

The Digital *Underground* Economy:

A Social Network Approach to Understanding Cybercrime

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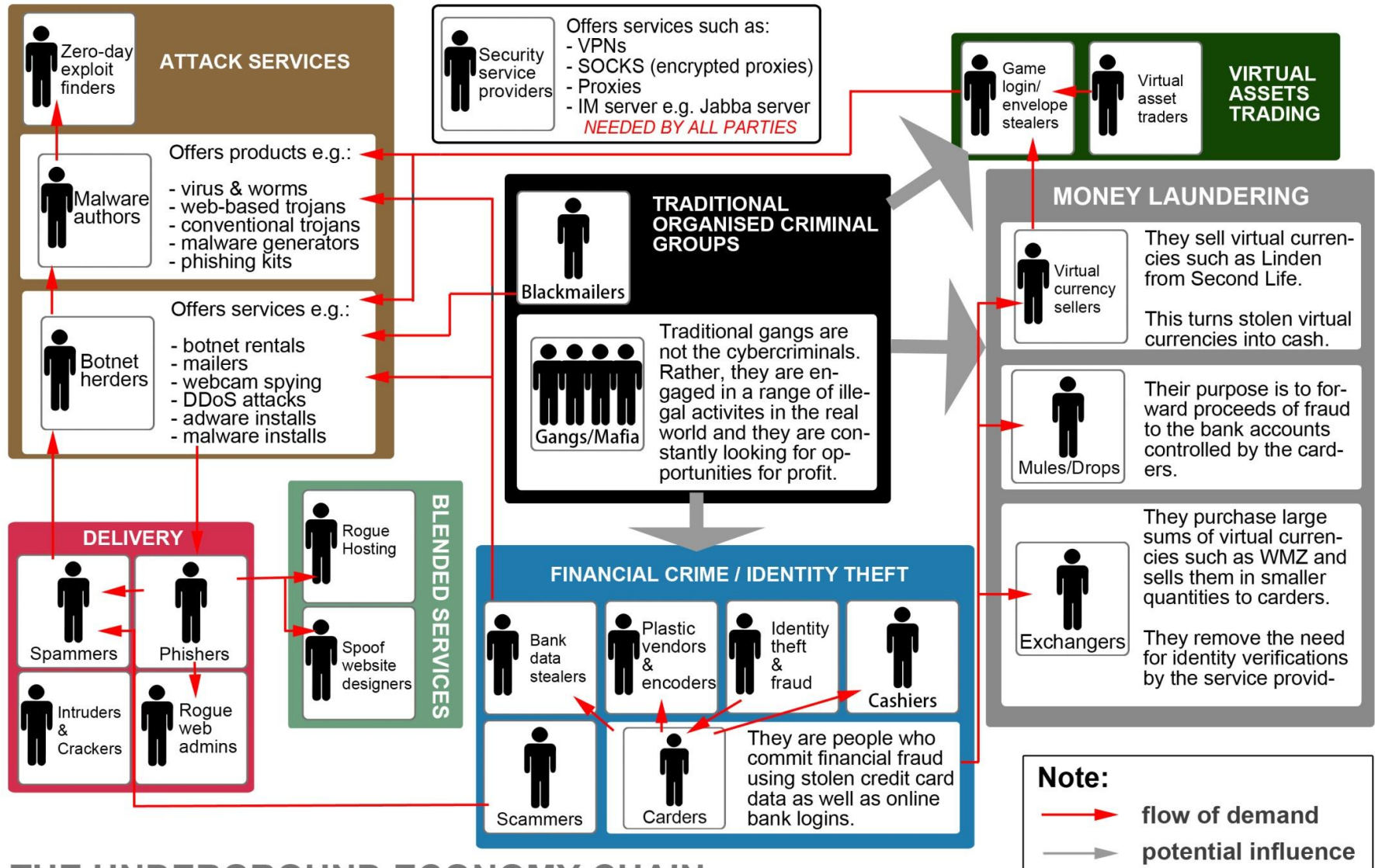
Content

- Digital underground economy
- Social network analysis (SNA):
 - *Qualitative*: social psychology and criminology
 - *Quantitative*: network science, statistical modelling
- Future Work

