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Software Quality: More than „0“ bugs

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About easyplex

- easyplex represents a global network of companies in Austria, California and Switzerland
- Incorporated in 2001 with more than 100 man-yrs. of professional experience in IT design, development & management
- Highly competent pool of IT professional: bullet-proof, discrete, optimistic, stress-resistant, and top-of-the-industry experts
- Silicon Valley Expatriates with top IT/business know-how and multi-cultural understanding
- Domain Knowledge in
 - Mission-critical hosted application development (MCHAD)
 - Business Process Management (BPM)
 - Mobile solution development
 - eCustomer Relationship Management
 - IT Security
 - Product Certification (SPICE, ISO 15504)
 - SW Development process focus based on CMM and IEEE Models

Typically Hidden Facts

- In the U.S. more than \$250 billion are spent each year on IT application development of approximately 175,000 projects.
- The average cost of a development project for a large company is \$2,322,000; for a medium company, it is \$1,331,000; and for a small company, it is \$434,000. More than 50% fail...
- According to the Standish Group, only 16.2% of Software Projects are on time and on budget.
- 52.7% of projects cost about double of the originally estimated amount – up to 189% more.
- Tremendous effects of such problems: Failure to develop and deploy reliable software and systems integration for baggage handling at the Denver Airport is costing the Denver City \$ 1.1 million per day

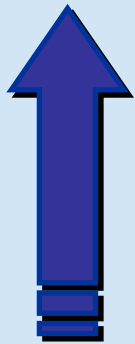
...And Common Reactions

- Managers keep showing great numbers to not lose their face – excel sheets are great partners in crime
- Top Consultants remain at strategic level and in disaster scenes often move even higher up from the helicopter perspective
- Failing projects are artificially kept alive...increasing cost and conflict
- Upper management and Executive Board decisions: kill the failing projects, get rid of top consultants and external resources/experts
- impossible-to-deal-with environments in the near & long-term future

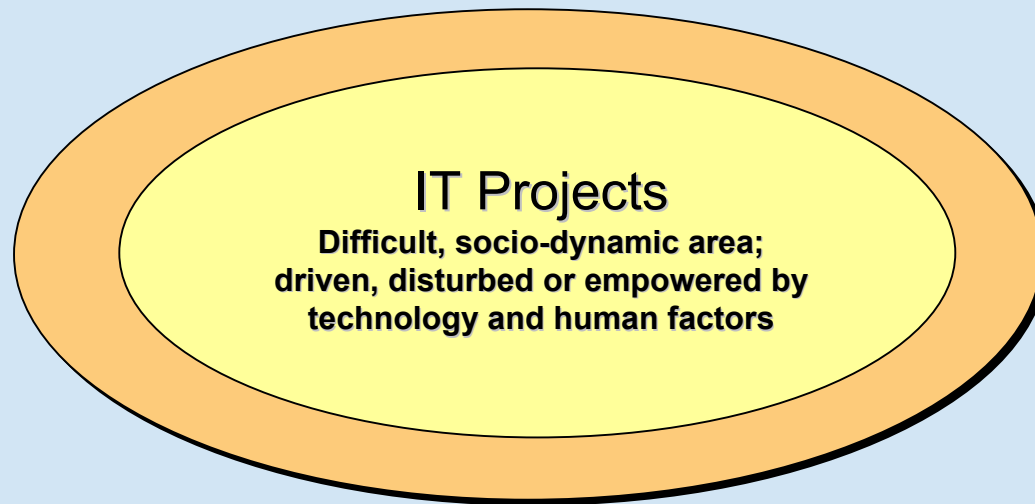
As long as bugs are eliminated and worked on, the project is more or less on time, nobody realizes the failure and pending disaster.

Who determines „Quality“?

