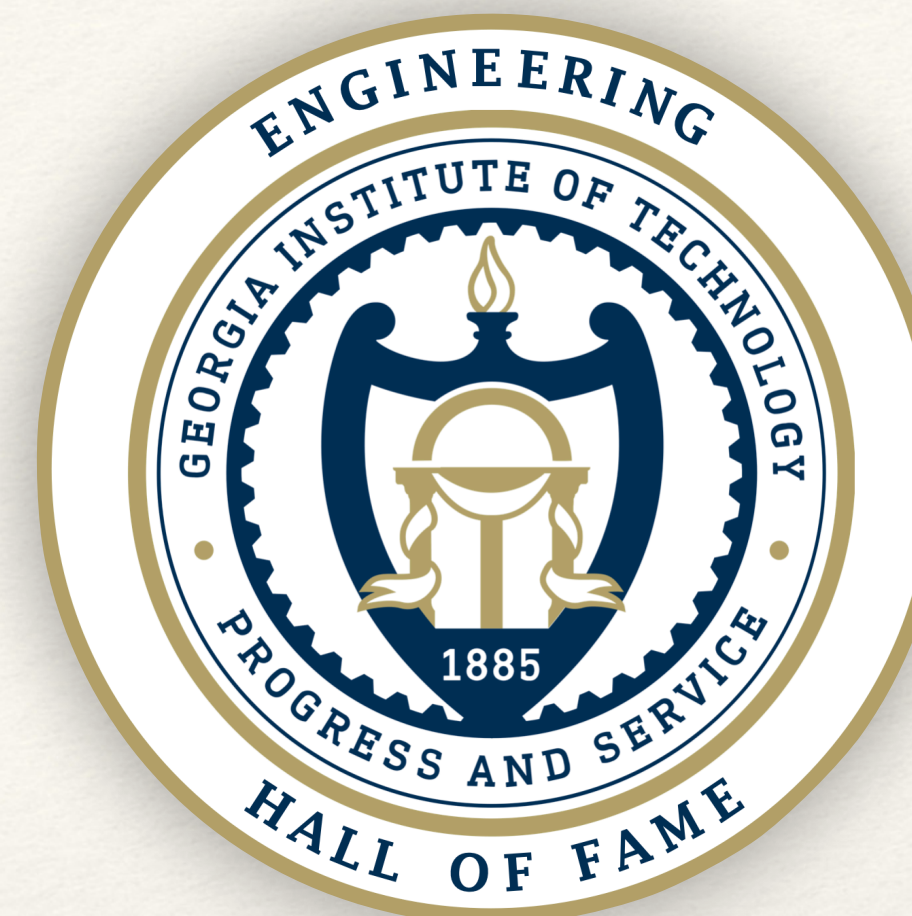




Presentation to
Georgia Tech

School of Electrical and Computer Engineering



Call Center Beginnings

Who's Calling?

A presentation by
Aleksander Szlam
BSEE'74, MSEE'80

Georgia Tech Alumnus | Hall of Fame Inductee
| Inventor | Entrepreneur | Founder & CEO of
Melita International Inc and Inventions Inc

Note: Companion document to this presentation was created and uploaded. Ask your professor if interested in learning more details about the topics presented today!

April 13, 2026 ECE Lecture, Original Lecture March 31, 2025



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Coming to America *Miracles Do Happen*



Kwidzyn, Poland
The summer of 1965

*My story of miracles began in 1965, when I met **Halina** while attending summer camp in Kwidzyn, Poland at age 14. We corresponded and visited each other's town, but lost contact by 1967...*

MIRACLE 1

During 1969 emigration from Poland, Halina and I saw each other at Vienna, Austria train platform heading to Rome, Italy. **Both families have decided on the USA as their final destination !!**

MIRACLE 2

In 1970, both families received USA entry visas and we flew to New York City sitting side-by-side !!



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Coming to America *Miracles Do Happen*



James Dull
Dean of Students
(1964-1992)

MIRACLE 3

I was admitted to Georgia Tech on a 'probation basis' by the Dean of Students, James Dull, *without exams, unable to speak English, and without completing high school !!*

MIRACLE 4

Soon after at Tech, *my cousin Michal introduced me to associate professor John Lukas (Stay tuned for John's later return)!!* John spoke Polish and arranged frequent music 'gigs' for our Atlanta rock-and-roll group made up of my cousins and me.



Technikum Electr/Mech, Wroclaw, Poland



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Life After Georgia Tech



1975

Century Data Products

1977

Solid State Systems

1978



1980

I received my BSEE in 1974

Over the next several years, I worked to gain experience and advance my skills in electronic design

It was at Solid State Systems where I was first introduced to telephony products, designing components of a Private Automated Branch Exchange (PABX) system

I received my MSEE in 1980 while working at Lockheed Georgia's R&D department and creating Compudialer



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School of Electrical and Computer Engineering

So What is a Call Center?

