

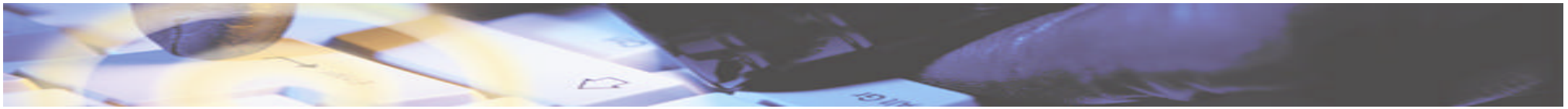
The Economics of Information Security

Session #3

Paul A. Strassmann

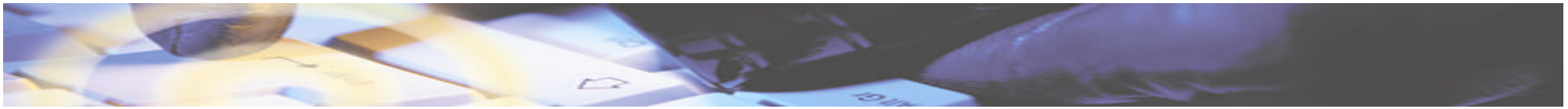
Sept. 12, 2000; 11:00 to 11:30





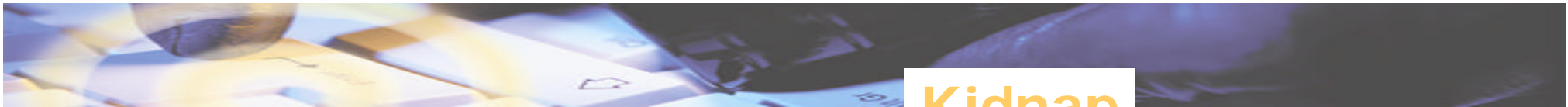
Summary of Presentation

- 1. Profit Motivates better than Regulations.**
- 2. Insurance Is a Way of Pricing Risks.**
- 3. New Risks: Loss of Knowledge Capital.**
- 4. Knowledge Capital Risks can be Measured.**



#1: Profit Motivates better than Regulations

- Mississippi Paddlewheel Boat Explosions
 - *Boiler Inspection and Boiler Insurance*
 - *Engineering and Safety Standards*
- Ransom & Extortion Insurance Coverage
- Earthquake Insurance
 - *Codes*
 - *Independent Inspection & Verification*



Kidnap

Ransom

Extortion

Detention

Hijacking

**Insurance
Policies
Presently
Available**

K I D N A P E X T R T I O N D E T E N T I O N H I J A C K	RANSOM	<ul style="list-style-type: none"> • Cash, goods or services surrendered to meet a kidnap or extortion demand 	PER EVENT LIMIT
	RANSOM IN TRANSIT	<ul style="list-style-type: none"> • Loss in transit of the ransom by destruction, disappearance or theft 	ADDITIONAL PER EVENT LIMIT
	CONTROL RISKS GROUP	<ul style="list-style-type: none"> • The fees and expenses of The Control Risks Group 	UNLIMITED FEES AND EXPENSES
	ADDITIONAL EXPENSES	<ul style="list-style-type: none"> • Independent Negotiators and Consultants • Interpreters and Public Relations • Forensic analysis • Legal advice • Travel and accommodation • Medical and Psychiatric care • Rewards • 100% of victim's gross salary • Interest on loans • Recording equipment • Advertising • Employee negotiation costs • Cosmetic and plastic surgery • Rest and rehabilitation costs • All other reasonable expenses 	ADDITIONAL PER EVENT LIMIT
	PERSONAL ACCIDENT	<ul style="list-style-type: none"> • Accidental death, injury or mutilation during a kidnap, extortion, detention or hijack 	ADDITIONAL PER EVENT LIMIT

Insurance Coverage for Non-Material Losses



A **kidnap, extortion, detention or hijack** or a series of such connected acts. If it is evident from the demand(s) or the making of such demand(s) that any of these are linked one with the other, they will be deemed to be connected and to constitute a single **insured event**. Nevertheless, we will not accept liability for a series of **kidnaps, extortions, detentions or hijacks**, the first of which began before the period of insurance.