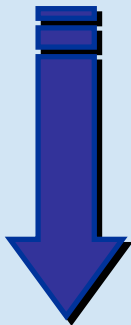
Business



IT - Projects



Resources



1+1 is more than 2

■ Code Quality

- ◆ Readability
- ◆ Understandability
- ◆ Maintainability
- ◆ Zero Errors
- ◆ Inline Documentation
- ◆ Portability

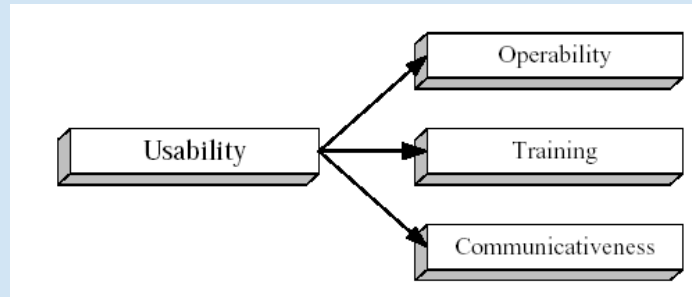
Sniffing bad code...

1. Look for big functions/big files e.g. a single function with 200 lines or 3000 line file etc
2. Lots of parameters passed to one function (e.g. functions taking 9-10 parameters)
3. Big switch/case or if-else if conditions.
4. Duplicate code with minor differences. e.g. functions with almost similar code but 3/4 lines are different.
5. Complex code/logic. (this is generally found in large functions).
6. Function names like 'DoSomething', 'AddNumber' etc. Describing action and not intent of the function.
7. Lots of Get functions in a class
8. public member variables.
9. Lots of global functions using public member variable of classes or using Get functions of classes
10. Duplication of information (e.g. me information stored in two classes or two variables of same class).

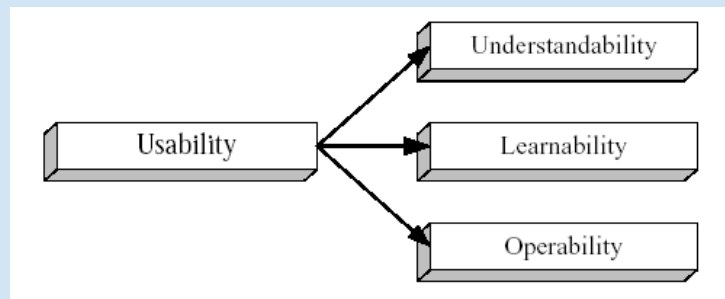
If an application meets the above, does it guarantee market success and customer satisfaction?

Guidance Through Models

- FCM Model, McCall (1977): 11 criteria to determine quality/usability



- CMM (Key Process Areas and Key Practices)
- ISO 9126: 6 criteria to determine quality/usability



