8. The Integration of Mortgage and Capital Markets – Evidence from South Africa (with Alan Ziobrowski), *Journal of Real Estate Finance and Economics*, 2010, 41(3)
9. Assessing Depreciation for Valuation Purposes: A Decompositional Approach (with Jonathan Ayitey), *Journal of Science and Technology*, 2009, 29(3), 46-53
10. The State of Residential Mortgage Market in Ghana (with Jonathan Ayitey and Serwa Agyei-Mensah), *The Ghana Surveyor*, 2008, 1
11. Valuation: What it is and What it is not: (with Jonathan Ayitey) *The Ghana Surveyor*, 2010, 3.

TECHNICAL REPORTS

1. The City Study on Financing for Resilient and Green Urban Global Solutions for Accra and Tema, Ghana. A Report for the United Nations Human Settlement Programme (UN-HABITAT) (with Godfred Bokpin and Joseph Teye). 2017
2. An Evaluation of Valuation Practice in Sub-Saharan Africa – A Case Study of Ghana, A Report for the Royal Institution of Chartered Surveyors, United Kingdom (with written by Kwasi Baffour Awuah, David Proverbs and Jessica Lamond). 2015

CONFERENCE PRESENTATIONS

- The Role of Debt in REITs Equity Issuance at Discount to Net Asset Values (NAVs). Midwest Finance Association Annual Conference, San Antonio, Texas, March 2018.
- Institutional Ownership and the Dynamics of Trading Volume around FFO announcement, American Real Estate and Urban Economics Association Mid-year Conference, June 2011, Washington DC
- Dispositional Joint Ventures and Financial Distress in REITs, American Real Estate and Urban Economics Association Mid-year Conference, June 2010, Washington DC
- Institutional Investment in REITs: Is there a Sector Bias? American Real Estate and Urban Economics Association Mid-year Conference, June 2010, Washington DC
- The Information Content of FFO Using Polynomial Regression and Response Surface Methodology, American Real Estate and Urban Economics Annual Conference, Doctoral Seminar, January 2010, Atlanta, GA.
- The Integration of Mortgage and Capital Markets - Evidence from South Africa, American Real Estate Society Annual Conference, April 2008, Captiva Island, FL
- REITs' Price Reaction to Unexpected FFO Announcements, American Real Estate Society Annual Conference, April 2009, Monterey, CA
- Assessing Depreciation for Valuation Purposes: A Decompositional Approach, with Jonathan Ayitey (presented earlier at the International Federation of Surveyors (FIG) Conference, Accra, Ghana, 2006)
- Valuers: Value inventors or Assessors with Jonathan Ayitey (presented at the FIG Conference, Accra, Ghana, 2006)

- Housing Finance in Ghana (presented at the West Africa Building and Construction 2006 Exhibition and Conference, Accra, Ghana).

REFEREES

Upon Request

Chika Emmanuel Udeaja, BEng MSc (DIC) PhD PGCE MCIOB

A. PERSONAL DETAILS

- | | |
|------------------|--|
| 1. Date of birth | 5 th March 1970 |
| 2. Nationality | British |
| 3. Email | c.e.udeaja@salford.ac.uk |

B. EDUCATION

- | | |
|--|------|
| 1. BEng Civil Engineering (2 nd Class upper division), University of Nigeria, Nsukka | 1992 |
| 2. MSc in Concrete Structures Imperial College of Science, Technology & Medicine, London, UK | 1997 |
| 3. Diploma of Imperial College (DIC), Imperial College of Science, Technology & Medicine, London, UK | 1997 |
| 4. PhD in Construction Management, London South Bank University, UK | 2002 |
| 5. PGCE (Teaching & Learning in Higher Education), Northumbria University, UK | 2006 |

C. EMPLOYMENT HISTORY (i.e. most recent)

1. 03/16 – Date: *Construction Project Management (CPM) Programme, School of Built Environment, University of Salford, UK*
Post: *Programme Director for the CPM Programme* – The academic lead for the team of staff who contribute modules and teaching for the core and shared elements of the programme. It is also my duty to ensure that the programme is academically coherent and that it remains informed by research developments and the market needs. As part of my role, I also teach the Building Information Modelling and Project Management in the programme.
2. 09/05 – 03/16: *Department of Mechanical and Construction, Faculty of Engineering and Environment, Northumbria University, UK*
Post: *Senior Lecturer* – This involves contributing to all forms of pedagogic work (i.e. teaching, outreach work, etc.) in addition to carrying on my research in advanced construction engineering and informatics.
3. 08/03 – 08/05: *Newcastle University, Newcastle, UK.*
Posts: Research Associate - Project Title: Capture and Reuse of Project Knowledge in Construction (CAPRIKON) – As a Research Associate at Newcastle University (2003 – 2005), I was involved in a project sponsored by the EPSRC titled "Capture and Reuse of Project Knowledge in Construction" (CAPRIKON).
4. 03/01 – 07/03: *London South Bank University, London, UK.*
Posts: Research Fellow/Part time lecturer - Project Title: Development of Virtual prototyping of innovation in configurable component-based building design and supply network modelling for sourcing and performance assessments – The research entails developing virtual prototype for a component based building design and supply network model that can assist component sourcing for the benefit of the entire industry.

D. AWARDS AND GRANTS

1. Best graduating Civil Engineering student at University of Nigeria (1992);
2. PhD funding award on "A decision support framework for construction material supply chain management using multi-agent system" at South Bank University (1998);
3. Project funding award on "Virtual prototyping of innovation in configurable component-based building design and supply network modelling for sourcing and performance assessments" – contributing researcher at South Bank University (2001);
4. Internal funding (School of the Built Environment – Northumbria University) for the development of a customer experience journey framework for IT/IS and construction (2008);
5. Project funding for Higher Education Innovation Fund (HEIF 4) - Innovation Seed Fund on "A feasibility study for knowledge capture, review and re-use portal for construction information" (2011);
6. Project funding for centre for education in the built environment (CEBE) teaching exchange scheme (2011);
7. Project funding for centre for education in the built environment (CEBE) teaching exchange scheme (2012);
8. Project funding for Higher Education Innovation Fund (HEIF 4) - Innovation Seed Fund on "Monitoring of low carbon technologies in sustainable homes CSH 3 and 5 – scoping study" (2012);
9. The Royal Academy of Engineering: Distinguished Visiting Fellowship Scheme on "Capture and reuse of knowledge on Energy efficient building project" – (Visiting Professor – Prof. Chimay Anumba, 2012);
10. Project funding for Higher Education Innovation Fund (HEIF 4) - Innovation Seed Fund on "Creating a business strategy for SMEs to engage in EU procurement directives" (2013); and
11. Institution Civil Engineers (ICE) Quest Travel Award (2014).
12. Consultancy grant with JLG to do "a scoping study to leverage BIM for efficient management of Plants Operations in Construction projects" (2017).
13. AHRC/ICHR Cultural Heritage and Rapid Urbanisation Grant and the title of the project is 'IT Indian Heritage Platform: Enhancing Cultural Resilience in India by Applying Digital Technologies to the Indian Tangible and Intangible Heritage'.