Call Center Beginnings



Early call centers were typically large, open-plan offices with rows of cubicles or long desks where agents worked with landline telephones and paper-based customer records

Calls were often routed through telephone systems managed by operators.

These systems are referred to as “Private Branch Exchanges” or PBXs.





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Call Center Beginnings

Most call center agents in **early call centers** used corded landline phones with either rotary dials or early push-button keypads



Early evolution of the telephone device

Headsets were not common yet, so agents often cradled the phone between their ear and shoulder while writing notes !



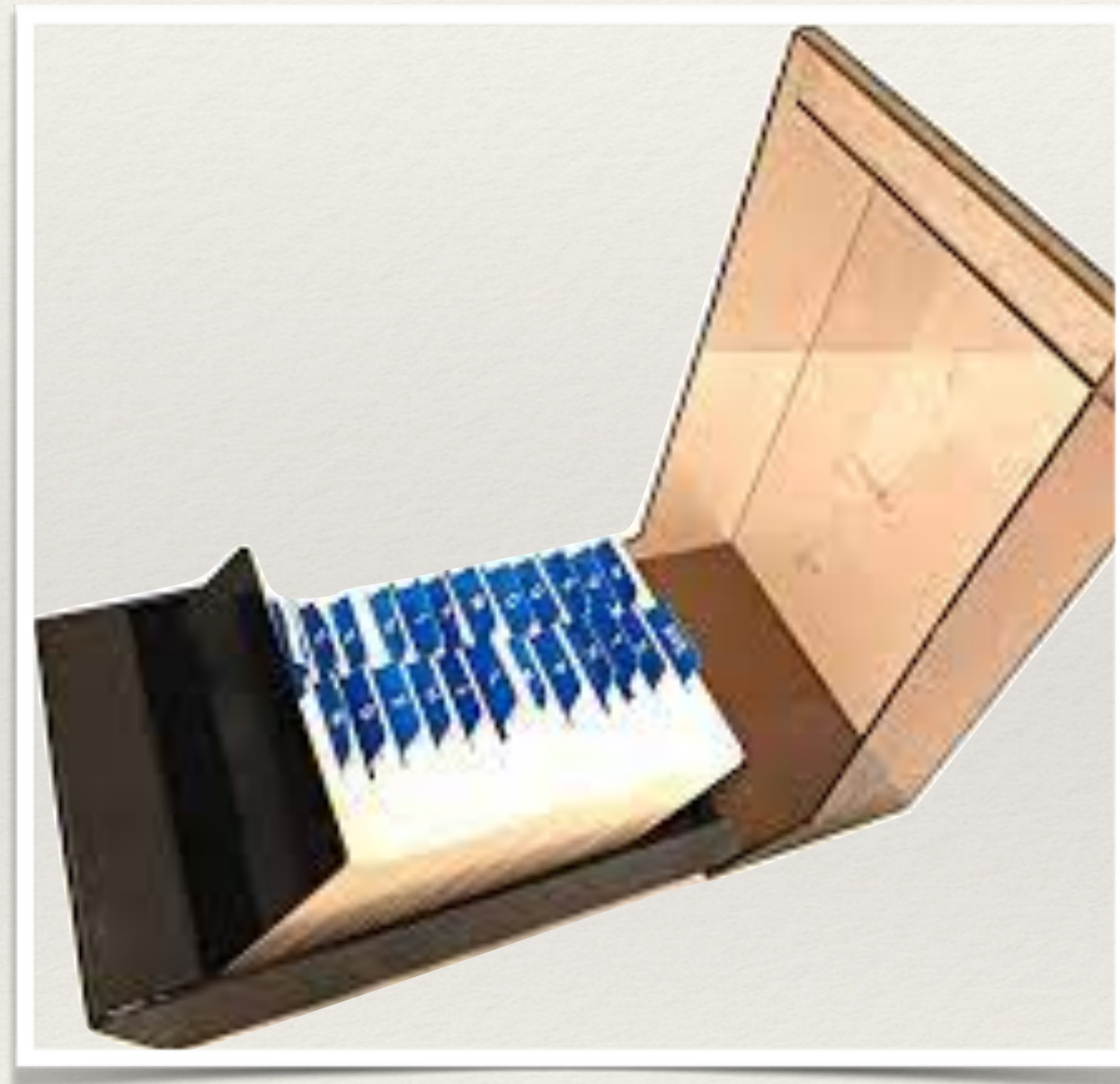
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Call Center Beginnings

Instead of computer databases, customer information was often stored in physical files, binders, or Rolodexes



More advanced call centers had monochrome CRT monitors connected to mainframe systems for data retrieval



Agents manually wrote down notes on call logs



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Call Center Beginnings

Early Call Center Challenges

The early 1980s call centers were a step forward in customer service, but they also presented significant challenges due to technological limitations, operational inefficiencies, and workforce management issues.