- US – Malcolm Baldrige Award

Top Quality Ingredients

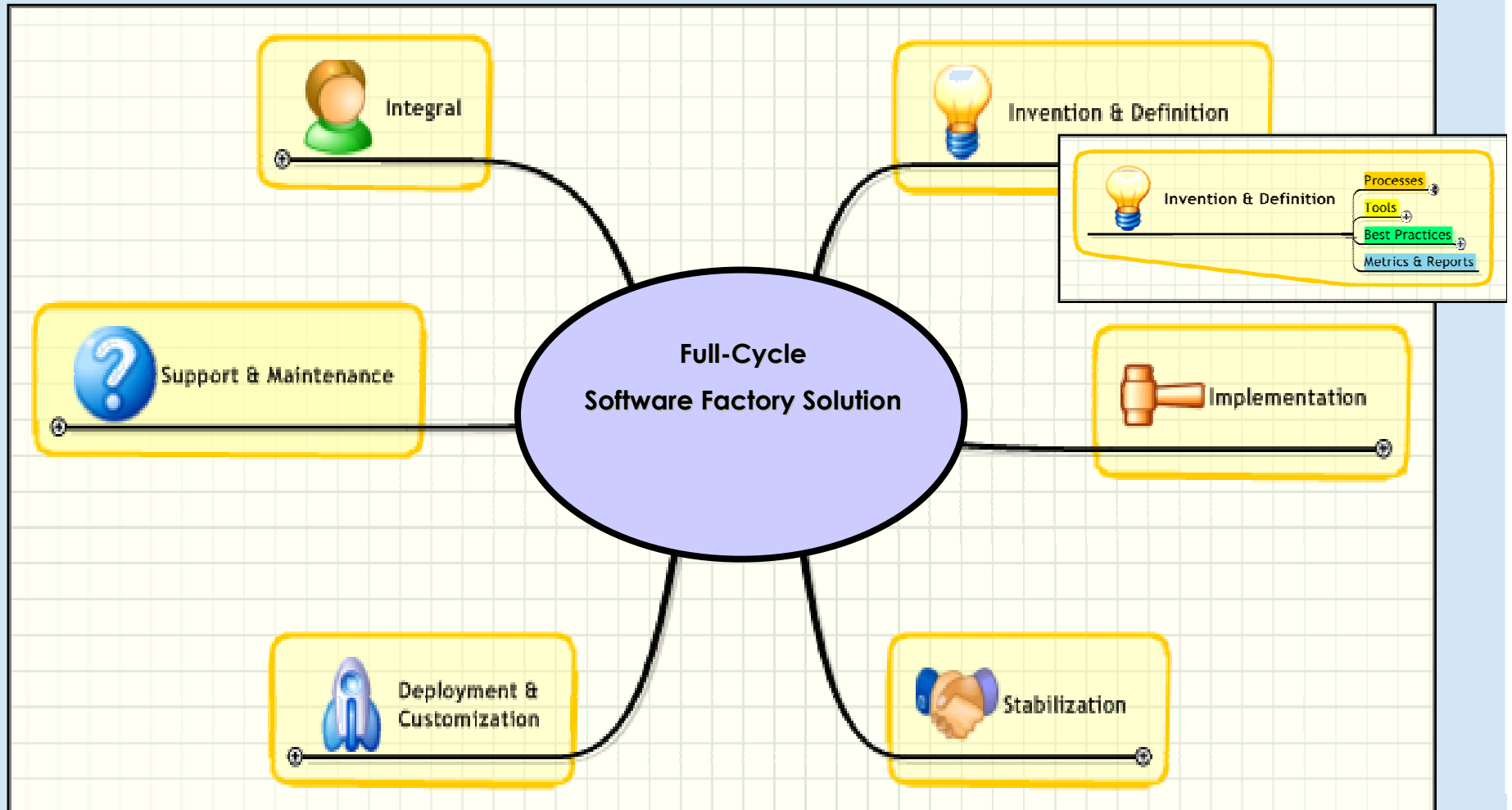
Best Practices have shown...

- Suitable & Incarnated Development Process
- Requirements Gathering & Sign-off
- Appropriate Architecture & Design
- Top-quality Coding
- Constant/Regular Reviews & Testing
- Highly performing Quality & Defect Management
- Project Management by experts
- Measurable and controllable processes

Putting it all together

- A simple model (aligned on Industry Standard) adaptable to
 - ◆ Organization
 - ◆ Product
 - ◆ Budget
 - ◆ Timeframe
- Model includes predefined processes operational framework, tools, metrics and best practices
- Easy and fast to implement
- Thus low barrier to executive sponsorship and corporate acceptance/approval

Reaching Lifecycle Quality



Reaching Corporate Objectives

- Best practices in software lifecycle management lead to higher levels of efficiency
- SD processes are controllable, measurable – alerts can be triggered ahead of time
- Through streamlining and improving SD Lifecycle
 - ◆ Increase software and IT productivity
 - ◆ Improve product and service quality
 - ◆ Provide the agility needed to respond quickly to market challenges
- IT Executive Dashboards can control an entire lifecycle and development quality