E. PROFESSIONAL ACTIVITIES

1. Member, Nigerian Society of Engineers (NSE) (1995 - Present)
2. Graduate member, Institute of Civil Engineers (ICE) (2002 - Present)
3. Member, Chartered Institute of Building (CIOB) (2003 – Present)

4. Member, American Society of Civil Engineers (ASCE)(2004 - Present)
5. Fellow, The Higher Education Academy (2007 – Present)

F. EDITORIAL BOARDS

Membership of technical board, scientific and review panel

1. Member of the Technical Committee for an International Conference on Economics of Business Strategy and Organization (BSO) (2010-Present).
2. Member of technical committee for ARCOM conference on Construction management (2009 – Present).
3. Member of scientific committee for NMMU Construction Management conference (2013 – Present).

Reviewer for International Journals such as

1. International Journal of IT in Architecture, Engineering and Construction (now IT CON)
2. International Journal – Automation in Construction, Elsevier
3. Journal of Financial Management of Property and Construction
4. Architectural Engineering and Design Management
5. Construction Management and Economics

Reviewer of several international conferences including:

1. Association of researchers in construction management (ARCOM)
2. Royal Institution of Chartered Surveyors – COBRA
3. Associated schools of construction (ASC)
4. International Conference on Economics of Business Strategy and Organization (BSO)

G. STUDENT SUPERVISIONS

Completed PhD Theses supervised

1. The impact of collaborative Working on construction project performance (Shuwei Wu - Full-Time PhD).
2. Capture, translate, transform of client requirement for better client satisfaction through BIM methodology (Farah Shahrin – full-time PhD).
3. Development of e-business capability maturity tool for construction organisations (Anushi Rodrigo – Full-Time PhD).
4. Developing public private partnership strategy for infrastructure delivery in Nigeria (Solomon Olusola Babatunde – Full-Time PhD).
5. The Role of Knowledge Management In Enhancing Decision Making for Primary Stakeholders towards Achieving Sustainable Construction for Retrofitted Building In The United Kingdom (Nnamdi Maduka – Full-Time PhD).
6. The Role of Building Information Modelling BIM in Managing Knowledge in Construction Project Delivery (Touria Bouazza – Full-Time PhD).
7. Early Warning System Guidance to Mitigate Flash Flood Impacts in Petra Region (Hussein Abbas Alhasanat – Distance Learning PhD).
8. Developing a Framework for Gold, Silver and Bronze (GSB) Command Structure in UAE's Civil Defence General Command (CDGC) (Saif Alawadhi – Full Time PhD).

H. INVITED PRESENTATIONS

1. Housing supply chain in the UK as part of a lecture series organised by DFID funded project in Chongqing targeting students, construction professionals and suppliers. The idea here is to explore how the practices in the UK supply chain can be adapted to the Chongqing rural environment, Chongqing, China, 21st December, 2001.
2. Live capture and reuse of project *Knowledge in construction* workshop organised by Chartered Institute of Building (CIOB) as part of the workshop series targeting Construction management professionals, Newcastle, UK, 24th May, 2010.
3. The role of the Doctorate (Doctoral Research) in Construction Industry as part of the keynote speech to doctoral students at South Africa ARCOM (Association of Researchers for Construction Management) doctoral workshop, Durban, South Africa, 19th July 2010.
4. Invited speaker to CIWEM (The Chartered Institution of Water and Environmental Management) to give talk on "How knowledge can be captured in construction projects". The talk will revolve around case study examples of project participants in CAPRIKON projects.
5. Invited speaker to Higher Education Academy (HEA) to give talk on "Past, Present & Future Directions of BIM education in Northumbria University", 12th June 2014, at University of Salford, UK.
6. Invited speaker to the Manchester Industry forum to give a talk on "Construction Site Manager's Apprenticeship Scheme – Academic Perspective" 26th January 2017, at University of Salford, UK.

KEY PUBLICATIONS – PRINCIPAL INVESTIGATOR

1. Nwachukwu, V.C., Udeaja, C.E., Chileshe, N. and Okere, C. (2017) "The critical success factors for stakeholder management in the restoration of built heritage assets in the UK", International Journal of Building Pathology and Adaptation, Vol. 35 Issue: 4, pp.304-331.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861. It is a very important document, as it contains the President's message to the Congress at the beginning of his first term. The letter is written in a formal, dignified style, and it is a good example of the President's role as the head of the executive branch of the government.

2. The second part of the document is a letter from the President to the Congress, dated January 1, 1861. It is a very important document, as it contains the President's message to the Congress at the beginning of his first term. The letter is written in a formal, dignified style, and it is a good example of the President's role as the head of the executive branch of the government.