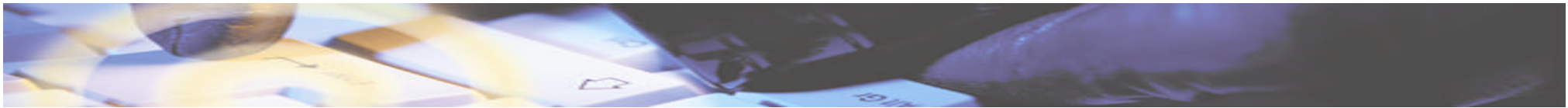
Some Qualifications for Earthquake Insurance

Foundation Types: Click on a foundation type to see definition:

- [Concrete slab foundation](#)
- [Basement foundation](#)
- [Concrete perimeter with no cripple wall](#)
- [Concrete perimeter cripple walls that are braced](#)
- [Concrete perimeter with cripple walls that are NOT braced](#)

Construction Types: Click on a construction type to see definition:

- [Wood frame](#)
- [Wood frame with stucco](#)
- [Masonry veneer less than 30%](#)
- [Masonry veneer more than 30%](#)
- [All masonry construction](#)
- [Other types of construction](#)



Emerging Internet Security Insurance Market

Counterpane offers Internet security insurance

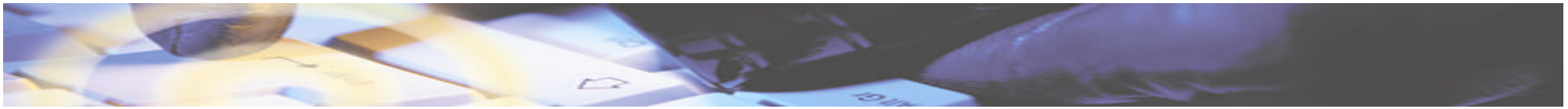
BY ANN HARRISON

(July 12, 2000) Counterpane Internet Security Inc. in San Jose [announced](#) this week that its clients will be able to purchase up to \$100 million in insurance coverage to protect against loss of revenue and information assets caused by Internet and e-commerce security breaches.

Counterpane's standard warranty of service will be backed by Lloyd's of London and underwritten by insurance brokers Frank Crystal & Co. in New York and London-based digital risk solution provider SafeOnline.



Bruce Schneier,
founder of
Counterpane
Internet Security
Inc.



#2: Insurance Is a Way of Pricing Risks

- Insurance Application as a Valuation Means
 - *Quantification of Tradeoffs: Costs vs. Risks*
- Precedents: Insuring Nuclear Power Plants
- Precedents: Compliance Avoids Liability
 - *Liability for Negligence*
 - *Inexcusable Exemption of Software Vendors*

Example: Earthquake Insurance Quotes

California Earthquake Insurance Quote Request

Residential



Includes:

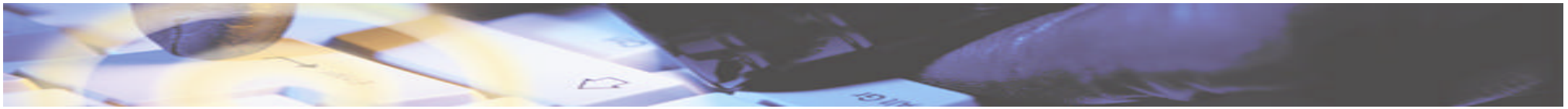
1. Single Family Homes
2. Family Dwellings up to 4 units
3. Condo unit Owners
4. Townhome unit Owners

Commercial



Includes:

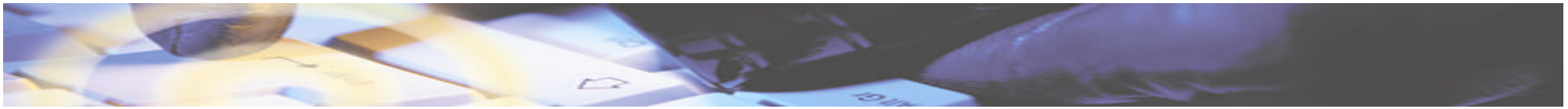
1. Family Living units over 4 units
2. Apartments Buildings
3. Condo Associations
4. Industrial Centers
5. Office Buildings
6. Retail Stores
7. Wholesale Stores
8. Shopping Centers