Objectives, Parameters, Metrics

Measurement is key to management and quality control

- Identify key processes and development activities
- Optimized product modules and re-engineering options
- Improving Resource allocation
- Structure development cycle, accompanied by QA
- Leading to measurable process framework
- Benchmarked against internal and external best practices

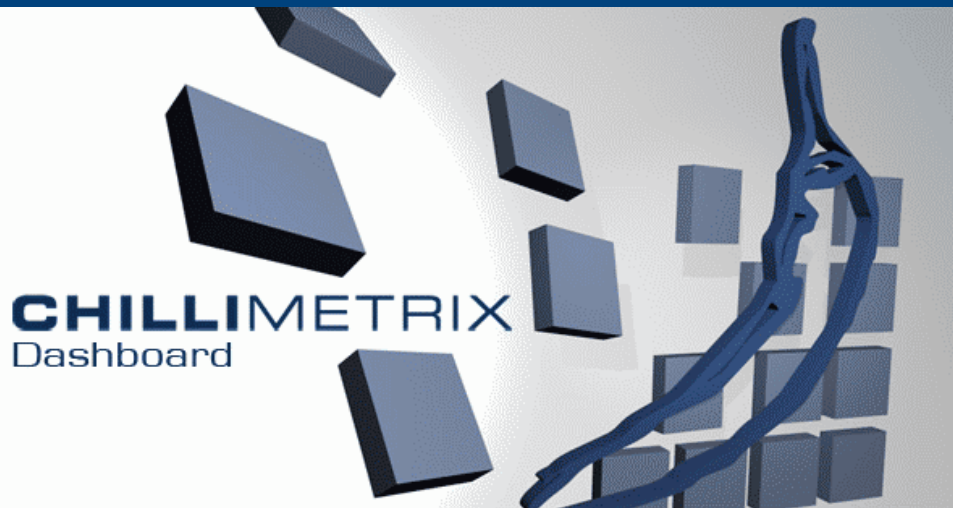


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State-of-the-art Software Factories

Set-up, Monitoring & Optimizing Solutions



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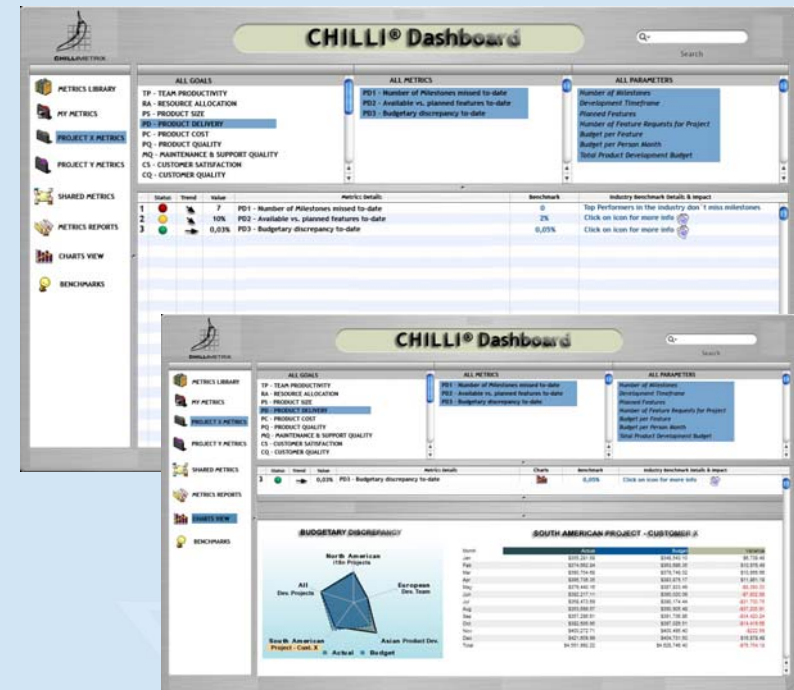
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Chillimetrix® | Dashboard