Technological Limitations

- Manually Dialed Outgoing Phone Calls
- Manual Incoming Call Routing
- **Paper-Based Record-Keeping**
- Limited Computer Technology
- No Call Monitoring or Analytics

Operational Inefficiencies

- High Call Volumes & Long Wait Times
- **Time Wasted on Busy, No Answer, Bad Numbers**
- Lack of Call Prioritization
- Inconsistent Information & Training

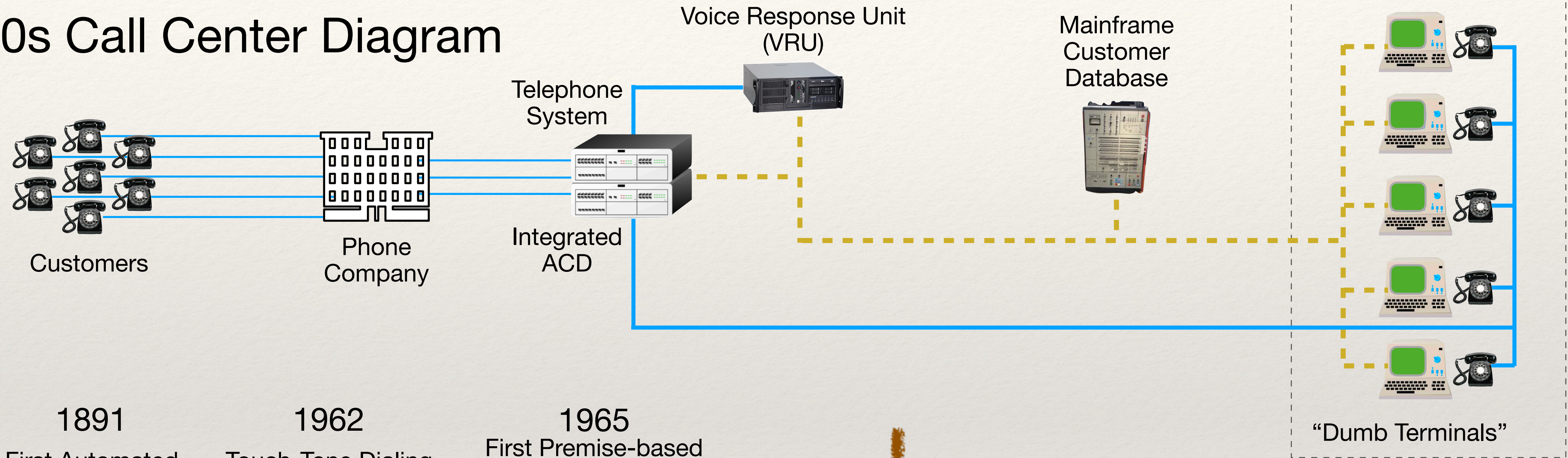
Workforce Management Issues

- **High Turnover & Employee Burnout**
- Limited Breaks & Poor Working Conditions
- Lack of Performance Tracking & Motivation



Call Center Beginnings

Early 80s Call Center Diagram



1876	1891	1962	1965	
Invention of the telephone	First Automated Switching System	Touch-Tone Dialing Introduced	First Premise-based Telephone Systems (Private Branch Exchange or PBX)	
1878	1950s	1973	1976	1978
First Telephone Exchange	First Call Centers	CTI	First Integrated Automatic Call Distribution System (ACD)	

Back to my journey... I was a young engineer at Solid State Systems



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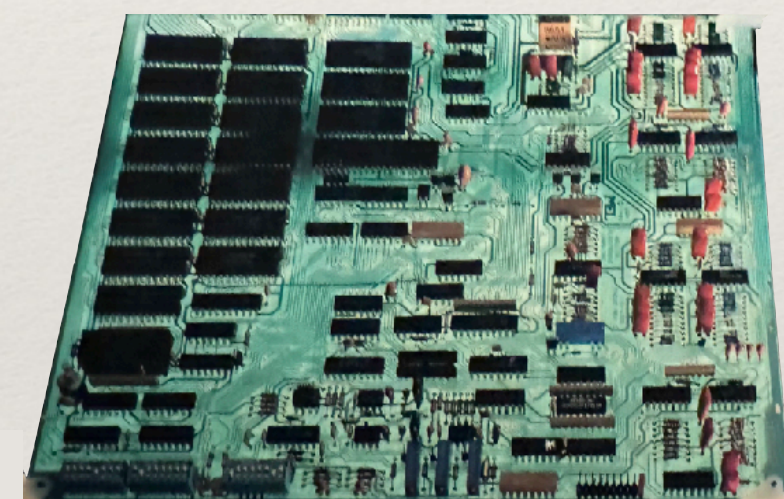
The Challenge That Started It All



Remember John Lukas (Miracle #4)?

He reappears in **1979** with an answering machine asking me to modify it..

..to make outgoing calls.