DIGITAL UNDERGROUND ECONOMY



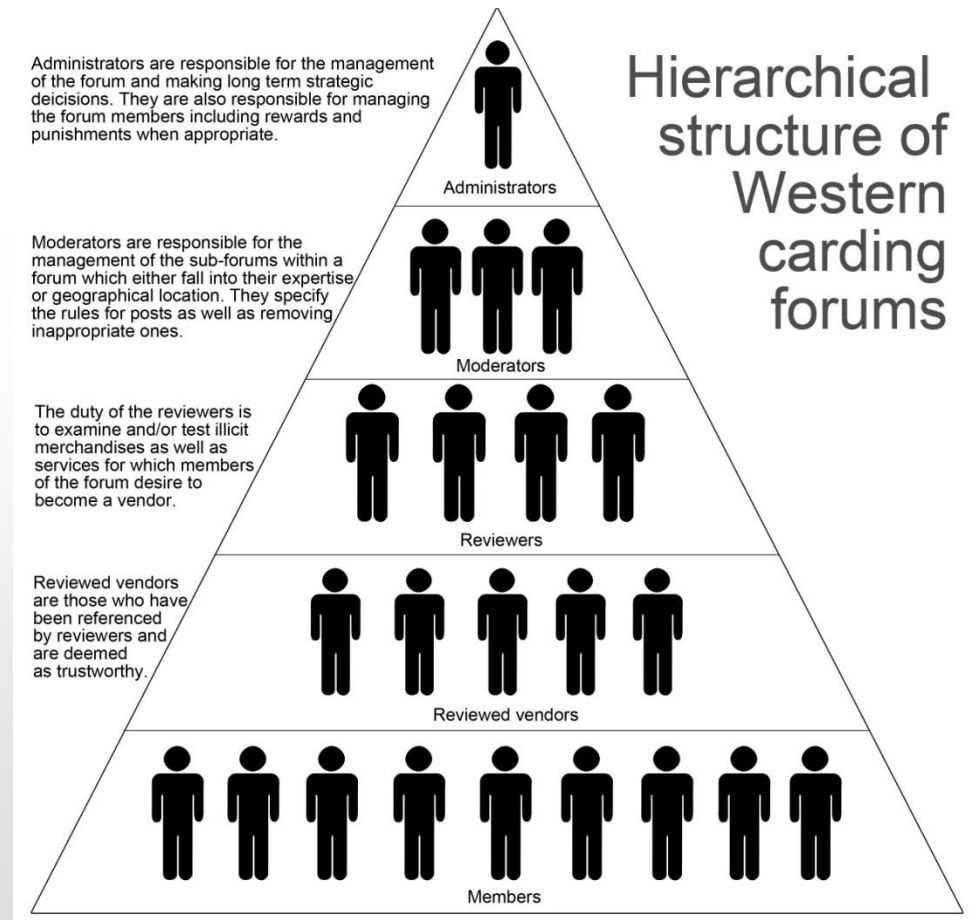
Source: Daily Mail - <http://www.dailymail.co.uk/news/article-1316022/Nineteen-arrested-online-bank-raid-netted-20m.html>



THE UNDERGROUND ECONOMY CHAIN

Carding forums

- Cybercrime is becoming increasingly organised
- Emergence of division of labour
- Competitive online black markets
- Drives innovation and new entrants into crime



★	The Lounge Anything goes in this forum. Take your battles and personal matters into the lounge. Moderator [REDACTED]
★	Identification Technical discussion on Novelty Identification, 2nd ID, Passports, and the like. Moderator [REDACTED]
★	Cyberspace Discussion about online anonymity and tools to hide your online presence. Moderator [REDACTED]
★	Credit & Checks Discussion concerning credit cards, credit bureaus, credit reports, credit services, checks, bank ac Moderator [REDACTED]
★	Qualification Discussion of Diplomas, Employment Refer Moderator [REDACTED]
★	EU Forum Forum for members with a special interest i
★	AU & NZ Forum Forum for members with a special interest i
Vendors and Reviews	
★	Vendors/Reviews Find out what vendors offer and who delive Moderator [REDACTED]
★	Scamming Bastards Tell everyone who ripped you off and mayb Moderators [REDACTED]
Archives	
★	Tutorials and How-To's Learn from those who came before you. Moderator [REDACTED]
Forum BS	
★	Forum Discussion Suggestions, complaints, bitches, moans, whatever. Moderator [REDACTED]
★	Trashed Topics You don't want your thread to end up here!

SHADOWCREW ARCHIVE			
The time now is Tue Nov 09, 2004 2:39 pm SHADOWCREW ARCHIVE Forum Index			
Forum	Topics	Posts	Last Post
Discussion Forums			
★ The Lounge Anything goes in this forum. Take your battles and personal matters into the lounge. Moderator [REDACTED]	3281	33089	Mon Feb 24, 2003 8:02 am →
★ Identification Technical discussion on Novelty Identification, 2nd ID, Passports, and the like. Moderator [REDACTED]	2368	20483	Mon Feb 24, 2003 8:08 am →
★ Cyberspace Discussion about online anonymity and tools to hide your online presence. Moderator [REDACTED]	767	6571	Mon Feb 24, 2003 8:04 am →
★ Credit & Checks Discussion concerning credit cards, credit bureaus, credit reports, credit services, checks, bank accounts, and banking services. Moderator [REDACTED]	2689	26613	Mon Feb 24, 2003 7:10 am →
★ Qualification Discussion of Diplomas, Employment References, Job searches, Transcript, Etc Moderator [REDACTED]	183	1530	Mon Feb 24, 2003 4:53 am →
★ EU Forum Forum for members with a special interest in EU discussion.	197	819	Sun Feb 23, 2003 5:29 pm →
★ AU & NZ Forum Forum for members with a special interest in AU & NZ discussion.	216	1638	Mon Feb 24, 2003 7:19 am →
Vendors and Reviews			
★ Vendors/Reviews Find out what vendors offer and who delivers. Moderator [REDACTED]	247	3287	Mon Feb 24, 2003 8:00 am →
★ Scamming Bastards Tell everyone who ripped you off and maybe save the newbies a few dollars. Moderators [REDACTED]	106	1393	Mon Feb 24, 2003 7:34 am →
Archives			
★ Tutorials and How-To's Learn from those who came before you. Moderator [REDACTED]	215	1115	Mon Feb 24, 2003 3:08 am →
Forum BS			
★ Forum Discussion Suggestions, complaints, bitches, moans, whatever. Moderator [REDACTED]	242	3359	Sun Feb 23, 2003 8:40 pm →
★ Trashed Topics You don't want your thread to end up here!	217	1616	Mon Feb 24, 2003 5:43 am →
Mark all forums read All times are GMT - 5 Hours			

Dumps VISA/MC/AMEX/DISCOVER (Track1+Track2+Address+ZIP+Phone+SSN)

from 1 to 19 dumps : 200\$

from 20 to 49 dumps : 150\$

from 50 to 99 dumps : 130\$

from 100 dumps : 100\$

Dumps whis know:

-Balance

-Available Credit for Purchases

-Available Credit for Cash Advances

-Credit Limit

Include Track1+Track2+Address+ZIP+Phone+SSN and online access to a statement

Price - 15% from Available Credit

We send dumps after receiving money.