- Planning & Restructuring
 - ◆ Institutionalizing Software Life Cycle Processes throughout the Factory
 - ◆ Establishing Feature & Release Planning
 - ◆ Achieve stabilized product shipment
 - ◆ Maintain constant top quality of Software Life Cycle operations
- Monitoring & Prevention
 - ◆ Set up Dashboards for Management & Project Control – the **Dashboard**
 - ◆ Manage resource & skills allocation
 - ◆ Improve customer service & satisfaction



Working with the Dashboard

easyplex
software



Metrics Selection & Report

Chillimetrix Dashboard

File Test Admin Help

Chilli Dashboard Defect

Source	Company	Product	Goal	Question
Library	All (1 Company) Alturos Software...	All (1 Product) Chillimetrix	All (4 Goals) Ensure the cost of the pr Ensure the product is on Ensure the productivity o Ensure the quality of the	

Company	Product	Goal
Alturos Software ...	Chillimetrix	Defect find rate: Average
Alturos Software ...	Chillimetrix	Defect removal rate: Avera
Alturos Software ...	Chillimetrix	Average number of defect
Alturos Software ...	Chillimetrix	Defect arrival rate: Avera
Alturos Software ...	Chillimetrix	Maximum number of defe
Alturos Software ...	Chillimetrix	Number of customers effe
Alturos Software ...	Chillimetrix	QAEffectiveness: Defects
Alturos Software ...	Chillimetrix	Weighted defect status

Defect arrival rate

Report Item

- Defect arrival rate
- Defect arrival rate per ...
- Defect arrival rate per y...