Expedialer Control Board



Expedialer was created to make outbound calls and play notifications to called parties using loop cassettes



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Unexpected Opportunity



While at Solid State Systems a client, director of Wisconsin Public Services, asked if the company could create a computerized system for dispatching maintenance crews around the clock in emergency situations

Overhearing conversation and obtaining permission from my boss who said such "*was impossible*", I decided to design and build hardware and software solution on my own time. Couple months later, I installed it at client's site in Green Bay, Wisconsin

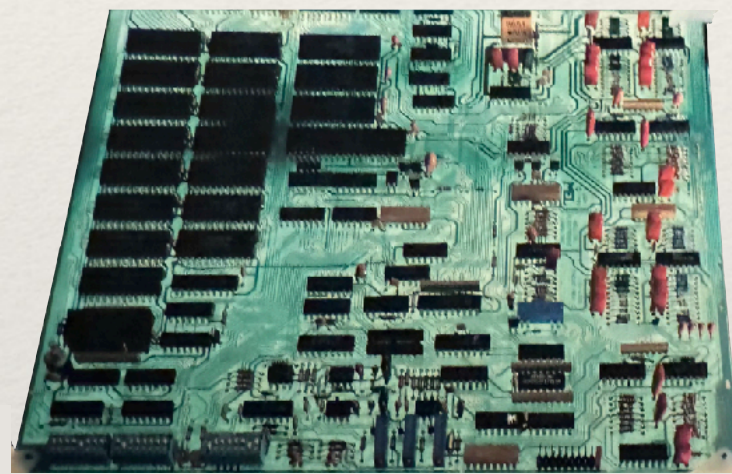
It was at this time Halina and I decided to incorporate as
Melita Electronic Labs, Inc.



Unexpected Results



Wisconsin *Compudialer* design for *automated emergency dispatching* of repair crews