We do not offer free dumps for testing.

We sell only USA dumps.

We sell dumps that where checked before.

We can change declined dumps within 5 days of dumps delivery. We guarantee the minimal sum for classic dumps - 100\$, and for dumps GOLD/PLATINUM/PURCHASING/SIGNATURE/BUSINES - 300\$. If you could not take off from a dump so much - dump it is considered bad and exchanged.

For loyal customers who have their own merchant account for dumps checking, we can work in the following way:

1. You send us payment.
2. We send PAN=EXP from dump only.
3. You check numbers.
4. You send us list of numbers you want to get.
5. We send the dumps you requested.

If you prefer above scheme, please note that we do not replace declined dumps.

We accept Webmoney, E-Gold, WesternUnion, Bank WIRE.

ICQ

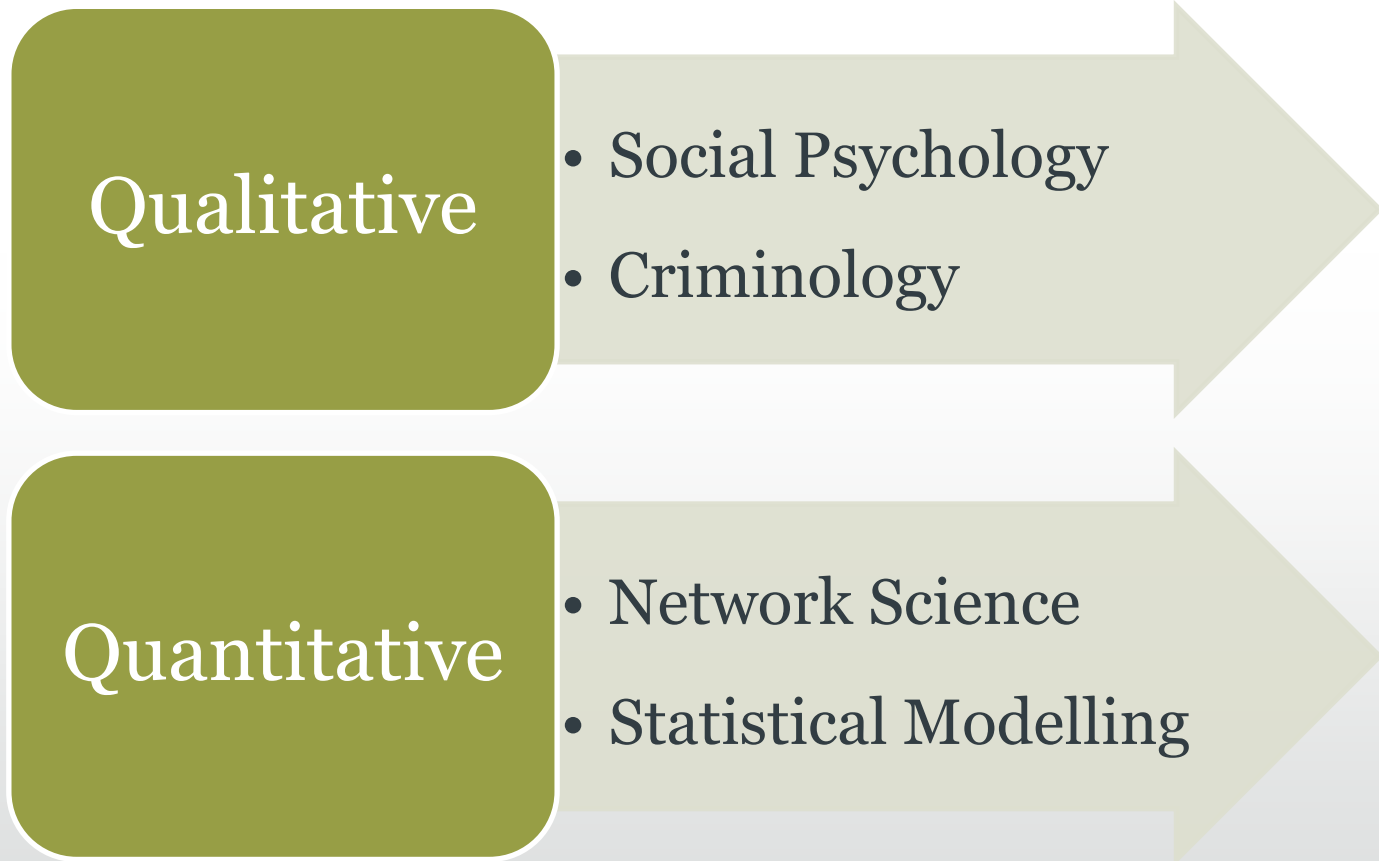
E-mail:

SOCIAL NETWORK ANALYSIS

SNA on cybercrime

- The least common denominator of organised crime is human relationships (McIllwain 1999).
- SNA focuses on the study of relationships between criminals
- No a-priori assumptions about the structure/pattern of interactions
- An interdisciplinary framework for:
 - reasoning behaviour (qualitative analysis)
 - capturing social dynamics (quantitative analysis)

Interdisciplinary approach



Qualitative analysis

- A unique insight into the underworld based on their daily conversations
- Captures aspects of their lives, personalities and attitudes
- A host of well-known theories to reason observed behaviour

Role of carding forums

- Crime is learnt (Sutherland 1949; Burgess and Akers 1966):
 - Skills and techniques
 - Slangs
 - Positive reinforcement from peers
- Neutralisation (Sykes and Matza 1957)
 - Denying responsibilities and injury
 - Justification for actions
- Carding forums facilitates a community that reinforces their actions

Do you regret?

Do you regret anything?

Goto page 1, 2 [Next](#)

★ [NEW TOPIC](#) [POST REPLY](#) [Shadowcrew Forum Index -> The Lounge](#)

Author	Message
<p>Joined: [redacted] Posts: 131 Location: EU</p>	<p>■ Posted: Wed Oct 20, 2004 9:35 pm Post subject: Do you regret anything?</p> <p>People who's life is carding and other type frauds (so no fucking students who do this parttime) :</p> <p>Do you sometimes wish you just had a normal life, with this I mean normal job, no stress about ops, making money, LE etc? or are you 100% happy with ur 'underground ops life' ?</p> <p>I would appreciate any input/thoughts</p> <p>[redacted]</p>
<p>Back to top</p>	<p>profile pm</p>
<p>Joined: 07 May 2004 Posts: 877 Location: [redacted]</p>	<p>■ Posted: Wed Oct 20, 2004 10:14 pm Post subject:</p> <p>I wish I had a normail life. Turn back the clock and all, but fuck it I am where I am.</p> <p>[redacted]</p>
<p>Back to top</p>	<p>profile pm</p>
<p>Joined: 27 Apr 2004 Posts: 27 Location: AU</p>	<p>■ Posted: Wed Oct 20, 2004 10:26 pm Post subject:</p> <p>Are you kidding me!!! Normal life with no stress. No such thing, there will always be stress unless you live in fantasy land. There may be different types of stress but it will always be there.</p> <p>As for regret. I regret being to honest and living the so called normal for far to long before I found out how much money could be made in this business.</p>
<p>Back to top</p>	<p>profile pm email icq</p>
<p>Joined: 15 Aug 2004 Posts: 131 Location: EU</p>	<p>■ Posted: Wed Oct 20, 2004 10:33 pm Post subject:</p> <p>There is a HUGE difference between 'norml life stress' and this business's stress.. I think you just started out this business.. i wanna hear ur thoughts after 5 months 😊</p> <p>[redacted]</p>

Do you regret?

It gets addictive

most people only quit after they get busted, what other reason is there?

Do you regret?

It gets addictive

most people only quit after they get busted, what other reason is there?

I don't agree. It's like if you would say that only cancer make smokers quit. One usually needs a wighty reason to quit, but it does not have to be the cancer. When you're strapped, you don't give a fuck. But when you get to the real nice living, you will value it. Especially when you know that easy money are not easy. And we all get tired at some point... Thai massage and jakuzzi would be nice right now 😊

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I agree with [REDACTED], it gets addictive.

There is always that feeling of trying to be the best between your shady friends but appear as the second (because the number one always get caught). As for the friends, in my own experience, many time those "good guys" friends simply get away when you have some problem and the people who is there, with you, is the shady one. Anyway we are free to choose our lifestyle for a while, and most of us are here because we like what we do or what we get from it.

That's my opinion

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In alot of ways I regret where I am at today. When I was younger I didn't realize the consequences of the shit I was doing - easy money was great. But once you get a record and your chances of a good legit life slip further away the less choice you have in the matter. Now that I am older I wish I had done things differently, but this is the life I chose & am long as I have to live it - I am going to try to take it as far as I can. I am hooked on the rush - there have been times when I could have resumed normal living with a 9 - 5 job, but I could never bring myself to do it. I need the excitement & the fast cash. The stress is just something I have to live with - that and the isolation from everyone else. With the amount of time that I put into my "job" there is hardly any time to enjoy life - but it's addicting.

Will you scam college kids?

Posted: Wed May 26, 2004 11:13 pm Post subject:

quote

pretty fucked up to scam college kids.

[REDACTED]

profile pm www

Posted: Thu May 27, 2004 12:22 am Post subject:

quote

Damn...I thought this was going to be a new and improved version of scamming on ebay.

profile pm icq

Posted: Thu May 27, 2004 2:27 am Post subject:

quote

i agree, scamming college children is plain and simply wrong... thats their real hard earned money and there's no way for them to get it back... CC fraud, the victim gets all his money back... it's a victimless crime, but this is just plain wrong... i'm not flaming you, i'm just saying, i'd feel better if you see my point of view and please not do that again. sorry to put you on the spot like that, but it's just my opinion.

profile pm aim icq

Posted: Thu May 27, 2004 4:49 pm Post subject:

quote

yeh i see your point. it is fucked up.. but i mean if u really need money this is a way to do it. thats all

[REDACTED]

Will you scam college kids?