Wide Range of Insurance Policies Available

CLINICAL TRIALS	VALUABLE PAPERS & RECORDS
CRIME	PUBLISHERS LIABILITY
CYBER LIABILITY	PRODUCT RECALL
DIRECTORS LIABILITY	POWER INTERRUPTION
EARTHQUAKE & FLOOD	
EARTHQUAKE SPRINKLER LEAKAGE	
ELECTRONIC DATA PROCESSING	
EMPLOYMENT PRACTICES LIABILITY	
ERRORS AND OMISSIONS	
FIDUCIARY LIABILITY	
FOREIGN BUSINESS	
HACKER COVERAGE	
INTELLECTUAL PROPERTY	
MAQUILADORA INVESTMENT PROTECTION	
LIBEL, SLANDER AND COPYRIGHT INFRINGEMENT	

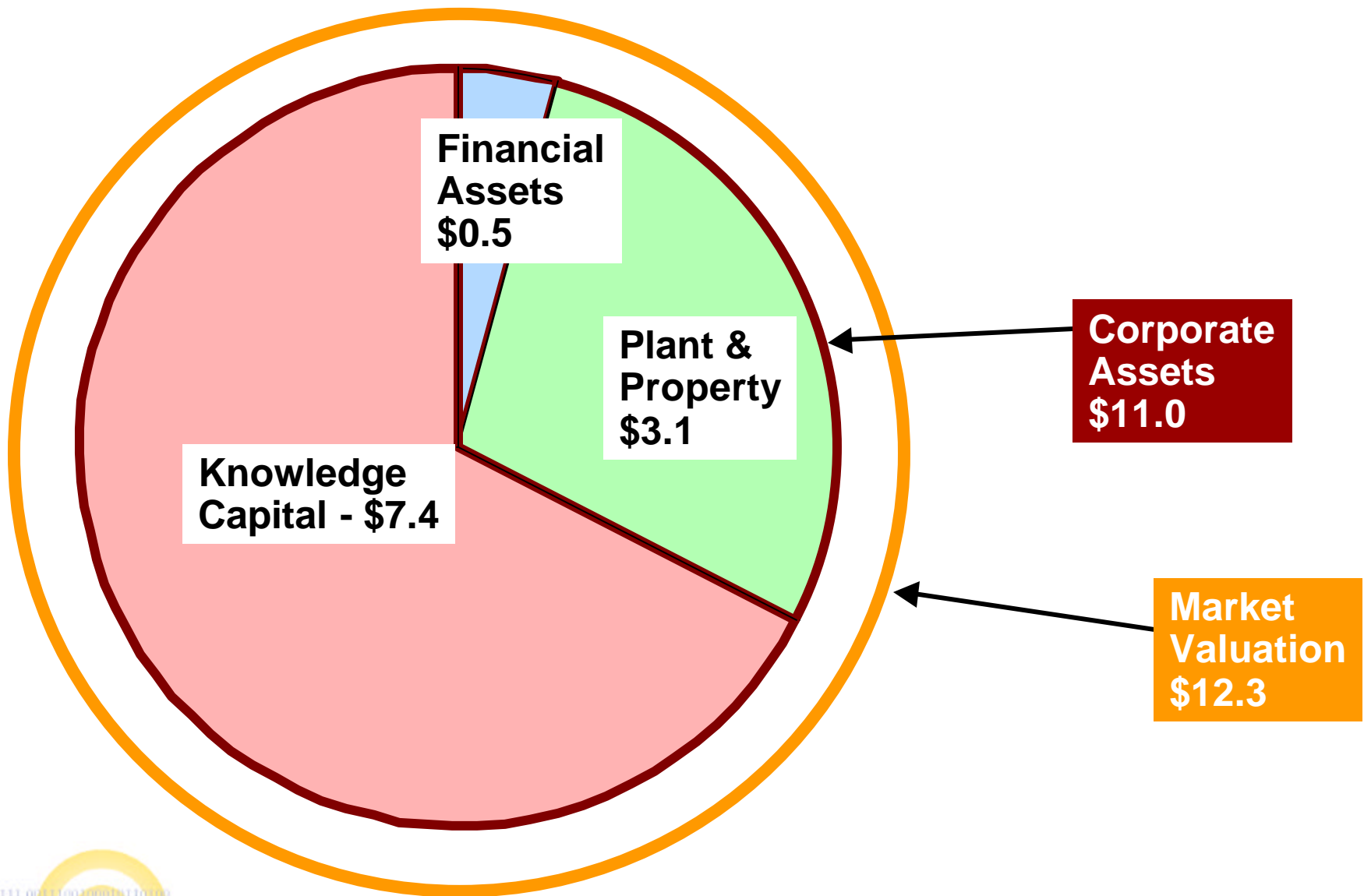




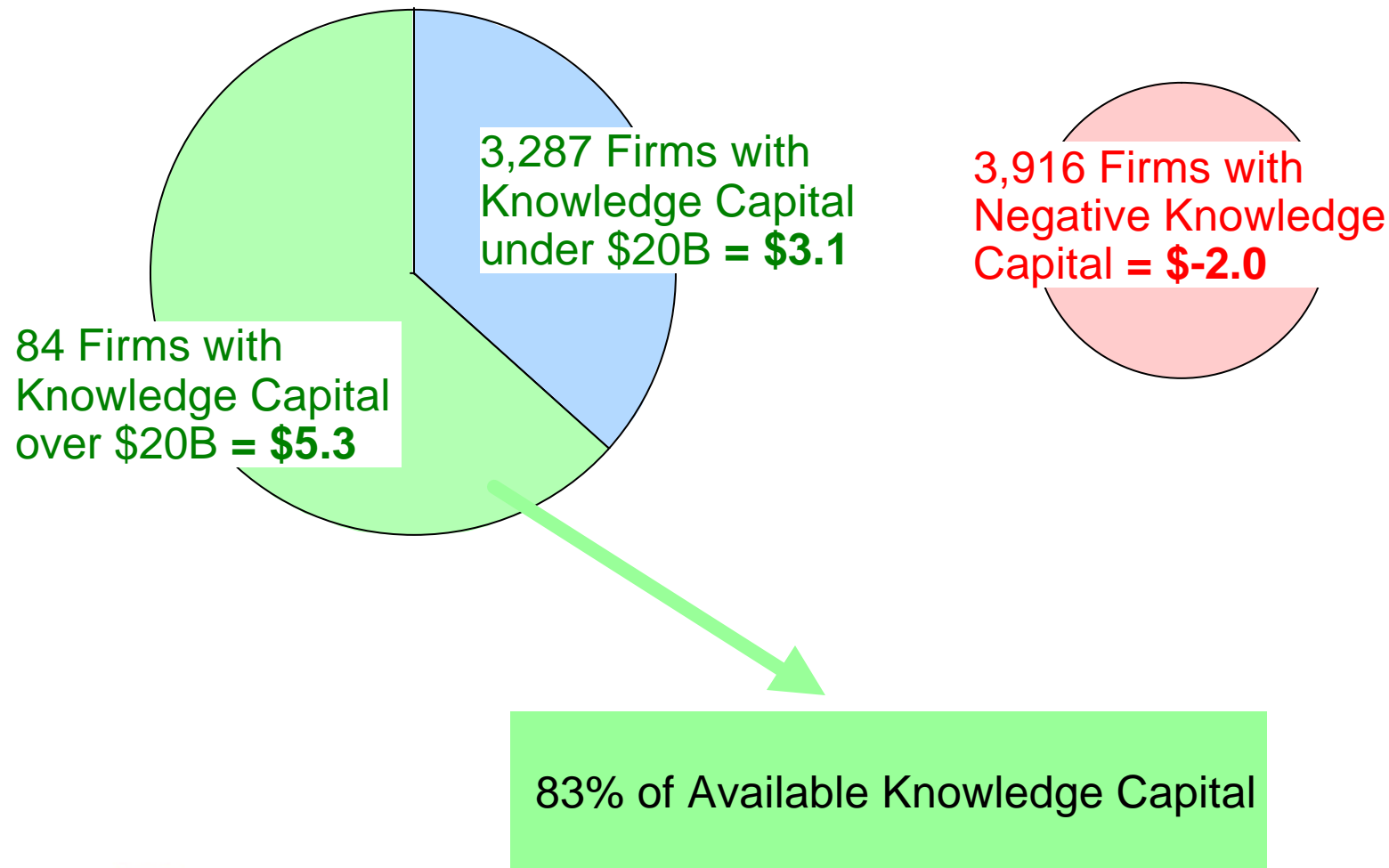
#3: New Risks: Loss of Knowledge Capital

