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SOFTWARE COMPANIES LEAD GROWTH IN UTAH'S HIGH TECHNOLOGY INDUSTRY

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Developing and commercializing new technologies is a driving force in Utah's economic growth and its emergence as a high tech center. Even in the wake of nationwide recessionary pressures, Utah's high tech industry has continued to grow slowly, but steadily.

Utah's modern day success stories are familiar: Novell, Inc. and WordPerfect Corporation, two of the largest software companies in the U.S., which just five years ago had a combined employment base of less than 700 people; and Evans & Sutherland, one of the most widely respected developers of visual simulation systems in the world. Numerous others are smaller and less recognized, but are nonetheless important in helping form the base of Utah's high tech industry.

By the end of 1990, Utah was home to 445 high tech companies. As a group, they employed more than 41,300 people, spent over \$630 million for the R&D of new products, and had revenues in excess of \$5.1 billion. Technical employees are well represented in the high tech labor pool. Almost 9,900 scientists, engineers, and computer programmers are employed by high tech companies in the state (Exhibit 1).

What Is High Technology?

In the past, identifying a high tech company was a much simpler proposition. Now, almost every successful business uses state-of-the-art technology in manufacturing and information processing. But, high tech defines the final output, not the process by which the output is derived. Therefore, for purposes of this study, the definition of high technology is that used by the Bureau of Labor Statistics and the Brookings Institution as follows.

...companies with a proportion of technology-oriented workers greater than the average for all manufacturing industries, or 6.3%; and a ratio of Research and Development (R&D) expenditures to sales about the same as the average for all industries, or 3.1%.

Exhibit 1
Trends in Utah's High Technology Sector
1986 Through 1990

	1986	1987	1988	1989	1990
Number of Companies	418	439	451	451	445
Employment	36,745	38,674	39,695	39,888	41,367
Technical Employment ^a	8,985	9,493	9,754	9,187	9,890
R&D Expenditures (millions)	\$511.6	\$633.9	\$641.3	\$724.1	\$630.6
Revenues (billions)	\$3.021	\$3.272	\$3.222	\$4.443	\$5.198

^a Includes scientists, engineers, and computer programmers.

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, unpublished data (1990).

Two non-manufacturing industries have also been designated as high tech—software development companies and R&D laboratories. Both are included in the Service sector, but due to their high levels of R&D spending, are typically defined as high tech businesses.

The Structure of Utah's High Technology Sector

A broad range of development companies is represented in Utah's high tech industry, with heavy concentrations of software development companies and to a lesser extent, biomedical/medical and computer equipment manufacturers (Exhibit 2).

Since 1986, high tech employment has grown from 36,745 to 41,367. Job growth has occurred each year despite major reductions in the aerospace industry (2,225 since 1986). In sharp contrast, strong growth has occurred in the software sector which expanded by 3,400 jobs over the same period.

Emblematic of Utah's business community in general, high tech is characterized by employment concentrations in a few large firms. There is a plethora of small companies, a modest group of mid-size companies, and only a handful of large firms. These large firms account for nearly 60 percent of total employment. (Exhibit 3).

Of the 445 companies in the state's high tech industry in 1990, 394 employed fewer than 100 people, 44 employed between 100 and 999, and 11 companies had labor forces that exceeded 1,000 people. Typically, companies in the first group are much more volatile than their larger counterparts, exhibiting higher failure rates and faster employment growth.

An illustration, based on information collected by the Bureau of Economic and Business Research, companies with fewer than 100 employees in 1986 had a group failure rate of 22 percent over a five-year period. As a group, they also created over 1,900 new jobs during that same time. However, a close examination of individual companies shows that nearly half reported no growth from 1986 through 1990. The upshot? Only a few make a real difference—most small firms never achieve the size needed to compete with larger, well-established companies. They either fail, or are the victims of corporate buy-outs.¹

Employment declines at the largest firms (1,000 or more employees) are a function of the business activity in which the firm engages. Of the eight companies with more than 1,000 people in 1986,

¹ Employment growth was greatest in the group employing between 300 and 499 in 1986. This should be considered an anomaly. The number of companies in the group is small (6), and virtually all growth came from two companies—Novell, Inc. and WordPerfect Corporation.

Exhibit 2
Employment Trends in Utah's High Tech Industry
1986 Through 1990

	1986	1987	1988	1989	1990
Aerospace Components	14,463	14,008	14,270	12,881	11,938
Analytical/Measuring Devices	421	441	443	483	519
Automotive Products	15	17	19	297	756
Biomedical/Medical Products	3,875	4,176	4,613	4,599	4,877
Chemicals	421	395	377	398	421
Communications Equipment	2,708	2,544	2,505	2,481	2,303
Composite Materials	171	179	342	387	1,439
Computer Equipment	2,398	3,219	2,847	3,016	3,154
Electronic Components	5,214	5,528	5,534	5,418	5,086
Equipment/Machinery	560	508	594	604	609
Lasers/Optics	290	302	284	330	300
Pharmaceuticals	42	68	73	89	102
Plant Products	225	311	192	207	125
Robotics	52	49	60	66	68
Software/Systems	5,302	6,273	6,862	7,771	8,713
Other	588	656	680	861	957
Total	36,745	38,674	39,695	39,888	41,367

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, unpublished data (1990).

six manufactured aerospace or electronics products. Both industries have suffered significantly over the past five years (Exhibit 4).