Posted: Sat Aug 07, 2004 12:13 am Post subject:

quote

morals dont pay the bills

profile pm

Posted: Sat Aug 07, 2004 12:46 am Post subject:

quote

morals don't pay bills.
Scamming is scamming.
blah blah blah blah!

Truth is, if you have the brains and the balls to be a carder or a scammer, why not use those brains and those balls to fuck the corporate giants and big companies. If you steal \$3,000 from 2 kids who are barely able to pay their tuitions and eat... you're going to fuck them and possibly cause serious damage. If you fuck over BestBuy, or Officedepot, or Walmart..... they won't even feel anything and will basically just let it fly.

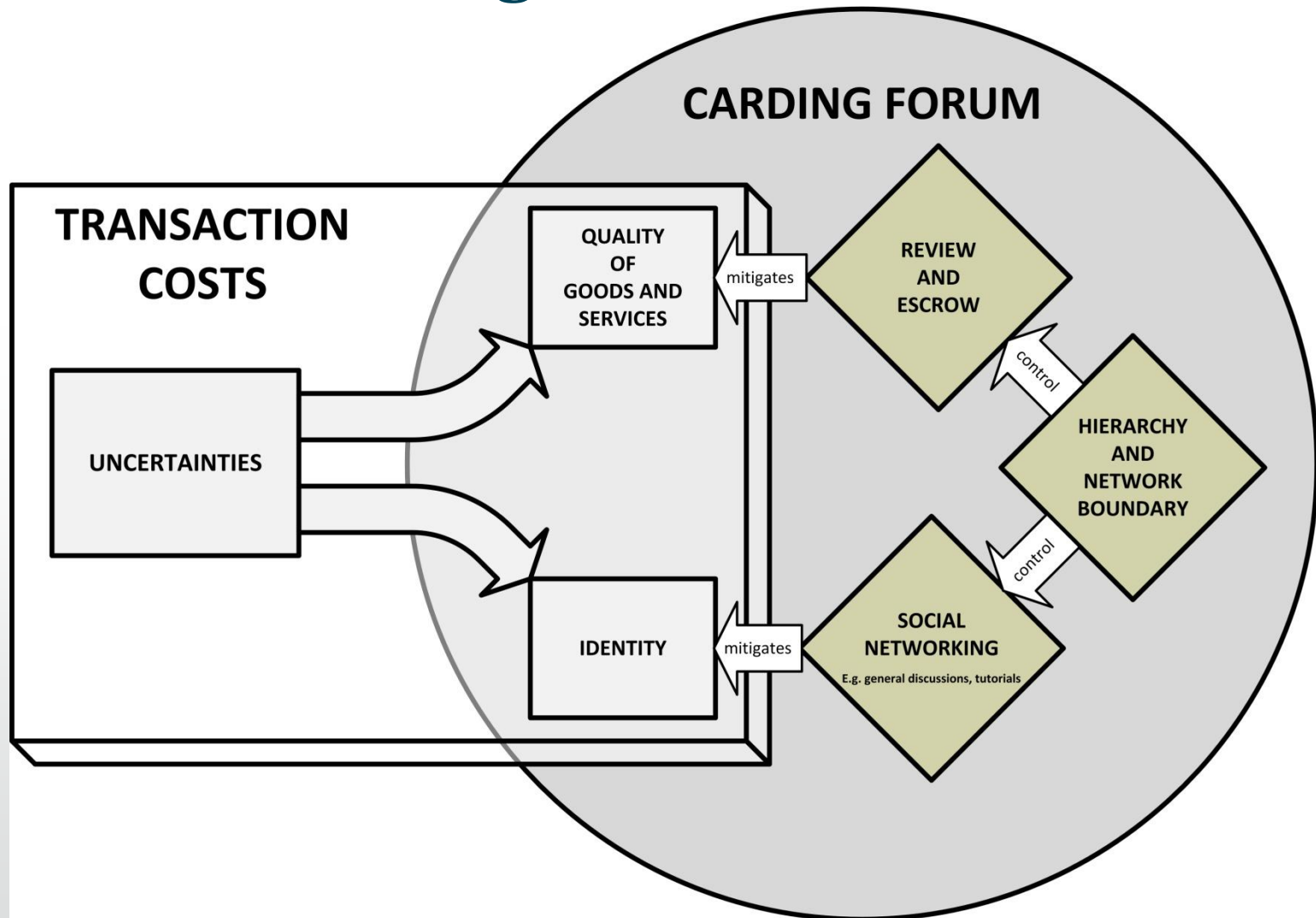
So to scam a college kid... he's not the dumbass to fall for it... the scammer is becauase he's too much of a PUSSY or LACK OF BRAINS to actually come up with a plan to scam a company.

Not to boast, but i have never scammed a "regular joe" or college kids or any regular person.... And i've been making \$10k a week for over 2 months!