Used 1979 Original
Expdialer/MEL 3000 Board

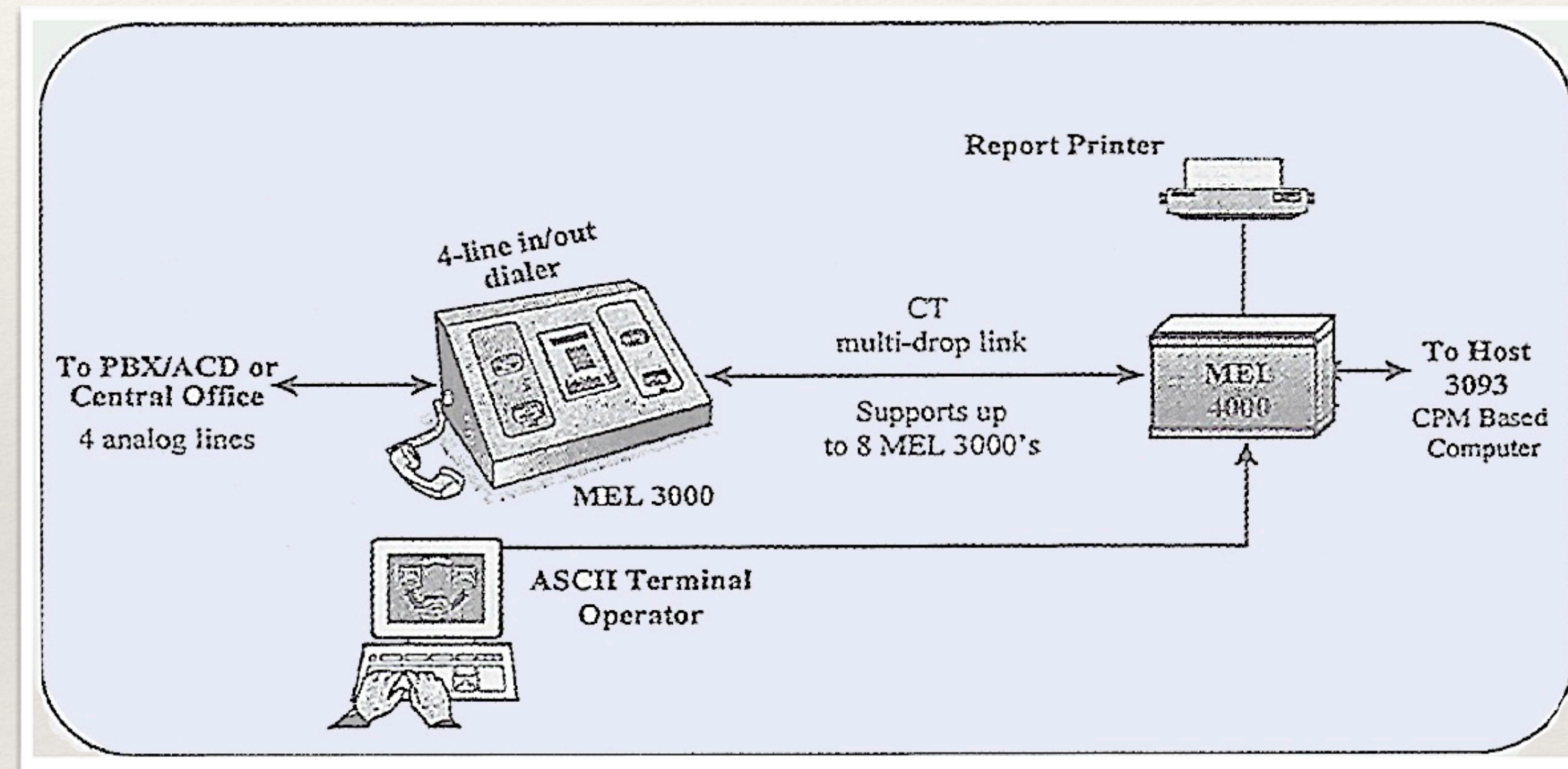


Diagram from the book "Predictive Dialing Fundamentals"

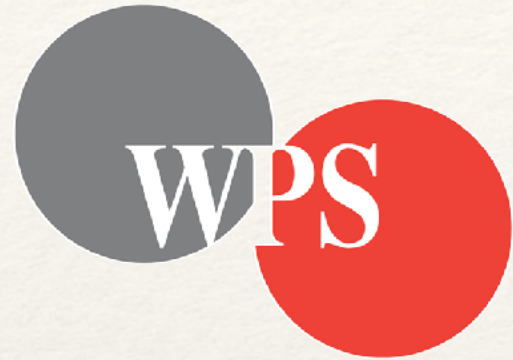
Although dialing correctly, during testing the system *failed to play the announcement..*
it didn't recognize that a person had answered !



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Failure Teaches You Everything



On the flight home from Wisconsin, dejected and embarrassed,
came up with a unique design to fix the problem
Designed add'l hardware and software algorithm which *analyzed ringing patterns*
on each phone call placed!!

Answer Detection

Granted US Patent# 4,477,698



The redesign complete, I optimistically returned to Wisconsin for testing

"Out of failure comes success"



"Learning from mistakes and setbacks can ultimately lead to achievement"





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Incredible Discovery *Who's Calling?*



It was the dual-tone multi-frequency (DTMF) representation of the calling party's telephone number !!

	1209Hz	1336Hz	1477Hz	1633Hz
697Hz	1	2	3	A
770Hz	4	5	6	B
852Hz	7	8	9	C
941Hz	*	0	#	D

Back in Wisconsin while testing new hardware and software, a telephone set began to ring; my oscilloscope, that was connected to the line, was displaying multiple modulated waveform bursts.

This unexpected discovery put me and my company on an ever-expanding creative trajectory

Granted US Patent# 4,797,911

Claims: 42-45

CallerID





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The Impact of CallerID on Future of Call Center Industry

Enhanced Customer Experience Customer Care[®]

- *Personalized Service*

- ★ *CallerID allowed agents to access customer profiles before answering call*
- ★ *Agents could greet customers by name and quickly address specific issues*

- *Faster Resolution*

- ★ *Allowed agent to skip verification processes*
- ★ *Agent could focus directly on solving the customer's issue, improving satisfaction*



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The Impact of CallerID on Future of Call Center Industry

Improved Efficiency

Customer Sensitivity[®]

- *Routing Optimization*

- ★ *CallerID facilitated intelligent call routing to the most appropriate agent/dept*

- ★ *Reduced call handling times and enhanced operational efficiency*

- *Reduction in Fraud*

- ★ *Identifying callers by their name allowed call centers to detect suspicious or fraudulent activities early, minimizing risks*



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The Impact of CallerID on Future of Call Center Industry

Proactive Engagement

Exceeding Customer Expectations[®]

- *Outbound Call Preparation*

- ★ *CallerID helped agents know whom they needed to contact based on past interactions*

- ★ *Allowed agents to tailor their approach to the specific customer*

- *Callbacks and Follow-ups*

- ★ *Recognizing previous callers' history made it easier for call centers to manage follow-ups, creating a more personal and seamless communication flow - via intelligent scripting*



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The Impact of CallerID on Future of Call Center Industry

Analytics and Reporting

CallerID significantly impacted the early call center industry by enabling detailed call reporting and analytics, allowing businesses to track call volumes, identify caller information, and analyze agent performance with much greater precision than previously possible, leading to improved customer service/customer care and operational efficiency.



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The Impact of CallerID on Future of Call Center Industry

The introduction of CallerID revolutionized the Call Center Industry in a number of significant ways. It transformed customer interactions, streamlined operations, and improved efficiency.

"The value of an idea lies in the using of it."



- Thomas Edison

By mid 1995, Telephone Companies introduced telephone sets with displays, showing the name and phone number of the calling person. \$Billing for the service, they named... **CallerID**





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The Impact of CallerID on Future of Call Center Industry

“Knowing is not enough; we must apply. Willing is not enough; we must do.”



- Johann Wolfgang von Goethe

Transmission of caller's phone number using DTMF was initially implemented by telephone companies for billing and for troubleshooting by technicians.