High tech in Utah clusters in Salt Lake County and Utah County (in the Provo/Orem area). In 1990, 252 high tech firms, predominantly software and biomedical companies, were located in Salt Lake County. Utah County had 107 high tech firms—primarily in software development.

Impact of Universities on High Tech Development

High tech firms are an outgrowth of science, technology, and R&D being conducted throughout the

world; a notable amount of which originates in the university environment. New technological concepts are formulated at universities, and are then refined and commercialized through the efforts of innovators and entrepreneurs in the private sector. Almost 9 percent of Utah's high tech companies trace their roots to technical concepts initially cultivated at one of Utah's three research-oriented universities. However, the spin-off concept encompasses more than licensing technology from a university. Many of Utah's high tech companies were founded by entrepreneurs closely affiliated with a university, and whose imaginations were sparked by emerging technologies being explored at that particular institution.

**Exhibit 3
Major High Tech Employers in Utah
1990**

Year Founded	Company	1986 Emp.	1990 Emp.	Product Description
1957	Thiokol Corporation	8,040	6,921	Solid propulsion systems, ordnance and composite products.
1914	Hercules Aerospace Company, Bacchus Works	5,018	3,297	High energy solid propellants used in aerospace applications.
1979	WordPerfect Corporation	360	2,280	Office automation software including wordprocessing, presentation graphics, spreadsheet and database applications.
1956	Unisys	3,416	2,280	2 divisions: (1) Hardware and software supporting application of mainframe computers. (2) Communication systems for DoD and other agencies.
1968	Evans and Sutherland	957	1,300	Computers and software used for graphics and simulation.
1962	Abbot Critical Care Systems	999	1,230	Disposable medical devices used in a critical care environment.
1967	National Semiconductor, Inc.	1,020	1,200	Semiconductors, wafer fabrication.
1983	Novell	380	1,200	Networking system software.
1961	SIGNETICS	1,600	1,200	Integrated circuits.
1959	Becton Dickinson	1,650	1,100	Intravenous catheters and other disposable medical products.
1941	Varian Power Grid and X-Ray Tube Products	750	1,000	Electronic vacuum tubes.

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, unpublished data (1986 and 1990).

Overview of High Technology Development in Utah

Utah's high tech sector has been a long time in the making. The earliest forays concentrated on the development of electronic products in the early 1940s with Varian-Eimac which established a plant in Utah during World War II to manufacture radio tubes under the name Eitel McCullough (Eimac). Varian was the first national company to locate an electronics manufacturing facility in Utah, and

continues to be one of the largest high tech employers in the state.

However, the emergence and expansion of the state's high tech industry really began during the mid 1950s and early 1960s with the expansion of manufacturing activities to the Western U.S.

This evolution was spurred by the location in Utah of companies such as Thiokol—testing solid fuel rocket motors, Sperry-Univac (now Unisys)—R&D

Exhibit 4
Employment Trends by Company Size
Base Year = 1986

	1986 Employment Levels:					
	1- 99	100- 299	300- 499	500- 999	1000+	0 ^a
Number of Companies	366	27	6	5	7	127
Number of Failures	79	2	0	0	0	8
Total Employment - 1986	5,212	4,304	2,419	4,066	20,744	0
Total Employment - 1990	7,158	4,646	5,295	4,719	16,420	3,129
AAGR (1986 through 1990) ^b	9.3%	1.9%	21.6%	3.8%	-5.7%	-
Number of Jobs Created	1,946	342	2,876	653	(4,324)	3,129
Share of Total Employment - 1986	14.2%	11.7%	6.5%	11.0%	56.4%	0
Share of Total Employment - 1990	17.3%	11.2%	12.8%	11.4%	39.6%	7.5%

^a Data for companies formed after 1986.

^b AAGR = Average Annual Growth Rate.

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, unpublished data (1990).

and production of the Sergeant missile, Montek (now E-Systems)—electronic component manufacturing and Hercules—founded in 1914 to produce blasting but started a R&D program for the Department of Defense in the late 1950s.²

**Declines in Aerospace and Electronics:
How Far, How Fast?**

Aerospace activities in Utah gained momentum in the early 1960s in response to the Cold War, and proceeded virtually uninterrupted until the early 1980s. With the end of the Cold War, and a call for reductions in defense-related spending, aerospace employment has deteriorated for four of the past five years.