(brains and balls --- they go hand and hand...but some apparently just don't know any better)

profile pm

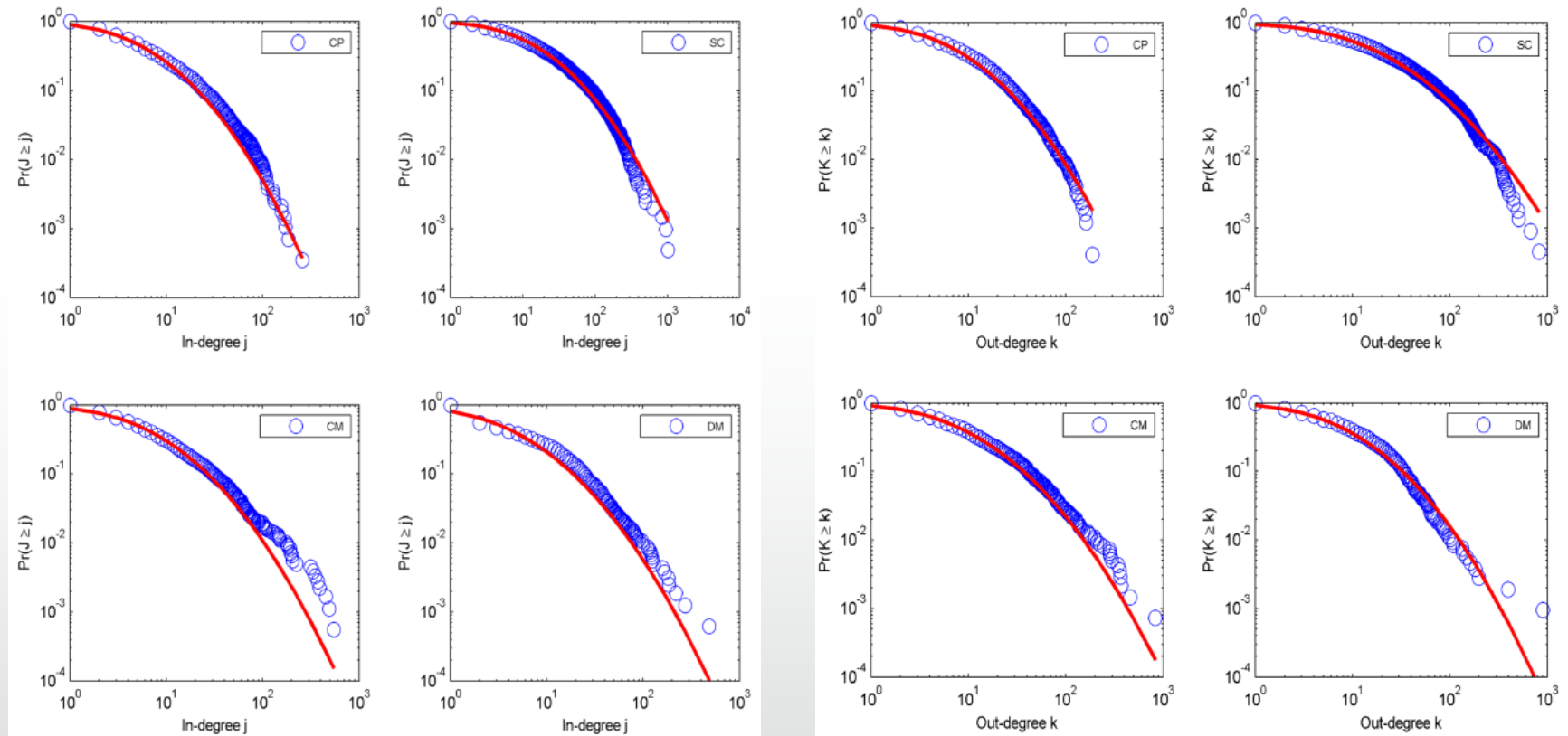
Trust and carding forums



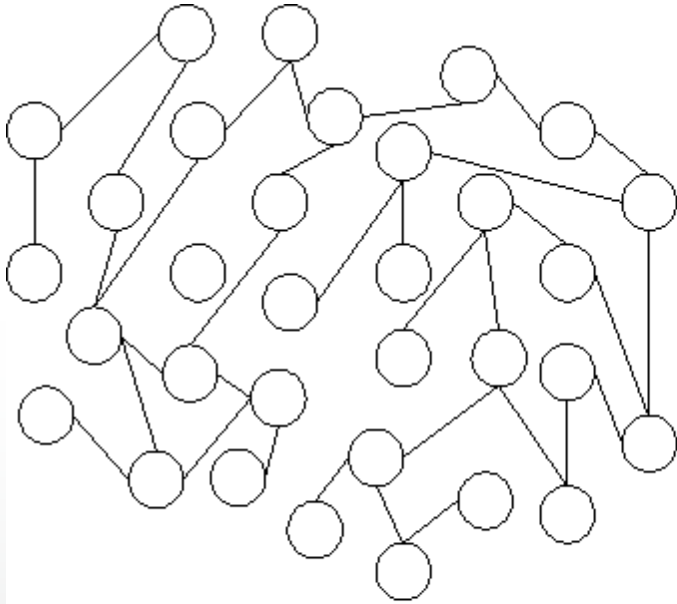
Network analysis

- Social networks are dynamic as humans learn, change and adapt (Carley 2006)
- The use of network science provides:
 - Topological insights into the behavioural patterns of the members
 - Identify key players or groups
 - Implications on disruption strategies