- Knowledge Capital is the Most Valuable U.S. Asset.
- Knowledge Capital is Concentrated
- U.S. Knowledge Capital is Dominant

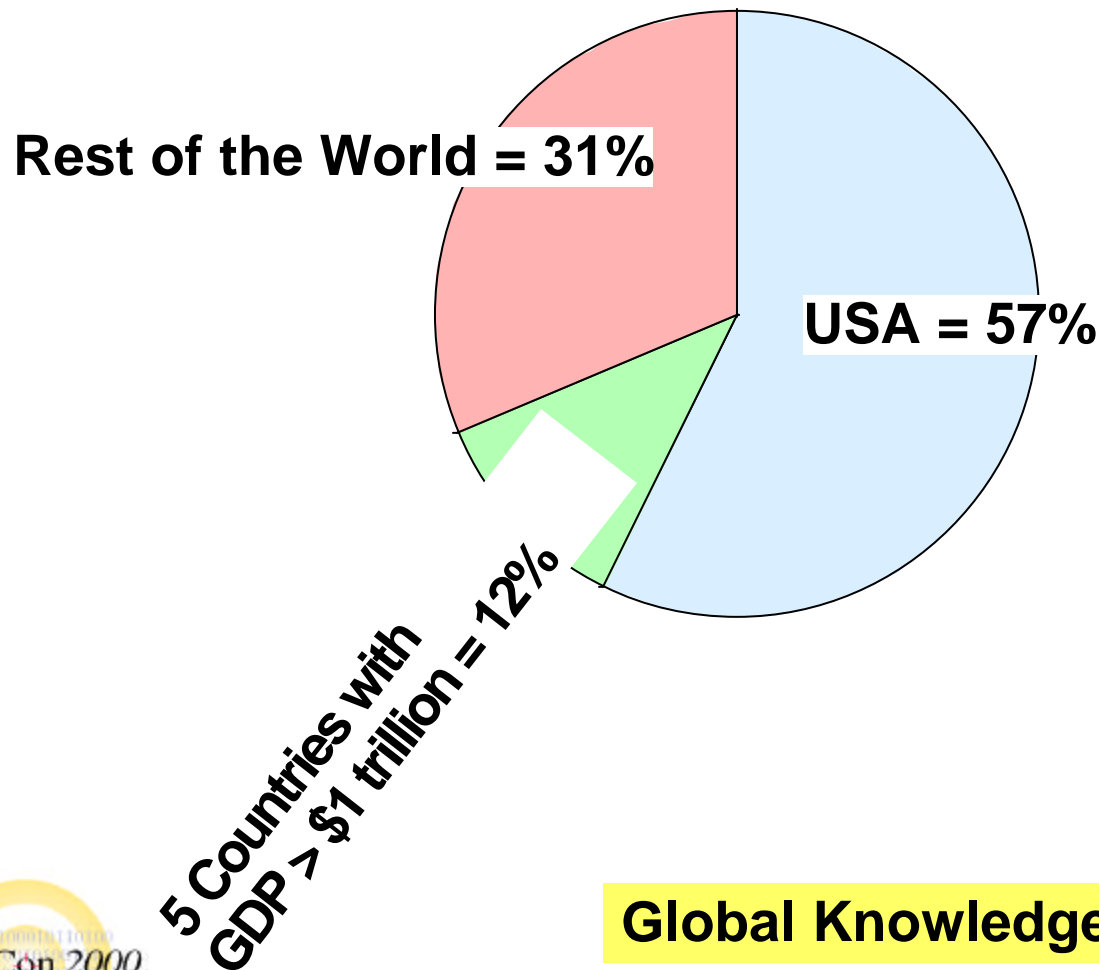
Knowledge Capital Capital Now the Key Asset (\$ trillions)



U.S. Knowledge Capital Is Concentrated (in \$ Trillions)