While the largest high tech employers continue to be aerospace companies, as a group, they have reduced their work forces by 2,500 people since 1986. Subsequent reductions in 1991 and 1992 will reduce this total even more. Given prevailing public sentiment, further declines in defense spend-

ing are inevitable; the result will be continued retrenchment throughout the aerospace industry.

The big push in electronics came in the early 1970s, fueled by the demand for information processing capabilities. The electronics industry grew each year from 1973 to 1984, but beginning in 1985, the U.S. electronics industry entered an era of heightened foreign competition, aggressive pricing and shorter product life cycles. The impact on Utah's high tech electronics companies was declining employment, although modest increases occurred in 1987 and 1988. Notwithstanding, the industry is showing further signs of erosion.

² World War II served as a catalyst for the expansion of manufacturing activities in the West. Wartime expenditures by the federal government produced large capital investment in science, technology and manufacturing facilities. For a discussion of manufacturing trends in the western U. S. see Manufacturing in the West Since World War II, James A. Wood, Bureau of Economic and Business Research, Vol. 51, No. 3 (March 1991).

Although aerospace and electronics are still important components of Utah high tech industry, they are eroding as structural changes occur in the U.S. economy. There seems little possibility that either industry will rebound during this decade.

Biomedical/Medical and Software Take Center Stage

Beginning in the late 1970s and continuing throughout the next decade, the composition of Utah's high tech sector began shifting towards the formation of biomedical/medical companies and software development firms.

The foundation for Utah's biomedical/medical industry was laid in the early 1960s with the formation of a handful of disposable medical product manufacturers. However, it did not really blossom until the 1980s when the demand for medical products flourished, fueled by changing demographics, specifically an aging population. From those early beginnings, the medical/biomedical sector has continued to grow and at present is the fourth largest high tech industry in the state, employing over 4,800 people. The future of the biomedical/medical sector will continue to be tied to national demographic changes. At the same time, national policies calling for health care cost controls have weakened this sector in the past, and could likely do so again.

The most phenomenal trend in the state's high tech industry has been the proliferation of software companies, and their respective employment gains. The 10-year span between 1980 and 1990 saw the birth of 184 new software companies in Utah. The Provo/Orem area of Utah County has been the location chosen by more than 33 percent of all software companies doing business in Utah. It is clear that this area has reached a critical mass of software companies and support industries that have dramatically altered the composition of its economic base.

Three factors played an essential role in this development. First, and perhaps most critical, was the advent of the personal computer in the early 1980s, and its acceptance by IBM which established the legitimacy of computers for individual use. The

result was an explosion in the demand for applications software, and later, networking alternatives.

Second was the formation and subsequent success of two key companies—WordPerfect Corporation and Novell, Inc. Without the presence of these veritable giants of the software industry, it is doubtful that the agglomeration of software companies in the Provo/Orem area would have occurred.

Finally, the start-up costs associated with the formation of software companies pale in comparison to those associated with the formation of durable goods manufacturing firms. Low start-up costs, combined with the lure of high returns is an attractive situation for the would-be entrepreneur.

The spectacular growth rates in software will be difficult to maintain. The software industry, in its infancy just 10 years ago, has matured rapidly. Market share is split between a handful of large companies—an ominous hurdle for fledgling companies. A realistic scenario is for slower growth in Utah's largest software companies, with nominal gains in those companies which produce for the niche market; areas too small to interest the larger software houses.

New Sectors to Watch: Composites and Automotive Components

The demand for new structural materials, commonly referred to as composites (ceramics, hybrid metals, polymers) is rising at a rate of 15 to 22 percent annually as cost-effective, efficient processes which allow for large-scale production come on line. Utah is home to one of the largest composite manufacturers in the world—Hercules Advanced Materials and Structures, and numerous small spin-offs from Hercules which also manufacture composite materials. While this particular segment may never reach the proportions of either aerospace or software, employment growth potential of 20 percent over the next five to seven years is a reasonable estimate.

A second emerging segment of Utah's high tech sector is automotive components; companies which manufacture a variety of high tech products for the automobile industry. Utah companies are presently

manufacturing such items as air bags, natural gas cylinders, rechargeable batteries, and electric automobiles. The growth and expansion of one company in particular, Morton International Automotive Safety Products (split off from Thiokol in 1989) could push employment in this sector up 20 to 30 percent over the next three-year period.

Conducting High Tech Business In Utah: Advantages and Disadvantages

Doing business in Utah has some singular advantages, but poses problems as well. According to a survey of Utah-based high tech companies conducted during 1990, Utah is perceived as having a ready supply of highly productive, low-cost labor; a solid educational system; a high quality lifestyle, and a confluence of other factors which provide Utah businesses with competitive advantages (Exhibit 5).³

Labor

Utah is well recognized for its low cost, productive labor force; one of the single greatest advantages for high tech companies operating in the state because low labor costs translate to higher profit potential. Over half the respondents indicated that the availability of technical, skilled, and unskilled workers provided them with a definite advantage relative to their direct competitors. Of special significance is the frequency in which productivity and price were mentioned as a significant advantages. Low turnover rates were also specified as an additional advantage of doing business in Utah.