2. Tan, A, **Udeaja, CE**, Babatunde, S and Ekundayo, D 2017, 'Sustainable development in a construction related curriculum- quantity surveying students' perspective', *International Journal of Strategic Property Management*, **21** (1) , pp. 101-113.
3. Hosseini, M.R., Banihashemi, S, Chileshe, N., Namzadi, M.O., **Udeaja, C.**, Rameezdeen, R and McCuen, T. 2016. BIM adoption within Australian Small and Medium-sized Enterprises (SMEs): an innovation diffusion model, *Construction Economics and Building*, 16(3), 71-86.
4. Chileshe, Nicholas, Rameezdeen, Raufdeen, Hosseini, M. Reza, Lehmann, Steffen and Udeaja, C.E. 2016, 'Analysis of reverse logistics implementation practices by South Australian construction organisations', *International Journal of Operations & Production Management*, Vol. **36** (3), pp. 332-356.
5. Babatunde, SO, Perera, S, Zhou, L and **Udeaja, C.E.** 2016, 'Stakeholder perceptions on critical success factors for public-private partnership projects in Nigeria', *Built Environment Project and Asset Management*, **6** (1) , pp. 74-91.
6. Zeeshan, A. and **Udeaja, C.** (2015) A case study of fostering multidisciplinary in Built Environment using BIM. ARCOM Conference, Lincoln, UK, 7-9 September.
7. Bouzza, T., **Udeaja, C. E.** and Greenwood, G. (2015), The Use of Building Information Modelling (BIM) in Managing Knowledge in Construction Project Delivery: Conceptual Model, BIM 2015, 9-11 September, Bristol, UK.
8. Babatunde, S.O., Perera, S., **Udeaja, C.** and Zhou, L. (2015): "Stakeholders' Perceptions on Critical Success Factors for PPP Projects in Nigeria". *Built Environment Project and Asset Management*, UK.
9. Robinson, H. and **Udeaja, C.E.** (2015), Re-using knowledge and leveraging technology to reduce project design and construction costs, in *Design Economics for the Built Environment*, edited by Dr Herbert Robinson, Mr Barry Symonds, Professor Barry Gilbertson and Professor Ben Ilozor, Wiley-Blackwell, UK.
10. **Udeaja, C. E.**, Ekundayo, D., Zhou, L., Pearson, J. and Perera, S. (2015), Educating tomorrow design and construction economists, , in *Design Economics for the Built Environment*, edited by Dr Herbert Robinson, Mr Barry Symonds, Professor Barry Gilbertson and Professor Ben Ilozor, Wiley-Blackwell, UK.
11. **Udeaja, C. E.**, Ekundayo, D., Zhou, L. and Perera, S. (2014), Material waste in the construction industry: a review of the legislative and supply chain issues, in *Reuse of by products and materials in the construction industry*, Edited by A. Richardson, Springer.
12. Babatunde, S.O., Perera, S., **Udeaja, C.** and Zhou, L. (2014): "Challenges of Implementing Infrastructure Megaprojects through Public-Private Partnership in Nigeria: A Case Study of Road Infrastructure". *International Journal of Architecture, Engineering and Construction*, June, 3(2), 142-154, Hong Kong.
13. **Udeaja, C. E.**, Ekundayo, D., Zhou, L. and Perera, S. (2013), Material waste in the construction industry: a review of the legislative and supply chain issues, in *Reuse of by products and materials in the construction industry*, Edited by A. Richardson, Springer.
14. Zhou, L., Perera, S., **Udeaja, C.** and Paul, C. (2012), SME Readiness of BIM: A case study of a Quantity Surveying Organisation, First UK Academic Conference on BIM: Conference Proceedings, 5-9 September, 2012, Northumbria University.
15. Shahrin, F., Johansen, E., Lockley S. and **Udeaja, C. E.** (2010), Effective capture, translating and delivering client requirements using building information modelling (BIM) technology, ARCOM research workshop on decision making across levels, time and space: exploring theories, methods and practices, University of Manchester, UK.
16. Tan, H.C., Anumba, C.J., Carrillo, P.M., Bouchlaghem, N.M., Kamara, J.M., and **Udeaja, C.E.** (2010), Capture and reuse of project knowledge in construction, Wiley-Blackwell publication, Oxford, United Kingdom.
17. **Udeaja C. E.**, Kamara J. M., Carrillo, P. M., Anumba, C. J., Bouchlaghem, N. M. and Tan, H. (2008), A web-based strategy for live capture and reuse of construction project knowledge, *Automation in Construction*, Elsevier, Vol. 17, No. 7, pp 839-851.
18. Tan, H.C., Carrillo, P.M., Anumba, C.J., Kamara, J.M., Bouchlaghem, N.M., and **Udeaja, C.E.** (2007), Development of a methodology for live capture and reuse of project knowledge in construction, *Journal of Management in Engineering*, Vol. 23, No.1, pp18-26.
19. Tan, H.C., Carrillo, P.M., Anumba, C.J., Bouchlaghem, N.M., Kamara, J.M., and **Udeaja, C.E.** (2006), Live capture and reuse of project knowledge in construction organisations, *Knowledge Management Research and Practice*, **4**, pp 149-161.
20. Tan, H.C., Carrillo, P.M., Anumba, C.J., Bouchlaghem, N.M., Kamara, J.M., and **Udeaja, C.E.** (2006), Live capture and reuse of project knowledge in construction organisations, *Knowledge Management Research and Practice*, **4**, pp 149-161.
21. **Udeaja, C. E** and Tah, J. M. H (2005), Multi-agent-based procurement in the construction material supply chain, in *Agents and Multi-agent system in Construction*, edited by C J Anumba, O O Ugwu, and Z Ren, Taylor & Francis, London, pp 272-309.
22. **Udeaja, C.**, Tah, J.H.M., and Ndumu, D. (2003), Materials supply chain co-ordination using multi-agent systems techniques - a conceptual framework, *International Journal of IT in Architecture, Engineering, and Construction*. January 2003, pp67-83, ISSN: 1570-7822.

PRINCE ABOAGYE ANOKYE
DEPARTMENT OF PLANNING, KNUST, KUMASI, GHANA
Tel: Mobile - 0244437042/ Home - 0322060405
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panokye.cap@knust.edu.gh

AREAS OF SPECIALIZATION

Municipal Finance and Development Financing, Urban Planning, Administration and Management, Informality and the Legal and Institutional frameworks for Urban Planning, Administration and Management

EDUCATION

- | | |
|-------------|---|
| 2010 - 2010 | PG Dip. in Land Management and Informal Settlement
Regularization), IHS, Erasmus University, Rotterdam. The
Netherlands |
| 2003 - 2005 | MPhil Planning, Growth and Regeneration, University of Cambridge, UK |
| 1998 - 2002 | BSc. Planning, Kwame Nkrumah University of Science and
Technology, Kumasi, Ghana |

PROFESSIONAL AFFILIATION:

- | | |
|------|--|
| 2015 | Chartered Member Chartered Institute of Housing, UK. |
| 2013 | Member, International Federation of Housing and Planning |
| 2012 | Member, International Research Group on Law and Urban Space (IRGLUS) |
| 2008 | Member of Ghana Institute of Planners. |