Global Knowledge Capital Highly Concentrated

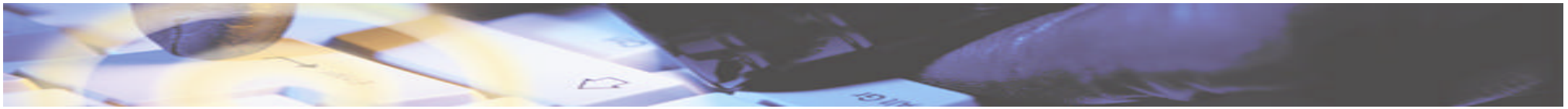


Global Knowledge Capital = \$12 trillion



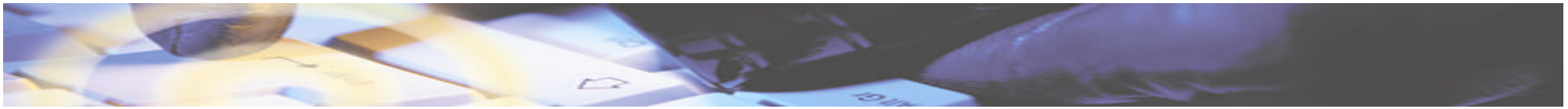
SOURCE: Worldscope Database of 19,691 public corporations

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#4: Knowledge Capital Can Be Measured

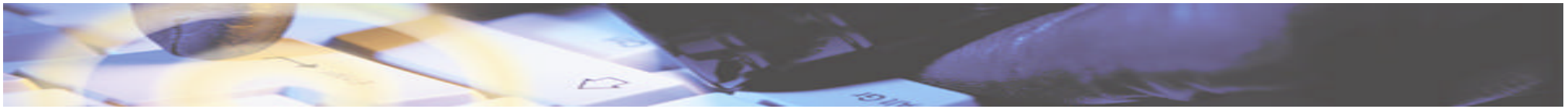
- Only if you can measure can you justify
- Prevailing Measures Based on Financial Assets
- Knowledge Capital Calculations Routine Shown
- Knowledge Capital Highly Variable
- Knowledge Capital Risks Highly Concentrated



Ideas Emerging at End of 20th Century

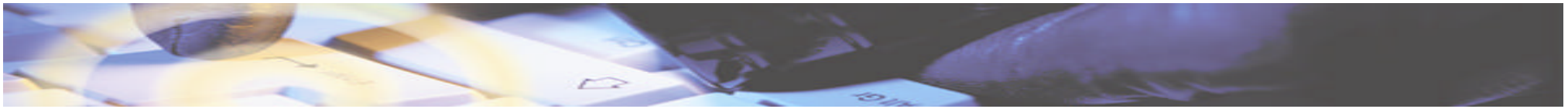
- **Knowledge Capital**
- **Knowledge Assets**
- **Knowledge Management**
- **Intellectual Capital**
- **Information Assets**
- **Information Warfare**
- **Information Security**





Security Is Expensive and Requires Justification

***“ Only if you Can Measure It
Can You Justify Protecting It.”***



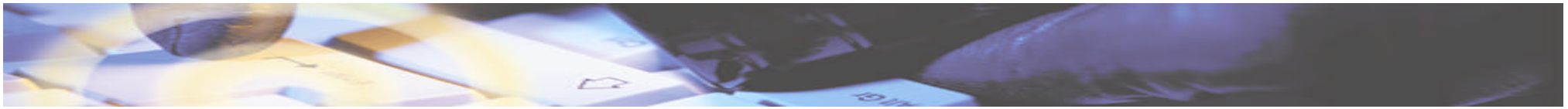
Current Measures Disregard Information

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

$$\text{Return On Assets} = \frac{\text{Profit}}{\text{Finance Capital}}$$



SOURCE OF WEALTH



How to Calculate Knowledge Capital

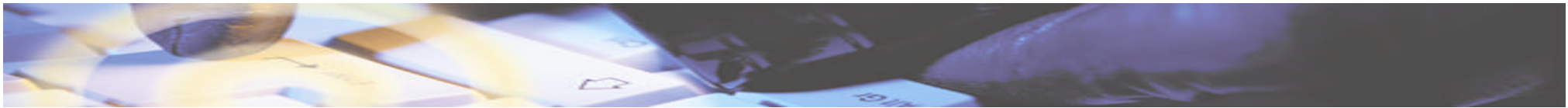
SOURCE OF WEALTH



$$\text{Knowledge Capital} = \frac{\text{Economic Profit}}{\text{Cost of Capital}}$$