Quality Educational System

Education is an important element in the development and success of the high tech firm. The emphasis of high tech on new product development translates to employment concentrations in the science and engineering disciplines. Utah's educational system, especially at the elementary and secondary level, is considered by many high tech companies as a moderate to significant competitive advantage. The science and engineering programs offered at the state's universities are also perceived as being advantageous for the high tech company. Proximity to a university is another advantage, especially for software and biomedical companies.

Quality of Life

More than half of those surveyed indicated that the overall quality of life in Utah was a significant advantage. Utah's proximity to recreational opportunities (ski resorts, national and state parks, outdoor activities) was also deemed a benefit of being located in the state, as was the availability and affordability of housing.

Business Factors/Operating Costs

In addition to the relative advantage of Utah's low cost labor, the availability of space and the cost of land for industrial expansion were two areas that figured prominently as benefits of a Utah location. Overall lower production costs were also mentioned as a relative advantage. Energy costs are not considered to pose either an advantage or disadvantage in doing business in Utah.

Over half of Utah's high tech companies indicated that their ability to recruit and retain world class technical and managerial talent has been enhanced because of their Utah location.

Disadvantages

Conducting business in Utah is not without its challenges. Obtaining capital is perhaps the most difficult hurdle facing high tech companies in the state. Other problem areas are transportation costs, and local tax structure. Again, these are perceptions of high tech business owners.

Availability of Capital

Utah is perceived as having a scarcity of seed and venture capital. It is an issue that has been raised by local entrepreneurs many times over. The fact is that most of Utah's high tech companies must seek capital outside the state for start-up and early stage companies. Almost half of these companies felt the lack of venture partnerships was a liability.

³ Companies were asked to identify the relative advantage or disadvantage of a Utah location compared to their direct competitors in other states. Firms were asked to make their ratings along 40 dimensions including labor, educational programs, finance, climate, and other business factors. Approximately 400 firms participated.

Exhibit 5
Advantages and Disadvantages of Doing Business in Utah
Responses to High Tech Survey - 1990

	Disadvantage	Neutral	Advantage
LABOR			
Availability	10%	34%	56%
Productivity	2%	22%	76%
Turnover	6%	30%	64%
Cost	2%	17%	81%
CAPITAL AVAILABILITY			
Seed, Venture, Equity	34%	46%	20%
Debt	51%	42%	7%
Venture partnerships	49%	45%	6%
State/local financial incentives	46%	28%	26%
QUALITY OF EDUCATION			
Elementary/secondary	3%	14%	83%
Higher education	12%	40%	48%
Science/engineering programs	4%	29%	67%
Skill-specific training	22%	38%	40%
QUALITY OF LIFE			
Overall quality of life	8%	39%	53%
Housing-availability and cost	4%	21%	75%
Proximity to recreational activities	2%	14%	84%
BUSINESS FACTORS			
Transportation costs	34%	46%	20%
Availability of space for expansion	6%	28%	66%
Price of industrial land	4%	28%	68%
Tax structure	45%	28%	27%
Energy costs	6%	61%	33%

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, unpublished data (1990).

Over half of the respondents also indicated that the lack of available debt capital inhibits their ability to compete.

Business Factors

Although Utah is a transportation corridor to the West, moving goods and people can be costly. Transportation costs (freight and air) are considered to be somewhat of a disadvantage, especially for companies which must ship perishable products.

The local tax structure is another factor that is perceived as a disadvantage of doing business in Utah. However, 28 percent of the respondents felt that the local tax structure was neither an advantage nor a disadvantage, and 27 percent indicated that the state's tax structure was actually one of the advantages of working in Utah.

The Importance of High Tech in the Utah Economy

The role of high tech in Utah's economic growth is extremely important. In relation to total economic activity, Utah's high tech industry is not large. However, there are aspects of high tech which may well be considered powerful engines of growth.

High tech companies are typically export-based; that is, they generate external funds, thus facilitating economic growth and expansion, as compared to business and retail services which offer limited potential for overall economic growth.

The manufacturing portion of Utah's high tech sector represents approximately 30 percent of the state's manufacturing base, and almost half of durable goods manufacturing—jobs which generally pay higher than average wages. Furthermore, jobs in the high tech sector on average require higher levels of technical expertise than do low tech manufacturers. As such, high tech has been synonymous with high paying jobs. If high tech does not thrive, economic expansion possibilities may come from lower wage businesses with the overall effect of slowing economic expansion.

Finally, most of Utah's high tech companies are "homegrown"; established here rather than moving from another location. This helps Utah's economic

base, and increases the economic base of the U.S. since it eliminates or reduces the "zero sum" game of companies relocating to one area at the economic expense of another, i.e., stealing jobs from sister states.