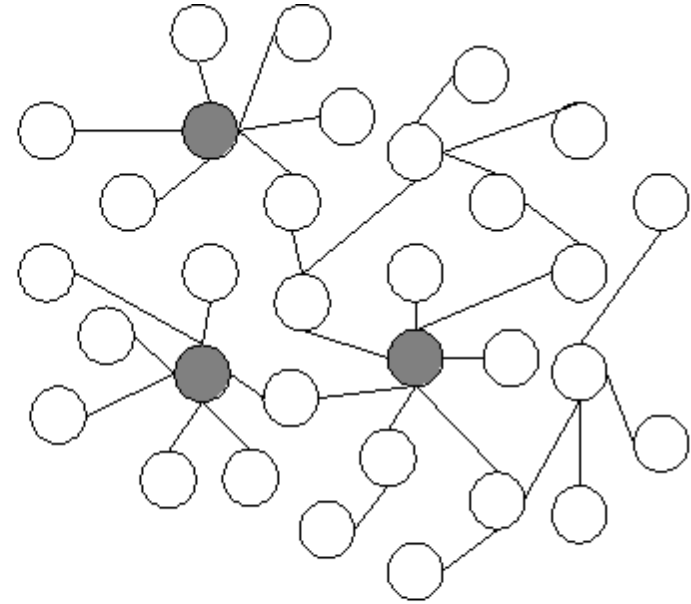
Degree Distribution



Scale-free? No!



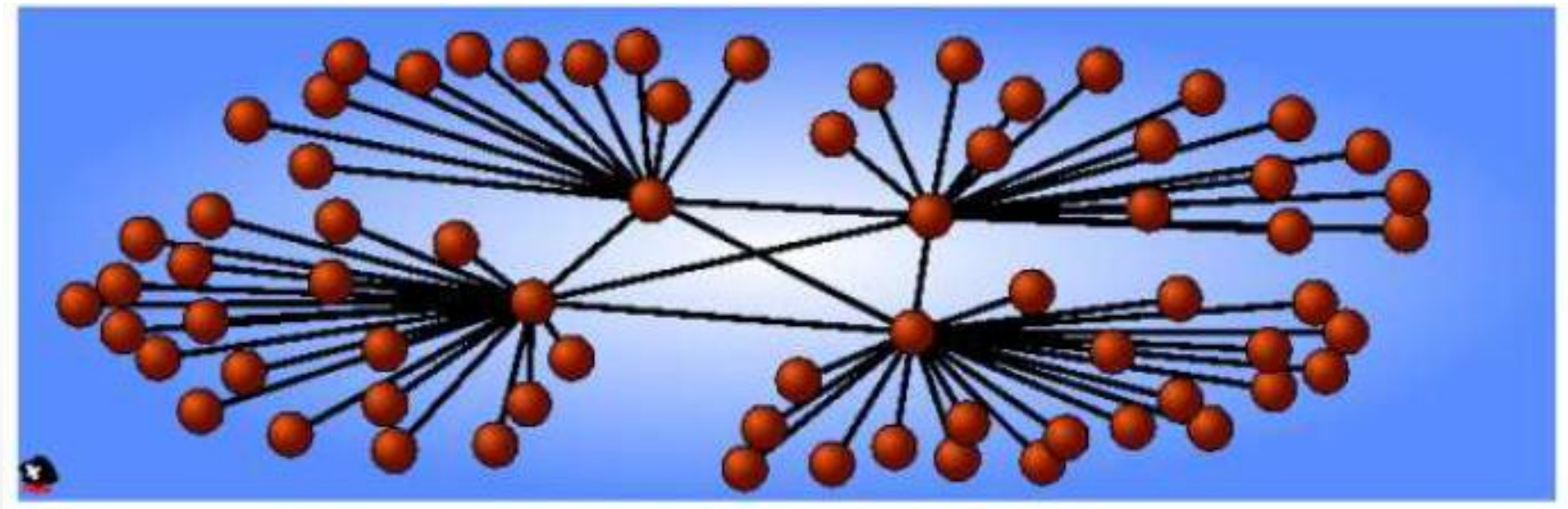
(a) Random network



(b) Scale-free network

Source: http://en.wikipedia.org/wiki/File:Scale-free_network_sample.png

Rich-club Phenomenon?