A fortuitous observation while testing resulted in launching a creative journey of innovation and technology which served as a foundation for future Melita products.

Many of Melita's innovations are still used by telecoms & CRM solution providers today.

CallerID ultimately impacted the way people communicate globally across multiple communication channels. The mobile apps you use today (Texting, Messenger, Snapchat, WhatsApp, and others) all use technology which originated from the seeds of CallerID.



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Key inventions created global Call Center Industry

Awarded over 100 US and International Patents



Some of the First-to-Market Innovations

Answer Detection

Automatic Number Identification (CallerID)

Identifying Call Processing Conditions

Intelligent scripting via Desktop PCs

Computer Telephony Interface (CTI)

Inbound Call Routing based on CallerID

Predictive Hold Time Announcements

Predictive Inbound/Outbound Call Blending

Cancel Dial

Webpages presenting Live Agents when needed

US PATENT 4540855

US PATENT 4477698

US PATENT 5214688

US PATENT 5511112

US PATENT 5581602

US PATENT 5594791

US PATENT 4742539

US PATENT 4742538

US PATENT 4720853

US PATENT 4797911

US PATENT 5828731

US PATENT 6314089

US PATENT 7080321

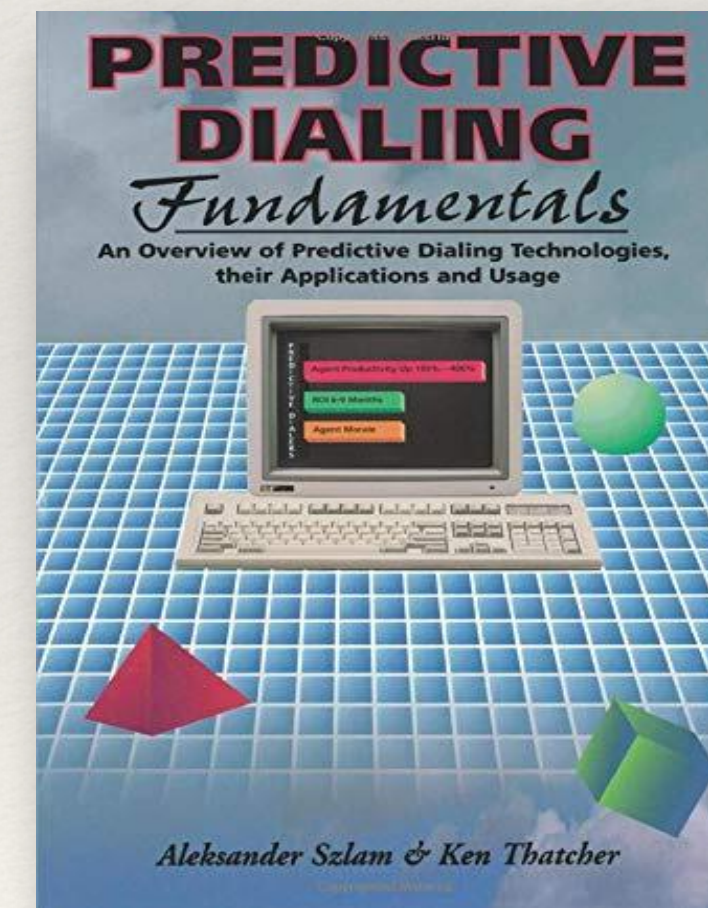
US PATENT 7324528

US PATENT 8402070

US PATENT 5963635

US PATENT 6925607

With Call Pacing / Predictive Dialing, a **single agent** could now do the work of nearly four agents