Summary

As a small state in terms of its population base, Utah has been relatively successful in creating and attracting world class high tech companies. Furthermore, the state's high tech industry is expanding despite recessionary pressures in the national economy and job loss in aerospace—the state's largest single high tech employer. Most of this job loss is being offset by remarkable growth in the software sector.

The decade of the 1980s saw impressive growth in software with employment increasing 64 percent from 1986 through 1990. In real terms, this meant the addition of 3,411 new jobs—growth unparalleled in the state's high tech industry. The downside is that this industry has experienced rapid maturation. It will be difficult to maintain growth rates of the past throughout the coming decade.

Utah's high tech industry is characterized by employment concentrations in a few companies. The vast majority of the state's high tech companies are very small, employing fewer than 100 people. Most will never grow large enough to become competitors in any significant way in the world market.

High tech businesses in Utah have shown remarkable resilience over the past five years. And, growth and change in science and technology will continue exert a positive impact on the state's high tech sector. Utah's universities will also continue to play a critical role in the formation of new technology-related business. However, robust growth in the future will depend upon a modest economic recovery nationally, a stabilization of Utah's aerospace sector, and the success of smaller high tech companies in bridging the gap between product development and commercialization.

Utah Business Statistics

UTAH DATA	Dec. 1990	Dec. 1991	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
Total Personal Income (seasonally adjusted) (mil. of dol.) (qly.)	24,882	26,226	5.4%	25,719	24,185	6.3%
New Corporations (no.)	468	519	10.9%	517	499	3.6%
New Car, Truck, and Motor Home Sales (no.)	3,915	4,244	8.4%	4,627	5,102	-9.3%
Agriculture -----						
Average Prices Recorded by Farmers (dol.)						
Beef Steers and Heifers (cwt) (thous.)	79.20	70.50	-11.0%	72.91	76.64	-4.9%
Lambs (cwt)	44.20	43.80	-0.9%	43.13	48.65	-11.3%
Milk Wholesale (cwt)	10.90	NA	NA	NA	12.92	NA
Alfalfa Hay, Baled (per ton)	84.00	58.00	-31.0%	66.42	84.92	-21.8%
Commercial Red Meat Production (thous. of lbs.) 1	31,729	33,468	5.5%	33,493	32,812	2.1%
Construction -----						
Total Construction (thous. of dol.) 2	53,401.7	77,376.7	44.9%	94,366.3	82,746.7	14.0%
Residential	22,451.4	53,427.7	138.0%	56,737.2	44,047.3	28.8%
Nonresidential	24,453.1	13,000.3	-46.8%	23,025.9	25,947.1	-11.3%
Additions, Alterations, and Conversions	6,497.2	10,948.6	68.5%	14,603.2	12,752.3	14.5%
Total Permit Construction (thous. of dol.) 3	65,965.3	92,313.4	39.9%	109,694.0	103,814.3	5.7%
Residential	23,516.7	58,529.5	148.9%	64,971.3	48,282.9	34.6%