APPOINTMENTS AND AWARDS

- | | |
|-------|--|
| 2012 | Guest and Scholar of the Rockefeller Centre, Bellagio, Italy. |
| 2010 | Won fellowship from the Lincoln Institute of Land
Policy, USA to study at the Erasmus University,
the Netherlands. |
| 2008 | Chairman of the Steering Committee of the multi-stakeholder dialogue
Platform on Chain saw milling in Ghana. |
| 2006 | Department of Planning's (KNUST), representative on the Land
Administration Project (LAP), Ghana. |
| 2004: | Appointed Fellow of the Cambridge Commonwealth Society
(FCCS). |
| 2003: | Won the Shell Centenary and Chevening Scholarship. |

ACADEMIC EXPERIENCE

- 2016 –Date Department of Planning, Christian Services University College, Kumasi
- Finance and Budgeting at the MSc. Level
- 2014 - Date Department of Planning, KNUST, Kumasi – **Senior Lecturer**
- Urban Economics with LED at the BSc. Level;
 - Urban Upgrading and Regeneration at the BSc. Level;
 - Urban and Regional Planning, Design and Management at the BSc. Level;
 - Municipal Finance and Financing development at the BSc. Level; and
 - Urban Administration and Management at the MSc. Level
 - Spatial Development Policy Planning at the MSc. Level
- 2006 - 2014 Department of Planning, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi – **Lecturer**
- Urban Economics with LED at the BSc. Level;
 - Urban Upgrading and Regeneration at the BSc. Level;
 - Spatial Development Policy Planning at the MSc. Level
 - Human Settlement Planning at the MSc. Level

OTHER PROFESSIONAL EXPERIENCE

- 2017- 2018 **SOS Children's Villages Ghana (SOS CV/Ghana), SOS Children's Villages Netherlands (SOS CV/NL), and Asokore Mampong Municipal Assembly (AMMA) with Funding from EU:**
Lead Consultant on the Promotion of Economic Growth and Youth Employment in the Asokore Mampong Municipal Assembly
- 2016 – Date **International Development Research Centre (IDRC), Land Management Resource Centre, KNUST and Peoples Dialogue:**
Principal Investigator and member of the joint research team investigating how to increase voice, access to justice and basic services in informal settlement in Ghana
- 2016-2017 **Tropenbos International Ghana:**
Timber Legality Assurance project fund by the EU.
Developed monitoring and evaluation system for the Timber Legality Assurance project fund by the EU and terms of reference for the selection of Consultant for the midterm and final evaluation of the project.
- 2015 - 2016 **National Development Planning Commission of Ghana:**
Consultant and Member of the Human Settlements, Housing and Civic Infrastructure Group that worked Ghana's Infrastructure Plan
- 2015 – 2015 **Ghana AIDS Commission Western – Region:**
Consultant that prepared a Technical Support Plan for Western Region Office of the Ghana AIDs Commission.

ACADEMIC PUBLICATIONS

1. Agyemang, F. S. K., E. Silva, and Anokye, P. A. (2017) Towards sustainable urban development: the social acceptability of high-rise buildings in a Ghanaian city. *GeoJournal*, <https://doi.org/10.1007/s10708-017-9837-0>.
2. Anokye P. A. and R. A. Achempong (2015) "Housing for the Urban Poor: Towards Alternative Financing Strategies for Low-Income Housing Development in Ghana" *International Development Planning Review*.
3. Anokye P.A and S.K Afrane (2014) Apprenticeship Training System in Ghana: Processes, Institutional Dynamics and Challenges. *Journal of Education and Practice*. Vol 5, No. 7, pages 130-141.
4. Anokye P. A.; S. K. Afrane; and E. Oduro Ofori (2014) "The Informal Apprenticeship System in Ghana: Post Graduation Job Integration and its Implications for the Management of Urban Space". *Journal of Environment and Earth Science*. Vol 4, No. 18, pages 84-93.
5. Oduro-ofori E.; Anokye P. A. and Acquaye Naa Aku E. (2014) "Effects of education on the agricultural productivity of farmers in the Offinso Municipality". *International Journal of Development Research*. Vol 4, No 9, pages 1951-1960.
6. Achempong R. A. and Anokye P. A. (2013) Understanding Households' Residential Location Choice in Kumasi's Peri-Urban Settlements and the Implications for Sustainable Urban Growth. *Research on Humanities and Social Sciences*. Vol.3, No.9, pages 60-70.
7. Adinyira E. and Anokye P. A. (2013) Illegal appendages to residential buildings in Kumasi, Ghana – a case study of North Suntreso. *Journal of Construction Project Management and Innovation*. Vol 3, No.1, pages 551-529.
8. Anokye P.A.; Kamuzu F. S.; and Tanyeh J. (2013) The Emergence of Gated Communities in Ghana and their Implications on Urban Planning and Management. *Developing Country Studies*. Vol.3, No.14, pages 40-46.
- 1.0. Anokye P. A. (2012) **Comparative Informalities: Urban Informalities the case of Akorem, Adukrom and Sawaba in Kumasi**. In: Re-Cultivating the Garden City of Kumasi. Published by the Urban Design Lab at the Earth Institute, Columbia University NY. Pages 46-58.

CONFERENCE PRESENTATIONS

1. Adinyira E. and Anokye P. A. (2013) Illegal appendages to residential buildings in Kumasi: a case study of North Suntreso. In: Thwala W. D and C. O Aigbavboa (Eds) Procs 2nd International Conference on Infrastructure Development in Africa (ICIDA), March 17-19, 2013, Johannesburg South Africa
2. Anokye P. A. and Ayitey J. Z. (2012) Ghana's demographic trends and housing characteristics. In : Badu E, Dinye R, Ahaidze D, Owusu-Manu D (Eds) Procs 1st International Conference on Infrastructure Development in Africa (ICIDA), March 22-24, 2012, Kumasi-Ghana.

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Land Economics Foundation
PO Box 72720
Phoenix
AZ 85050

25th February 2019

Dear Sir/Madam,

Re: Letter of Support - Financing Urban Infrastructure through Development Charge in Ghana

I am writing in support of the application that has been submitted by Dr Kwasi Gyau Baffour Awuah, requesting funding from the August Foundation to support the above-named research project.

The proposed research is a collaboration between the School of the Built Environment, University of Salford, and collaborators from academia and industry (including the Department of Land Economy, Kwame Nkrumah University and Technology, Kumasi, Ghana; and the Ghana Institution of Surveyors).