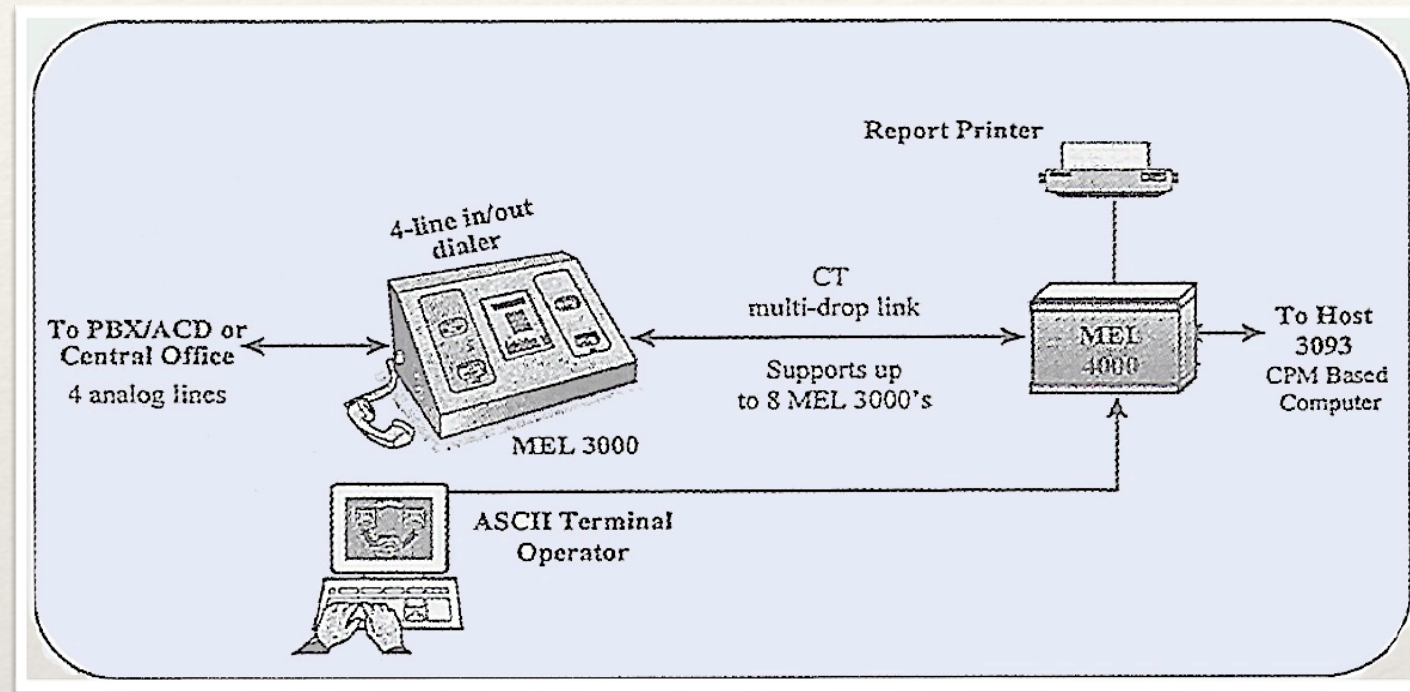
We literally "wrote the book" on Predictive Dialing



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A Stream of Business Solutions under global name *Melita International Inc*

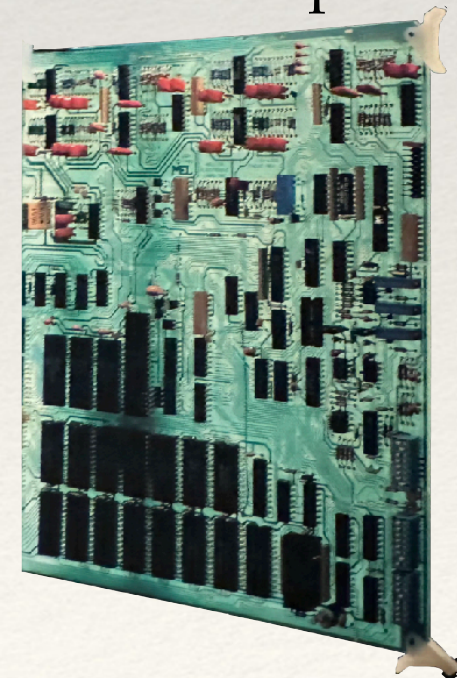
Wisconsin *Compudialer* design for *automated emergency dispatching* of repair crews



Compudialer

1980

Enhanced Expedialer



1979 Original Expedialer Board

Los Angeles Unified Schools contract supplying 135 *Sprintels* alerting parents in 40 languages when a child was absent

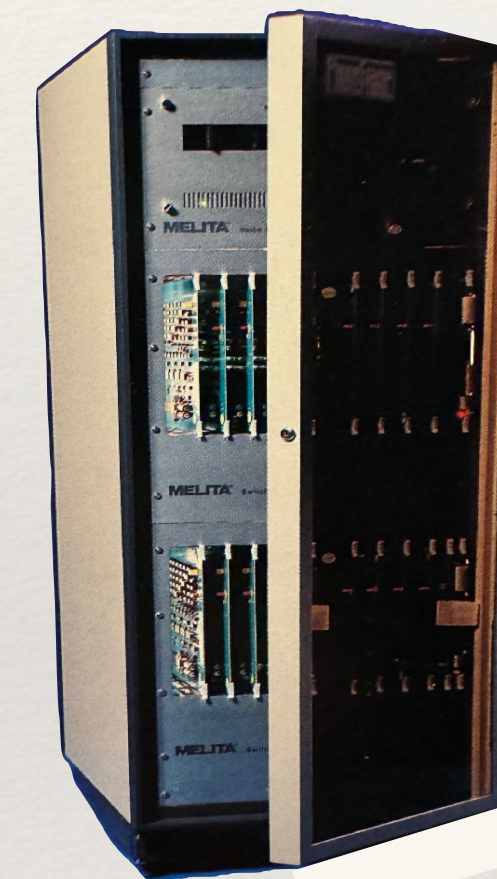


Sprintel

1984

Fully Automated Enhanced Expedialer

Example: PhoneFrame solution with 50 agents performed the work of nearly 200 agents using invention Predicative Dialing[®]



PhoneFrame

1985

using Expedialer Boards



PhoneFrame Explorer

1988

all digital supporting thousands of agents



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An Enduring Legacy

Melita revolutionized people-to-people communications through Customer Sensitivity[®] innovations and designs. We laid the groundwork and industry standards for the Call Center Industry which spans the globe today!