Nonresidential	24,178.8	19,693.3	-18.6%	29,150.5	35,245.5	-17.3%
Additions, Alterations, and Repairs	18,269.8	14,090.6	-22.9%	15,572.2	20,285.9	-23.2%
New Dwelling Units (no.)	281	602	114.2%	740	584	26.6%
Employment -----						
Civilian Labor Force (thous.)	806.5	811.9	0.7%	804.9	792.9	1.5%
Total Employed Persons	775.8	775.0	-0.1%	767.2	758.9	1.1%
Unemployed Persons	30.7	36.9	20.2%	37.7	34.1	10.5%
Percent Total Labor Force	3.8	4.5	18.4%	4.7	4.3	8.9%
Employees on Nonagricultural Payrolls (thous. of jobs)	747.0	762.4	2.1%	748.0	723.6	3.4%
Manufacturing	109.4	105.2	-3.8%	107.7	107.1	0.6%
Mining	8.8	8.5	-3.4%	8.6	8.6	0.1%
Contract Construction	28.9	32.2	11.4%	30.4	27.9	9.3%
Transportation, Communication, and Utilities	43.4	43.4	0.0%	42.9	42.3	1.5%
Wholesale Trade	39.6	41.8	5.6%	39.5	38.5	2.8%
Retail Trade	142.6	144.5	1.3%	138.0	133.9	3.0%
Finance, Insurance, and Real Estate	34.6	37.2	7.5%	35.6	34.1	4.2%
Services 4	187.9	193.8	3.1%	191.4	180.8	5.9%
Federal Government	38.6	37.3	-3.4%	38.9	40.1	-3.1%
State Government 5	42.2	44.2	4.7%	43.6	41.8	4.2%
Local Government 5	71.0	74.3	4.6%	71.3	68.6	3.9%
Average Weekly Hours						
Manufacturing	40.1	41.3	3.0%	40.0	39.8	0.4%
Mining	44.6	44.8	0.4%	44.0	43.5	1.2%
Wholesale Trade	38.5	36.3	-5.7%	37.2	37.5	-0.8%
Retail Trade	27.8	27.7	-0.4%	26.5	26.7	-0.9%
Amount of Unemployment Compensation (thous. of dol.)	4,996.7	7,058.4	41.3%	6,141.3	4,892.2	25.5%
Finance -----						
Savings, Savings and Loan Association (mil. of dol.)	1,155.5	NA	NA	NA	1,623.7	NA
Tax Collections by the State of Utah (thous. of dol.)						
Total Tax Collections	NA	NA	NA	NA	NA	NA
Sales and Use Tax	NA	NA	NA	NA	NA	NA
Motor Fuel Tax	NA	NA	NA	NA	NA	NA
Individual Income Tax	NA	NA	NA	NA	NA	NA
Corporation Franchise Tax	NA	NA	NA	NA	NA	NA
Production -----						
Crude Oil to Refineries (thous. of bbls.)	3,669.5	3,681.8	0.3%	3,634.2	3,605.6	0.8%
Crude Oil (thous. of bbls.)	2,235.7	1,794.0	-19.8%	1,977.0	2,291.7	-13.7%
Natural Gas (mil. of cu. ft.)	28,676.2	25,639.8	-10.6%	26,971.6	26,636.2	1.3%
Coal (thous. short tons)	1,630.0	1,617.0	-0.8%	1,851.9	1,840.9	0.6%
Tourism/Travel -----						
Air Passengers (total no. on and off)(S.L. Int'l Airport)	1,010,879	1,092,931	8.1%	1,040,709	998,529	4.2%
Highway Traffic Count Across State Lines	44,930	46,478	3.4%	45,929	44,035	4.3%
Transient Room Tax (thous. of dol.)	NA	NA	NA	NA	NA	NA
Visits, State, Nat'l. Parks, Monuments (thous.)	276.7	309.7	11.9%	1,191.5	1,112.4	7.1%
Utilities -----						
Telephone Lines in Service (Mt. Bell)(Residential)	527,551	547,565	3.8%	536,833	517,155	3.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	200,469	209,601	4.6%	205,406	195,073	5.3%
Electric Customers (Residential)	496,225	504,174	1.6%	499,639	NA	NA
Electric Customers (Commercial)	48,585	50,264	3.5%	49,642	NA	NA
Natural Gas Customers (Residential & Commercial)	493,313	506,247	2.6%	498,646	486,655	2.5%
Natural Gas Customers (Industrial)	579	716	23.7%	621	573	8.3%