The School of the Built Environment, University of Salford, is an international School that is focused on providing the highest quality-built environment research, education and consultancy. This includes engagement with governments, industry and relevant stakeholders for the advancement of the provision we deliver globally. The School has an abundance of expertise and experience in the built environment field; along with the infrastructure, facilities and strong partnerships/links that allow us to successfully work in collaboration with industry and other institutions.

The proposed research fits within the School's **operational and strategic plan**. Dr Kwasi Gyau Baffour Awuah (the lead applicant) is a valued and knowledgeable members of academic staff within the School. Kwasi has an outstanding track record in conceptualising and delivering research projects and has won several grants and delivered numerous international land and real estate projects in both the developing and developed worlds. It is based on the foregoing that I and the School enthusiastically support the application and the proposed project.

Our support for the application is further accentuated by the importance of the project in terms of providing input for far reaching policy formulation and implementation, feeding into

our teaching and research, as well as the platform it would create for our school to partner your Foundation and the other collaborators to promote the agenda of land economics.

We are happy to state that we would support the implementation of the proposed with our infrastructure and expertise as detailed in the budget accompanying the application.

I hope this provides you with the information you require.

Yours sincerely,



Professor Hisham Elkadi

Dean of School
School of the Built Environment
University of Salford



Ref No. LE/C-B/Vol.1

Date: 26th February, 2019

The Dean,
School of Built Environment
University of Salford
Manchester, England

Att: Dr. Kwasi Gyau Baffour Awuah

Dear Sir,

**COLLABORATION TO CARRY OUT A STUDY INTO THE FINANCING OF URBAN
INFRASTRUCTURE THROUGH DEVELOPMENT CHARGE IN GHANA**

The Department of Land Economy, Faculty of Built Environment, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana is pleased to collaborate with the School of Built Environment, University of Salford to undertake the study examining "The Financing of Urban Infrastructure through Development Charge in Ghana". The Department, which is the premier centre for the training and research into land related matters in Ghana, has over the years partnered with institutions around the world in carrying out its mandate.

The provision of adequate modern economic and social infrastructure is an important requirement in any effort to transform the economies of countries such as Ghana and reduce the incidence of poverty. Unfortunately, Ghana has over the past several decades struggled to meet its infrastructure needs and this has hindered social and economic progress. It is estimated that the country faces a severe infrastructure deficit of about \$30 billion requiring substantial annual investments over the next decade if the country is to close this gap. A major challenge the country faces in dealing with the infrastructure problem is its inability to mobilize sufficient financial resources to fund infrastructure projects. The traditional funding sources; loans, grants and budgetary allocations, have proven insufficient, unreliable or unsustainable. A source of financing that holds great potential for meeting the infrastructure financing challenge is land-based financing mechanisms such as the development charge.

Thus, the proposed study is very relevant to the contemporary needs of Ghana and the Department is fully committed to making available its well qualified and very experienced faculty members to team up with colleagues from the University of Salford to carry out the instant study. The proposed study has the potential of enhancing our understanding of land value capture as a viable financing mechanism for urban infrastructure not just for Ghana but also for countries within the West African sub-region.

We look forward to an effective collaboration between our institutions.

Many thanks,

**DR. FRANK GYAMFI-YEBOAH
HEAD OF DEPARTMENT**



GHANA INSTITUTION OF SURVEYORS

P.O. Box 916, Accra, Ghana
Tel: +233 303 936014
E-mail: Secretariat@ghisonline.org
Website: www.ghisonline.org

GhIS/Admin/ Fin 12

5th March 2019

Land Economics Foundation
P.O Box 72720
Phoenix AZ 85850

Dear Sir/Madam

RE: PROPOSAL TO SECURE FUNDING FOR A PROPOSED RESEARCH IN GHANA

We write in reference to the above subject matter and would be grateful if your esteemed organization would offer funding for the research envisaged.

This researcher is currently with the University of Salford (UoS) Manchester. He has carried out a number of high-level research on topical issues in the past. At the moment, and in collaboration with identified stakeholders such as the Ministry of Works and Housing, the Ghana Institution of Surveyors and Ghana Chamber of Construction Industry, a proposal to undertake a research in a very critical area has been planned.

The theme for this work is Financing Urban Infrastructure through Development Charge. Undoubtedly improved urban infrastructure is critical for enhancing sustainable development in many countries especially in Africa. The lives of urban dwellers get improved and quality of socio-economic life becomes better with systematic and well planned infrastructural outlay.

Among the numerous challenges faced by many emerging economies is financing for expansion of municipal services. It has therefore become necessary that innovative ways are adopted to explore the various options.

The paper intends to discuss the feasibility of relying on the concept of development charge as a vehicle for financing urban infrastructure. Extensive research will be carried out into practices globally and conclusions that will meet the local peculiar circumstances would be drawn.

The Ghana Institution of Surveyors (GhIS), being the only professional body that regulate the profession of surveying and its practice in the country is a major stakeholder in the area of infrastructural development for the country. GhIS supports by way of professional advice, technical inputs and management of various development projects.

The proposed research is not only important, but very timely considering the current developmental needs of the country and efforts to contribute in sustaining the developmental agenda. At the moment a new Ministry has been established to deal with the deficit in Infrastructural outlay in the inner cities in Ghana. This research will there be very relevant to the Ministries efforts at funding developmental projects


GhIS

Based on the foregoing among others, the GhIS fully supports the implementation of the proposed research, and are willing to offer assistance to ensure successful delivery of the research project. The assistance will be in the following areas:

1. Facilitation of data acquisition
2. Arriving at conclusions that will address innovative ways of infrastructure financing.
3. Provide platform for dissemination of research findings

The GhIS will, therefore be grateful if the proposal submitted to solicit for funding for the proposed research is given the necessary attention and approval.

I count on your usual co-operation.