Customers around the globe; Financial/Banks, Healthcare, Automobile, Insurance, Technology, Newspapers, Utilities, etc.

The Call Center Industry has *created millions of jobs and saved companies millions of dollars in operating costs, while allowing billions of people to interact with each other via mobile devices 24 hours a day/7 days a week.*



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Melita International

The success of the original Compudialer led to a stream of future product solutions, kindling a creative fire and a continued growth of the company

In **1983**, after leaving Lockheed, Halina and I decided to open our first 3000 sqf facility, changing the name of the company from Melita Labs, Inc. to **Melita International, Inc.**

Soon after, we expanded to 6,000 sqft, then to 40,000 sqft, and later added an additional 50,000 sqft



Melita International, USA Headquarters

By **1995**, as the sales grew an order of magnitude thanks *to the invention and explosive growth of Predictive Dialing*, we decided to construct our own 110,000 sqft high-tech facility accommodating around 500 employees, full production and assembly, systems testing, engineering, and supporting departments.

In **1997**, Melita went public on NASDAQ and continued expending sales, installations and support across 45 countries on 6 continents..



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Grow Debt-Free

For the Future Entrepreneurs Here Today

Devise innovative approaches for self-financing to avoid debt

- Melita negotiated with electronic component suppliers keeping inventory *always ready to deliver*, and invoicing after products were shipped.
- IBM expensive servers inventoried at our facilities and invoiced after systems shipped.
- Required customers to pay 50% upfront for entire solutions at times costing millions of dollars. Overtime, increased to 75%-90% upfront while often it took three months or more to build, test and deliver. **Note:** Return on Investment (ROI) of acquiring Melita solution often took 3-4 months!



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Build a Team

For the Future Entrepreneurs Here Today

Build a team that shares your vision

Halina and I made it our mission to create opportunities for our employees to succeed

Employees were hired based on character, team participation, attitude, and vision

Melita International offered its employees stock options, healthcare coverage, quarterly company updates, support for families and their children, annual family activities, employee cookouts, a gym with showers, outdoor jogging path, performance-based bonuses, employee excellence recognition with paid-for trips, and annual holiday parties.

“Coming together is a beginning. Keeping together is progress. Working together is success.”

- Henry Ford





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Find Strong Partners

For the Future Entrepreneurs Here Today

Find capable partners to aid in steady growth



Melita House, European
Headquarters, London, UK

Melita International partnered with outstanding outside services: CPAs, patent attorneys, business attorneys, experienced board members, etc.

Opened sales and support offices around the globe staying close to customers

Established European Headquarters in the United Kingdom in 1989

Several USA and international offices: London UK, Poland, Paris, Singapore, Australia, Mexico, Colombia with dozens of international reseller partners

Major software R&D investments in US and Krakow, Poland

Investments in IP with large portfolio of US and International patents and key trademarks

"If you want to go fast, go alone. If you want to go far, go together."

- African Proverb





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Give Back

For the Future Entrepreneurs Here Today

Assist others in appreciation of your own success or good fortune

Halina and I remain deeply connected to Ga Tech since my MSEE graduation in June, 1980.

We have created student scholarship programs and fellowship endowment in 1997, have contributed to The Hive Makerspace (Interdisciplinary design commons).

I have been invited and remain active at the ECE Advisory Board for over 15 years, and as part of the Yellow Jackets Mentoring program have assisted/guided many students from around the world.

Continue to judge innovations at the Capstone Design Expo and CreateX events, have participated at the GT President's Strategic Long-term Planning sessions and have supported special projects by the heads of ECE school.



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School of Electrical and Computer Engineering

Time for *Your Journey*

It has been a long journey, but if you dream and have the ambition and want to work hard, then you can achieve.

- Mo Farah



“The only way to do great work is to love what you do. If you haven’t found it yet, keep looking. Don’t settle.”

- Steve Jobs



*Everyone here has an opportunity to succeed, but only **you** can make it happen!*



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Conclusion

Just think of the unthinkable...

How a request from a Georgia Tech professor led to the creation and proliferation of a Call Center Industry around the globe!

Trademarks and Service Marks

Melita®, Cancel Dial®, Customer Care®, Customer Sensitivity®, e360™, Exceeding Customer Expectations®, Command Post®, Magellan®, onTheGo™, People-to-People Communications™, PhoneFrame®, Production Dynamics®, Single System Image View®, Telebrain®, Technology that Speaks for Itself®, Universal Access®, Universal Agent®, Universal Server®, Universal Switch®, Universal Workstation® and Vodem®

Follow the links below for more information



THANK YOU!

Q&A