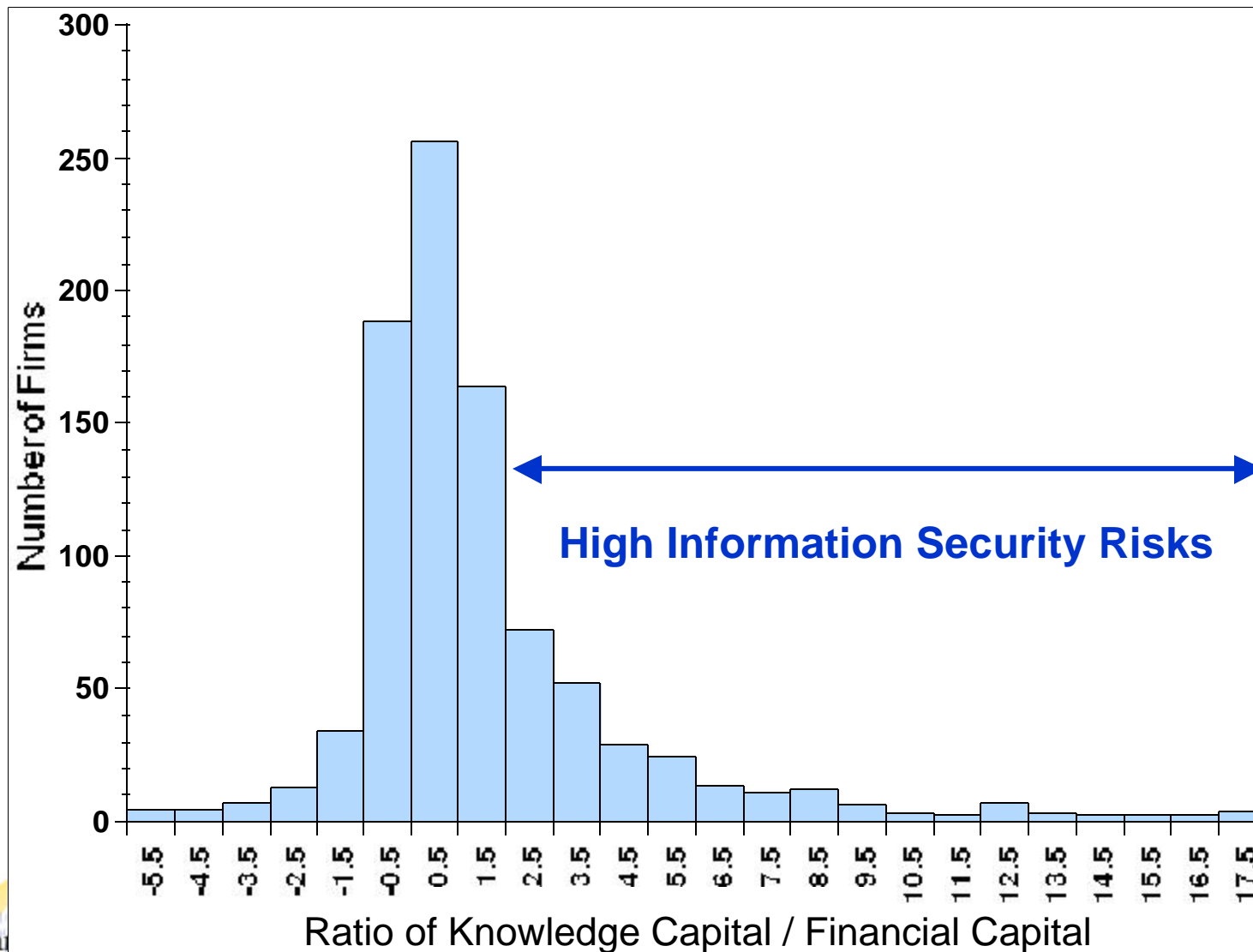
®Knowledge Capital is a Registered Trademark of Strassmann, Inc.
For details see <www.strassmann.com>