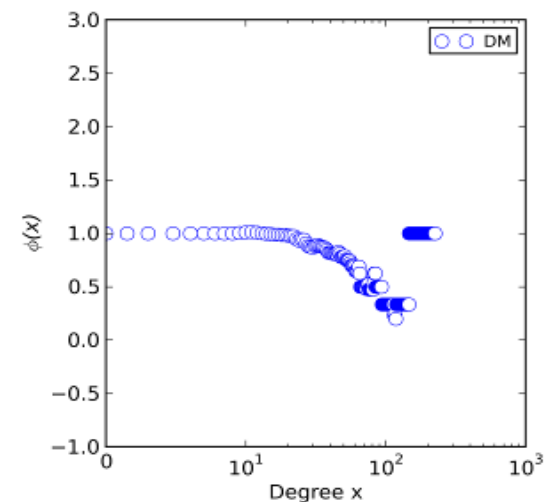
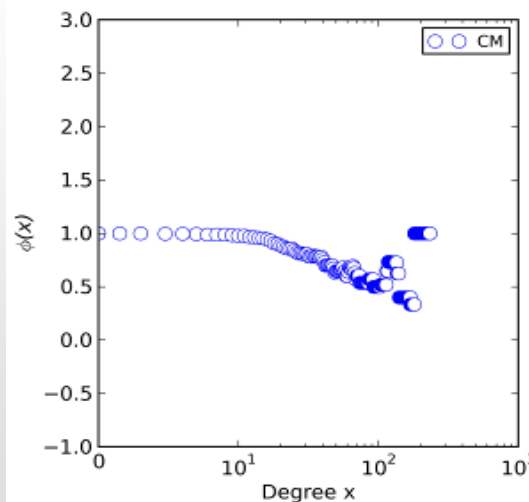
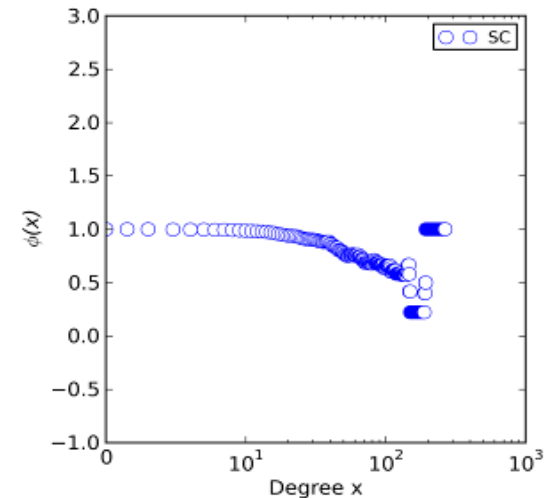
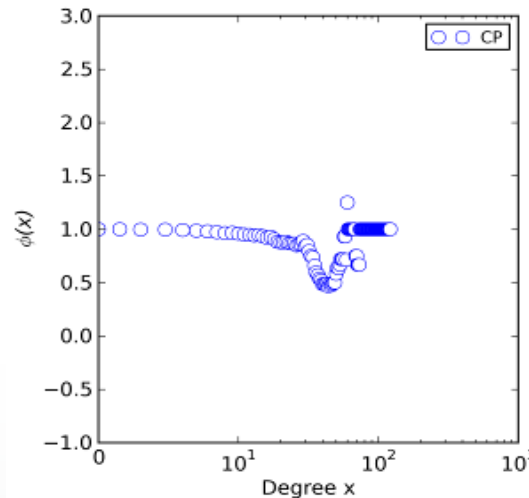
Source: Colizza, V. et al., 2006. Detecting rich-club ordering in complex networks. *Nat Phys*, 2(2), pp.110-115.

Rich-club Phenomenon?

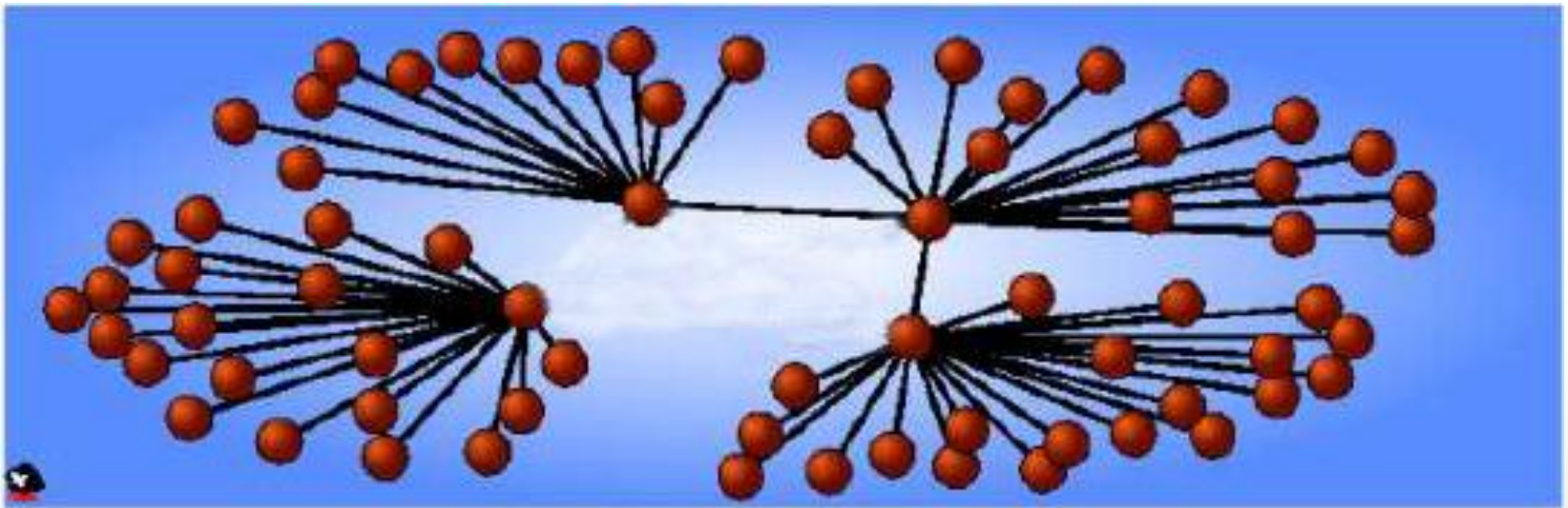
Overall, rich-club phenomenon **does not exist** (except for CP).

Furthermore, a strong opposing force occurs for nodes with approx. $30 < k < 110$.

Vendors are most likely to be among this range.



Rich-club Phenomenon?



Modified from: Colizza, V. et al., 2006. Detecting rich-club ordering in complex networks. *Nat Phys*, 2(2), pp.110-115.

Future work

- Examine the evolution of the social networks
- Link prediction
- Multi-agent Social simulation

References

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THANK YOU!

Slides are available on
iamresearcher.com/profiles/michael.yip/

Email: my2e09@ecs.soton.ac.uk

Twitter: [@michael_yip](https://twitter.com/michael_yip)

The More Knowledge We Share The More We Have