Defect arrival rate per month

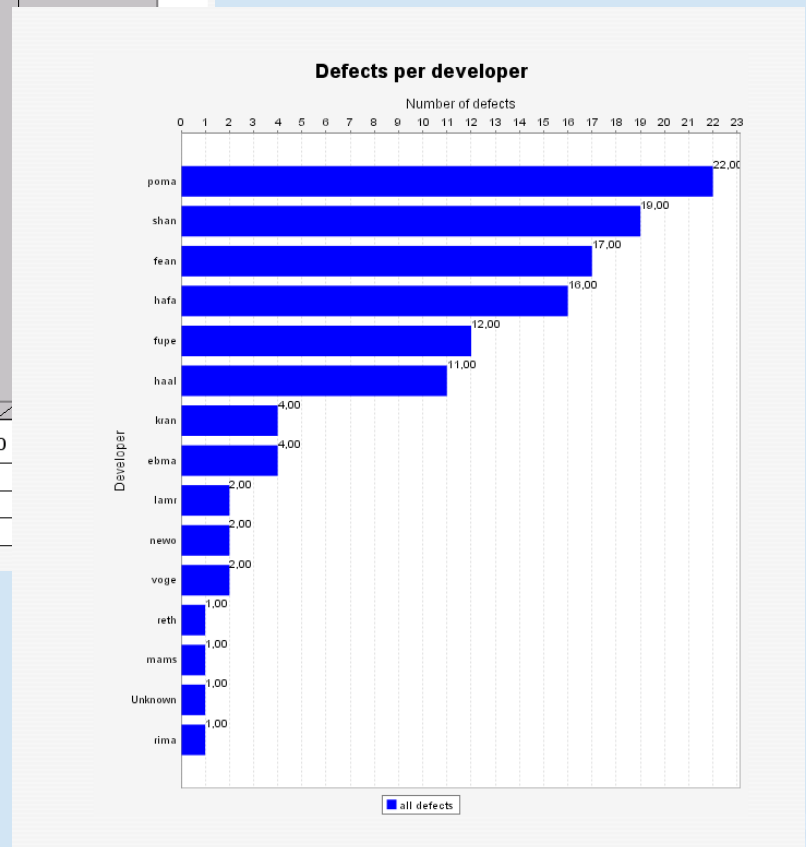
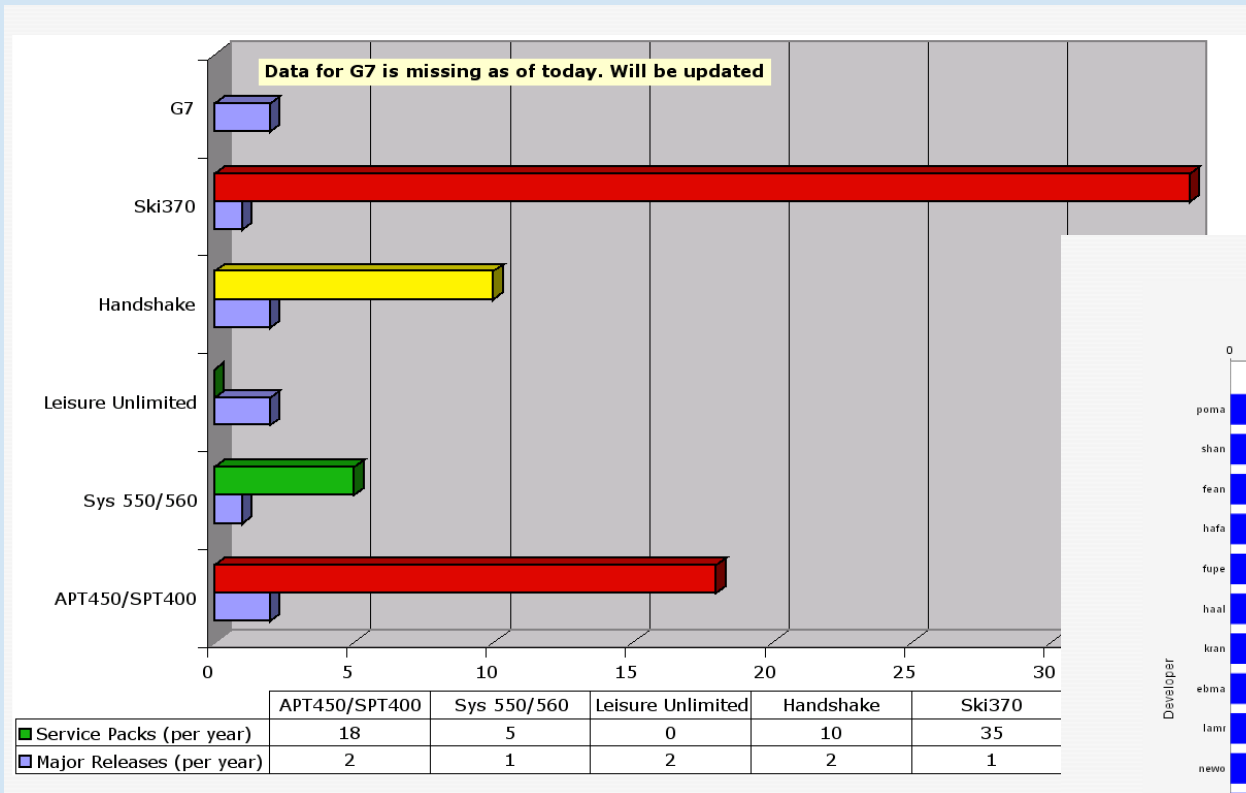
Number of new defects

Month	2004	2003
Jänner	60,00	46,00
Februar	36,00	48,00
März	60,00	22,00
April	44,00	55,00
Mai	28,00	9,00
Juni	12,00	17,00
Juli	47,00	40,00
August	27,00	40,00
September	53,00	54,00
Oktober	70,00	54,00
November	30,00	51,00
Dezember	44,00	44,00

13-Dez-2004 13-Dez-2004 13-Dez-2004 13-Dez-2004

Value Trend

Metrics Selection & Report



Corporate Contact Info

For more information about our experts or immediate crisis support, please contact us at the following office:

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