Utah Business Statistics

UTAH DATA	Dec. 1990	Dec. 1991	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
Davis County -----						
Non-Ag. Employment (thous.)	59.9 ^r	60.2	0.5%	60.7	59.7	1.7%
Unemployment Rate	4.3 ^r	4.8	11.6%	4.4	4.0	10.1%
Auth. Permit Construction (thous. of dol.)	5,262.1	7,387.4	40.4%	13,271.0	10,788.5	23.0%
New Dwelling Units (no.)	41	64	56.1%	88	79	11.4%
Postal Receipts (thous. of dol.)	933.4	NA	NA	NA	661.5	NA
Electric Customers (Residential)	50,398	51,491	2.2%	50,849	50,021	1.7%
Electric Customers (Commercial)	3,739	3,950	5.6%	3,855	3,696	4.3%
Natural Gas Customers (Residential)	53,625	54,844	2.3%	54,204	52,995	2.3%
Natural Gas Customers (Industrial)	56	88	57.1%	70	56	24.6%
Telephone Lines in Service (Mt. Bell)(Residential)	61,309	63,720	3.9%	62,586	60,378	3.7%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	13,055	13,971	7.0%	13,517	12,843	5.3%
Salt Lake County -----						
Non-Ag. Employment (thous.)	381.7 ^r	389.2	2.0%	380.7	368.7	3.3%
Unemployment Rate	3.8 ^r	4.9	28.9%	4.4	3.8	15.5%
Auth. Permit Construction (thous. of dol.)	28,827.2	38,226.6	32.6%	43,567.0	46,791.4	-6.9%
New Dwelling Units (no.)	91	246	170.3%	267	202	32.0%
Postal Receipts (thous. of dol.)	8,589.5	NA	NA	NA	7,988.2	NA
Electric Customers (Residential)	249,030	252,722	1.5%	250,255	246,723	1.4%
Electric Customers (Commercial)	21,259	21,857	2.8%	21,604	21,191	2.0%
Natural Gas Customers (Residential)	230,947	235,161	1.8%	232,685	228,746	1.7%
Natural Gas Customers (Industrial)	248	296	19.4%	255	246	3.9%
Telephone Lines in Service (Mt. Bell)(Residential)	248,277	257,222	3.6%	252,595	243,607	3.7%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	120,942	124,633	3.1%	123,444	118,200	4.4%
Utah County -----						
Non-Ag. Employment (thous.)	100.0 ^r	103.7	3.7%	99.9	93.8	6.5%
Unemployment Rate	3.6 ^r	4.1	13.9%	4.3	3.6	17.4%
Auth. Permit Construction (thous. of dol.)	16,890.4	17,986.0	6.5%	20,215.3	17,518.1	15.4%
New Dwelling Units (no.)	52	124	138.5%	137	108	26.2%
Postal Receipts (thous. of dol.)	1,688.2	NA	NA	NA	1,686.6	NA
Electric Customers (Residential)	54,554	55,302	1.4%	55,210	53,956	2.3%
Electric Customers (Commercial)	6,200	6,300	1.6%	6,359	7,156	-11.1%
Natural Gas Customers (Residential)	65,588	67,444	2.8%	66,228	64,590	2.5%
Natural Gas Customers (Industrial)	74	85	14.9%	80	74	8.0%
Telephone Lines in Service (Mt. Bell)(Residential)	68,604	70,848	3.3%	69,505	67,100	3.6%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	21,665	23,155	6.9%	22,524	20,947	7.5%
Weber County -----						
Non-Ag. Employment (thous.)	66.6 ^r	68.0	2.1%	67.6	66.1	2.3%
Unemployment Rate	5.9 ^r	6.0	1.7%	5.6	5.3	5.6%
Auth. Permit Construction (thous. of dol.)	2,126.6	7,453.1	250.5%	7,079.5	6,447.5	9.8%
New Dwelling Units (no.)	17	39	129.4%	48	40	18.5%
Postal Receipts (thous. of dol.)	897.1	NA	NA	NA	728.5	NA
Electric Customers (Residential)	55,209	56,105	1.6%	55,649	54,879	1.4%
Electric Customers (Commercial)	5,065	5,267	4.0%	5,234	5,100	2.6%
Natural Gas Customers (Residential)	51,873	52,636	1.5%	52,109	51,389	1.4%
Natural Gas Customers (Industrial)	81	93	14.8%	83	82	0.8%
Telephone Lines in Service (Mt. Bell)(Residential)	47,601	49,117	3.2%	48,468	47,050	3.0%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	13,396	13,785	2.9%	13,695	13,217	3.6%

1 Consumable meat produced from the slaughter of cattle, calves, hogs, and sheep.

2 Obtained from U.S. Bureau of the Census Construction Statistics Division.

3 Obtained from *Utah Construction Report*.

4 Includes services by nonprofit and religious organizations.

5 Includes public schools and college institutions.

Sources:

Personal Income	U.S. Department of Commerce, Bureau of Economic Analysis.
New Corporations	Utah Secretary of State.
New Car and Truck Sales	Utah State Tax Commission, Economic and Statistical Unit.
Agriculture	U.S. Department of Agriculture, Utah Agricultural Statistics Service, <i>Utah Agriculture</i> .
Construction Data	U.S. Bureau of the Census and Bureau of Economic and Business Research, <i>Utah Construction Report</i> .
Employment Data	Utah Department of Employment Security.
Savings Information	Utah Savings and Loan Institutions.
Tax Collections	Utah State Tax Commission.
Crude Oil Production	Utah Department of Oil, Gas, and Mining and Area Oil Refineries.
Natural Gas Production	Utah Department of Oil, Gas, and Mining.
Coal Production	U.S. Department of Energy.
Air Passengers	Salt Lake City International Airport, Statistics Division.
Highway Traffic Count	Utah Department of Transportation.
Visits to State and National Parks and Monuments	U.S. Forest Service, Utah State Parks and Recreation Department.
Utilities Data	Cooperating Utah Utility Companies.
Postal Receipts	Postmasters in Davis, Salt Lake, Utah, and Weber Counties.