Yours sincerely,



Surv. Emmanuel Martey FGhIS, BL

for (President GhIS)

Supplementary Materials

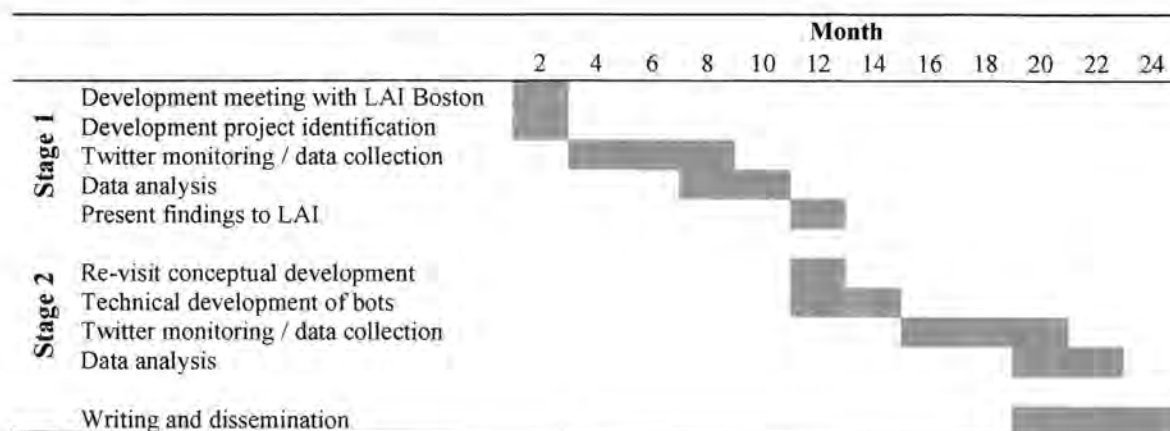
Project title: Using Twitter Bots to Assess Risks to Land Development and Planning

Hollander, Hartt, and Potts

CONCEPT OF PROJECT:

This study will examine the role and potential risk of automated social media accounts in the participatory planning process related to land development. The rapid growth and massive uptake of social media has resulted in a surge in public interest to engage with others around key land development topics. Due to the low cost and high potential engagement, planners and policymakers have been quick to open electronic channels of participation to inform the decision-making process. In doing so, it has created an opportunity for subversion from groups with alternate and possibly nefarious interests. Anecdotally, we have found that automated social media accounts have been used to further inflate the voice, and therefore influence, of subversive groups in the land development and planning process. While scholars have begun to examine how tech-savvy social media users are manipulating political discourse through the medium of Facebook and Twitter, no research has yet sought to examine the potential harm that such manipulation can and does cause at the local level. This project seeks to study the risks that social media manipulation poses to online community discourse around land development and planning topics. To gauge this risk, we will review social media discourse around 20 major real estate development projects in the USA in an attempt to detect the use of bots and to assess their impact. Next, we will develop our own set of 12 Twitter bots to test a range of cyber influencing strategies. Each will have a core set of artificial intelligence and a unique personality with topical interests around key land development and planning issues. Our findings will be used to develop a theory of Smart NIMBY-ism (Not In My Backyard) and developed targeted recommendations for planners and policymakers, including sample legislation.

TIMELINE



EXPECTED OUTCOMES

Our research will produce peer reviewed articles in leading, international journals. In addition to the academic journal articles, a practice-oriented article will be submitted to a publication related to real estate

and lands economics examining the policy implications of automated social media bots. Further media coverage will be sought in order to raise the profile of the study with a particular focus on CityLab and NPR.

SCIENTIFIC CONTRIBUTION

This study will be the first of its kind to examine the role and potential risk of automated social media accounts in the real estate and planning process. The influence of online communities has grown larger as local planning has become increasingly disconnected from local authority (exemplified by Amazon's HQ2 proposal process). Our research will advance a theory of iNIMBYism (or Smart NIMBYism), and in doing so, provide a conceptual foundation for an emerging and quickly expanding field of study. Furthermore, we will offer targeted, tangible recommendations to policymakers and planners at the local, regional, state and federal level in the form of proposal legislation.

PI Justin Hollander
Land Economics Foundation - Lambda Alpha International

Year 1	Year 2	Cumulative
9/1/2019	9/1/2020	9/1/2019
8/31/2020	8/31/2021	8/31/2021

Compensation				
Salaries		Sponsor		
Title	Salary	Year 1	Year 2	Cumulative
PI - Justin Hollander	.40 summer months/year	\$ 4,678.81	\$ 4,819.18	\$ 9,497.99
Undergraduate RAs	\$20/hr	\$ 3,544.02	\$ 3,650.34	\$ 7,194.36
Total Salaries		\$ 8,222.83	\$ 8,469.52	\$ 16,692.35
Fringe Benefits		Sponsor		
Title		Year 1	Year 2	Cumulative
PI	17.1% fringe summer salary	\$ 800.08	\$ 824.08	\$ 1,624.16
Undergraduate RAs	8.2% fringe on summer months only	\$ 72.65	\$ 74.83	\$ 147.48
Total Fringe Benefits		\$ 872.73	\$ 898.91	\$ 1,771.64
Total Compensation		\$ 9,095.56	\$ 9,368.44	\$ 18,464.00

Operating Expenses					
Direct Costs		Sponsor			
		Year 1	Year 2	Cumulative	
Materials & Supplies	Software & Data	\$ 250.00	\$ 250.00	\$ 500.00	
Subcontract	Cardiff University	\$ 5,518.00	\$ 5,518.00	\$ 11,036.00	
Total Other Expenses		\$ 250.00	\$ 250.00	\$ 500.00	
Total Exempt from F&A		\$ 5,518.00	\$ 5,518.00	\$ 11,036.00	
Total Direct		\$ 14,863.56	\$ 15,136.44	\$ 30,000.00	

F&A					
Exclusions		Sponsor			
		Year 1	Year 2	Cumulative	
Capital Equipment		\$ -	\$ -	\$ -	
Subcontract (minus first \$25k)		\$ -	\$ -	\$ -	
Tuition		\$ -	\$ -	\$ -	
Total F&A Exclusions		\$ -	\$ -	\$ -	
Total MTDC Base		\$ 14,863.56	\$ 15,136.44	\$ 30,000.00	
Total Indirect	Rate 0	\$ -	\$ -	\$ -	

Total Indirect		\$ -	\$ -	\$ -	
Total Direct		\$ 14,863.56	\$ 15,136.44	\$ 30,000.00	
Total Expenses		\$ 14,863.56	\$ 15,136.44	\$ 30,000.00	

Submission information Form: [LEF Application for Funding a Research Project](#)

Submitted by Visitor (not verified)

March 4, 2019 - 9:41am

130.64.52.114

Title of Project Using Twitter Bots to Assess Risks to Land Development and Planning

Dollar Amount Requested \$ \$30,000

Submitted By Ruth Smith for Trustees of Tufts College

Address 136 Harrison Ave 75K950; Boston, MA 02111

Phone Number 617.627.3886

Email Address ruth.smith@tufts.edu

Concept of Project Examining the role and potential risk of automated social media accounts in participatory planning related to land development.