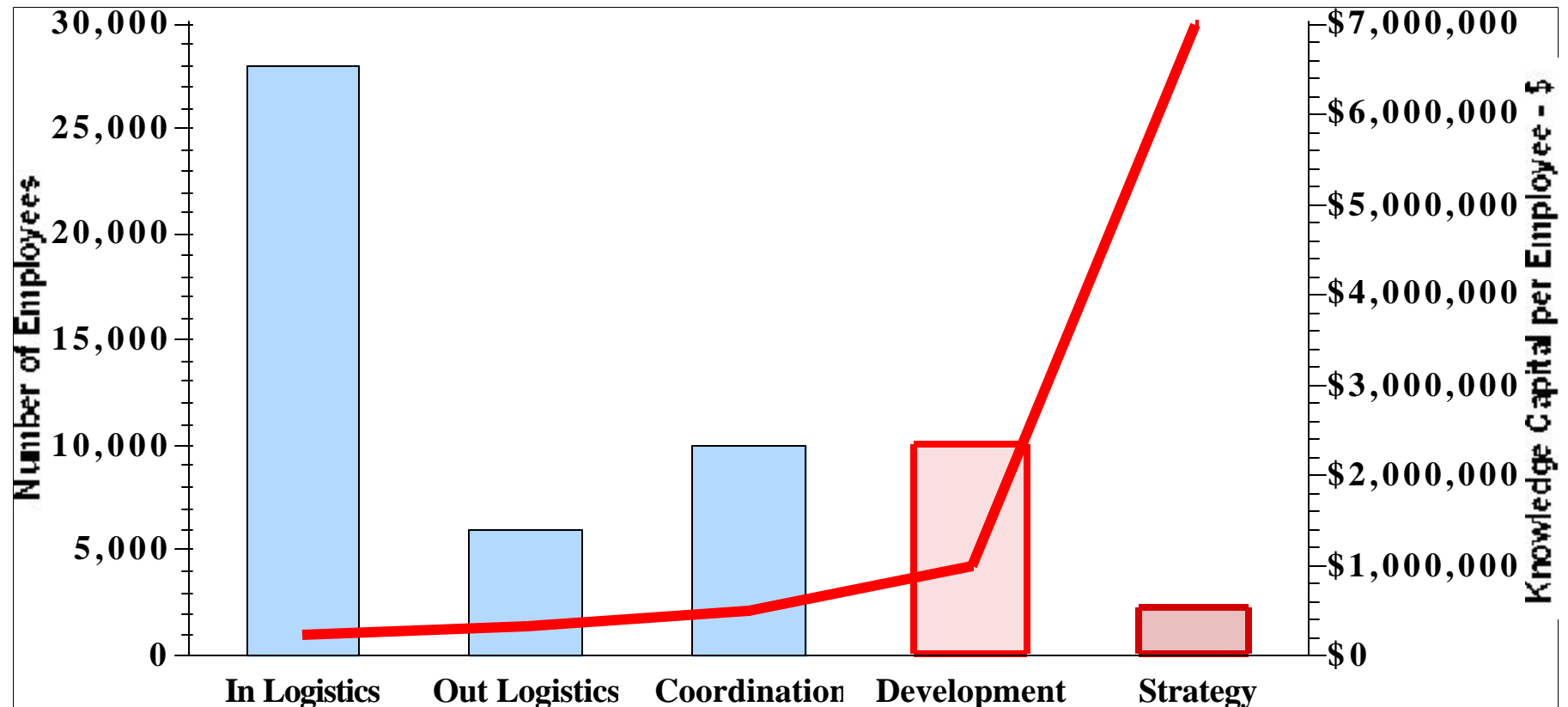
Examples of Knowledge Capital (\$000 1998)

Company	Knowledge Capital
MERCK & CO.	\$81,590,396
JOHNSON & JOHNSON	\$54,237,051
GLAXO WELLCOME	\$42,622,063
ABBOTT	\$39,503,994
WARNER-LAMBERT	\$10,735,726

It is Possible to Identify High Risk Firms



It is Possible to Identify High Risk Personnel





Summary

1. Information Security executives must know the value of the protected assets.
2. The costs of information security should exceed the insurance premium for a comparable risk.
3. Identical and uniform security measures are ineffective.
4. Indiscriminate regulation not workable.
5. Information security spending should reflect the worth of Knowledge Capital.