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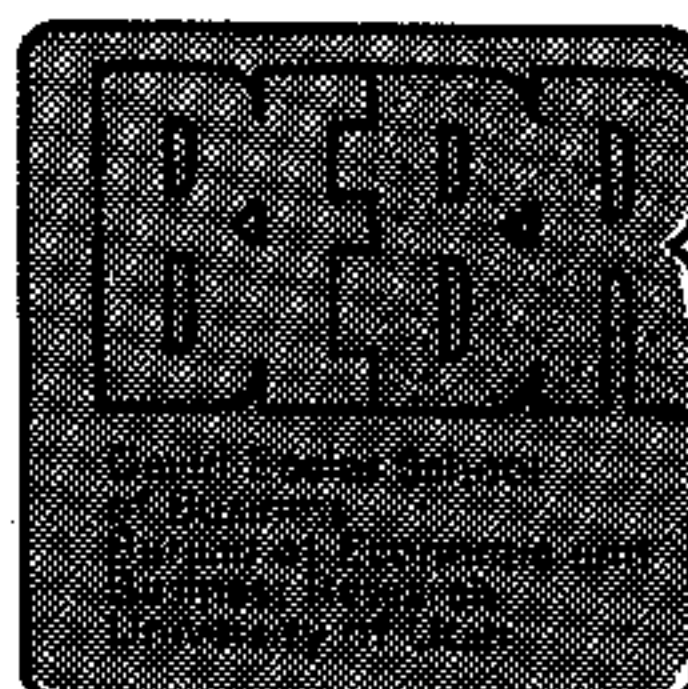
NATIONAL DATA	Dec. 1990	Dec. 1991	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
U.S. Gross Domestic Product (seasonally adjusted) (bil.) (qtl.)	5,557.5	5,739.7	3.3%	5,672.6	5,513.8	2.9%
Total Personal Income (seasonally adjusted) (bil. of dol.)	4,789.6	4,925.6	2.8%	4,834.4	4,657.1	3.8%
Industrial Production Indexes (seasonally adjusted) (1987=100)	107.2	107.4	0.2%	107.1	109.2	-1.9%
New Plant and Equipment Expenditures by Business (bil.) (qtl.)	530.1	528.9	-0.2%	529.2	532.8	-0.7%
Net Exports of Goods and Services (bil.) (qtl.)	-76.6	-31.4	-59.0%	-30.7	-74.4	-58.8%
Exports of Goods and Services (bil.) (qtl.)	572.6	612.5	7.0%	591.3	550.5	7.4%
Imports of Goods and Services (bil.) (qtl.)	649.2	643.8	-0.8%	622.0	624.8	-0.5%
Index of Leading Indicators (1982=100)	139.6	145.3	4.1%	143.6	144.0	-0.3%
Price Indexes						
Consumer Price Indexes (not seasonally adjusted) (1982-84=100)						
CPI-U (All Urban Consumers) All Items	133.8	137.9	3.1%	136.2	130.7	4.2%
CPI-U (All Urban Consumers) Food & Beverages	133.9	137.3	2.5%	136.8	132.1	3.6%
CPI-U (All Urban Consumers) Housing	130.5	135.0	3.4%	133.6	128.5	3.9%
CPI-U (All Urban Consumers) Transportation	127.2	125.3	-1.5%	123.8	120.5	2.8%
CPI-U (All Urban Consumers) Medical Care	169.2	182.6	7.9%	177.0	162.8	8.7%
CPI-U (All Urban Consumers) Energy	110.1	101.9	-7.4%	102.5	102.1	0.4%
Producer Price Index (not seasonally adjusted) (1982=100)						
Producer Price Index, All Finished Goods	121.9	121.9	0.0%	121.6	119.1	2.1%
GDP Implicit Price Deflator (1987=100) (seasonally adjusted) (qtl.)	114.5	117.9	3.0%	117.0	112.9	3.7%
Civilian Employment (seasonally adjusted)						
Total Civilian Labor Force (mil.)	125.1	125.6	0.4%	125.3	124.8	0.4%
Total Civilian Employment (mil.)	117.5	116.7	-0.7%	116.9	117.9	-0.9%
Unemployment Rate	6.1	7.1	16.4%	6.8	5.5	22.2%
Construction						
Total Construction (mil. of dol.)	14,182.0	16,277.0	14.8%	18,435.8	20,449.7	-9.8%
Residential	5,483.0	6,670.0	21.6%	8,029.4	8,792.4	-8.7%
Nonresidential	6,031.0	5,819.0	-3.5%	6,408.2	7,520.0	-14.8%
Non-Building	2,667.0	3,788.0	42.0%	3,998.2	4,137.1	-3.4%
New Dwelling Units (no.)	57,780	66,750	15.5%	80,531	94,728	-15.0%
Interest Rates						
Federal Funds Rate	7.31	4.43	-39.4%	5.69	8.10	-29.8%
Short Term (3-month Treasury bill rate)	6.81	4.12	-39.5%	5.41	7.51	-28.0%
Long Term (30-year Treasury bond yields)	8.31	7.58	-8.8%	8.16	8.73	-6.6%
Prime Rates Charged by Banks on Short-term Business Loans (avg.)	10.00	7.21	-27.9%	8.46	10.01	-15.4%
Mortgage Rates (new homes)	9.45	8.28	-12.4%	9.02	9.68	-6.9%

Sources: *Survey of Current Business*, U.S. Department of Commerce: U.S. Gross National Product, Total Personal Income, Industrial Production Indexes, New Plant and Equipment Expenditures by Business, Export/Import Data, Index of Leading Indicators, GNP Price Deflator, National Employment Data, Interest Rates.

F.W. Dodge Report, McGraw-Hill: National Construction Data.

Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics: Consumer Price Indexes, Producer Price Index.

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