Overview Social media has changed the way in which people engage with urban issues by providing a digital landscape in which citizens can share their opinions on decision-making in real-time, ask questions, and actively participate in discussions around key areas of interest. With the rapid growth and massive uptake of social media into the broader population, there has been a surge in public interest in using such websites to engage with others around key place-based issues. Due to the low cost and high potential engagement, planners and policymakers have been quick to open electronic channels of participation to inform the decision-making process. In doing so, they have also created an opportunity for subversion from groups with alternate and possibly nefarious interests. While public opposition to planning projects or "NIMBY-ism" (Not In My Backyard) is not a new concept, social media has created an additional avenue for such expression. Automated social media accounts could be used to further inflate the voice, and therefore influence, of subversive groups in the participatory planning process.

Urban scholars have looked to internet-enabled communities to foster better discussions and debates around community visioning and planning (Mitchell 1995; Cowley and Hollander 2010). Research has focused around ways that the political processes of shaping places can benefit from online community engagement and dialogue, extending the work of communicative planning scholars like Forrester (1990) and Innes and Booher (2000). While the movement of community planning processes onto online platforms has largely occurred as prophesized, the risks of such a move have largely overlooked the influence of social media manipulation, NIMBY movements and discourse around local real estate development and planning issues. Instead, concerns have focused around the digital divide, lack of human touch with online exchanges. In this project, we propose a study with two stages. First, we will assess the presence and discursive impact of bots in 20 large-scale real estate development projects currently underway. Second, we will employ deception to test the effect of a group of Twitter bots we develop on the activities and conversations of real Twitter users. While scholars have begun to examine how tech-savvy social media users are manipulating political discourse through the medium of Facebook and Twitter, no research has yet sought to examine the potential harm that such manipulation could cause at the local level. This project seeks to study the risks that social media manipulation poses to online community discourse around real estate development and planning topics.

DESCRIPTION OF TECHNIQUES

Stage 1: Using professional trade publications like the Urban Land Institute's Urban Land magazine and the American Planning Association's Planning magazine, we will identify 20 current large-scale development projects in the USA. The sample will be devised so as to select a diverse set of projects, across the following dimensions: 1) type of development (e.g. residential, mixed-use, sporting facility, etc.), 2) size (e.g. square feet and/or acreage), and 3) region of the USA. Only projects that have generated three or more social media groups, blogs, or websites by non-developer entities will be included in the study. For each project, project team members at Tufts and Cardiff will closely monitor Twitter account activity around the project by searching for project-related hashtags and keywords and attempt to identify whether any bots are actively attempting to distort or thwart real-world community debate and decision-making. For any bots that appear to be doing so, we will monitor their activity and the extent to which their posts, likes, and re-posts appear to be shaping real world conversations. We will construct social network maps to assess how influential each follower is, so that we may project the possible influence each bot may generate.

Stage 2: We will develop 12 Twitter bots to test a range of cyber influencing strategies. Each will have a core set of artificial intelligence: the ability to follow likeminded users, to retweet and "like" Tweets on a predetermined set of topics, and to re-post Reddit images with short phrases employing the Microsoft Computer Vision software. We will program each bot to have a unique personality with topical interests around one of the following: 1) affordable housing, 2) water policy, 3) active transportation, 4) brownfield/land reclamation, 5) food systems planning, and 6) smart cities. For each of the topical areas, we will test how adjustments to various assumptions around frequency of posting, intensity of language, frequency of liking/retweeting, aggressiveness of following, impacts a variety of outcome metrics. In developing our social network analysis, we seek to understand how each bot impacts their followers in terms of linguistically (sentiment/ tone of tweets/retweets), quantity of likes/retweets. We will also probe the characteristics of those who follow our bots, how many followers do they have, how active are they on Twitter or other social media platforms? Like in Stage 1, both Tufts and Cardiff researchers will also construct social network maps to assess how influential each follower is, so that we may project the possible influence each bot may generate, comparing the results with findings from Stage 1.

Timetable Project development will begin with a meeting where members of the Boston Chapter of Lambda Alpha International will be invited to discuss the overall aims of the project. At this meeting, we will finalize plans for both the technical and conceptual development of the project. Following the meeting, the researchers will commence Stage 1, scheduling semi-regular times for Lambda Alpha members to offer feedback or provide guidance to the research team. After one year, representatives of the research team will present findings at a Weekends meeting of Lambda Alpha International. After receiving feedback, Stage 2 will commence (see the attached detailed timeline diagram).

Budget \$30,000 over two years (see attached)

Responsible Parties Justin Hollander is a Professor and Director of the Urban Attitudes Lab at Tufts University where his research examines Big Data analytics and the intersection between cognitive science and the design of cities. He is the author of seven books on urban planning and design, including *Urban Social Listening: Potential and Pitfalls for Using Microblogging Data in Studying Cities*.

Maxwell Hartt is a Lecturer in Spatial Planning in the School of Geography and Planning at Cardiff University. He is interested in how technology and games can shape attitudes, influence policy and stimulate learning with respect to cities and city planning. His relevant prior work includes sensitivity analysis of geotagged Tweets to gauge public opinion, and the use of gamification to increase engagement.

Ruth Potts is a Lecturer in Spatial Planning in the School of Geography and Planning at Cardiff University. Her research focuses on the nexus between urban planning and technology. In her work she has explored the impact of augmented reality applications on people's use and experiences of public spaces. She has also examined the influence of emerging technologies on urban planning practice and the way in which technology may shape urban planning in the future.

Submission #5

Published on Lambda Alpha International (<https://www.lai.org>)

Sustainability NA

Alliance Partners The project will involve a close partnership with the Boston Chapter of Lambda Alpha.

Supplementary Materials [supplementary materials_hollander-harti-potts.pdf](#)

Source URL (retrieved on Mar 5 2019 - 8:58am): <https://www.lai.org/node/1659/submission/9396?destination=node/1659/submission/9396>

Submission information Form: LEF Application for Funding a Research Project

Submitted by Visitor (not verified)

February 23, 2019 - 2:10pm

2600:1702:2750:4a40:51f8:bd55:bf0a:80b9

Title of Project: THE FUTURE OF THE SUBURBAN MALL: DEVELOPMENT OF AN INDEX FOR PREDICTING WHO LIVES, WHO DIES, AND WHY?

Dollar Amount Requested \$ \$19,000

Submitted By Michael A. Burayidi

Address 5605 W. Sun Point Drive, Muncie, IN 47304

Phone Number 765-716-9326

Email Address Maburayidi@bsu.edu

Concept of Project Develop an index for predicting the health of shopping malls

Overview In the twenty-first century, the shopping mall is doing to suburbs what it did to Main Street in the mid-twentieth century. As hundreds of malls close or are under-utilized, vacant buildings will proliferate the suburbs, large expanses of barren parking lots will litter the landscape, municipalities will lose tax revenues from lower assessed values of buildings in and near shopping malls, and the commercial nucleus of suburban neighborhoods will hollow out. This is becoming the reality of the suburban landscape as shopping malls are losing the appeal that they once did, toppled by reurbanization of the middle class and millennials, the change in shopping preferences of consumers towards experience rather than stuff acquisition, and by the convenience of online shopping. It is estimated that one in four of the remaining 1,100 malls in the U.S. will close between now and 2022 (Calfas 2017).

The decentralization of retail from the central city took the quintessential form of the shopping center, providing suburban dwellers with easy access to their needs. But the suburban mall was more than a shopping venue, it was also the new town center, a twentieth century public square where both the youth and old gathered and socialized. The shopping mall also doubled in some places as the community's center of entertainment, dining, work, and more, all within an enclosed and climate-controlled environment. This role gradually frayed as millennials deviated from the norms of their parents and internet shopping expanded and became more convenient.

In 2017 there were nearly 7,000 retail closings, up more than 200 percent from 2016 (Thomas 2017). Most of the stores that closed were the anchor department stores that provided the main draw for mall shoppers including Sears, Macy's, Kmart, JCPenney, and Target, to mention but a few. According to the Wall Street Journal vacancy rates at regional and super-regional malls hit 9% in the fourth quarter of 2018 and retail traffic declined by 7% from January 2017 through August 2018 (Fung 2018). In 2018, CoStar, a commercial real estate research firm noted that a record 145 million square feet of retail space was emptied from the closing of retail stores, the equivalent of shutting down the Pentagon 22 times over (Whiteman 2019).

The future doesn't look any brighter for shopping malls. Even malls that are doing brisk business now face the specter of criticism from civic leaders and grassroots organizations who question the logic of such inefficient land use. As Strong Town's (2019) observed: "Big box stores occupy acres of valuable land in our towns with their large-scale buildings and even larger parking lots. This is land that generates far less tax revenue per acre than traditional commercial development. In spite of their low productivity, big box stores benefit from tax subsidies, regulatory advantages and extensive public infrastructure investments."

Some shopping malls have found second lives as they've been transformed into other uses. Still they continue to struggle. The Hickory Hollow Mall in Antioch, TN saw a rebirth when it was repurposed and renamed the Global Mall at the Crossings. Now uses in the former mall include a community and recreational center, a library and an Ice Center that is also used as a practice rink for an NHL team.

In Cleveland, OH, part of The Galleria at Erieview mall was transformed into a "gardens under grass" greenhouse where herbs and fruit were grown in hydroponic gardens. However, this was short lived as the mall's climate-controlled space became breeding grounds for aphids, which fed on the greens and made the venture unprofitable. The gardens were discontinued shortly thereafter. When the tornado hit Joplin, MO in 2011 the Northpark Mall became the temporary home of the community's High School. However, after a new permanent high school was built, the mall was vacated and now stands virtually empty.

Surprisingly, little academic research has been done to understand the future of shopping malls and how municipalities and commercial real estate developers can cope with the changing retail landscape. The proposed research seeks to fill this void.

Rationale for Research

The purpose of this research is to study shopping malls to get a better understanding of mall closings and their renewal, and to provide guidance to civic leaders and property owners so they can better prepare and more effectively respond to the "retail apocalypse." The research will develop a typology for shopping malls, identify and differentiate the characteristics between them, and provide an index for measuring and predicting the survival and health of shopping malls.

Timetable Design of questionnaire and Survey of mall managers and customers through Qualtrics = June 1 to June 30 (4 weeks)

Analysis of survey data = July 1 July 7 (1 week)

Stratification of shopping malls by type, location, and sampling of shopping malls, contact of managers to arrange visits = July 8 to July 14 (1 week)

Field visit and indepth discussion with select mall managers = July 15 to August 11 (4 weeks)

ESRI analysis of market area characteristics of malls = August 12 to August 30 (3 weeks)

Data collation and analysis = September 2 to September 6 (1 week)

Development of "Mall Index" and Write report = September 9 to September 20 (2 weeks)

Develop Story Map for Shopping Malls = September 21 to September 30 (1 week)

Total Time Commitment = June 1 to September 30 (17 weeks)

Budget Stipend for PI 3 months work @\$5,000/month = \$15,000.00

Transportation for site visits = \$2,000.00

Boarding and lodging in 20 cities @\$100 a day for hotel = \$2,000.00

Sub-Total = \$19,000.00

Submission #3

Published on Lambda Alpha International (<https://www.lai.org>)

Pro Bono and in-kind Contributions from Ball State University
Supplies, printing and miscellaneous expenditures = \$500.00
Graduate Assistantship during Fall semester = \$3,500.00
GIS Specialist assistance -
Sub-Total (Pro-Bono) = \$4,000.00
Grand Total = \$23,000.00

Responsible Parties The principal investigator (PI) for the study will be Michael A. Burayidi, PhD., professor of urban planning at Ball State University. Professor Burayidi has experience in working with big data and in doing large scale research of the scope that is being proposed in this study. Examples of such work include an assessment of the impact and effectiveness of façade improvements in Iowa communities, conducted for the Iowa Economic Development Authority (IEDA), an assessment of the benefits of home ownership for low income households in Indiana, for Habitat for Humanity, Indiana, and a design and implementation of an electronic messaging system for increasing seat belt use for the Wisconsin Department of Transportation. A graduate student will assist with data analysis, administrative services and research. The student will also provide technical assistance in data entry and in the creation of the GIS Story Map

Sustainability This research will lay the foundation for a larger study of shopping malls in the U.S. Potential funding sources such as the Urban Land Institute, and grants from the National Center for Real Estate Research, and the National Science Foundation will be explored for such a larger study.

Alliance Partners See attachment.

Supplementary Materials [shopping_malls_research_land_economics_foundation_proposal.docx](#)

Source URL (retrieved on Feb 25 2019 - 9:06am): <https://www.lai.org/node/1659/submission/9372?destination=node/1659/submission/9372>